Quality of Surface Waters of the United States 1955

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 1403

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

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1959

UNITED STATES DEPARTMENT OF THE INTERIOR

FRED A. SEATON, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. - Price $1.50 (paper cover)

PREFACE

This report was prepared by the Geological Survey in cooperation with the States of California and Utah, U. S. Bureau of Reclamation and with other agencies, by personnel of the Water Resources Division under the direction of:

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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 States 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.

The regular yearly publication of records of chemical analyses, suspended sediment, and water temperature was begun by the Geological Survey in 1941. The annual records prior to 1948 were published 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 samples for which data are given were collected from October 1, 1955, to September 30, 1955. Descriptive statements are given for each sampling station for which regular series of chemical analyses, temperature observations, or sediment determinations have been made. These statements include the location of the stream-sampling station, drainage area, length of time for which records are available, extremes of dissolved solids, hardness, sediment loads, water temperature, and

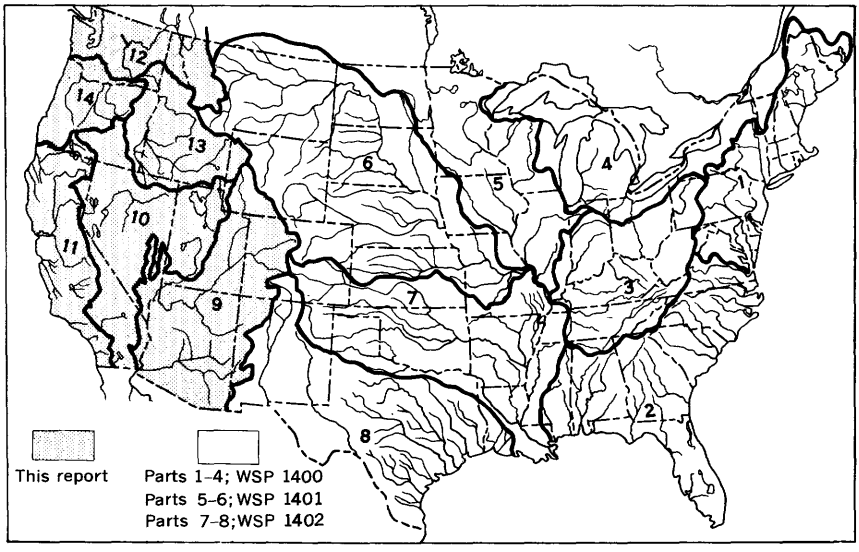

Figure 1. Map of the United States showing basins covered by the four water-supply papers on quality of surface waters in 1955. The shaded portion represents the section of the country covered by this volume; the unshaded portion represents the section of the country covered by other water-supply papers.

other pertinent data. Records of water discharge of the streams at, or near, the sampling point for the sampling period are included in most tables of analyses. The records are arranged by drainage basins, according to Geological Survey practice in reporting records of stream flow.

Beginning with the series of reports for the water year ending September 30, 1951, the order of listing station records was changed. In this report, stations on tributary streams are listed between stations on the main stream in the order in which those tributaries enter the main stem. Stations on tributaries to tributaries are inserted in a similar manner.

During the year ended September 30, 1955, 164 regular sampling stations on 134 streams for the study of the chemical character of surface waters were maintained by the Geological Survey in the area covered by this volume. Samples were collected less frequently during the year at many other points. Water temperatures were measured daily at 121 of the regular sampling 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, determinations made on the

daily samples before compositing have not been reported. Specific conductance was usually determined on each daily sample, 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 21 stations during the year ended September 30, 1955. The sediment samples were collected one or more times daily at most stations, depending on the rate of flow and changes in stage of the stream. Sediment samples were collected less frequently during the year at many other points. In connection with measurements of sediment discharge, sizes of sediment particles were determined at 19 of the stations. As noted under "Remarks" in the table headings, suspended-sediment concentrations also were determined from the samples collected for chemical analyses in some parts of the country. The data do not provide a reliable basis for computing the loads of suspended sediment carried by the stream but may be of value for design and operation of filtration plants utilizing these stream waters. Records of these infrequent determinations are available for reference in the district offices listed.

Material which is transported essentially in continuous contact with the stream bed and the material that bounces along the bed in short skips or leaps is termed bed load and is not considered in this report. All other undissolved fragmental material in transport is termed suspended sediment and generally constitutes the major part of the total sediment load. At the present time no reliable method has been developed for determining bed load on a routine basis.

COLLECTION AND EXAMINATION OF SAMPLES

CHEMICAL QUALITY

Samples of chemical analyses were usually collected at or near points on streams where gaging stations are maintained for measurement of water discharge. Two methods of compositing samples for analysis are used in Geological Survey Laboratories: (1) Equal volume method-For streams, mostly those east of the Mississippi River, not subject to rapid and large fluctuations in chemical composition or concentration, three composite samples were usually prepared each month by mixing together equal volumes of daily samples collected from the 1st to the 10th, from the 11th to the 20th, and during the remainder of the month. Samples were sometimes composited for shorter periods on the basis of the concentration of dissolved solids as indicated by measurements of specific conductance of the daily samples.

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(2) Discharge method-Composites based on discharge consist of a volume taken from each sample in proportion to the product of the rate of water discharge when the sample was collected and the length of time the sample represents. With this method usually each daily sample was assumed to represent an equal time and the volumes composited were taken in proportion to the rates of discharge when the samples were collected.

The samples were analyzed according to methods regularly used by the Geological Survey. These methods are essentially the same as or are modifications of methods described in recognized authoritative publications for the mineral analysis of water samples (Collins, 1928; Am. Public Health Assoc., 1946).

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 the sum of the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The sum of the constituents may be given instead of or in addition to the residue. Specific conductance is is given for most analyses and was determined by means of a conductance bridge using a standard potassium chloride solution as reference.

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. Suspended-sediment samples, consisting of depth-integrated samples at three or more verticals in the cross section, were made periodically to determine the cross-sectional distribution of the suspended concentration with respect to that at the daily sampling vertical. In streams where transverse distribution of sediment concentration ranges widely, samples were taken regularly at two or more verticals to determine the average concentration across the section. During periods of high flow, samples were taken two or more times throughout the day at many sampling stations, and during periods of rapidly changing flow samples were taken hourly at some stations.

Sediment concentrations were determined by filtration or evaporation of the samples as required. At many stations the daily mean concentration for some days was obtained by plotting the instantaneous concentrations on the original or copies of the original

gage-height chart. The plotted concentrations adjusted, if necessary, for cross-sectional distribution with respect to that at the daily sampling vertical, were connected or averaged by continuous curves to obtain a concentration graph. This graph represented the estimated concentration at any time and, for most periods, daily mean concentrations were determined from the graph. When the concentration and water discharge were changing rapidly, the day was often subdivided for this computation. For some periods when the day-to-day variation in the concentration was negligible, the data were not plotted, and the average concentration of the samples was used as the mean concentration for the day. For certain stations, when the discharge and concentrations were relatively low and varied only slightly from day to day, the samples for a number of days were composited and the mean daily concentrations and mean daily loads are shown.

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 for most streams to provide a complete record.

In addition to the records of quantities of suspended sediment transported, records of the particle sizes of sediment are included also. 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. As much of the material carried in suspension is finer than 0.062 mm, the pipette method, (Kilmer and Alexander, 1949) or the bottom withdrawal tube method (U. S. Interagency, 1943, p. 82-90) were used in most of the analyses. Size fractions between 1.000 mm and 0.062 mm were usually analyzed by the visual accumulation tube method (U. S. Interagency 1957). Separations between sand and silt-clay sizes and some analyses of all sediment coarser than 0.062 mm were made by sieve analysis. Native or distilled water, as noted in the tables of analyses, was used as the settling medium. In some instances, chemical dispersing agents were added to the settling medium. In some instances, chemical dispersing agents were added to the settling medium. As settling diameters of the clay and colloidal fractions are often affected by the chemical character of the

settling medium, analyses made using native water may more nearly simulate particle sizes existing in the stream. Results of analyses using distilled water or using a settling medium containing dispersing agents approximate ultimate particle sizes of the finer fractions. The concentration of sediment suspension for analysis was reduced to less than 5,000 parts per million, where necessary, by means of a sample splitter, in order to stay within limits recommended for the bottom-withdrawal tube or pipette method. The concentration of suspended sediment used in the bottom-withdrawal tube or pipette cylinder was often different from the concentration in the original suspension. The concentration at which analyses were made is indicated in the appropriate tables.

TEMPERATURE

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

Records of thermograph observations consist of maximum and minimum temperatures for each day, and the monthly averages of the maximum daily and minimum daily temperatures.

EXPRESSION OF RESULTS

The dissolved mineral constituents are reported in parts per million. A part per million is a unit weight of a constituent in a million unit weights of water. Equivalents per million are not given in this report although the expression of analyses in equivalents per million is sometimes preferred. An equivalent per million is a unit chemical combining weight of a constituent in a million unit weights of water. Equivalents per million are calculated by dividing the concentration in parts per million by the chemical combining weights of the individual constituents. For convenience

in making this conversion the reciprocals of chemical combining weights of the most commonly reported constituents (ions) are given in the following table:

Constituent	Factor	Constituent	Factor
Iron (Fe^{++})	0.0358	Carbonate (CO_3^{--})	0.0333
Iron (Fe^{+++})	.0537	Bicarbonate (HCO_3^-)	.0164
Calcium (Ca^{++})	.0499	Sulfate (SO_4^{--})	.0208
Magnesium (Mg^{++})	.0822	Chloride (Cl^-)	.0282
Sodium (Na^+)	.0435	Fluoride (F^-)	.0526
Potassium (K^+)	.0256	Nitrate (NO_3^-)	.0161

Results given in parts per million can be converted to grains per United States gallon by dividing by 17.12. A calculated quantity of sodium and potassium is given in some analyses and is the quantity of sodium needed in addition to the calcium and magnesium to balance the acid constituents.

The hardness, as calcium carbonate ($CaCO_3$), is calculated from the equivalents of calcium and magnesium, or is determined by direct titration. The hardness caused by calcium and magnesium (and other ions if significant) equivalent to the carbonate and bicarbonate is called carbonate hardness; the hardness in excess of this quantity is called noncarbonate hardness.

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. Percent sodium is computed for those analyses where sodium and potassium are reported separately by dividing the equivalents per million of sodium by the sum of the equivalents per million of calcium, magnesium, sodium, and potassium and multiplying the quotient by 100. In analyses where sodium and potassium were calculated and reported as a combined value, the value reported for percent sodium will include the equivalent quantity of potassium. In most waters of moderate to high concentration, the proportion of potassium is much smaller than that of sodium.

Specific conductance values are expressed in reciprocal ohms per centimeter times 10^6 (micromhos per cm at 25°C). The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 21) and the temperature in degrees Fahrenheit. Color is expressed in units of the platinum-cobalt scale proposed by Hazen (1892, p. 427-428). 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 which 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. The discharge-weighted average reported for some station 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 finer than indicated sizes in millimeters. The size classification used in this report is that recommended by the American Geophysical Union Subcommittee on sediment terminology (Lane, et al; 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 rock materials. The quantity of dissolved mineral matter in a natural water depends primarily on the type of rocks or soils through which the water has passed and the length of time it has been in contact with the rocks or soils. Some streams are fed by both surface runoff and underground water from springs 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. Underground water is usually more highly concentrated than surface runoff as it remains in contact with the rocks and soils for much longer periods. The concentration of dissolved solids in a river water is frequently increased by drainage from mines or oil fields, by the addition of industrial or municipal wastes, or--in irrigated regions--by return drain waters.

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 as sodium), bicarbonate, sulfate, chloride, fluoride, nitrate, boron, pH, and dissolved solids. Aluminum, manganese, color, acidity, oxygen consumed, and other dissolved constituents and physical properties are reported for certain streams. The source and significance of the different constituents and properties of natural waters are discussed in the following paragraphs.

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.

Manganese (Mn)

Manganese is dissolved in appreciable quantities from rocks in some sections of the country. 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. Manganese is not regularly determined in areas where it is not present in the waters in appreciable amounts. 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.

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.

Calcium (Ca)

Calcium is dissolved from practically 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.

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.

Carbonate and bicarbonate (CO_3 and HCO_3)

Bicarbonate occurs in waters largely through the action of carbon dioxide, which enables the water to dissolve carbonates of calcium and magnesium. Carbonate as such is not usually present in appreciable quantities in natural waters. The bicarbonate in waters that come from relatively insoluble rocks may amount to less than 50 parts per million; many waters from limestone contain from 200 to 400 parts per million. Bicarbonate in moderate concentrations in water has no effect on its value for most uses. Bicarbonate or carbonate is an aid in coagulation for the removal of suspended matter from 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 inflow 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, excess fluoride in water is associated with the dental defect known as mottled enamel if the water is used for drinking by young children during calcification or formation of the teeth (Dean, 1936, p. 1269-1272). This defect becomes increasingly noticeable as the quantity of fluoride in water increases above 1.5 to 2.0 parts per million.

Nitrate (NO_3)

Nitrate in water is considered a final oxidation product of nitrogenous material and in some instances may indicate previous contamination by sewage or other organic matter. The quantities of nitrate present in surface waters usually amount to 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 methemoglobinemia ("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 parts per million or more (as NO_3) may be the cause of methemoglobinemia in infants (Waring, 1949). In a report published by the National Re-

search 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.

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. Waters 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.

PROPERTIES AND CHARACTERISTICS OF WATER

Oxygen consumed

The value for oxygen consumed furnishes an approximation of the oxidizable matter in the unfiltered and filtered samples and gives a partial measure of polluting materials such as sewage and oxidizable industrial wastes. Naturally highly colored waters may have relatively high oxygen consumed, although waters that are not noticeably colored may contain oxidizable material.

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 usually passes unnoticed. Some swamp waters have natural color of 200 to 300 units or more.

Hydrogen-ion concentration (pH)

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 value of 7.0 indicates that the water is neither acid nor alkaline. Waters having pH values progressively lower than 7.0 denote increasing acidity, whereas values progressively higher than 7.0 denote increasing alkalinity (see p. 7). 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 usually have pH values less than 4.5.

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. 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. (See p. 7.)

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is usually 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 usually requires some softening before being used for most purposes.

Total acidity

The total acidity of a natural water represents the content of free carbon dioxide, mineral acids, and salts--especially sulfates of iron and aluminum-- that hydrolyze to give hydrogen ions. Acid waters are very corrosive and generally contain excessive amounts of objectionable constituents, such as iron, aluminum, and manganese.

Corrosiveness

The corrosiveness of a water is that property which makes the water aggressive to metal surfaces and frequently results in the appearance of the "red water" caused by solution of iron. The disadvantages of iron in water have been discussed previously. Additionally, corrosion causes the deterioration of water pipes, steam boilers, and water-heating equipment. Many waters that do not appreciably corrode cold-water lines will aggressively attack hot-water lines. Oxygen, carbon dioxide, free acid, and acid-generating salts are the principal constituents in water that cause corrosion. In a general way, very soft waters of low mineral content tend to be more corrosive than hard waters containing appreciable quantities of carbonates and bicarbonates of calcium and magnesium.

Percent sodium

Percent sodium is reported in most of the analyses of waters collected from streams in the western part of the country where

irrigation is practiced extensively. The proportion of sodium to all the basic constituents in the water has a bearing on the suitability of a water for irrigation. (See p. 7.) Waters in which the percent sodium is more than 60 may be injurious when applied to certain types of soils, particularly when adequate drainage is not provided (Magistad and Christiansen, 1944, p. 8-9; Wilcox, 1948, p. 6).

Sodium-adsorption-ratio

The U. S. Salinity Laboratory Staff (1954) introduced the term sodium-adsorption-ratio (SAR), a ratio for irrigation waters and soil extracts used to express the relative activity of sodium ions in exchange reactions with the soil. This ratio is expressed by the equation:

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

where the concentrations of the ions are expressed in milliequivalents per liter (or equivalents per million for most irrigation waters). It has more significance than percent sodium for use as an index of the sodium or alkali hazard of the water because it relates more directly to the adsorption of sodium by the soil.

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR value and the specific conductance. At a conductance of 100 micromhos per centimeter the dividing points are at SAR values of 10, 18, and 26, but at 5,000 micromhos the corresponding dividing points are at 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.

SEDIMENT

Fluvial sediment is generally regarded as that sediment which is transported by, suspended in, or deposited by water. Suspended sediment is that sediment which remains in suspension in water owing to the upward components of turbulent currents or by colloidal suspension. Most fluvial sediment results from the normal process of erosion, which in turn is part of the geologic cycle of rock transformation. In some instances, this normal process

may have been accelerated by agricultural practices. Sediment also results from a number of industrial 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, vegetal cover, topography, and land use. An important property of fluvial sediment is the fall velocity of the particles in transport. Particle sizes, as determined by various methods, represent mechanical diameters, which are related to sedimentation diameters indirectly. Sediment particles in the sand-size (larger than 0.062 mm) range do not appear to be affected by flocculation or dispersion resulting from the mineral constituents in solution. 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.

PUBLICATIONS

Reports giving chemical analyses, suspended-sediment loads, and water temperatures of samples of surface water made by the Geological Survey have been published yearly since 1941. Records for many of the stations listed in this report for the water years ending September 30, 1941-1955 are listed below:

Numbers of water-supply papers containing records for Part 9-14, 1941-55

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

Geological Survey reports containing analyses of surface-water samples collected prior to 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

Financial assistance was furnished by the Bureau of Reclamation of the United States Department of the Interior in the operation of some stations in Arizona. Investigations of chemical quality in the Great Basin and Pacific slope basins in California were continued in cooperation with the State of California. Financial assistance also was furnished by the Corps of Engineers, United States Army, in operation of a sediment and chemical quality station on the East Fork Russian River near Ukiah, Calif. Investigations of chemical quality in the upper Virgin River basin, Utah, were continued in cooperation with the State of Utah. Investigations of sediment characteristics of the Green River near Palmer, Wash. were continued in cooperation with the city of Tacoma.

Assistance in collecting records was given by many municipal, State, and Federal agencies.

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.

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DIVISION OF WORK

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

District office	Drainage basin
Geology Building University of N. Mex. Post Office Box 4217 Albuquerque, N. Mex.	Colorado River basin (Arizona, New Mexico)
Post Office Box 2657 Building 504 Fort Douglas Salt Lake City, Utah	Colorado River basin (Colorado, Utah, Wyoming, and Nevada) The Great Basin (Utah, Nevada)
2520 Marconi Ave. Sacramento, Calif.	The Great Basin (California) Pacific slope basins in California
1001 N. E. Lloyd Blvd. Post Office Box 3418 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

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 the mean daily discharges for the normal composite period. For analyses in which the composite periods differ from the normal 10 or 11-day period, the discharges reported are the averages of the mean daily discharges for the days indicated. 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.

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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 (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1955.
Water temperatures: April 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 123 ppm July 16-31; minimum, 65 ppm May 1-10.
Hardness: Maximum, 80 ppm Aug. 1-10; minimum, 33 ppm May 11-20.
Specific conductance: Maximum daily, 202 micromhos Sept. 30; minimum daily, 79.9 micromhos May 21.
Water temperatures: Maximum, 72°F Aug. 20; minimum, freezing point on many days from October to April.
EXTREMES, 1947-55.--Dissolved solids (1947-50, 1952-55); Maximum, 123 ppm July 16-31, 1955; minimum, 38 ppm June 21-30, 1947.
Hardness (1947-50, 1952-55): Maximum, 80 ppm Aug. 1-10, 1955; minimum, 20 ppm June 21-30, 1947.
Specific conductance: Maximum daily, 202 micromhos July 31, 1952, Sept. 30, 1955; minimum daily, 47.6 micromhos June 27, 1947.
Water temperatures (1949-55): Maximum, 72°F July 27, 1953, July 15, 1954, Aug. 20, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	63.5	13	0.05	19	3.5	7.8	1.5	86	6.9	1.8	0.4	0.3	--	98	0.13	16.8	62	0	21	0.4	151	7.5
Oct. 11-20.....	69.4	14	.10	19	3.5	6.9	1.5	82	6.8	1.2	.4	.2	0.04	96	.13	18.0	62	0	19	.4	145	7.3
Oct. 21-31.....	73.0	14	.03	18	3.7	6.9	1.5	82	6.2	1.2	.4	.6	--	89	.12	17.5	60	0	19	.4	148	7.7
Nov. 1-10.....	79.3	13	.04	18	3.3	6.5	1.5	80	6.2	1.2	.3	.4	--	86	.12	18.4	58	0	19	.4	142	7.4
Nov. 11-20.....	72.3	14	.04	19	3.5	6.9	1.5	82	6.2	1.1	.3	.4	.09	90	.12	17.6	62	0	19	.4	147	7.5
Nov. 21-30.....	58.7	15	.04	19	4.2	7.2	1.5	86	6.9	1.1	.2	.4	--	94	.13	14.9	65	0	19	.4	153	7.5
Dec. 1-10.....	63.9	14	.05	18	3.4	6.5	1.5	79	6.1	1.2	.3	.6	--	89	.12	15.4	59	0	19	.4	142	7.4
Dec. 11-21.....	61.0	15	.07	17	3.4	6.5	1.6	78	6.3	1.0	.2	.3	.05	89	.12	14.7	56	0	19	.4	133	7.6
Dec. 22-31, Jan. 1-2, 1955.....	63.1	15	.07	22	4.7	7.3	1.6	84	12	2.1	.3	2.4	--	108	.15	18.4	74	5	17	.4	172	7.3
Jan. 3-10.....	64.0	14	.13	16	3.2	6.5	1.6	74	6.6	1.1	.2	.3	--	89	.12	15.4	53	0	20	.4	135	7.5
Jan. 11-20.....	62.5	14	.04	16	3.3	6.4	1.1	69	6.0	1.5	.1	.5	.02	84	.11	14.2	53	0	20	.4	129	7.1
Jan. 21-31.....	65.8	14	.05	15	3.2	6.2	1.1	68	5.7	1.0	.1	.5	--	81	.11	14.4	51	0	21	.4	126	7.3
Feb. 1-10.....	64.8	14	.09	15	3.1	5.4	.9	68	5.3	1.0	.1	.4	--	80	.11	14.0	50	0	19	.3	123	7.3
Feb. 11-19.....	66.7	14	.04	15	3.0	5.3	1.4	68	5.0	1.0	.2	.4	.00	77	.10	13.9	50	0	18	.3	124	7.4
Feb. 20-28.....	67.1	14	.03	15	2.9	6.9	1.1	70	5.7	2.2	.2	.4	--	79	.11	14.3	49	0	23	.4	131	7.5
Mar. 1-10	67.6	13	.04	15	2.9	7.4	1.4	70	5.8	2.1	.2	.3	--	80	.11	14.6	49	0	24	.5	132	7.4
Mar. 11-20	74.0	13	.04	16	3.0	6.8	1.4	70	6.2	2.5	.2	.3	.00	81	.11	16.2	52	0	21	.4	134	7.3
Mar. 21-31.....	73.1	13	.03	15	3.4	8.2	1.1	71	7.6	4.4	.3	.4	--	89	.12	17.6	51	0	25	.5	144	7.1

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955 ..	111	11	0.10	16	3.6	5.8	2.9	69	8.5	2.8	0.3	1.0	--	92	0.13	27.6	55	0	18	0.3	136	7.1
Apr. 11-20.....	326	9.9	.12	15	3.3	4.8	2.6	60	9.3	1.9	.3	1.4	0.03	90	.12	79.2	51	2	16	.3	126	7.0
Apr. 21-30.....	257	12	.11	14	2.8	5.3	1.6	57	7.7	3.1	.3	.5	--	86	.12	59.7	46	0	19	.3	120	7.1
May 1-10.....	366	9.7	.06	11	2.0	3.5	1.0	45	4.8	1.2	.3	.3	--	65	.09	64.2	36	0	17	.3	87.3	7.0
May 11-20.....	384	10	.06	10	2.0	3.5	1.0	43	4.6	1.0	.3	.3	.01	66	.09	68.4	33	0	18	.3	82.8	7.1
May 21-31.....	345	11	.06	14	2.8	4.6	1.2	58	6.2	1.4	.3	.2	--	81	.11	75.5	46	0	17	.3	112	7.2
June 1-10	299	13	.09	17	3.0	5.6	1.1	74	6.7	2.7	.3	.5	--	95	.13	76.7	55	0	18	.3	133	7.5
June 11-20	340	14	.16	18	3.1	5.2	1.1	80	5.4	1.5	.2	.4	.02	99	.13	90.9	59	0	16	.3	139	7.5
June 21-30	301	14	.16	19	3.2	5.2	1.1	86	4.4	2.4	.3	.4	--	104	.14	84.5	61	0	15	.3	146	7.6
July 1-15.....	189	18	.06	24	4.2	7.3	1.9	102	5.6	.8	.3	.8	.00	120	.16	61.2	77	0	17	.4	176	7.4
July 16-31.....	189	19	.08	24	4.5	7.1	1.9	105	4.5	.9	.3	.8	--	123	.17	62.8	78	0	16	.3	179	7.4
Aug. 1-10.....	170	19	.02	25	4.2	6.2	1.9	106	4.7	.8	.3	1.0	--	120	.16	55.1	80	0	14	.3	183	7.3
Aug. 11-20.....	142	17	.02	22	3.5	6.2	1.9	90	4.7	1.1	.3	1.0	.01	108	.15	41.4	69	0	16	.3	158	7.3
Aug. 21-31.....	118	15	.03	20	3.1	5.8	1.6	80	4.4	.8	.3	1.3	--	96	.13	30.6	63	0	16	.3	147	7.3
Sept. 1-10.....	67.5	14	.03	20	3.8	5.8	1.8	87	4.4	2.1	.2	.1	--	96	.13	17.5	66	0	16	.3	154	7.4
Sept. 11-20.....	52.3	15	.03	21	4.1	7.1	1.8	95	4.8	2.1	.2	.1	.02	106	.14	15.0	69	0	18	.4	164	7.5
Sept. 21-30.....	63.8	16	.02	21	4.2	6.5	1.8	88	4.4	3.8	.2	.1	--	105	.14	18.1	70	0	16	.3	163	7.7
Weighted average	142	13	0.08	17	3.2	5.6	1.5	74	5.9	1.6	0.3	0.6	--	92	0.13	35.3	56	0	18	0.3	135	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	32	32	32	32	32	32	45	50	65	69	67
2	55	32	32	32	32	32	32	45	50	67	67	63
3	55	32	32	32	32	32	32	45	50	64	68	68
4	55	32	32	32	32	32	32	45	50	64	70	66
5	55	32	32	32	32	32	36	45	49	68	68	68
6	50	32	32	32	32	32	38	45	55	66	65	65
7	50	32	32	32	32	32	38	45	60	65	69	63
8	55	32	32	32	32	32	38	45	60	66	68	64
9	50	32	32	32	32	32	38	46	53	68	71	57
10	50	32	32	32	32	32	40	45	56	65	69	64
11	40	32	32	32	--	32	35	45	60	61	68	63
12	40	32	32	32	--	33	38	48	58	67	69	61
13	35	32	32	32	--	34	35	42	64	70	59	64
14	35	32	32	32	--	33	40	48	64	--	67	62
15	35	32	32	32	32	32	40	42	58	--	70	60
16	35	32	32	32	32	32	40	50	60	--	64	62
17	35	32	32	32	32	32	40	50	58	--	66	57
18	35	32	32	32	32	32	40	50	60	--	71	61
19	35	32	32	32	32	34	40	50	63	--	68	59
20	35	32	32	32	32	34	40	50	64	--	72	54
21	35	32	32	32	32	32	33	50	63	--	69	56
22	35	32	32	32	32	32	38	55	67	66	70	57
23	35	32	32	32	32	32	45	55	63	64	65	58
24	32	32	32	32	32	--	45	57	62	66	--	56
25	32	32	32	32	32	--	45	55	63	64	70	61
26	32	32	32	32	32	32	45	50	65	64	70	52
27	32	32	32	--	32	32	45	50	64	65	65	56
28	32	32	32	--	32	32	45	57	66	69	68	53
29	32	32	32	--	--	32	45	50	63	70	66	53
30	32	32	32	--	--	32	45	50	64	--	68	54
31	32	--	32	--	--	32	--	50	--	65	69	--
Average	40	32	32	32	32	32	39	49	59	--	68	60

EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At hridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek and U. S. Highways 6 and 24, and about 475 feet upstream from gaging station.
DRAINAGE AREA.--844 square miles above sampling station (957 square miles above gaging station below Gypsum).
RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1955.
Water temperatures: April 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 829 ppm Sept. 21-30; minimum 158 ppm May 21-31, June 11-20.
Specific conductance: Maximum daily, 1,380 micromhos Jan. 30; minimum daily, 210 micromhos May 23.
Water temperatures: Maximum, 72°F Aug. 20; minimum, freezing point on many days during December to March.
EXTREMES, 1947-55.--Dissolved solids: Maximum, 1,370 ppm Aug. 11-12, 1952; minimum, 106 ppm June 11-20, 1953.
Hardness (1947-50): Maximum, 511 ppm Sept. 21-30, 1948; minimum, 78 ppm June 1-10, 1948.
Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 156 micromhos June 4, 1948.
Water temperatures (1949-55): Maximum, 76°F Aug. 24, 1949; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. 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 1954 to September 1955 given in WSP 1393. These records include the inflow of Gypsum Creek, which on the average amounts to about 5 to 7 percent of the annual runoff at the gaging station. No other appreciable inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	224	--		--	--	--	--	--	--	--		--	--	701	0.95	424	--	--	--	--	1,030	--
Oct. 11-20	273	9.9		114	17	56	--	165	227	80		1.2	0.07	599	.81	442	355	220	26	1.3	915	7.8
Oct. 21-31	247	--		--	--	--	--	--	--	--		--	--	663	.90	442	--	--	--	--	1,010	--
Nov. 1-10	238	--		--	--	--	--	--	--	--		--	--	702	.95	451	--	--	--	--	1,050	--
Nov. 11-20	209	9.4		128	20	80	--	179	268	112		1.7	.07	717	.98	405	402	255	30	1.7	1,090	7.9
Nov. 21-30	193	--		--	--	--	--	--	--	--		--	--	765	1.04	399	--	--	--	--	1,150	--
Dec. 1-10	187	--		--	--	--	--	--	--	--		--	--	791	1.08	399	--	--	--	--	1,170	--
Dec. 11-20	169	14		142	22	83	--	188	293	124		2.1	.08	804	1.09	367	446	292	29	1.7	1,190	8.0
Dec. 21-31	168	--		--	--	--	--	--	--	--		--	--	828	1.13	376	--	--	--	--	1,220	--
Jan. 1-10, 1955	159	--		--	--	--	--	--	--	--		--	--	790	1.07	339	--	--	--	--	1,180	--
Jan. 11-20	159	12		138	22	87	--	184	291	131		2.0	.06	796	1.08	342	436	285	30	1.8	1,210	8.0
Jan. 21-31	151	--		--	--	--	--	--	--	--		--	--	802	1.09	327	--	--	--	--	1,210	--
Feb 1-10	152	--		--	--	--	--	--	--	--		--	--	812	1.10	333	--	--	--	--	1,230	--
Feb. 11-19	145	12		141	24	90	--	182	305	138		1.8	.06	827	1.12	324	452	303	30	1.8	1,250	7.6
Feb. 20-28	133	--		--	--	--	--	--	--	--		--	--	779	1.06	280	--	--	--	--	1,180	--
Mar. 1-10	142	--		--	--	--	--	--	--	--		--	--	787	1.07	302	--	--	--	--	1,190	--
Mar. 11-20	163	11		130	23	74	--	168	289	112		1.6	.07	750	1.02	330	422	284	28	1.6	1,120	7.7
Mar. 21-31	154	--		--	--	--	--	--	--	--		--	--	771	1.05	321	--	--	--	--	1,140	--

Apr. 1-10, 1955....	185	--		--	--	--	--	--	--	--		--	--	693	.94	346	--	--	--	--	1,030	--
Apr. 11-15.....	260	10		85	15	48	--	135	175	62		2.1	.08	470	.64	330	275	164	28	1.3	729	7.9
Apr. 16-20.....	430	8.9		58	8.9	20	--	107	102	28		1.9	.08	290	.39	337	182	94	19	.6	457	7.6
Apr. 21-30.....	517	--		--	--	--	--	--	--	--		--	--	257	.35	359	--	--	--	--	402	--
May 1-10.....	929	--		--	--	--	--	--	--	--		--	--	182	.25	457	--	--	--	--	295	--
May 11-20.....	1,091	7.4		37	5.5	8.3	1.6	91	43	12		1.2	.03	165	.22	486	115	40	13	.3	270	7.5
May 21-31.....	1,128	--		--	--	--	--	--	--	--		--	--	158	.21	481	--	--	--	--	256	--
June 1-10.....	1,120	--		--	--	--	--	--	--	--		--	--	170	.23	514	--	--	--	--	284	--
June 11-20.....	1,418	6.5		35	6.0	10	1.6	75	46	16		1.0	.05	158	.21	605	111	50	16	.4	266	7.4
June 21-30.....	1,382	--		--	--	--	--	--	--	--		--	--	168	.23	627	--	--	--	--	287	--
July 1-10.....	773	--		--	--	--	--	--	--	--		--	--	250	.34	522	--	--	--	--	417	--
July 11-20.....	472	8.7		71	10	33	--	124	120	50		.9	.02	367	.50	468	220	118	25	1.0	592	7.6
July 21-31.....	403	--		--	--	--	--	--	--	--		--	--	420	.57	457	--	--	--	--	661	--
Aug. 1-10.....	406	--		--	--	--	--	--	--	--		--	--	448	.61	492	--	--	--	--	690	--
Aug. 11-20.....	337	11		99	13	44	--	155	173	62		1.1	.03	503	.68	458	302	175	24	1.1	768	7.7
Aug. 21-31.....	257	--		--	--	--	--	--	--	--		--	--	574	.78	398	--	--	--	--	862	--
Sept. 1-10.....	189	--		--	--	--	--	--	--	--		--	--	691	.94	353	--	--	--	--	1,020	--
Sept. 11-20.....	152	13		154	24	71	--	189	326	108		1.5	--	813	1.11	334	482	327	24	1.4	1,180	7.7
Sept. 21-30.....	143	--		--	--	--	--	--	--	--		--	--	829	1.13	320	--	--	--	--	1,210	--
Weighted average .	404	--		--	--	--	--	--	--	--		--	--	373	0.51	407	--	--	--	--	577	--

EAGLE RIVER BASIN--Continued

EAGLE RIVER AT GYPSUM, COLO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	45	35	34	32	32	43	46	57	58	69	68
2	57	46	34	33	32	32	45	49	53	59	65	55
3	50	47	32	34	32	32	46	43	52	60	68	56
4	56	45	34	34	32	32	39	50	52	56	65	67
5	62	46	34	34	32	33	42	49	53	60	64	63
6	62	45	33	32	32	34	46	54	56	61	68	67
7	61	45	33	32	32	35	45	55	50	62	65	57
8	60	45	32	32	32	36	47	47	57	60	64	68
9	60	45	32	32	32	35	47	49	52	57	70	68
10	59	43	32	32	32	35	49	45	60	65	65	66
11	57	40	32	33	32	35	42	48	60	61	62	68
12	57	49	33	33	32	37	44	54	59	63	62	65
13	54	45	32	33	32	39	46	55	57	65	67	67
14	55	45	33	32	33	36	--	55	52	68	65	61
15	56	47	32	32	34	34	48	57	60	70	66	69
16	55	38	32	33	33	34	50	46	58	68	61	59
17	55	42	32	34	32	36	47	51	53	70	63	--
18	54	43	32	--	32	37	49	52	55	70	68	--
19	52	42	32	32	32	39	42	49	58	--	66	56
20	47	44	32	34	32	40	47	50	51	70	72	60
21	52	43	32	32	32	33	52	53	57	68	70	60
22	52	42	32	32	32	40	50	49	57	70	67	68
23	51	43	32	33	32	40	47	52	59	70	64	55
24	50	40	33	34	32	41	52	50	59	70	65	58
25	51	40	33	34	32	35	55	51	56	65	68	61
26	50	41	34	33	32	32	52	49	56	62	65	55
27	51	39	36	32	32	39	44	49	59	62	68	56
28	49	36	32	32	33	40	44	50	59	62	65	60
29	50	36	33	34	--	41	47	56	58	65	65	61
30	48	34	33	32	--	43	50	59	61	65	64	60
31	49	--	--	32	--	42	--	53	--	66	62	--
Average	54	43	33	33	32	36	47	51	56	64	66	62

COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION.--At Shoshone power plant, 6 miles upstream from gaging station at Glenwood Springs, Garfield County, which is half a mile upstream from Roaring Fork.
DRAINAGE AREA.--4,560 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1941 to September 1955.
Water temperatures: May 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 815 ppm Aug. 6; minimum, 200 ppm May 21-31.
Hardness: Maximum, 508 ppm Aug. 6; minimum 117 ppm May 11-20, 21-31.
Specific conductance: Maximum daily, 1,220 micromhos Dec. 18; minimum daily, 290 micromhos May 16.
Water temperatures: Maximum, 71°F Aug. 19; minimum, freezing point on many days during December to February.
EXTREMES, 1941-55.--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 (1949-55): Maximum, 71°F July 31, 1954, Aug. 19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Discharge records for gaging station at Glenwood Springs for water year October 1954 to September 1955 given in WSP 1393. No appreciable inflow between Shoshone power plant and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	839	--	--	83	16	73	--	--	--	--	--	--	--	520	0.71	1,180	272	--	37	1.9	863	--
Oct. 11-20	968	13	0.03	72	16	72	3.1	154	129	98	0.3	0.5	0.05	484	.66	1,260	246	120	39	2.0	805	7.5
Oct. 21-31	998	--	--	70	13	66	--	--	--	--	--	--	--	444	.60	1,200	226	--	39	1.9	753	--
Nov. 1-10	951	--	--	72	12	57	--	--	--	--	--	--	--	473	.64	1,210	230	--	35	1.6	776	--
Nov. 11-20	765	--	--	81	13	66	--	--	--	--	--	--	--	539	.73	1,110	256	--	36	1.8	883	--
Nov. 21-29	749	--	--	79	13	66	--	--	--	--	--	--	--	540	.73	1,090	250	--	36	1.8	874	--
Nov. 30, Dec. 1-10	677	--	--	88	14	130	--	--	--	--	--	--	--	644	.88	1,180	280	--	50	3.4	1,060	--
Dec. 11-20	646	--	--	90	15	148	--	--	--	--	--	--	--	686	.93	1,200	288	--	53	3.8	1,130	--
Dec. 21-31	600	--	--	86	15	109	--	--	--	--	--	--	--	647	.88	1,050	276	--	46	2.9	1,070	--
Jan. 1-10, 1955	615	--	--	81	14	106	--	--	--	--	--	--	--	613	.83	1,020	262	--	47	2.9	1,020	--
Jan. 11-20	613	16	.05	72	16	98	2.9	153	124	146	.2	.9	.04	560	.76	927	246	120	46	2.7	952	7.5
Jan. 21-31	614	--	--	74	13	101	--	--	--	--	--	--	--	567	.77	940	238	--	48	2.8	950	--
Feb. 1-10	638	--	--	76	13	107	--	--	--	--	--	--	--	593	.81	1,020	242	--	49	3.0	1,000	--
Feb. 11-20	620	--	--	76	13	107	--	--	--	--	--	--	--	605	.82	1,010	244	--	49	3.0	1,020	--
Feb. 21-28	586	--	--	76	14	109	--	--	--	--	--	--	--	612	.83	968	248	--	49	3.0	1,020	--
Mar. 1-10	634	--	--	75	12	107	--	147	--	--	--	--	--	596	.81	1,020	238	117	50	3.0	1,000	8.0
Mar. 11-20	728	--	--	75	12	94	--	143	--	--	--	--	--	548	.75	1,080	238	121	46	2.7	909	7.6
Mar. 21-31	755	--	--	77	12	96	--	143	--	--	--	--	--	556	.76	1,130	239	122	46	2.7	922	7.8

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955...	1,027	--	--	71	11	66	--	129	--	--	--	--	--	466	0.63	1,290	222	116	39	1.9	754	7.7
Apr. 11-20	1,624	12	0.16	50	12	45	3.2	120	92	60	0.2	1.7	0.05	347	.47	1,520	174	76	35	1.5	564	7.6
Apr. 21-30	1,878	--	--	49	6.9	35	--	97	--	--	--	--	--	294	.40	1,490	151	71	33	1.2	482	7.7
May 1-10	2,708	--	--	40	5.8	25	--	101	--	--	--	--	--	226	.31	1,650	125	42	31	1.0	371	7.6
May 11-20.....	3,293	--	--	37	5.8	23	--	98	--	--	--	--	--	208	.28	1,850	117	37	30	.9	344	7.5
May 21-31	3,981	--	--	37	6.1	20	--	96	--	--	--	--	--	200	.27	2,150	117	38	27	.8	330	7.5
June 1-10.....	3,756	--	--	41	7.6	23	--	103	--	--	--	--	--	225	.31	2,280	133	49	27	.9	378	7.7
June 11-20.....	4,033	--	--	42	6.8	22	--	102	--	--	--	--	--	221	.30	2,410	133	49	27	.8	370	7.7
June 21-30.....	3,137	--	--	44	8.0	29	--	103	--	--	--	--	--	250	.34	2,120	144	60	31	1.1	421	7.5
July 1-10	1,797	--	--	54	17	47	--	120	--	--	--	--	--	350	.48	1,700	204	106	33	1.4	574	7.7
July 11-20	1,373	10	.05	62	15	57	2.1	136	109	87	.2	.8	.03	430	.58	1,590	216	104	36	1.7	698	7.8
July 21-31	1,684	--	--	77	9.9	54	--	136	--	--	--	--	--	452	.61	2,060	232	120	34	1.5	715	7.7
Aug. 1-5, 7-10....	1,469	--	--	75	19	53	--	138	--	--	--	--	--	485	.66	1,920	266	153	30	1.4	774	7.9
Aug. 6	2,000	--	--	117	52	35	--	130	--	--	--	--	--	815	1.11	4,400	508	401	13	.7	1,070	7.6
Aug. 11-20.....	1,377	--	--	79	10	54	--	146	--	--	--	--	--	470	.64	1,750	240	120	33	1.5	764	7.4
Aug. 21-31	1,298	--	--	75	10	54	--	134	--	--	--	--	--	458	.62	1,610	228	118	34	1.5	743	7.7
Sept. 1-10	1,076	--	--	69	11	61	--	134	--	--	--	--	--	457	.62	1,330	216	106	38	1.8	762	7.9
Sept. 11-20	1,113	--	--	63	7.0	59	--	124	--	--	--	--	--	420	.57	1,260	186	84	41	1.9	711	7.8
Sept. 21-30	1,211	--	--	61	9.3	51	--	122	--	--	--	--	--	392	.53	1,280	190	90	37	1.6	659	7.5
Weighted average	1,418	--	--	58	10	50	--	--	--	--	--	--	--	372	0.51	1,424	186	--	37	1.6	613	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	41	33	32	33	34	42	51	54	--	68	63
2	53	39	33	32	33	34	42	50	52	--	68	63
3	54	40	33	33	34	34	39	47	51	59	68	63
4	54	40	33	33	32	34	38	49	51	61	69	63
5	55	40	33	33	32	35	38	52	50	62	66	64
6	58	38	33	32	32	34	42	53	51	63	66	63
7	58	39	33	32	32	34	45	54	54	63	66	62
8	58	40	33	32	32	34	39	52	56	63	64	60
9	58	38	32	32	32	34	42	49	54	63	65	60
10	56	40	32	32	32	34	47	52	54	65	66	60
11	54	38	32	32	32	36	45	49	54	64	64	60
12	52	38	32	--	32	36	42	55	56	66	66	58
13	52	41	32	32	32	36	44	54	56	--	66	60
14	47	42	32	32	32	35	47	55	54	65	67	58
15	47	42	32	32	33	35	49	54	54	66	65	58
16	47	42	32	32	33	37	--	50	55	66	66	58
17	48	41	32	32	33	38	48	47	57	66	67	58
18	48	41	32	32	33	41	48	49	57	69	--	57
19	46	42	32	32	32	36	46	50	58	69	71	58
20	48	39	32	32	32	36	44	54	58	67	68	58
21	48	38	32	32	32	34	47	57	58	67	68	56
22	47	38	32	32	32	35	48	52	58	--	67	55
23	47	38	32	32	32	36	48	53	60	70	65	56
24	50	38	32	32	32	38	51	54	59	69	65	57
25	47	38	32	32	32	39	51	54	59	68	66	56
26	43	38	32	32	32	35	52	52	59	68	66	56
27	40	38	32	32	32	37	48	50	59	65	65	54
28	40	35	32	33	32	38	46	52	59	65	66	55
29	40	33	32	33	--	40	48	54	--	67	64	55
30	42	33	32	33	--	41	49	52	60	68	63	54
31	41	--	32	33	--	38	--	54	--	68	62	--
Average	49	39	32	32	32	36	45	52	56	66	66	59

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CAMEO, COLO.

LOCATION.--At Grand Valley project diversion dam, 3.7 miles upstream from Cameo, Mesa County, 0.4 mile upstream from Plateau Creek, and 3 miles downstream from gaging station.
DRAINAGE AREA.--8,060 square miles, approximately, above gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1933 to September 1955.
Water temperatures: April 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 956 ppm Dec. 11-20; minimum, 254 ppm June 11-20.
Specific conductance: Maximum daily, 1,770 micromhos Jan. 1; minimum daily, 390 micromhos June 10.
Water temperatures: Maximum, 74°F Aug. 2, 3; minimum, freezing point on many days during December to February.
EXTREMES, 1933-55.--Dissolved solids (1933-43, 1950-55): Maximum, 1,050 ppm Dec. 21-31, 1939; minimum, 143 ppm June 11-20, 1935.
Hardness (1933-35): Maximum, 399 ppm July 21-31, 1934; minimum, 98 ppm June 21-30, 1935.
Specific conductance (1941-55): Maximum daily, 1,850 micromhos June 8, 1944; minimum daily, 244 micromhos July 2, 1947.
Water temperatures (1949-55): Maximum, 75°F July 27, 1953, July 12, 29, 31, 1954; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	2,017	--		--	--	--		--	--	--		--	--	763	1.04	4,160	--	--	--	--	1,220	--
Oct. 11-20.....	2,188	9.9		89	17	130		190	196	144		3.2	0.05	691	.94	4,080	294	138	49	3.3	1,080	7.7
Oct. 21-31.....	1,914	--		--	--	--		--	--	--		--	--	681	.93	3,520	--	--	--	--	1,110	--
Nov. 1-10	1,830	--		--	--	--		--	--	--		--	--	708	.96	3,500	--	--	--	--	1,150	--
Nov. 11-20	1,650	11		94	19	162		193	210	205		5.1	.09	818	1.11	3,640	312	154	53	4.0	1,310	8.1
Nov. 21-30	1,470	--		--	--	--		--	--	--		--	--	857	1.17	3,400	--	--	--	--	1,380	--
Dec. 1-10	1,430	--		--	--	--		--	--	--		--	--	886	1.20	3,420	--	--	--	--	1,420	--
Dec. 11-20	1,320	10		107	23	193		207	228	260		6.3	.11	956	1.30	3,410	360	190	54	4.4	1,530	7.4
Dec. 21-31.....	1,250	--		--	--	--		--	--	--		--	--	889	1.21	3,000	--	--	--	--	1,440	--
Jan. 1-10, 1955 ..	1,215	--		--	--	--		--	--	--		--	--	910	1.24	2,990	--	--	--	--	1,510	--
Jan. 11-20.....	1,190	14		95	11	196		194	202	249		5.2	.12	894	1.22	2,870	284	125	60	5.1	1,480	7.9
Jan. 21-31.....	1,186	--		--	--	--		--	--	--		--	--	915	1.24	2,930	--	--	--	--	1,510	--
Feb. 1-10	1,210	--		--	--	--		--	--	--		--	--	917	1.25	3,000	--	--	--	--	1,510	--
Feb. 11-20.....	1,225	12		95	21	191		193	206	262		5.2	.11	923	1.26	3,050	326	168	56	4.6	1,520	7.6
Feb. 21-28	1,169	--		--	--	--		--	--	--		--	--	946	1.29	2,990	--	--	--	--	1,560	--
Mar. 1-10	1,490	--		--	--	--		--	--	--		--	--	817	1.11	3,290	--	--	--	--	1,350	--
Mar. 11-20	1,523	14		92	18	174		200	205	208		7.1	.08	809	1.10	3,330	306	142	55	4.3	1,330	8.1
Mar. 21-31	1,203	--		--	--	--		--	--	--		--	--	878	1.19	2,850	--	--	--	--	1,440	--
Apr. 1-10	1,544	--		--	--	--		--	--	--		--	--	788	1.07	3,290	--	--	--	--	1,300	--
Apr. 11-20	2,481	14		82	14	98		189	146	118		4.1	.08	563	.77	3,770	261	106	45	2.6	930	8.1
Apr. 21-30	3,112	--		--	--	--		--	--	--		--	--	482	.66	4,050	--	--	--	--	795	--

May 1-10, 1955...	4,957	12		58	9.2	49		155	74	65		3.0	--	355	.48	4,750	182	55	37	1.6	594	7.4
May 11-20	6,593	11		51	8.4	38		141	58	49		2.3	.01	298	.41	5,300	162	46	34	1.3	498	7.5
May 21-31	7,109	--		--	--	--		--	--	--		--	--	292	.40	5,600	--	--	--	--	490	--
June 1-10.....	6,914	--		--	--	--		--	--	--		--	--	292	.40	5,450	--	--	--	--	491	--
June 11-20	8,376	9.4		48	6.1	31	2.4	130	44	44		2.0	.03	254	.35	5,740	146	39	31	1.1	436	7.8
June 21-30.....	7,296	--		--	--	--		--	--	--		--	--	267	.36	5,260	--	--	--	--	462	--
July 1-10	4,486	--		--	--	--		--	--	--		--	--	346	.47	4,190	--	--	--	--	593	--
July 11-20	2,997	10		66	12	86		146	116	112		2.6	.04	484	.66	3,920	214	94	47	2.6	821	7.5
July 21-31	2,993	--		--	--	--		--	--	--		--	--	556	.76	4,490	--	--	--	--	904	--
Aug. 1-10	3,146	--		--	--	--		--	--	--		--	--	613	.83	5,210	--	--	--	--	987	--
Aug. 11-20	2,538	13		92	14	106		186	161	140		3.5	.05	641	.87	4,390	288	135	45	2.7	1,050	7.3
Aug. 21-31.....	2,048	--		--	--	--		--	--	--		--	--	676	.92	3,740	--	--	--	--	1,110	--
Sept. 1-10	1,672	--		--	--	--		--	--	--		--	--	685	.93	3,090	--	--	--	--	1,140	--
Sept. 11-20.....	1,627	9.5		84	17	140		170	169	186		5.0	--	702	.95	3,080	280	141	52	3.6	1,180	7.4
Sept. 21-30.....	1,730	--		--	--	--		--	--	--		--	--	676	.92	3,160	--	--	--	--	1,140	--
Weighted average	2,730	--		--	--	--		--	--	--		--	--	520	0.7	3,830	--	--	--	--	859	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CAMEO, COLO.--Continued

Temperature (°F) of water, water year, October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	44	33	32	34	34	43	51	55	62	73	67
2	58	43	34	33	34	34	45	51	54	64	74	--
3	69	44	34	33	--	34	42	51	53	63	74	66
4	69	48	34	33	34	35	40	50	54	64	72	66
5	59	46	34	33	33	--	40	54	54	63	72	66
6	68	45	35	33	33	--	41	55	56	66	71	67
7	63	44	34	33	34	--	44	55	59	65	73	67
8	64	44	33	34	33	--	44	55	60	65	--	66
9	63	42	33	34	34	35	46	51	59	66	73	66
10	60	41	33	33	34	35	47	52	55	65	71	65
11	58	41	34	33	34	36	44	53	57	67	72	64
12	56	43	34	33	33	36	44	56	58	--	71	63
13	56	43	34	33	33	35	45	56	59	68	70	63
14	52	42	34	33	34	40	46	55	57	70	70	64
15	49	43	33	33	33	41	--	54	56	70	70	64
16	50	44	33	33	34	--	--	52	58	70	72	63
17	49	44	33	34	33	38	--	49	58	70	72	63
18	49	43	33	32	33	38	--	49	58	73	71	62
19	50	41	33	33	33	42	48	51	61	71	71	63
20	51	41	33	--	32	35	46	54	62	--	71	60
21	53	--	33	--	32	35	49	57	61	71	70	60
22	53	40	--	32	32	36	49	56	60	--	72	60
23	53	40	33	32	32	39	50	55	60	70	72	60
24	--	40	33	33	32	40	50	54	60	72	70	58
25	--	--	33	33	32	40	52	54	59	--	69	58
26	48	40	33	34	33	38	52	53	59	71	69	58
27	44	40	33	34	32	38	52	54	61	72	70	68
28	44	38	34	34	34	40	--	50	62	71	70	57
29	45	36	32	34	--	43	--	53	62	70	70	57
30	47	33	32	34	--	45	--	55	62	70	68	67
31	45	--	32	34	--	42	--	56	--	71	68	--
Average	54	42	33	33	33	38	--	52	58	68	71	63

GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

528172 O - 59 - 4

LOCATION.--At road bridge about half a mile downstream from gaging station, 1 mile downstream from point of diversion of Redlands power canal, and 1½ miles upstream from mouth and Grand Junction, Mesa County.
DRAINAGE AREA.--8,020 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1955.
Water temperatures: April 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,960 ppm Sept. 11-20; minimum, 324 ppm May 11-18.
Hardness: Maximum, 970 ppm Sept. 11-20; minimum, 191 ppm May 11-18.
Specific conductance: Maximum daily, 2,520 micromhos Sept. 29; minimum daily, 416 micromhos May 14.
Water temperatures: Maximum, 81°F Aug. 2; minimum, freezing point Dec. 27, Jan. 17, Feb. 24.
EXTREMES, 1931-55.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.
Hardness (1931-35, 1943-55): Maximum, 1,370 ppm Sept. 1-10, 11-20, 1934; minimum, 143 ppm June 1-10, 1933, May 11-20, 1948.
Specific conductance (1941-55): Maximum daily, 2,680 micromhos Nov. 5, 1950; minimum daily, 280 micromhos May 23, 1948.
Water temperatures (1949-55): Maximum, 85°F July 31, 1954; minimum, freezing point on several days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	1,017	--	--	197	65	158	--	--	--	--	--	--	--	1,550	2.11	4,260	760	--	31	2.5	1,850	--
Oct. 11-20	1,213	18	0.04	170	63	126	6.6	229	711	20	0.6	5.3	0.22	1,310	1.78	4,290	683	496	28	2.1	1,630	7.2
Oct. 21-31	925	--	--	189	60	138	--	--	--	--	--	--	--	1,390	1.89	3,470	720	--	29	2.2	1,730	--
Nov. 1-10	825	--	--	195	67	154	--	--	--	--	--	--	--	1,510	2.05	3,360	765	--	31	2.4	1,840	--
Nov. 11-20	851	--	--	198	66	158	--	--	--	--	--	--	--	1,520	2.07	3,490	765	--	31	2.5	1,850	--
Nov. 21-30	884	--	--	156	53	129	--	--	--	--	--	--	--	1,240	1.69	2,960	610	--	32	2.3	1,540	--
Dec. 1-10	908	--	--	174	62	151	--	--	--	--	--	--	--	1,420	1.93	3,480	690	--	32	2.5	1,740	--
Dec. 11-20	808	--	--	172	60	142	--	--	--	--	--	--	--	1,360	1.85	2,970	676	--	31	2.4	1,670	--
Dec. 21-31	695	--	--	164	62	141	--	--	--	--	--	--	--	1,400	1.90	2,630	665	--	32	2.4	1,680	--
Jan. 1-10, 1955	815	--	--	150	57	128	--	--	--	--	--	--	--	1,260	1.71	2,770	610	--	31	2.3	1,540	--
Jan. 11-20	693	20	.04	141	61	128	4.7	225	656	18	.4	12	.20	1,200	1.63	2,250	603	418	31	2.3	1,530	7.7
Jan. 21-31	748	--	--	149	55	126	--	--	--	--	--	--	--	1,240	1.69	2,500	600	--	31	2.2	1,510	--
Feb. 1-10	737	--	--	146	57	129	--	--	--	--	--	--	--	1,220	1.66	2,430	600	--	32	2.3	1,510	--
Feb. 11-20	763	--	--	151	54	129	--	--	--	--	--	--	--	1,230	1.67	2,530	600	--	32	2.3	1,520	--
Feb. 21-38	662	--	--	151	59	135	--	--	--	--	--	--	--	1,250	1.70	2,230	598	--	32	2.4	1,550	--
Mar. 1-10	1,101	--	--	145	46	130	--	--	--	--	--	--	--	1,160	1.58	3,450	552	--	34	2.4	1,490	--
Mar. 11-20	1,001	--	--	136	45	114	--	--	--	--	--	--	--	1,080	1.47	2,920	526	--	32	2.2	1,390	--
Mar. 21-31	773	--	--	126	47	79	--	199	--	--	--	--	--	1,020	1.39	2,130	508	345	25	1.5	1,340	7.9

GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955...	1,064	--	--	100	35	74	--	182	--	--	--	--	--	785	1.07	2,260	396	247	29	1.6	1,070	7.8
Apr. 11-20	1,917	16	0.18	76	26	52	3.7	164	255	12	--	2.8	--	560	.76	2,900	296	162	27	1.3	787	7.5
Apr. 21-26	1,960	--	--	78	22	41	--	155	--	--	--	--	--	508	.69	2,690	284	157	24	1.1	727	7.7
Apr. 27-30	3,188	--	--	65	12	27	--	155	--	--	--	--	--	349	.47	3,000	212	85	22	.8	515	7.5
May 1-10	4,394	--	--	65	11	25	--	175	--	--	--	--	--	341	.46	4,050	208	64	21	.8	502	7.7
May 11-18	5,258	--	--	57	12	24	--	126	--	--	--	--	--	324	.44	4,600	191	88	21	.8	458	7.8
May 19-30	3,629	--	--	74	18	41	--	131	--	--	--	--	--	476	.65	4,660	259	152	26	1.1	629	7.9
May 31, June 1-10.	3,220	--	--	90	11	45	--	139	--	--	--	--	--	481	.65	4,180	268	154	27	1.2	682	7.6
June 11-20.....	4,563	--	--	70	14	34	--	130	--	--	--	--	--	410	.56	5,050	232	125	24	1.0	583	7.5
June 21-30, July 1..	3,040	--	--	85	19	48	--	142	--	--	--	--	--	525	.71	4,310	290	174	26	1.2	733	7.3
July 2-10	894	--	--	143	40	109	--	167	--	--	--	--	--	1,050	1.43	2,530	520	383	31	2.1	1,330	7.5
July 11-20	447	15	.01	175	65	146	6.7	182	817	30	0.4	5.4	0.24	1,450	1.97	1,750	704	555	31	2.4	1,750	7.5
July 21-28	713	--	--	226	69	183	--	202	--	--	--	--	--	1,730	2.35	3,330	848	682	32	2.7	2,010	7.8
July 29-31, Aug. 1-10	1,100	--	--	174	43	106	--	202	--	--	--	--	--	1,160	1.58	3,450	612	446	27	1.9	1,440	7.8
Aug. 11-20.....	756	--	--	203	57	147	--	220	--	--	--	--	--	1,480	2.01	3,020	744	564	30	2.3	1,770	7.6
Aug. 21-31.....	724	--	--	216	59	137	--	210	--	--	--	--	--	1,520	2.07	2,970	780	608	28	2.1	1,870	8.0
Sept. 1-10	516	--	--	205	77	155	--	182	--	--	--	--	--	1,640	2.23	2,280	830	681	29	2.3	1,980	8.1
Sept. 11-20	515	--	--	249	84	180	--	202	--	--	--	--	--	1,960	2.67	2,730	970	804	29	2.5	2,280	7.6
Sept. 21-30	756	--	--	246	77	129	--	224	--	--	--	--	--	1,790	2.43	3,650	930	746	23	1.8	2,120	7.6
Weighted average	1,426	--	--	116	34	79	--	--	--	--	--	--	--	830	1.13	3,200	430	--	29	1.7	1,060	--

GUNNISON RIVER BASIN--Continued

GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	47	33	--	--	35	49	55	58	--	78	--
2	62	47	33	34	34	36	50	--	59	70	81	76
3	56	49	33	--	--	36	47	51	59	--	75	--
4	61	47	33	36	33	35	42	54	60	--	75	76
5	65	49	38	37	34	36	44	54	60	--	75	75
6	65	49	38	35	35	36	46	56	61	70	74	72
7	67	42	38	34	34	35	47	59	--	71	79	--
8	67	47	35	35	33	39	49	49	--	70	79	70
9	65	48	34	34	33	39	47	51	59	71	79	72
10	53	43	38	34	33	--	47	55	61	74	79	71
11	59	47	38	33	33	44	43	57	63	68	79	67
12	57	47	35	34	33	45	44	58	60	69	76	69
13	51	48	37	33	--	44	49	54	62	66	--	67
14	54	50	37	34	34	43	51	57	60	68	76	67
15	50	43	34	34	35	44	51	49	63	70	80	68
16	52	47	33	--	34	43	57	50	61	71	76	66
17	55	46	33	32	33	45	54	52	64	78	74	66
18	55	46	33	33	33	45	54	57	62	78	78	68
19	55	47	33	--	33	43	54	58	68	78	79	67
20	54	44	33	33	33	40	55	59	68	76	80	68
21	53	45	34	33	33	38	48	60	--	76	76	67
22	56	43	33	33	33	38	49	58	--	78	80	66
23	56	44	34	33	34	44	52	57	69	79	76	66
24	54	44	34	33	32	45	54	58	69	78	75	62
25	50	44	33	33	35	44	57	57	65	70	74	63
26	49	43	33	34	35	45	57	60	66	80	73	60
27	45	43	32	34	34	--	52	59	67	78	78	--
28	46	38	--	34	35	45	54	60	67	76	75	69
29	49	--	33	34	--	50	54	61	67	76	76	61
30	48	--	33	35	--	48	55	62	69	76	75	61
31	--	--	34	34	--	50	--	59	--	--	76	--
Average	56	46	34	34	34	42	50	56	63	74	77	68

DOLORES RIVER BASIN

DOLORES RIVER NEAR CISCO, UTAH

LOCATION.--At gaging station, 9 miles upstream from mouth and 14 miles southeast of Cisco, Grand County.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
Sediment records: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 4,720 ppm Sept. 21-30; minimum, 285 ppm May 11-20.
Hardness: Maximum, 1,690 ppm Aug. 1; minimum, 168 ppm Apr. 18, 22, 25-30.
Specific conductance: Maximum daily, 8,400 micromhos Sept. 25; minimum daily, 418 micromhos June 14.
Water temperatures: Maximum, 81°F Aug. 2; minimum, freezing point on many days during December to February.
Sediment concentrations: Maximum daily, 80,500 ppm Aug. 6; minimum daily, 7 ppm Sept. 27.
Sediment loads: Maximum daily, 120,000 tons Oct. 9; minimum daily, 1 ton on many days.
EXTREMES, 1951-52, 1953-55.--Dissolved solids (1953-55): Maximum, 4,720 ppm Sept. 21-30, 1955; minimum, 285 ppm May 11-20, 1955.
Hardness (1953-55): Maximum, 1,690 ppm Aug. 1, 1955; minimum, 168 ppm Apr. 18, 22, 25-30, 1955.
Specific conductance: Maximum daily, 8,400 micromhos Sept. 25, 1955; minimum daily, 254 micromhos May 8, June 16, 1952.
Water temperature: Maximum, 81°F Sept. 1, 1953, Aug. 2, 1955; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 80,500 ppm Aug. 6, 1955; minimum daily, 7 ppm Sept. 27, 1955.
Sediment loads: Maximum daily, 442,000 tons Oct. 24, 1953; minimum daily, 1 ton several days in September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393. Flow affected by ice Dec. 17 to Feb. 18.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-6, 8-9, 1954	438	10	0.28	146	42	208	13	143	489	242	0.5	17	--	1,240	1.69	1,470	537	420	45	3.9	1,880	7.3	10
Oct. 7[a]	258	--		--	--	--	--	149	567	650		--	--	--	--	--	628	506	--	--	3,130	7.2	
Oct. 10[a]	1,140	--		--	--	--	--	191	329	65		--	--	--	--	--	384	227	--	--	1,080	7.3	
Oct. 11-19	335	14		184	39	121	9.9	158	534	132		11	0.07	1,120	1.52	1,010	620	490	29	2.1	1,600	7.3	
Oct. 20-31	185	9.7		118	45	306	16	125	417	420		30	--	1,420	1.93	709	480	377	57	6.1	2,330	7.3	
Nov. 3, 5, 8, 10, 12, 15	159	7.8		126	55	556	34	120	469	835		29	.08	2,170	2.95	932	540	442	67	10	3,610	7.6	
Nov. 17, 19, 22, 24, 29	138	9.0		130	59	644	37	116	490	960		37	.10	2,420	3.29	902	567	472	69	12	4,020	7.4	
Dec. 1, 6, 8, 10, 15	136	6.4		132	67	735	44	140	537	1,120		28	.10	2,740	3.73	1,010	605	490	71	13	4,550	7.3	
Dec. 3, 13	133	6.8		155	80	1,390	77	103	596	2,220		45	--	4,620	6.28	1,660	716	631	79	23	7,550	7.6	
Dec. 17, 20, 22, 27, 29	83.0	12		150	74	1,020	48	153	565	1,540		36	.17	3,520	4.79	789	679	554	75	17	5,740	7.8	
Jan. 3, 5, 7, 12, 14, 1955	104	12		134	57	763	39	153	446	1,180		28	.12	2,730	3.71	767	569	444	73	14	4,630	7.3	
Jan. 17, 19, 21, 28, 31	87.0	9.1		134	54	772	35	144	439	1,180		34	.19	2,730	3.71	641	556	438	74	14	4,600	7.1	

a Not included for computation of weighted averages.

Feb. 2, 4, 7, 9, 11, 14, 16, 1955	104	6.5	123	49	727	34	146	411	1,080	63	.15	2,570	3.50	722	508	389	74	14	4,250	7.3
Feb. 18, 21, 23, 25, 28	171	4.5	102	38	427	21	139	308	655	11	--	1,630	2.22	753	410	296	68	9.2	2,850	7.3
Mar. 2[a]	680	5.2	--	--	--	--	158	290	635	15	--	--	--	--	382	252	--	--	2,740	7.1
Mar. 4, 9, 11, 14	894	7.0	87	26	156	12	158	225	218	9.5	.10	818	1.11	1,970	324	194	50	3.8	1,390	7.3
Mar, 16, 18, 21, 23	364	10	118	38	262	15	162	359	362	16	.08	1,260	1.71	1,240	450	318	55	5.4	2,040	7.7
Mar. 25, 28	222	9.1	126	49	484	26	166	408	720	21	--	1,930	2.62	1,160	516	380	66	9.3	3,230	7.3
Apr. 6-10, 13, 15	355	9.7	94	31	218	12	156	279	305	16	.06	1,040	1.41	997	362	234	56	5.0	1,740	7.4
Apr. 18, 22, 25-30	2,050	13	46	13	42	4.2	123	74	63	3.5	.06	320	.44	1,770	168	68	34	1.4	557	7.6
May 2, 6-10	2,530	7.3	54	11	35	3.7	147	71	43	3.5	--	300	.41	2,050	180	59	29	1.1	511	7.5
May 11-20	2,031	8.5	52	11	32	3.3	137	69	39	3.1	.05	285	.39	1,560	174	62	28	1.1	487	7.5
May 21-31	1,373	7.6	52	13	45	4.8	126	92	58	4.1	--	338	.46	1,250	183	80	34	1.4	578	7.5
June 1-10	1,236	8.3	54	13	59	4.4	129	97	81	5.5	--	386	.52	1,290	188	82	40	1.9	657	7.4
June 11-20	1,392	9.1	52	10	37	3.3	116	87	50	4.4	.05	310	.42	1,170	170	76	32	1.2	524	7.3
June 21-30	695	7.9	59	15	94	6.2	99	136	140	6.3	--	513	.70	963	208	128	49	2.8	888	7.3
July 1-2, 4, 6-7, 9	302	8.4	77	22	168	9.3	95	194	255	12	.07	793	1.08	647	282	204	55	4.4	1,350	7.5
July 10-20	170	6.5	102	33	286	17	91	309	440	20	.10	1,260	1.71	578	390	316	60	6.3	2,150	7.3
July 21-28	147	9.3	126	44	349	20	106	450	500	28	--	1,580	2.15	627	496	408	59	6.8	2,540	7.3
July 29-30	230	17	190	78	636	29	140	726	915	29	--	2,690	3.66	1,670	794	680	62	9.8	4,250	7.6
Aug. 1	152	13	523	93	289	--	236	1,690	245	2.8	--	2,970	4.04	1,220	1,690	1,490	27	3.1	3,550	7.0
Aug. 2-10	345	16	237	49	185	14	154	729	218	18	--	1,540	2.09	1,430	793	667	33	2.9	2,150	7.4
Aug. 12-13, 16-18, 20	274	15	172	40	199	14	150	515	255	21	.09	1,300	1.77	962	594	470	41	3.5	1,950	7.4
Aug. 14, 19	430	17	364	59	307	20	186	1,050	410	47	--	2,370	3.22	2,750	1,150	998	36	3.9	3,160	7.3
Aug. 15	254	13	86	25	116	--	198	217	132	3.2	--	690	.94	473	318	156	44	2.8	1,150	7.1
Aug. 21-26	199	14	231	49	210	15	135	669	282	23	--	1,590	2.16	854	778	668	36	3.3	2,280	7.3
Aug. 27-30	236	14	121	36	127	11	145	363	160	21	--	924	1.26	589	450	331	37	2.6	1,400	7.5
Aug. 31	156	13	150	57	717	31	120	444	1,130	29	--	2,630	3.58	1,110	609	510	71	13	4,400	7.8

a Not included for computation of weighted averages.

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Sept. 1-3, 1955 ...	115	12		136	49	281	17	134	480	375		34	--	1,450	1.97	450	541	431	52	5.3	2,240	7.3	
Sept. 5-10.....	66.7	11		183	76	614	34	95	713	895		50	--	2,620	3.56	472	769	691	62	9.6	4,190	7.0	
Sept. 11-18, 20 ...	47.0	7.9		223	101	917	49	89	928	1,400		49	0.20	3,720	5.06	472	972	899	66	13	5,970	7.0	
Sept. 19.....	43.0	8.2		171	36	336	21	131	449	540		16	--	1,640	2.23	190	574	467	55	6.1	2,790	7.0	
Sept. 21-30.....	42.3	6.5		254	141	1,160	68	62	1,210	1,820		25	--	4,720	6.42	539	1,210	1,160	66	14	7,520	6.7	
Weighted average	b 567	9.4		78	21	119	8.1	131	190	166		8.8	--	665	0.90	1,020	281	174	47	3.1	1,080	--	--

b Represents 76 percent of runoff for water year October 1954 to September 1955.

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	--	35	--	--	--	--	--	65	70	78	70
2	60	--	--	--	32	33	--	50	59	70	81	74
3	62	46	34	32	--	--	--	--	62	--	78	73
4	64	--	--	--	32	34	--	--	58	72	75	--
5	64	49	--	33	--	--	--	--	69	--	76	72
6	63	--	38	--	--	--	49	57	69	72	76	75
7	63	--	--	32	32	--	47	56	71	72	--	73
8	68	46	36	--	--	--	47	56	73	--	76	67
9	62	--	--	--	32	40	58	53	67	72	--	68
10	64	43	35	--	--	--	60	55	67	78	76	72
11	63	--	--	--	32	39	--	55	65	70	--	--
12	61	45	--	32	--	--	--	57	69	73	76	66
13	58	--	38	--	--	--	47	59	65	76	76	72
14	51	--	--	32	32	47	--	59	63	78	77	72
15	51	45	36	--	--	--	50	57	66	79	76	70
16	50	--	--	--	32	43	--	54	67	80	74	69
17	52	45	32	32	--	--	--	55	66	--	75	--
18	--	--	--	--	33	45	50	53	68	79	76	65
19	52	43	--	32	--	--	--	57	70	79	76	63
20	53	--	32	--	--	--	--	58	73	79	76	62
21	54	--	--	32	32	39	--	64	71	80	--	--
22	58	43	32	--	--	--	--	61	73	78	74	60
23	58	--	--	--	32	43	--	60	73	79	73	62
24	55	43	--	--	--	--	--	63	68	80	74	61
25	49	--	--	--	32	46	54	60	67	--	74	65
26	49	--	--	--	--	--	55	56	--	80	77	63
27	49	--	32	--	--	--	50	59	69	--	72	61
28	47	--	--	32	33	46	51	--	73	78	79	57
29	--	36	32	--	--	--	52	65	69	77	75	58
30	48	--	--	--	--	--	51	65	71	75	72	59
31	48	--	--	32	--	--	--	68	--	80	73	--
Average	56	--	--	--	--	--	--	58	68	76	76	66

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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.....	160	2,650	1,140	150	60	a 24	125	26	9
2.....	150	1,250	506	150	380	a 150	137	--	b 15
3.....	145	500	196	161	3,480	1,510	133	41	15
4.....	137	965	s 620	155	900	380	145	--	b 25
5.....	281	5,750	s 4,670	145	70	27	161	--	b 45
6.....	187	3,400	1,720	141	35	a 13	167	113	51
7.....	258	5,300	s 4,050	137	50	a 18	167	--	b 50
8.....	883	18,700	s 55,100	133	50	18	161	83	36
9.....	1,560	28,600	120,000	133	30	a 11	137	--	b 30
10.....	1,140	26,700	82,200	133	20	7	133	78	28
11.....	645	21,000	36,600	133	25	a 9	117	--	b 30
12.....	453	13,900	17,000	145	218	s 129	133	--	b 30
13.....	377	17,500	17,800	217	1,200	a 850	133	77	28
14.....	348	16,400	15,400	254	1,600	a 1,100	111	--	b 15
15.....	305	8,350	6,880	239	1,060	684	95	33	8
16.....	254	2,650	1,820	202	920	a 500	85	--	e 35
17.....	232	1,400	877	167	727	328	85	292	67
18.....	202	850	a 460	150	--	b 150	85	--	e 90
19.....	195	365	192	145	275	108	85	--	e 110
20.....	217	305	179	137	--	b 50	85	565	130
21.....	187	210	106	133	--	b 35	85	--	e 100
22.....	167	200	90	133	88	32	85	300	69
23.....	187	190	96	129	--	b 20	85	--	e 60
24.....	202	220	120	125	48	16	85	--	e 60
25.....	195	195	103	125	--	b 15	85	--	e 50
26.....	195	165	87	125	--	b 15	85	--	e 45
27.....	187	155	78	121	--	b 10	85	143	33
28.....	187	150	76	121	--	b 10	75	--	e 30
29.....	173	110	a 51	121	82	27	75	155	31
30.....	161	70	30	129	--	b 15	75	--	b 40
31.....	161	65	28	--	--	--	75	--	b 40
Total.	10,131	--	368,275	4,489	--	6,261	3,375	--	1,405

	January			February			March		
1.....	75	--	e 50	100	--	e 50	474	4,600	sa 6,300
2.....	75	--	e 60	100	112	30	680	9,370	s 20,100
3.....	110	249	74	100	--	e 30	906	11,000	sa 26,000
4.....	110	--	e 90	100	101	27	1,100	13,500	40,100
5.....	110	356	106	100	--	e 30	1,000	12,000	a 32,000
6.....	110	--	e 80	100	--	e 50	800	8,500	a 18,000
7.....	110	194	58	100	255	69	600	4,800	a 7,800
8.....	100	--	e 50	100	--	e 100	540	3,600	a 5,200
9.....	100	--	e 40	100	693	187	500	3,800	5,130
10.....	100	--	e 30	100	--	e 140	567	3,600	a 5,500
11.....	100	--	e 30	100	396	107	1,420	11,800	s 46,700
12.....	100	110	30	100	--	e 100	844	7,200	a 16,000
13.....	90	--	e 40	100	--	e 95	642	5,700	a 9,900
14.....	90	196	48	100	345	93	555	4,700	7,040
15.....	90	--	e 50	110	--	b 150	567	4,400	a 6,700
16.....	90	--	e 60	130	900	316	497	5,500	7,380
17.....	90	313	76	140	10,000	a 3,800	474	5,000	a 6,400
18.....	90	--	e 70	150	15,400	6,240	424	3,200	3,660
19.....	90	259	63	130	5,800	a 2,000	367	2,400	a 2,380
20.....	90	--	e 60	120	--	e 70	318	2,000	a 1,700
21.....	85	236	54	120	186	60	287	1,550	1,200
22.....	85	--	e 40	120	--	e 50	261	1,000	a 700
23.....	85	--	e 30	120	149	48	248	660	442
24.....	85	89	20	120	--	e 45	235	430	a 270
25.....	85	--	e 60	160	101	44	228	340	209
26.....	85	445	102	224	--	b 80	228	250	a 150
27.....	85	--	e 80	271	--	b 110	228	210	a 130
28.....	85	288	66	305	161	133	217	230	135
29.....	85	--	e 65	--	--	--	241	250	a 160
30.....	85	--	e 65	--	--	--	228	260	a 160
31.....	85	296	68	--	--	--	274	380	a 280
Total.	2,855	--	1,815	3,620	--	14,254	15,950	--	277,826

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	310	680	a570	2,320	4,000	a25,000	1,450	1,800	7,050
2.....	351	1,100	a1,000	2,280	3,960	24,400	1,460	1,880	7,410
3.....	343	1,200	a1,100	1,990	3,100	a17,000	1,070	900	2,600
4.....	343	1,200	a1,100	1,850	2,700	a13,000	887	500	1,200
5.....	326	1,200	1,060	1,640	2,300	a10,000	816	385	848
6.....	287	1,180	914	1,750	2,180	10,300	761	325	668
7.....	254	925	634	2,040	3,000	16,500	719	275	534
8.....	268	530	384	2,540	4,000	27,400	1,020	1,110	s3,720
9.....	281	390	296	3,220	6,760	58,800	1,960	3,890	s21,400
10.....	281	970	736	3,350	7,460	67,500	2,220	4,840	s29,400
11.....	343	1,600	sa1,700	2,710	5,400	39,500	2,110	4,360	s24,900
12.....	902	9,900	a24,000	2,440	3,500	23,100	1,900	3,340	s17,200
13.....	667	8,600	15,500	2,220	2,800	16,800	1,660	2,150	9,640
14.....	464	4,200	a5,260	2,100	2,680	15,200	1,740	1,530	7,190
15.....	444	2,670	s3,300	2,080	2,300	12,900	1,420	1,170	4,490
16.....	1,080	10,000	sa31,000	2,110	2,400	13,700	1,210	790	2,580
17.....	1,660	11,000	sa51,000	2,130	2,470	14,200	1,070	470	1,360
18.....	1,660	10,700	48,000	1,800	2,000	9,720	946	360	920
19.....	1,720	9,500	a44,000	1,530	1,280	5,290	976	385	1,010
20.....	1,560	8,000	a34,000	1,190	810	2,600	887	300	718
21.....	1,290	4,600	a16,000	1,070	700	2,020	902	390	950
22.....	1,700	4,450	s21,200	1,140	800	2,460	844	350	798
23.....	1,620	4,000	a17,000	1,510	2,600	10,600	917	425	1,050
24.....	1,640	4,300	a19,000	1,820	5,750	28,300	873	435	1,030
25.....	1,860	5,480	27,500	1,640	2,350	10,400	788	330	702
26.....	2,260	7,970	s50,200	1,620	2,200	9,620	667	280	a500
27.....	2,420	7,380	48,200	1,620	1,930	8,440	544	127	187
28.....	2,180	4,820	28,400	1,380	1,300	a4,800	509	104	143
29.....	2,160	4,800	28,000	1,180	830	2,640	474	99	127
30.....	2,160	4,200	24,500	990	590	1,580	434	98	115
31.....	--	--	--	1,130	835	2,550	--	--	--
Total.	32,834	--	545,554	58,390	--	506,320	33,234	--	150,440

	July			August			September		
1.....	385	107	111	152	49,000	20,100	130	985	346
2.....	343	57	53	170	27,600	12,700	112	380	115
3.....	343	--	b40	223	11,900	7,160	102	175	48
4.....	326	40	35	334	17,000	sa16,000	92	120	a30
5.....	294	--	b24	654	41,500	s69,700	81	64	14
6.....	274	24	18	454	80,500	102,000	76	72	15
7.....	261	27	19	343	53,000	a51,000	68	45	8
8.....	241	--	b12	375	26,300	26,600	61	68	11
9.....	223	14	8	294	9,600	7,620	59	39	6
10.....	206	19	11	261	3,700	2,610	55	25	4
11.....	185	11	5	228	1,700	1,050	50	--	b3
12.....	190	25	13	212	1,300	744	52	9	1
13.....	206	9	5	261	9,530	s9,800	48	42	5
14.....	196	16	8	395	23,100	24,600	43	--	b4
15.....	170	12	6	254	13,100	8,980	41	28	3
16.....	161	16	7	235	5,000	3,170	39	19	2
17.....	161	--	b7	268	5,400	3,910	36	20	a2
18.....	143	32	12	395	15,200	s17,700	68	512	s64
19.....	130	45	16	464	27,500	34,500	43	640	74
20.....	126	30	10	274	40,100	30,800	46	160	20
21.....	143	36	14	212	23,000	a13,000	43	120	a14
22.....	170	57	26	179	10,300	4,980	46	63	8
23.....	143	52	20	156	5,700	2,400	44	45	5
24.....	134	55	20	130	2,900	1,020	48	42	5
25.....	139	70	a26	174	2,010	s1,370	44	10	1
26.....	148	700	280	343	9,570	s 8,510	43	12	1
27.....	143	700	a270	287	10,700	8,290	41	7	1
28.....	126	880	299	261	3,650	2,570	40	12	1
29.....	174	1,000	470	201	4,200	2,280	37	15	1
30.....	287	15,000	11,600	196	9,400	4,970	37	17	2
31.....	174	21,200	9,960	156	2,000	842	--	--	--
Total.	6,345	--	23,405	8,541	--	500,976	1,725	--	814

Total discharge for year (cfs-days) 181,489
Total load for year (tons) 2,397,345

s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Particle-size analyses of suspended sediment for water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
Oct. 1, 1954	10:40 a.m.	75	60	2,540	2,900		87		97	98	100	--	--	--			SPWCM
Oct. 8	6:00 p.m.	2,150	65	32,800	3,760		34		55	71	87	97	99	99	100		SPWCM
Oct. 13	10:05 a.m.	377	58	17,200	4,850		82		97	98	99	100	--	--			SPWCM
Apr. 26, 1955	10:45 a.m.	1,940	55	6,270	4,400		19		33	47	66	90	99	100			SPWCM
May 9	10:00 a.m.	2,990	53	6,490	4,830		27		44	57	69	86	97	100			SPWCM
May 21	10:30 a.m.	1,110	64	772	3,700		22		37	53	70	88	97	100			SPWCM
June 1	5:00 p.m.	1,320	65	953	3,820		14		23	35	60	87	97	100			SPWCM
June 10	11:30 a.m.	1,800	67	3,340	3,480		21		36	43	61	87	96	100			SPWCM
June 20	12:45 p.m.	858	73	259	5,620		21		35	46	64	87	98	100			SPWCM
July 18	12:30 p.m.	143	79	262	4,220		84		97	98	99	100	--	--			SPWCM
July 19	12:35 p.m.	134	79	34	813		71		80	84	93	98	99	100			SBWCM
July 20	1:00 p.m.	134	79	24	--		--		--	--	87	97	100	--			S
July 26	1:15 p.m.	143	80	671	3,490		81		96	98	99	100	--	--			SPWCM
July 29	12:25 p.m.	190	77	400	4,390		74		94	97	100	--	--	--			SPWCM
July 30	11:30 a.m.	287	75	12,300	2,910		81		97	99	100	--	--	--			SPWCM
July 31	7:00 p.m.	156	80	15,700	4,370		87		98	99	100	--	--	--			SPWCM
Aug. 1	11:45 a.m.	148	78	59,700	4,740		85		100	--	--	--	--	--			SPWCM
Aug. 5	11:00 a.m.	873	76	16,800	4,060		55		89	96	98	100	--	--			SPWCM
Aug. 6	12:20 p.m.	464	76	88,200	3,420		65		96	99	100	--	--	--			SPWCM
Aug. 8	12:40 p.m.	384	76	26,000	3,620		74		98	99	100	--	--	--			SPWCM
Aug. 14	2:30 p.m.	405	77	18,200	5,220		59		92	97	100	--	--	--			SPWCM
Aug. 15	11:40 a.m.	228	76	13,000	3,770		73		97	99	100	--	--	--			SPWCM
Aug. 16	11:10 a.m.	241	74	3,700	4,250		76		94	98	100	--	--	--			SPWCM
Aug. 26	12:00 m.	241	77	9,270	4,940		64		93	100	--	--	--	--			SPWCM
Aug. 27	10:45 a.m.	287	72	10,400	3,200		70		94	98	100	--	--	--			SPWCM
Aug. 28	5:50 p.m.	235	79	3,030	3,340		58		94	98	99	100	--	--			SPWCM

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 1955.
Water temperatures: May 1949 to September 1955.
Sediment records: May 1930 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,850 ppm July 27; minimum, 340 ppm May 11-20.
Hardness: Maximum, 994 ppm July 27; minimum, 210 ppm May 11-20, June 11-20.
Specific conductance: Maximum daily, 2,500 micromhos Dec. 27; minimum daily, 480 micromhos May 18.
Water temperatures: Maximum, 80°F July 31; minimum, freezing point on many days during December to February.
Sediment concentrations: Maximum daily, 18,200 ppm Mar. 11; minimum daily, 30 ppm Sept. 11.
Sediment loads: Maximum daily, 414,000 tons May 9; minimum daily, 111 tons Sept. 11.
EXTREMES (1928-52, 1953-55).--Dissolved solids: Maximum, 2,670 ppm Aug. 11-20, 1940; minimum, 202 ppm June 11-20, 1933.
Hardness (1928-35, 1943-52, 1953-55): Maximum, 1,090 ppm Sept. 1-10, 1934; minimum, 131 ppm June 11-20, 1952.
Specific conductance (1941-52, 1953-55): Maximum daily, 4,100 micromhos Sept. 30, 1946; minimum daily, 310 micromhos June 15, 1952.
Water temperatures (1949-52, 1953-55): Maximum, 81°F Aug. 5, 1949; minimum, freezing point on many days during winter months.
Sediment concentrations (1930-55): Maximum daily, 66,300 ppm Oct. 27, 1952; minimum daily, 14 ppm Nov. 21, 1949.
Sediment loads (1930-55): Maximum daily, 2,790,000 tons Oct. 14, 1941; minimum daily, 84 tons Apr. 16, 1951.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393. Flow affected by ice Dec. 30 to Jan. 6, Jan. 18 to Mar. 16.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	3,603	15		158	57	163	6.3	221	598	130		8.1	--	1,240	1.69	12,060	628	448	36	2.8	1,760	7.4
Oct. 11-20	3,927	15		148	49	145	6.0	215	543	105		6.1	0.12	1,120	1.52	11,880	571	395	35	2.6	1,590	7.6
Oct. 21-31	3,023	12		134	54	163	5.8	208	522	139		9.8	--	1,140	1.55	9,300	556	386	39	3.0	1,660	7.9
Nov. 1, 3, 5, 8, 10, 12, 15	2,776	11		134	54	205	8.0	207	532	204		12	--	1,260	1.71	9,440	556	387	44	3.8	1,890	7.8
Nov. 17, 19, 22, 24, 29	2,576	15		130	56	206	7.0	172	555	204		11	--	1,270	1.73	8,830	555	414	44	3.8	1,900	7.9
Dec. 1, 3, 6, 8, 10, 13, 15	2,484	15		130	58	232	8.6	192	560	238		10	.12	1,350	1.84	9,050	563	406	47	4.2	2,040	7.6
Dec. 17, 20, 22, 27, 29, 31	2,038	14		142	60	258	9.3	224	577	277		10	--	1,460	1.99	8,030	601	418	48	4.6	2,220	8.2
Jan. 5, 7, 14, 17, 19, 1955	2,384	19		123	54	256	8.4	184	501	283		10	.22	1,350	1.84	8,690	529	378	51	4.8	2,090	8.2
Jan. 21, 24, 26, 28, 31	2,094	15		120	55	274	9.2	181	505	317		6.7	.22	1,390	1.89	7,860	526	377	53	5.2	2,190	7.7

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 2, 4, 7, 9, 11, 14, 1955	2,132	15		114	52	257	9.2	171	485	299		10	0.13	1,330	1.81	7,660	498	358	52	5.0	2,060	7.7
Feb. 16, 18, 21, 23, 25	2,182	10		116	49	246	9.2	186	473	269		8.9	--	1,270	1.73	7,480	491	338	52	4.8	1,970	7.5
Mar. 2, 4	3,375	7.4		102	38	257	13	159	355	339		12	--	1,200	1.63	10,940	410	280	57	5.5	1,990	7.6
Mar. 9, 11, 14	4,633	8.8		125	34	130	7.1	162	416	112		8.2	.10	921	1.25	11,520	452	320	38	2.7	1,380	7.5
Mar. 16, 18, 21, 23, 28, 31	2,663	16		114	46	183	7.3	200	430	190		10	.12	1,100	1.50	7,910	474	310	45	3.7	1,650	7.8
Mar. 25	2,320	12		62	18	63		139	144	70		5.2	--	442	.60	2,770	228	114	38	1.8	746	7.7
Apr. 2, 6-11, 13, 15	3,476	16		96	36	137	5.9	177	337	137		7.2	.09	859	1.17	8,060	388	242	43	3.0	1,310	7.6
Apr. 18, 20, 26-30	8,059	12		66	20	58	3.8	156	157	56		4.3	.06	454	.62	9,880	246	118	33	1.6	724	7.5
May 1-10	11,170	13		58	17	43	3.3	151	117	44		3.5	--	373	.51	11,250	214	91	30	1.3	598	7.8
May 11-20	13,640	12		58	16	33	2.7	142	113	32		3.2	.19	340	.46	12,520	210	94	25	1.0	538	7.7
May 21-31	11,900	11		60	18	43	2.7	134	145	43		3.3	--	392	.53	12,590	224	114	29	1.2	620	7.6
June 1-10	10,340	10		68	21	55	3.2	131	178	56		3.4	--	460	.63	12,840	256	148	31	1.5	695	7.8
June 11-20	13,900	11		58	16	37	2.2	128	133	32		5.0	.00	357	.49	13,400	210	106	27	1.1	566	7.6
June 21-30	10,500	9.9		61	19	52	2.2	126	171	45		4.6	.00	427	.58	12,110	230	127	33	1.5	673	7.6
July 1-10	5,061	11		87	29	82	3.6	145	268	81		4.5	.10	637	.87	8,700	336	217	34	2.0	990	7.6
July 11-20	2,529	10		118	44	125	4.8	162	416	123		6.0	.13	927	1.26	6,330	476	343	36	2.5	1,400	7.6
July 21-26, 28-31	2,928	16		144	56	163	7.1	183	568	148		13	--	1,210	1.65	9,570	590	440	37	2.9	1,720	8.0
July 27	2,890	19		265	81	205	11	196	1,050	121		5.5	--	1,850	2.52	14,440	994	834	31	2.8	2,360	7.9
Aug. 1-10	3,766	20		163	49	124	6.9	195	558	103		6.4	--	1,130	1.54	11,490	608	448	30	2.2	1,570	7.8
Aug. 11-20	2,941	17		162	54	148	7.1	205	587	118		9.4	.11	1,200	1.63	9,530	626	458	34	2.6	1,680	7.5
Aug. 21-31	2,381	17		177	62	169	7.4	202	695	129		13	--	1,370	1.86	8,810	696	531	34	2.8	1,880	7.9
Sept. 1-10	1,684	13		178	73	194	7.2	198	758	156		15	--	1,490	2.03	6,770	744	582	36	3.1	2,040	7.8
Sept. 11-20	1,541	11		204	88	229	7.5	184	917	185		16	.20	1,750	2.38	7,280	871	720	36	3.4	2,410	7.6
Sept. 21-30	2,207	16		191	73	207	6.5	213	776	165		12	--	1,550	2.11	9,240	776	602	36	3.2	2,150	7.6
Weighted average	a5,137	13		93	32	95	4.4	159	301	88		6.0	--	709	0.96	9,830	364	233	36	2.2	1,060	--

a Represents 81 percent of runoff for water year October 1954 to September 1955.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	48	--	--	--	--	--	53	59	66	75	67
2	59	--	--	--	32	--	44	52	60	68	75	68
3	59	46	32	--	--	--	--	--	58	72	76	68
4	61	--	--	--	32	33	--	52	58	68	75	77
5	61	46	--	32	--	--	--	--	68	70	75	69
6	60	--	35	--	--	--	44	59	63	69	74	68
7	61	--	--	32	32	--	34	56	65	68	77	69
8	63	46	35	--	--	--	48	57	67	69	74	69
9	64	--	--	--	32	34	50	55	66	69	74	70
10	63	43	35	--	--	--	56	49	63	76	74	69
11	60	--	--	--	32	37	50	55	65	70	74	72
12	60	44	--	--	--	--	--	58	61	69	74	66
13	57	--	37	--	--	--	50	58	65	70	74	66
14	54	--	--	32	32	45	--	58	63	71	77	67
15	51	46	35	--	--	--	52	57	63	75	73	67
16	49	--	--	--	32	43	--	54	65	75	73	67
17	50	46	--	32	--	--	--	52	63	--	74	64
18	50	--	--	--	32	44	55	52	64	73	73	63
19	50	45	--	32	--	--	--	57	70	74	74	64
20	51	--	32	--	--	--	48	55	66	74	73	62
21	56	--	--	31	31	44	--	58	64	74	78	60
22	56	43	--	--	--	--	50	61	67	75	71	58
23	57	--	--	--	32	42	--	58	67	76	72	57
24	57	44	--	31	--	--	--	58	68	76	72	57
25	50	37	--	--	32	46	--	59	66	75	73	57
26	50	--	--	32	--	--	55	58	67	74	72	58
27	47	--	32	--	--	--	51	60	64	73	71	56
28	44	--	--	32	--	45	48	--	65	74	78	56
29	44	--	32	--	--	--	50	60	67	75	71	56
30	48	--	--	--	--	--	51	59	67	74	69	55
31	43	--	32	32	--	47	--	70	--	80	68	--
Average	55	--	--	--	--	--	--	57	64	72	74	64

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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	3,460	1,160	10,800	2,820	135	1,030	2,320	85	532
2	3,250	835	7,330	2,910	200	a 1,600	2,040	60	a 330
3	2,870	540	4,180	2,960	195	1,560	2,030	45	247
4	2,960	2,510	20,100	3,160	260	a 2,200	2,460	160	a 1,100
5	3,160	1,350	11,500	3,100	245	2,050	3,120	820	a 6,900
6	2,950	780	6,210	2,910	230	a 1,800	3,340	1,130	10,200
7	2,830	540	4,130	2,830	220	a 1,700	3,080	720	a 6,000
8	3,700	1,620	16,200	2,740	250	1,850	2,510	580	3,930
9	5,380	11,200	163,000	2,530	220	a 1,500	2,410	320	a 2,100
10	5,470	11,000	162,000	2,560	175	1,210	2,220	220	1,320
11	5,000	13,300	180,000	2,550	180	a 1,200	2,090	90	a 510
12	4,190	14,800	167,000	2,510	180	1,220	2,190	100	a 590
13	4,080	8,000	88,100	4,140	3,800	a 42,000	2,510	145	983
14	4,020	3,600	39,100	3,190	3,100	a 27,000	2,550	140	a 960
15	3,940	1,790	19,000	2,740	2,800	20,700	2,460	80	531
16	3,820	1,000	10,300	2,800	2,700	a 20,000	2,310	55	a 340
17	3,680	680	6,760	2,550	940	6,470	2,110	50	285
18	3,600	530	5,150	2,710	740	a 5,400	2,110	50	a 280
19	3,520	460	4,370	2,670	525	3,780	2,040	75	a 410
20	3,420	445	4,110	2,640	230	a 1,600	1,960	105	556
21	3,340	430	3,880	2,560	150	a 1,000	2,060	120	a 670
22	3,190	905	7,790	2,620	80	566	2,030	115	630
23	3,100	435	3,640	2,550	75	a 520	1,960	120	a 640
24	3,140	575	4,870	2,510	80	542	1,990	150	a 810
25	2,930	385	3,050	2,600	100	a 700	2,140	150	a 870
26	2,930	280	2,220	2,670	140	a 1,000	2,270	170	a 1,000
27	2,950	220	1,750	2,600	140	a 980	2,260	175	1,070
28	2,960	195	1,560	2,640	130	a 930	2,240	170	a 1,000
29	2,910	175	1,370	2,530	120	820	2,040	110	606
30	2,890	165	1,290	2,490	100	a 670	1,850	80	a 400
31	2,910	150	1,180	--	--	--	1,830	55	272
Total	108,550	--	961,940	82,790	--	153,598	70,530	--	46,072

Day	January			February			March		
1	1,870	70	a 350	2,280	190	a 1,200	2,800	260	a 2,000
2	2,100	130	a 740	2,350	220	1,400	3,050	240	1,980
3	2,350	160	1,020	2,320	200	a 1,300	3,300	2,000	a 18,000
4	2,650	400	a 2,900	2,260	190	1,160	3,700	3,400	34,000
5	3,100	1,330	11,100	2,220	200	a 1,200	4,200	4,000	a 45,000
6	2,900	920	a 7,200	2,100	190	a 1,100	3,700	3,400	a 34,000
7	2,560	425	2,940	2,000	180	972	3,000	2,900	23,500
8	2,200	200	a 1,200	2,050	190	a 1,100	3,200	3,500	a 30,000
9	1,980	110	a 590	2,100	230	1,300	3,700	4,000	40,000
10	1,930	95	a 500	2,030	220	a 1,200	4,800	6,500	a 84,000
11	1,990	100	a 540	1,980	225	1,200	6,000	18,200	295,000
12	2,070	185	1,030	2,000	210	a 1,100	4,800	13,000	a 170,000
13	2,150	160	a 930	2,040	180	a 990	4,400	12,000	a 140,000
14	2,190	115	680	2,100	190	1,080	4,200	10,800	122,000
15	1,980	110	a 590	2,200	550	a 3,300	4,000	7,500	a 81,000
16	2,170	160	a 940	2,330	2,060	13,000	3,700	3,200	32,000
17	2,070	145	810	2,400	2,000	a 13,000	3,400	1,900	a 17,000
18	2,040	120	a 660	2,430	1,800	11,800	3,060	1,400	11,600
19	2,000	125	675	2,550	1,800	a 12,000	2,780	860	a 6,500
20	2,050	120	a 660	2,400	400	a 2,600	2,510	610	a 4,100
21	2,040	90	496	2,150	240	1,390	2,320	475	2,980
22	2,000	100	a 540	1,900	240	a 1,200	2,120	420	a 2,400
23	1,900	80	a 410	1,950	265	1,400	2,170	445	2,610
24	1,900	85	436	2,000	250	a 1,400	2,310	500	a 3,100
25	2,000	100	a 540	2,050	260	1,440	2,320	560	3,510
26	2,050	180	996	2,150	240	a 1,400	2,420	550	a 3,600
27	2,130	270	a 1,600	2,300	260	a 1,600	2,440	550	a 3,600
28	2,150	340	1,970	2,550	270	a 1,900	2,290	340	2,100
29	2,200	290	a 1,700	--	--	--	2,290	290	a 1,800
30	2,250	240	a 1,500	--	--	--	2,360	450	a 2,900
31	2,330	180	1,130	--	--	--	2,440	280	1,840
Total	67,300	--	47,373	61,190	--	83,732	99,780	--	1,222,120

a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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 concentratioa (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	2,910	400	a 3,100	8,780	2,820	66,900	10,200	1,310	36,100
2.....	3,080	480	a 4,000	9,390	2,060	52,200	10,900	1,270	37,400
3.....	3,020	460	a 3,800	11,300	9,800	a 300,000	10,200	950	26,200
4.....	3,250	560	a 4,900	10,500	5,900	167,000	9,420	1,160	29,500
5.....	3,230	600	5,230	9,080	2,300	a 56,000	8,810	740	17,600
6.....	2,910	540	4,240	8,510	1,700	39,100	8,510	760	17,500
7.....	2,670	365	2,630	9,280	2,270	56,900	7,670	700	14,500
8.....	2,910	460	3,610	11,800	4,100	131,000	8,140	1,220	26,800
9.....	3,120	405	3,410	16,400	9,350	414,000	12,400	2,000	67,000
10.....	3,270	420	3,710	16,700	7,930	358,000	17,200	3,350	156,000
11.....	4,060	1,340	14,700	14,300	4,440	171,000	16,700	2,570	116,000
12.....	5,220	2,900	a 41,000	13,100	2,820	99,700	15,400	2,000	83,200
13.....	5,260	3,100	44,000	13,300	2,900	104,000	15,400	1,560	64,900
14.....	4,440	2,300	a 28,000	13,900	3,020	113,000	15,600	1,560	65,700
15.....	4,000	1,840	19,900	14,900	3,200	129,000	15,400	1,540	64,000
16.....	4,740	2,600	a 33,000	16,400	3,700	164,000	14,400	1,210	47,000
17.....	6,160	4,100	a 68,000	16,000	3,870	167,000	13,000	970	34,000
18.....	7,570	5,200	106,000	13,500	2,150	78,400	11,500	860	26,700
19.....	7,590	4,600	a 94,000	11,200	1,600	48,400	11,000	1,220	36,200
20.....	7,260	3,440	67,400	9,810	1,300	34,400	10,600	810	23,200
21.....	6,500	2,100	a 37,000	9,470	1,200	30,700	10,900	770	22,700
22.....	6,120	2,000	33,000	10,800	1,550	45,200	11,500	920	28,600
23.....	6,570	2,600	a 46,000	13,200	2,230	79,500	12,000	1,170	37,900
24.....	7,160	3,400	a 66,000	13,700	2,140	79,200	12,500	1,180	39,800
25.....	6,920	2,800	52,300	13,500	2,330	84,900	12,300	770	25,600
26.....	6,960	3,620	68,000	14,400	2,430	94,500	10,900	660	19,400
27.....	7,910	4,500	96,100	14,000	3,440	130,000	9,670	585	15,300
28.....	9,300	5,760	145,000	12,400	1,700	a 57,000	9,050	570	13,900
29.....	9,140	6,000	148,000	10,800	1,080	31,500	8,350	540	12,200
30.....	8,270	3,100	69,200	9,440	930	23,700	7,780	460	9,660
31.....	--	--	--	9,160	1,130	27,900	--	--	--
Total.	161,520	--	1,315,230	379,020	--	3,434,100	347,400	--	1,214,560

	July			August			September		
1.....	7,190	420	8,150	2,910	2,050	16,100	2,220	500	3,000
2.....	6,310	405	6,900	2,870	2,520	19,500	1,980	335	1,790
3.....	5,840	360	5,680	3,080	4,950	41,200	1,880	210	1,070
4.....	5,700	375	5,770	2,960	2,400	19,200	1,740	165	775
5.....	5,180	320	4,480	3,700	4,450	44,500	1,670	130	586
6.....	4,690	320	4,050	4,850	10,200	134,000	1,600	175	756
7.....	4,480	350	4,230	5,000	10,100	136,000	1,530	125	516
8.....	4,210	210	2,390	4,690	10,300	130,000	1,440	55	214
9.....	3,720	210	2,110	4,020	4,400	47,800	1,410	50	190
10.....	3,290	230	a 2,000	3,560	4,000	38,700	1,370	100	370
11.....	2,890	110	858	3,250	1,950	17,100	1,370	30	111
12.....	2,730	90	663	2,780	950	7,130	1,470	35	139
13.....	2,730	135	995	2,650	600	4,290	1,480	45	180
14.....	2,890	140	1,090	3,040	3,800	31,200	1,460	45	177
15.....	2,910	140	1,100	2,510	5,080	34,400	1,380	50	186
16.....	2,710	95	695	2,550	1,950	13,400	1,390	40	150
17.....	2,460	90	a 600	2,820	1,800	13,700	1,470	40	159
18.....	2,190	85	503	3,330	7,800	70,100	1,600	55	238
19.....	1,960	100	529	3,400	4,830	44,300	1,730	55	257
20.....	1,820	100	491	3,080	12,000	99,800	2,060	280	1,560
21.....	1,800	85	413	2,560	4,900	33,900	2,270	2,860	17,500
22.....	1,910	140	722	2,390	1,900	12,300	2,170	1,720	10,100
23.....	1,900	140	718	2,150	970	5,630	2,310	2,260	14,100
24.....	1,960	150	794	1,870	600	3,030	2,340	600	3,790
25.....	2,010	145	787	1,880	500	2,540	2,270	335	2,050
26.....	2,630	250	1,820	2,780	5,850	43,900	2,220	240	1,440
27.....	2,890	5,970	s 45,700	2,830	6,470	49,400	2,140	185	1,070
28.....	4,270	2,500	28,800	2,480	6,700	44,900	2,110	150	855
29.....	4,820	5,330	69,400	2,490	2,400	16,100	2,090	120	677
30.....	4,400	2,280	27,100	2,370	1,120	7,170	2,150	110	639
31.....	3,520	1,000	9,500	2,390	940	6,070	--	--	--
Total.	108,070	--	239,038	93,260	--	1,187,360	54,320	--	64,645

Total discharge for year (cfs-days) 1,633,730
Total load for year (tons) 9,969,768

s Computed by subdividing day.
a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Particle-size analyses of sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
Oct. 1, 1954	5:25 p.m.	3,360	64	1,010	5,500		45	--	71	85	94	99	100		--		SPWCM
Oct. 4	12:10 p.m.	3,250	65	5,200	2,860		55	--	85	96	99	100	--		--		SPWCM
Oct. 9	8:45 a.m.	6,500	64	15,200	4,100		45	--	75	88	96	99	100		--		SPWCM
Oct. 13	5:50 p.m.	4,040	58	6,750	3,800		70	--	92	97	99	99	100		--		SPWCM
Apr. 10, 1955	2:10 p.m.	3,170	56	384	5,280		39	--	54	67	83	93	99		100		SPWCM
Apr. 26	6:40 a.m.	6,480	55	2,730	4,560		27	--	43	57	77	95	100		--		SPWCM
May 9	1:10 p.m.	16,600	57	10,100	5,190		23	--	38	56	80	95	99		100		SPWCM
May 21	6:30 p.m.	9,720	64	1,220	3,780		13	--	21	29	46	78	95		100		SPWCM
June 1	8:45 a.m.	9,810	59	974	2,900		13	--	21	30	45	76	97		100		SPWCM
June 9	4:00 p.m.	13,400	71	2,070	3,640		13	--	20	33	55	85	99		100		SPWCM
June 10	3:00 p.m.	17,800	67	3,440	3,760		19	--	31	47	68	89	99		100		SPWCM
June 11	5:00 p.m.	15,900	65	2,210	4,090		20	--	35	47	60	82	98		100		SPWCM
June 13	6:20 p.m.	15,200	67	1,500	5,210		16	--	28	39	53	77	99		100		SPWCM
June 14	7:15 p.m.	15,300	64	1,570	5,480		15	--	29	40	53	77	99		100		SPWCM
June 24	3:15 p.m.	13,000	70	886	3,440		15	--	27	36	50	74	98		100		SPWCM
July 4	5:15 p.m.	5,880	74	343	857		13	15	20	26	40	64	99		100		SBWCM
July 26	11:30 a.m.	3,310	77	305	814		--	54	58	70	88	97	100		--		SBWCM
July 27	7:40 a.m.	2,760	73	15,000	4,120		70	--	98	100	--	--	--		--		PWCM
July 28	6:10 a.m.	3,800	74	2,720	2,650		58	--	86	93	97	99	100		--		SPWCM
July 29	3:30 p.m.	5,020	79	7,810	3,790		66	--	94	96	98	99	100		--		SPWCM
July 30	2:10 p.m.	4,480	79	2,190	4,510		62	--	86	93	96	98	100		--		SPWCM
July 31	8:15 p.m.	3,290	80	740	3,400		59	--	87	93	96	98	99		100		SPWCM
Aug. 5	4:20 p.m.	3,860	79	4,710	4,760		66	--	91	97	99	100	--		--		SPWCM
Aug. 6	2:10 p.m.	4,760	79	10,400	5,070		69	--	97	98	99	100	--		--		SPWCM
Aug. 7	7:15 p.m.	4,650	77	9,450	5,140		70	--	92	97	99	100	--		--		SPWCM
Aug. 8	10:45 a.m.	4,960	78	5,320	5,620		67	--	91	95	98	99	100		--		SPWCM
Aug. 9	3:20 p.m.	4,060	80	3,020	6,320		67	--	93	95	99	99	100		--		SPWCM
Aug. 10	7:20 p.m.	3,440	79	2,700	5,450		68	--	95	97	99	100	--		--		SPWCM
Aug. 14	12:45 p.m.	3,340	77	3,430	3,360		62	--	86	96	99	100	--		--		SPWCM

Aug. 15, 1955	3:30 p.m.	2,370	80	6,110	5,810	70	--	96	99	100	--	--	--	--	SPWCM
Aug. 16	7:20 p.m.	2,420	77	1,240	3,280	67	--	90	97	99	100	--	--	--	SPWCM
Aug. 18	7:20 p.m.	4,250	78	5,990	3,240	55	--	82	92	98	100	--	--	--	SPWCM
Aug. 19	3:40 p.m.	3,170	80	4,560	4,520	59	--	92	98	99	100	--	--	--	SPWCM
Aug. 20	3:30 p.m.	2,980	80	9,620	4,870	76	--	97	100	--	--	--	--	--	SPWCM

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 a quarter of a 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 above gaging station, approximately, of which 300 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: May 1951 to September 1955.
Water temperatures: May 1951 to September 1955.
Sediment records: May 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 662 ppm Dec. 21-31; minimum, 170 ppm June 21-30
Hardness: Maximum, 360 ppm Dec. 21-31; minimum, 115 ppm June 21-30.
Specific conductance: Maximum daily, 1,180 micromhos Dec. 4; minimum daily, 264 micromhos June 27.
Water temperatures: Maximum, 78°F July 19, Aug. 13; minimum, freezing point Dec. 6, 13.
Sediment concentrations: Maximum daily, 2,640 ppm Apr. 13; minimum daily, 7 ppm on several days.
Sediment loads: Maximum daily, 12,100 tons Apr. 13; minimum daily, 6 tons Jan. 6-10.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 760 ppm Dec. 8-10, 1953; minimum, 159 ppm June 21-30, 1953, May 21-31, 1954.
Hardness: Maximum, 412 ppm Dec. 8-10, 1953; minimum, 114 ppm July 1-10, 1954.
Specific conductance: Maximum daily, 1,240 micromhos Dec. 13, 1953; minimum daily, 219 micromhos May 22, 1954.
Water temperatures: Maximum, 78°F July 19, Aug. 13, 1955; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 2,640 ppm Apr. 13, 1955; minimum daily, 6 ppm Jan. 21-31, 1954.
Sediment loads: Maximum daily, 32,900 tons July 15, 1952; minimum daily, 6 tons Jan. 6-10, 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	636	7.4		58	25	63	1.6	182	212	9.0		0.9	--	466	0.63	800	248	98	35	1.7	700	8.0
Oct. 11-20	689	10		64	26	63	1.7	198	216	11		.9	0.14	490	.67	912	266	104	34	1.7	730	7.9
Oct. 21-31	646	9.5		66	27	64	1.7	204	219	10		.6	--	506	.69	883	276	108	33	1.7	747	8.0
Nov. 1-10	663	10		68	28	63	1.7	215	221	11		.6	--	520	.71	931	284	108	32	1.6	760	8.2
Nov. 11-20	710	10		70	28	63	1.7	213	225	11		.5	.12	516	.70	989	290	115	32	1.6	762	8.0
Nov. 21-30	603	10		70	29	63	1.7	217	223	10		.3	--	518	.70	843	294	116	32	1.6	766	8.0
Dec. 1-10	303	14		83	34	77	2.0	261	277	14		.5	--	646	.88	528	347	133	32	1.8	940	8.0
Dec. 11-20	301	13		82	33	73	2.0	241	275	12		.1	.07	626	.85	509	340	142	32	1.7	899	8.1
Dec. 21-31	263	12		88	34	75	2.0	250	292	11		.2	--	662	.90	470	360	154	31	1.7	943	8.2
Jan. 1-10, 1955	323	12		81	31	73	2.0	229	274	10		.2	--	614	.84	535	330	142	32	1.7	884	8.0
Jan. 11-20	304	11		84	32	74	2.0	230	286	10		.2	.06	634	.86	520	341	152	32	1.7	906	8.1
Jan. 21-31	325	13		78	31	70	1.6	213	272	9.2		.4	--	587	.80	515	322	148	32	1.7	860	7.9
Feb. 1-10	376	11		76	29	64	1.6	211	258	8.2		.3	--	565	.77	574	308	136	31	1.6	835	7.9
Feb. 11-19	389	11		76	29	63	1.6	208	257	7.8		.2	.10	556	.76	584	308	138	31	1.6	831	7.8
Feb. 20-28	337	11		76	29	63	1.6	209	256	7.5		.3	--	558	.76	508	308	137	31	1.6	823	7.8

Mar. 1-10, 1955..	429	12		74	29	64	1.4	208	246	9.2		.3	--	544	.74	630	304	133	31	1.6	815	7.9
Mar. 11-20	607	9.7		70	29	67	1.9	193	260	9.5		.3	.05	553	.75	906	294	136	33	1.7	830	7.8
Mar. 21-31.....	587	9.7		73	29	68	1.9	198	269	11		.2	--	569	.77	902	301	139	33	1.7	848	7.8
Apr. 1-10.....	958	8.3		67	27	68	2.0	182	260	12		.4	--	546	.74	1,410	278	129	35	1.8	814	7.5
Apr. 11-20.....	1,613	11		53	20	45	3.1	173	150	8.5		.4	.04	380	.52	1,650	214	72	31	1.3	595	7.6
Apr. 21-30.....	1,169	8.9		60	23	47	2.6	195	164	8.8		.9	--	424	.58	1,340	244	84	29	1.3	646	7.8
May 1-10	1,139	8.6		63	23	43	2.4	198	167	8.5		.4	--	420	.57	1,290	252	90	27	1.2	642	7.8
May 11-20	1,709	9.7		52	17	28	1.9	162	114	5.0		.6	.11	307	.42	1,420	200	67	23	.9	481	7.8
May 21-31	3,242	8.5		35	16	18	1.9	119	88	4.5		.8	--	231	.31	2,020	154	56	20	.6	340	7.6
June 1-10	2,670	9.3		41	15	26	1.9	151	85	4.8		.6	--	267	.36	1,920	164	40	25	.9	424	7.8
June 11-20	5,160	10		33	9.7	14	1.5	120	46	3.2		1.4	.00	181	.25	2,520	122	24	20	.6	297	7.7
June 21-30	4,496	8.8		30	9.7	14	1.5	118	44	2.6		1.0	--	170	.23	2,060	115	18	21	.6	288	7.8
July 1-10	2,391	8.4		37	13	23	.9	139	71	3.9		.9	--	232	.32	1,500	146	32	25	.8	382	7.7
July 11-20	1,551	6.9		40	14	29	2.8	150	89	4.5		1.8	.00	265	.36	1,110	158	34	28	1.0	431	8.0
July 21-22, 24-26, 28-31	1,752	6.0		40	15	29	1.4	156	88	4.5		1.0	--	270	.37	1,280	162	34	28	1.0	440	7.8
July 23, 27.....	1,765	8.7		55	17	--	--	176	170	7.5		2.2	--	412	.56	1,960	210	86	--	--	641	7.7
Aug. 1-10.....	1,334	6.2		44	15	29	1.8	159	95	5.2		.2	--	281	.38	1,010	172	41	27	1.0	459	7.6
Aug. 11-20.....	1,111	6.5		44	16	33	1.8	148	117	5.5		.2	.04	306	.42	918	176	54	29	1.1	487	7.6
Aug. 21-31.....	915	7.5		44	17	37	1.8	142	129	5.9		.2	--	319	.43	788	180	64	31	1.2	502	7.6
Sept. 1-10.....	654	7.5		46	19	47	1.8	141	161	6.9		.2	--	374	.51	660	193	78	34	1.5	561	7.9
Sept. 11-20	519	5.2		50	22	56	1.8	150	193	7.8		.1	.06	409	.56	573	216	92	36	1.7	641	7.6
Sept. 21-30	569	6.5		57	24	61	1.8	162	229	9.0		.0	--	486	.66	747	240	108	35	1.7	726	7.9
Weighted average	1,155	8.9		48	18	35	1.8	157	128	6.1		0.8	--	329	0.45	1,030	194	66	28	1.1	508	--

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	42	33	34	35	35	35	52	55	63	66	62
2	46	36	--	35	34	35	35	49	53	64	67	69
3	47	42	33	35	34	35	34	50	50	64	69	60
4	48	41	33	34	33	35	34	48	52	66	70	61
5	49	43	34	33	33	35	34	55	55	66	70	63
6	49	46	32	33	33	34	35	58	57	64	70	62
7	50	42	33	33	34	35	35	56	65	60	66	63
8	49	41	33	33	34	34	35	55	67	59	65	63
9	49	41	33	33	33	34	36	--	65	62	65	60
10	54	42	33	33	33	34	36	59	64	63	75	57
11	48	38	--	34	34	35	34	63	66	65	66	59
12	49	39	--	34	35	35	35	61	63	61	65	56
13	46	41	32	33	35	35	35	63	66	62	78	57
14	45	39	33	34	35	34	42	63	62	70	76	59
15	45	43	33	33	34	33	42	63	63	68	76	57
16	50	45	33	34	34	34	45	55	60	69	76	56
17	45	38	34	34	35	34	43	--	59	74	76	60
18	45	39	33	33	35	34	45	57	--	77	76	56
19	49	39	33	33	34	34	45	58	64	78	76	57
20	46	38	33	33	33	34	43	62	65	69	65	55
21	45	38	35	33	33	34	40	65	68	70	65	55
22	47	39	33	33	33	34	46	64	68	77	65	56
23	45	38	34	33	34	34	45	64	69	74	65	55
24	40	38	34	33	33	34	46	60	69	72	--	51
25	38	44	34	35	34	34	49	53	64	70	63	51
26	36	38	34	34	33	34	53	55	71	65	61	50
27	41	38	33	33	33	34	52	55	67	67	61	45
28	44	36	33	33	34	35	43	53	67	66	64	47
29	44	33	34	33	--	36	45	50	65	65	63	46
30	44	33	34	33	--	35	45	57	62	65	60	46
31	45	--	34	34	--	36	--	58	--	71	61	--
Average	46	40	33	34	34	34	41	57	63	67	68	56

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1954 to September 1955

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	598			690			281	19	14
2	598			661			290	--	e 26
3	589	.12	20	661	32	57	300	61	49
4	598			661			300	59	48
5	643			652			300	64	52
6	700			652	16	28	300	40	32
7	607			661			310	32	27
8	580	38	69	680			310	30	25
9	634			661			320	35	30
10	818			652	13	23	320	44	38
11	960	373	967	643			330		
12	700	273	516	661			330		
13	652	261	459	710			320	26	22
14	625	258	435	740			310		
15	634	282	483	740			300		
					21	42			
16	661			760			290		
17	680			730			280		
18	661	43	77	710			280	21	16
19	661			710			280		
20	652			700			290		
21	634			661	12	22	300		
22	634			652			310		
23	625	77	130	661			250	21	15
24	634			680			220		
25	598			690			210		
26	625			680			210		
27	634			661	40	61	220		
28	643	33	59	598			240	13	9
29	680			456			270		
30	700			290			310		
31	700			--	--	--	350		
Total	20,358	--	4,694	19,764	--	1,201	8,931	--	660

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	390			370			360		
2	380			380			370		
3	340	24	23	370	23	23	380	7	7
4	320			370			390		
5	310			380			410		
6	300			390			430		
7	290			380			450		
8	290	8	6	370	13	13	470	31	40
9	300			370			500		
10	310			380			530		
11	310			400			560		
12	320			420			600		
13	320	15	13	420	12	13	660	92	163
14	320			410			750		
15	310			390			710		
16	300			380			640		
17	290			370			590		
18	280	14	11	360	12	12	540	73	110
19	290			350			520		
20	300			350			500		
21	320			340			480		
22	330			330			520		
23	320	12	10	330	14	13	540	31	43
24	320			330			520		
25	310			330			510		
26	310			330			510		
27	310			340	9	8	520		
28	320	14	12	350			550	57	100
29	330			--	--	--	620		
30	340			--	--	--	812		
31	360			--	--	--	877		
Total	9,840	--	387	10,290	--	394	16,819	--	2,415

e Estimated.

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1954 to September 1955--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	825			968			2,060	60	334
2	838			1,010			2,440	150	988
3	740	114	253	1,140	38	112	2,950	172	1,370
4	890			1,190			3,500	160	1,510
5	812			1,150			3,430	135	1,250
6	955			1,050			2,900		
7	968			1,060			2,510		
8	1,080	163	482	1,160	53	170	2,170	69	459
9	1,220			1,280			2,080		
10	1,250			1,380			2,660		
11	1,200	495	1,600	1,420			3,780		
12	1,500	810	3,300	1,390			4,300		
13	1,700	2,640	12,100	1,530	66	278	4,710	265	3,380
14	1,790	1,700	8,220	1,650			5,220		
15	1,760	600	2,850	1,820			5,580		
16	1,680	370	1,680	1,960			5,820	343	5,390
17	1,680	380	1,720	2,100			5,640	358	5,450
18	1,680	395	1,790	1,900	121	606	5,700	222	3,420
19	1,640	392	1,740	1,740			5,580	220	3,310
20	1,500	214	867	1,580			5,270	170	2,420
21	1,350	180	656	1,550	68	275	4,810		
22	1,280	122	422	2,020	93	507	4,480		
23	1,250	75	253	3,310	377	3,370	4,360	127	1,560
24	1,190	73	235	4,080	610	6,720	4,460		
25	1,120	50	151	4,180	645	7,280	4,580		
26	1,120			4,560	700	8,620	4,710	102	1,300
27	1,180			4,430	740	8,850	4,790	96	1,240
28	1,140	40	119	3,660	515	5,090	4,630	80	1,000
29	1,070			3,090	270	2,250	4,260	77	886
30	994			2,590	77	538	3,880	59	618
31	--	--	--	2,190	60	355	--	--	--
Total	37,402	--	41,854	64,138	--	49,685	123,260	--	57,481

Day	July			August			September		
1	3,580			1,600	89	384	773		
2	3,310			1,490	60	241	730		
3	2,920	36	285	1,390	53	199	710	10	19
4	2,550			1,290	40	139	680		
5	2,290			1,230	35	116	670		
6	2,060			1,220	97	320	636		
7	1,870			1,310	335	1,180	620		
8	1,770	18	90	1,240	163	546	588	10	16
9	1,770			1,290	110	383	573		
10	1,790			1,280	135	467	559		
11	1,770			1,200			552		
12	1,710			1,140			545		
13	1,660	31	141	1,100	49	148	538	7	10
14	1,680			1,070			531		
15	1,620			1,070			517		
16	1,530	15	62	1,140			498		
17	1,450	11	43	1,120			492		
18	1,380	12	45	1,100	37	110	486	8	11
19	1,350	12	44	1,100			498		
20	1,360	14	51	1,070			531		
21	1,380	14	52	1,030			498		
22	1,410	15	57	994	20	54	504		
23	1,390	--	e 200	968			486	12	16
24	1,310	120	424	929	--	e 44	480		
25	1,840	180	894	916			510		
26	1,940	252	1,320	903			690	285	s 572
27	2,140	1,000	5,780	929	15	36	690	200	373
28	2,100	381	2,160	890			636	66	113
29	2,060	212	1,180	864			620	83	139
30	1,970	141	750	838			580	50	78
31	1,760	100	475	799			--	--	--
Total	58,720	--	16,117	34,510	--	5,723	17,421	--	1,635

Total discharge for year (cfs-days) 421,453

Total load for year (tons) 182,246

e Estimated.

s Computed by subdividing day.

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Apr. 14, 1955....	5:35 p.m.	1,560	41	443	3,250		61		78	86	89	93	98		100	--	SPWCM
May 10.....	3:45 p.m.	1,340	61	45	1,190	58	66	74	79	85	93	96	97		99	100	SBWCM
May 26.....	1:45 p.m.	4,580	55	719	4,680		51		74	81	83	88	95		98	100	SPWCM

GREEN RIVER BASIN--Continued

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 Green River.
DRAINAGE AREA.--3,670 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 4,330 ppm Feb. 1-14; minimum, 410 ppm May 11-20.
Hardness: Maximum, 1,980 ppm Feb. 1-14; minimum 58 ppm Oct. 14, 17.
Specific conductance: Maximum daily, 5,780 micromhos Feb. 12; minimum daily, 554 micromhos May 15.
Water temperatures: Maximum, 84°F July 15-16; minimum, 33°F Feb. 5.
EXTREMES, 1951-55.--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 daily, 414 micromhos Apr. 4, 1952, Feb. 13, 1954.
Water temperatures: Maximum, 84°F July 15-16, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Prior to Oct. 1, 1953, samples were collected at gaging station near Green River. Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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) [7]	Nitrate (NO_3)	Boron (B)	Dissolved solids (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day [1]	Calcium, magnesium	Noncarbonate				
Oct. 14, 17, 1954.	1.0	20	0.10	19	2.6	156	1.7	189	183	40	--	3.1	0.27	518	0.70	1.40	58	0	85	8.9	802	8.0
Nov. 1-10.....	.5	12	.06	250	117	610	10	185	1,960	195	0.5	1.7	.59	3,250	4.42	4.39	1,100	954	54	8.0	3,980	7.6
Nov. 11-20.....	10.8	9.6	.07	164	75	283	5.3	207	997	103	.5	.4	.36	1,740	2.37	50.7	718	548	46	4.6	2,330	7.8
Nov. 21-30.....	13.9	9.8	.07	174	76	261	5.3	225	973	99	.2	.7	.35	1,710	2.33	64.2	746	562	43	4.2	2,280	7.8
Dec. 1-8	1.0	12	.06	232	106	376	7.1	325	1,330	152	.6	2.6	.47	2,380	3.24	6.43	1,020	748	44	5.1	3,070	7.8
Dec. 9-20	1.0	9.7	.06	164	69	182	5.7	365	654	82	.2	.5	.30	1,350	1.84	3.64	692	394	36	3.0	1,880	7.8
Dec. 21-31.....	1.0	11	.08	226	92	249	6.0	502	906	118	.5	.3	.38	1,860	2.53	5.02	942	513	36	3.5	2,480	7.7
Feb. 1-14, 1955..	.1	16	.09	432	220	676	13	828	2,240	310	.8	12	.86	4,330	5.89	1.17	1,980	1,300	42	6.6	5,150	7.5
Feb. 15-28.....	.1	19	.05	234	85	250	6.2	444	940	98	.5	2.2	.36	1,850	2.52	.50	934	570	37	3.6	2,430	7.7
Mar. 1-10	1.0	14	.05	166	60	160	4.9	340	628	71	.5	.7	.32	1,270	1.73	3.43	660	382	34	2.7	1,760	7.7
Mar. 11-20	100	13	.06	88	30	125	2.9	202	367	52	.3	1.2	.13	779	1.06	210	343	178	44	2.9	1,150	7.9
Mar. 21-28	140	13	.05	96	34	132	3.9	225	365	76	.3	.5	.17	832	1.13	314	380	195	43	2.9	1,240	7.7
Mar. 29-31, Apr. 1-10.....	189	12	.06	68	23	105	3.1	185	240	62	.4	.7	.11	605	.82	309	264	112	46	2.8	942	7.7
Apr. 11-20.....	326	17	.02	69	24	96	4.2	192	236	62	.4	1.7	.15	605	.82	533	270	113	43	2.5	938	7.7
Apr. 21-30	276	13	.03	82	28	67	3.8	234	198	46	.3	.9	.09	554	.75	413	320	128	31	1.6	878	7.5

May 1-10, 1955...	458	15	.09	66	21	40	3.3	208	129	28	.2	.9	.11	405	.55	501	251	80	25	1.1	632	8.1
May 11-20	605	13	.06	68	20	38	3.3	221	118	26	.2	1.3	.14	397	.54	648	256	75	24	1.0	625	7.8
May 21-31	449	13	.08	80	30	58	3.3	245	178	40	.2	.8	.14	524	.71	635	323	122	28	1.4	799	7.8
June 1-10.....	479	13	.06	84	27	66	3.3	254	201	44	.2	.6	.15	566	.77	732	320	112	31	1.6	873	7.9
June 11-20	713	13	.03	78	26	68	3.3	233	198	38	.2	1.0	.16	541	.74	1,040	302	110	33	1.7	853	7.8
June 21-30.....	269	13	.11	99	37	113	4.3	272	343	58	.3	.5	.25	807	1.10	586	399	176	38	2.5	1,190	8.0
July 1-10	77.8	13	.11	129	53	167	4.3	256	586	69	.4	.2	.32	1,150	1.56	242	540	330	40	3.1	1,610	7.9
July 11-20	23.2	15	.05	156	75	285	6.3	205	947	107	.5	.4	.43	1,690	2.30	106	698	530	47	4.7	2,250	7.7
July 21-31	63.1	13	.08	179	84	342	7.4	170	1,160	147	.4	.7	.47	2,020	2.75	344	792	652	48	5.3	2,670	7.9
Aug. 1-10	100	22	.01	120	58	283	6.8	168	848	88	.7	2.9	.42	1,510	2.05	408	538	400	53	5.3	2,070	7.4
Aug. 11-20	15.0	26	.01	142	48	291	7.3	216	805	124	.5	1.7	.38	1,550	2.11	62.8	552	375	53	5.4	2,120	7.5
Aug. 21-31.....	11.4	13	.00	132	64	257	6.7	148	877	97	.4	2.0	.41	1,520	2.07	46.8	592	471	48	4.6	2,070	7.5
Sept. 1-6	1.4	12	.01	134	70	317	8.4	134	993	126	.6	.8	.51	1,730	2.35	6.54	622	512	52	5.5	2,330	7.7
Sept. 26-30	67.4	25	.01	111	31	263	5.6	167	713	63	.6	.8	.38	1,300	1.77	237	404	268	58	5.7	1,800	7.6
Weighted average	a155	14	0.06	82	29	86	3.7	225	254	47	0.3	1.0	0.17	628	0.85	263	324	139	36	2.1	946	--

a Represents 99 percent of runoff for water year October 1954 to September 1955.

GREEN RIVER BASIN--Continued

BLACKS FORK NEAR MARSTON, WYO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

HENRYS FORK AT LINWOOD, UTAH

LOCATION.--About 75 yards upstream from gaging station, which is in Sweetwater County, Wyoming, 300 feet north of Wyoming-Utah State Line at Linwood, Daggett County.
DRAINAGE AREA.--531 square miles.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,450 ppm Sept. 1-10; minimum, 595 ppm June 9-20.
Hardness: Maximum, 1,470 ppm Sept. 1-10; minimum, 396 ppm June 9-20.
Specific conductance: Maximum daily, 2,990 micromhos Aug. 31; minimum daily, 683 micromhos June 11.
Water temperatures: Maximum, 66°F July 31; minimum, freezing point on many days during December to March.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 2,550 ppm Aug. 21-31, Sept. 1-2, 1954; minimum, 312 ppm June 1-6, 9-10, 1952.
Hardness: Maximum, 1,530 ppm Aug. 21-31, Sept. 1-2, 1954; minimum, 208 ppm June 1-6, 9-10, 1952.
Specific conductance: Maximum daily, 3,070 micromhos Aug. 20, 1954; minimum daily, 395 micromhos May 15, June 2, 1952.
Water temperatures: Maximum, 67°F July 1, 1954; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954.	6.8	23		201	105	113	12	300	827	57		0.6	0.38	1,490	2.03	27.4	933	687	21	1.6	1,910	7.9
Oct. 11-20	7.6	24		201	104	109	12	300	827	53		.4	.33	1,480	2.01	30.4	929	683	20	1.6	1,900	8.0
Oct. 21-31.....	10.3	23		198	105	108	12	302	815	53		.3	.37	1,460	1.99	40.6	926	678	20	1.5	1,870	7.9
Nov. 1-10	13.4	22		185	93	95	11	308	702	46		.4	.32	1,310	1.78	47.4	844	592	19	1.4	1,730	8.0
Nov. 11-20	20.3	21		179	90	87	10	306	663	42		.2	.30	1,240	1.69	68.0	816	566	19	1.3	1,650	8.0
Nov. 21-30	16.5	24		171	90	97	9.9	273	694	44		.6	.32	1,260	1.71	56.1	796	573	21	1.5	1,660	8.1
Dec. 1-10	25.0	27		182	90	97	10	318	677	44		.6	.33	1,280	1.74	86.4	824	564	20	1.5	1,670	7.9
Dec. 11-20	25.0	25		169	85	82	9.7	318	608	39		.6	.27	1,180	1.60	79.6	771	510	19	1.3	1,550	8.0
Dec. 21-31	25.0	22		167	76	72	8.5	312	548	36		.4	.31	1,080	1.47	72.9	729	474	17	1.2	1,450	7.9
Jan. 1-10, 1955.	25.0	21		157	73	68	8.1	291	529	34		.4	.25	1,030	1.40	69.5	692	453	17	1.1	1,390	7.9
Jan. 11-20.....	25.0	23		149	70	69	8.5	270	523	35		1.2	.17	1,010	1.37	68.2	660	439	18	1.2	1,360	7.7
Jan. 21-31.....	25.0	22		148	68	67	8.5	270	505	34		1.2	--	987	1.34	66.6	649	428	18	1.1	1,340	7.7
Feb. 1-10	30.0	21		140	63	60	7.7	269	451	32		3.3	--	911	1.24	73.8	608	388	17	1.1	1,250	7.6
Feb. 11-20	30.0	21		132	60	56	7.2	264	422	30		1.4	.17	860	1.17	69.7	576	360	17	1.0	1,190	7.7
Feb. 21-28	30.0	21		134	63	53	5.8	268	424	30		.8	.23	864	1.18	70.0	594	374	16	.9	1,200	7.9
Mar. 1-10	45.0	20		136	64	55	6.1	270	433	30		.7	.23	878	1.19	107	602	382	16	1.0	1,220	7.8
Mar. 11-20	45.0	20		118	56	69	9.5	240	422	31		.8	.26	844	1.15	103	525	328	22	1.3	1,180	8.0
Mar. 21-31.....	45.0	24		122	58	68	8.5	236	440	31		1.7	--	869	1.18	106	543	350	21	1.3	1,200	7.8

GREEN RIVER BASIN--Continued

HENRYS FORK AT LINWOOD, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955	70.0	23		109	47	62	9.5	225	363	28		1.8	--	754	1.03	143	466	281	22	1.3	1,060	8.1
Apr. 11-20	70.0	23		100	45	50	8.9	243	305	27		1.8	0.14	681	.93	129	434	236	20	1.0	979	7.7
Apr. 21, 23-30	50.3	20		122	61	64	7.6	270	405	33		.6	--	846	1.15	115	556	334	20	1.2	1,180	7.8
Apr. 22 a	54.0	--		--	--	--	--	292	639	47		1.6	--	--	--	--	680	440	--	--	1,610	8.1
May 1-10	42.8	19		116	56	60	8.4	240	401	36		.6	--	815	1.11	94.2	520	324	20	1.1	1,150	8.0
May 11-20	23.5	20		117	48	58	8.4	234	375	29		.6	.19	771	1.05	48.9	490	298	20	1.1	1,100	7.8
May 21-23, 30-31	4.6	23		180	85	97	11	303	681	52		.6	--	1,280	1.74	15.9	798	550	21	1.5	1,670	7.8
May 24-29	66.7	24		130	58	69	10	260	438	38		1.0	--	896	1.22	161	563	350	21	1.3	1,260	8.0
June 1-8	19.4	27		180	97	111	12	306	731	54		5.6	.25	1,370	1.86	71.8	848	598	22	1.7	1,770	7.5
June 9-20	183	26		96	38	35	7.3	232	253	23		3.0	.11	595	.81	294	396	206	16	.8	869	7.7
June 21-30	31.4	26		150	73	88	9.7	294	545	38		4.8	.23	1,080	1.47	91.6	674	434	22	1.5	1,430	7.8
July 1-10	1.5	29		286	147	194	14	373	1,260	81		5.5	.50	2,200	2.99	8.91	1,320	1,010	24	2.3	2,640	7.7
July 11-20	.9	27		315	153	200	15	368	1,360	85		5.6	.51	2,340	3.18	5.69	1,420	1,110	23	2.3	2,750	7.6
July 21-31	2.5	28		272	141	181	15	322	1,230	78		1.4	--	2,110	2.87	14.2	1,260	994	24	2.2	2,540	7.8
Aug. 1-6	1.8	29		310	156	199	15	355	1,370	84		.8	--	2,340	3.18	11.4	1,420	1,120	23	2.3	2,760	7.8
Aug. 7, 10	47.0	37		234	96	92		306	821	52		1.0	--	1,480	2.01	188	978	728	17	1.3	1,880	7.6
Aug. 8-9	19.5	34		154	49	71		251	463	36		2.1	--	933	1.27	49.1	586	380	21	1.3	1,280	7.8
Aug. 11-20	4.5	31		264	128	139	15	330	1,080	66		1.2	.49	1,890	2.57	23.0	1,180	914	20	1.8	2,290	7.8
Aug. 21-31	1.9	31		302	149	189	15	313	1,370	81		.1	.65	2,290	3.11	11.7	1,370	1,110	23	2.2	2,720	8.0
Sept. 1-10	1.7	26		324	161	205	14	337	1,470	84		.2	.74	2,450	3.33	11.2	1,470	1,190	23	2.3	2,880	8.0
Sept. 11-20	1.7	23		302	150	171	14	294	1,370	78		.1	.57	2,250	3.06	10.3	1,370	1,130	21	2.0	2,680	8.0
Sept. 21-30	12.1	23		238	118	124	14	287	1,020	70		.1	.45	1,750	2.38	57.2	1,080	844	20	1.6	2,200	8.0
Weighted average	b 29.0	23		133	61	65	8.6	260	451	33		1.7	--	904	1.23	70.8	583	370	19	1.2	1,240	--

a Not included for computation of weighted averages.

b Represents 99 percent of runoff for water year October 1954 to September 1955.

GREEN RIVER BASIN--Continued

HENRYS FORK AT LINWOOD, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	34	32	32	32	32	40	50	54	55	64	55
2	43	33	32	35	32	36	35	43	46	54	63	53
3	45	34	33	33	32	36	--	45	46	59	60	52
4	49	33	34	34	32	35	33	44	51	55	59	56
5	47	34	34	32	31	35	33	49	54	59	63	53
6	46	34	31	32	32	35	35	50	52	54	60	53
7	49	35	33	32	32	35	36	50	59	54	62	54
8	50	34	32	32	32	34	36	54	55	55	62	--
9	54	34	32	32	33	32	36	51	55	55	60	53
10	46	34	32	32	32	35	38	50	52	59	59	48
11	41	36	34	32	32	34	34	51	55	60	62	50
12	43	41	33	32	31	32	35	51	64	58	58	50
13	43	40	33	32	32	34	40	49	54	58	65	52
14	35	37	32	32	32	32	45	54	60	60	60	53
15	36	37	32	32	32	35	42	49	56	60	56	52
16	38	43	33	32	31	40	40	44	55	60	54	48
17	45	33	31	32	32	33	46	43	54	65	60	50
18	39	36	32	32	31	35	44	50	52	60	60	53
19	38	33	32	32	31	35	38	54	60	65	59	53
20	42	34	32	32	31	33	35	53	54	62	58	50
21	40	38	32	32	32	33	42	55	58	63	58	48
22	40	34	32	32	33	35	43	53	59	61	58	50
23	42	34	32	33	34	35	39	48	62	64	56	46
24	44	35	32	33	33	40	50	56	59	64	56	48
25	36	33	32	33	32	35	53	50	59	64	58	49
26	36	36	33	32	34	33	46	48	59	59	55	46
27	33	37	32	32	35	36	39	45	58	60	57	43
28	35	33	32	32	35	35	36	44	54	59	59	43
29	35	33	33	32	--	40	45	50	56	58	54	42
30	35	33	33	32	--	33	49	56	48	57	53	44
31	--	--	33	32	--	35	--	54	--	66	53	--
Average	42	35	32	32	32	35	40	50	55	59	59	50

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.--At county bridge 1 mile north of Maybell, Moffat County, and about 3½ miles downstream from gaging station.
DRAINAGE AREA.--3,410 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1955.
Water temperatures: November 1950 to September 1955.
Sediment records: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 498 ppm Sept. 21-30; minimum, 88 ppm June 11-20.
Hardness: Maximum, 202 ppm Sept. 21-30; minimum, 52 ppm June 11-20.
Specific conductance: Maximum daily, 947 micromhos Sept. 24; minimum daily, 116 micromhos June 10.
Water temperatures: Maximum, 80°F on several days during July and August; minimum, 33°F on many days during winter months.
Sediment concentrations: Maximum daily, 3,420 ppm Mar. 13; minimum daily, 8 ppm July 19-24.
Sediment loads: Maximum daily, 23,400 tons May 9; minimum daily, 2 tons Sept. 14-19.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 498 ppm Sept. 21-30, 1955; 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.
Water temperatures: Maximum, 81°F July 30, 1951; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 6,000 ppm July 22, 1951; minimum daily, 2 ppm Jan. 21 to Feb. 4, 1951.
Sediment loads: Maximum daily, 23,400 tons May 9, 1955; minimum daily, 1 ton Jan. 2 to Feb. 4, 1951.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	291	4.5		37	16	36	2.5	166	65	23		0.8	--	260	0.35	204	158	22	33	1.2	441	7.6
Oct. 11-20.....	503	9.3		33	12	25	2.5	142	48	12		1.2	0.08	211	.29	287	132	16	29	.9	347	7.6
Oct. 21-31.....	343	5.7		31	12	28	1.7	140	48	18		.6	--	210	.29	194	127	12	32	1.1	361	7.8
Nov. 1-10	285	7.3		34	15	33	1.7	156	62	21		.4	--	246	.33	189	146	18	32	1.2	413	7.8
Nov. 11-20	298	7.7		37	17	31	1.7	164	67	21		.4	.11	261	.35	210	162	28	29	1.1	436	7.9
Nov. 21-30	237	8.7		37	16	40	2.2	170	69	24		.4	--	282	.38	180	158	19	35	1.4	470	7.5
Dec. 1-10	212	12		40	18	43	2.3	185	75	28		.4	--	310	.42	177	174	22	35	1.4	508	7.7
Dec. 11-20	186	11		45	19	48	2.6	207	80	28		.5	.06	342	.47	172	190	21	35	1.5	559	7.8
Dec. 21-31.....	213	11		44	17	46	2.6	204	71	30		.4	--	326	.44	187	180	13	35	1.5	539	7.6
Jan. 1-10, 1955...	217	10		40	16	43	2.2	187	64	28		.4	--	296	.40	173	166	13	36	1.5	496	7.6
Jan. 11-20.....	191	13		40	15	44	2.1	187	63	28		.9	.09	295	.40	152	162	8	37	1.5	498	7.6
Jan. 21-31.....	198	14		38	15	40	2.2	178	60	27		1.1	--	284	.39	152	156	10	35	1.4	480	7.4
Feb. 1-10	192	14		37	15	40	2.2	178	61	26		1.2	--	284	.39	147	154	8	36	1.4	471	7.9
Feb. 11-19	208	14		39	16	42	2.2	184	65	26		1.2	.09	295	.40	166	164	12	35	1.4	490	7.6
Feb. 20-28	174	15		39	16	42	2.2	186	67	26		1.0	--	299	.41	140	164	11	35	1.4	498	7.7
Mar. 1-10.....	231	12		41	14	39	2.9	169	77	21		.8	--	296	.40	185	160	22	34	1.3	482	7.6
Mar. 11-20.....	705	9.2		43	15	34	4.4	149	98	18		1.7	.04	308	.42	586	169	47	30	1.1	488	7.8
Mar. 21-31.....	434	14		42	17	44	2.5	168	97	24		1.8	--	344	.47	403	175	38	35	1.4	523	8.0

Apr. 1-10, 1955...	732	12		42	14	34	2.5	153	87	16		2.1	--	281	.38	555	162	37	31	1.2	450	7.9
Apr. 11-15	1,524	16		46	15	29	4.2	148	99	10		3.3	.02	297	.40	1,220	176	55	26	.9	460	7.5
Apr. 16-20	3,508	14		37	10	12	2.5	129	47	5.0		3.3	.01	218	.30	2,060	134	28	16	.5	317	7.5
Apr. 21-30	2,780	13		27	9.6	12	2.5	108	39	4.2		2.4	--	186	.25	1,400	107	18	19	.5	261	7.4
May 1-10.....	4,566	11		23	6.9	6.7	2.5	87	20	3.4		2.3	--	138	.19	1,700	86	14	14	.3	194	7.3
May 11-20.....	5,383	10		18	4.7	5.8	2.1	70	15	4.4		1.2	.00	109	.15	1,580	64	7	16	.3	154	7.2
May 21-31.....	4,711	10		15	3.9	5.2	1.3	58	14	3.9		2.5	--	92	.13	1,170	54	6	17	.3	146	7.1
June 1-10.....	3,817	9.8		16	4.3	5.4	1.3	62	15	4.2		1.5	--	96	.13	989	58	6	16	.3	149	7.1
June 11-20.....	3,766	9.1		14	4.0	5.5	1.3	60	13	3.8		1.4	.08	88	.12	895	52	2	18	.3	142	7.1
June 21-30.....	2,483	7.5		14	4.5	6.6	1.3	60	14	4.9		1.4	--	90	.12	603	54	4	21	.4	144	7.1
July 1-10.....	910	8.8		20	6.3	15	1.9	82	25	14		1.2	--	136	.18	334	76	9	29	.7	236	7.2
July 11-20.....	362	10		27	9.5	31	2.1	114	44	24		1.6	.03	213	.29	208	106	13	38	1.3	363	7.3
July 21-31.....	262	5.2		31	12	36	2.1	133	53	25		.8	--	237	.32	168	127	18	38	1.4	404	7.7
Aug. 1-10	327	3.0		30	12	28	3.0	139	47	20		1.7	--	220	.30	194	124	10	32	.8	376	7.6
Aug. 11-20	249	3.0		32	14	32	3.0	152	51	21		1.1	.09	238	.32	160	138	13	33	1.2	409	7.6
Aug. 21-31	175	5.1		42	14	45	3.9	162	81	30		1.1	--	309	.42	146	162	30	37	1.5	514	7.6
Sept. 1-10.....	92.2	3.1		36	16	54	3.9	168	74	42		.4	--	319	.43	79.4	156	18	42	1.9	541	7.7
Sept. 11-20.....	44.0	3.8		42	21	98	3.8	194	120	85		.9	.07	480	.65	57.0	192	32	52	3.1	808	7.6
Sept. 21-30.....	65.3	3.2		46	21	99	5.1	208	147	66		.6	--	498	.68	87.8	202	31	51	3.0	818	7.7
Weighted average	1,067	10		23	7.5	13	2.0	93	31	8.1		1.8	--	153	0.21	441	88	12	24	0.6	237	--

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	43	33	33	33	33	--	52	55	66	80	73
2	60	43	33	33	33	33	34	47	55	67	80	--
3	60	43	33	33	33	33	34	48	54	69	80	70
4	60	43	33	33	33	33	35	48	55	69	80	74
5	60	43	33	33	33	33	35	49	56	69	80	76
6	60	43	33	33	33	33	35	49	58	70	76	74
7	60	43	33	33	33	33	35	50	60	69	76	73
8	59	43	33	33	33	33	35	49	60	72	74	73
9	59	43	33	33	33	34	36	52	60	72	74	70
10	58	43	33	33	33	35	36	54	60	73	75	--
11	56	43	33	33	33	35	35	54	60	70	76	70
12	54	44	33	33	33	35	35	55	60	74	75	69
13	49	42	33	33	33	35	36	55	60	75	75	69
14	50	44	33	33	33	35	36	54	60	76	76	68
15	50	44	33	33	33	35	36	53	--	76	80	68
16	59	43	33	33	33	35	36	50	57	78	78	66
17	50	41	33	33	33	35	36	49	60	78	77	64
18	52	42	33	33	33	35	36	49	62	78	76	62
19	50	42	33	33	33	34	38	50	62	79	77	60
20	50	42	33	33	33	34	40	56	62	79	76	60
21	50	43	33	33	33	34	42	55	64	80	78	60
22	50	42	33	33	33	34	42	55	68	80	75	60
23	50	43	33	33	33	34	42	54	69	79	75	60
24	42	43	33	33	33	34	42	55	65	80	75	60
25	45	43	33	33	33	34	43	53	64	79	75	60
26	45	43	33	33	33	34	45	53	64	77	74	60
27	43	38	33	33	33	34	46	53	66	78	76	60
28	43	34	33	33	33	34	47	53	65	78	75	60
29	42	34	33	33	--	35	48	53	65	79	74	58
30	45	33	33	33	--	35	50	54	65	79	74	59
31	43	--	33	33	--	36	--	55	--	79	75	--
Average	52	42	33	33	33	34	38	52	61	75	76	66

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Suspended sediment, water year October 1954 to September 1955

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	240	60	40	330			135		
2	233			307			170		
3	264	--	e 43	294	35	28	200	46	26
4	252			280			250		
5	244			294			280		
6	230	63	45	289			300		
7	252			272			250		
8	340			264	27	20	200	43	25
9	355	275	264	264			160		
10	504	2,060	s 2,870	260			180		
11	588	2,080	3,300	248			200		
12	642	3,100	5,370	233			200		
13	576	1,100	1,710	244	30	22	180	28	15
14	546	360	531	284			180		
15	510			340			200		
16	475			360			180		
17	436	63	76	340			170		
18	430			320	33	29	160	28	14
19	415			312			180		
20	410			294			210		
21	390			260			220		
22	365			244			220		
23	340			256	25	17	230	24	15
24	325	42	39	272			240		
25	316			264			250		
26	316			260			250		
27	360			244			210		
28	365			236	48	28	150		
29	340	33	31	205			170	20	11
30	320			128			190		
31	335			--	--	--	210		
Total	11,714	--	15,238	8,198	--	720	6,325	--	541

Day	January			February			March		
1	220			200			210		
2	220			210			200		
3	240	23	15	200			210		
4	250			180	24	12	220		
5	250			180			210	18	10
6	230			180			190		
7	200			170			220		
8	190	21	11	190			250	610	412
9	180			210			280	620	469
10	190			200	19	10	320	625	540
11	200			180			400	1,320	1,430
12	190			180			700	2,900	5,480
13	180	23	12	200			1,500	3,420	13,900
14	180			210			1,000	1,460	3,940
15	180			220			800	1,020	2,200
					16	9			
16	210			230			650	700	1,230
17	190			230			550	280	416
18	170	22	12	220			500	325	439
19	190			200			500	320	432
20	220			170			450	175	213
					14	6			
21	210			140			350	120	113
22	200			150			370	120	120
23	190	28	16	150			400	210	227
24	210			140			450	260	316
25	230			160			550	240	356
					14	7			
26	210			200			400	525	567
27	190			240			350	630	595
28	180			220			350	675	638
29	170	28	14	--	--	--	400	670	724
30	180			--	--	--	500	965	1,300
31	210			--	--	--	650	1,090	1,910
Total	6,260	--	414	5,360	--	251	14,130	--	38,037

e Estimated.
s Computed by subdividing day.

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	750	955	1,930	3,200	355	3,070	4,010	135	1,460
2.....	700	925	1,750	4,400	355	4,220	4,320	135	1,570
3.....	800	935	2,020	5,260	310	4,400	4,080	100	1,100
4.....	650	785	1,380	4,180	330	3,720	3,660	45	445
5.....	550	715	1,060	3,390	315	2,880	3,540	50	478
6.....	500	420	567	3,540	990	9,460	3,170		
7.....	500	380	513	4,300	1,200	13,900	3,170		
8.....	726	350	686	5,540	1,020	15,300	3,360		
9.....	929	1,550	3,890	6,370	1,360	23,400	4,240	82	828
10.....	1,220	1,950	6,420	5,480	1,300	19,200	4,620		
11.....	1,560	1,520	6,400	4,540	460	5,640	3,860		
12.....	1,820	1,420	6,980	4,920	235	3,120	3,640	--	a900
13.....	1,350	1,440	5,250	5,710	425	6,550	4,030	--	a1,000
14.....	1,280	1,460	5,050	6,070	425	6,970	3,860	--	a1,100
15.....	1,610	1,460	6,350	6,350	395	6,770	3,980	109	1,170
16.....	2,360	1,450	9,240	6,900	360	6,710	3,910	109	1,150
17.....	3,720	1,450	14,600	6,310	315	5,370	3,640	187	1,840
18.....	4,060	1,470	16,100	4,780	195	2,520	4,120	--	a2,000
19.....	3,930	1,180	12,500	4,240	115	1,320	3,390		
20.....	3,470	1,100	10,300	4,010	100	1,080	3,230		
21.....	2,140	650	3,760	4,920	195	2,590	3,150	35	295
22.....	2,400	535	3,470	5,730	225	3,480	2,970		
23.....	2,910	540	4,240	6,000	225	3,640	2,970		
24.....	2,500	270	1,820	5,640	150	2,280	2,990		
25.....	2,100	200	1,130	5,250	130	1,840	2,850		
26.....	2,500	750	5,060	5,230	120	1,690	2,460		
27.....	3,720	770	7,730	4,890	135	1,780	2,080	21	121
28.....	4,100	800	8,860	4,240	90	1,030	1,980		
29.....	2,700	415	3,030	3,490	75	707	1,770		
30.....	2,700	310	2,260	3,120	85	716	1,610		
31.....	--	--	--	3,310	90	804	--	--	--
Total.	60,255	--	154,346	151,310	--	166,157	100,660	--	21,677

	July			August			September		
1.....	1,430			298			135		
2.....	1,230			280			125		
3.....	1,090			260	104	75	115		
4.....	1,020	17	50	240			102	28	8
5.....	950			256			93		
6.....	866			316	253	s259	87		
7.....	754			469	760	962	81		
8.....	663			365	515	508	70		
9.....	582			400	310	335	62		
10.....	516	14	22	385	140	146	52		
								26	4
11.....	486			335	60	54	48		
12.....	464			284			46		
13.....	436			252			46		
14.....	430			248			43		
15.....	400			226	34	22	44		
		19	19						
16.....	340			219			42	20	2
17.....	302			233			39		
18.....	280			244			37		
19.....	256			226	30	18	38		
20.....	226			219			57		
21.....	226	8	4	198			60		
22.....	188			170	25	12	49	65	10
23.....	167			155			50		
24.....	164			143			52		
25.....	161			164	341	s229	62		
26.....	177			174	655	308	81		
27.....	188			161	320	139	75		
28.....	442	17	14	202	95	52	70	31	6
29.....	415			219	60	35	77		
30.....	410			180	40	19	77		
31.....	345			155	30	13	--	--	--
Total.	15,604	--	668	7,676	--	3,666	2,015	--	178

Total discharge for year (cfs-days) 389,507
Total load for year (tons) 401,893

s Computed by subdividing day.
a Computed from water-sediment discharge curve.

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
May 23, 1955	5:00 p.m.	5,860	54	247	3,960		37		57	73	91	99	100				SPWCM
June 19.....	6:30 p.m.	3,150	62	46	820		50		69	81	95	99	100				SPWCM

GREEN RIVER BASIN--Continued

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 approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,330 ppm July 24; minimum, 124 ppm May 11-20.
Hardness: Maximum, 1,340 ppm July 24; minimum, 74 ppm May 11-20.
Specific conductance: Maximum daily, 2,670 micromhos July 24; minimum daily, 150 micromhos May 18.
Water temperatures: Maximum, 88°F July 17; minimum, freezing point on many days during November to March.
EXTREMES, 1950-55.--Dissolved solids (1950-51, 1952-55): Maximum, 2,330 ppm July 24, 1955; minimum, 116 ppm June 11-20, 1953.
Hardness (1950-51, 1952-55): Maximum, 1,340 ppm July 24, 1955; minimum, 66 ppm June 11-20, 1953.
Specific conductance (1950-51, 1952-55): Maximum daily, 2,670 micromhos July 24, 1955; minimum daily, 146 micromhos June 17, 1953.
Water temperatures: Maximum, 88°F July 17, 1955; minimum observed, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	29.1	15		75	19	181	4.2	246	354	64		0.9	--	817	1.11	64.2	265	64	59	4.8	1,230	7.9
Oct. 11-12, 14-20	57.3	16		50	12	105	3.0	226	168	31		1.4	0.12	492	.67	76.1	174	0	56	3.5	759	7.9
Oct. 13	107	20		74	19	237		358	314	110		2.0	--	a952	1.29	275	262	0	66	6.4	1,400	7.5
Oct. 1-31	44.6	15		51	16	92	2.1	226	162	29		1.0	--	476	.65	57.3	193	8	51	2.9	726	7.9
Nov. 1-10	57.2	16		54	16	77	2.1	226	140	26		.9	--	436	.59	67.3	200	16	45	2.4	679	8.0
Nov. 11-20	68.0	16		52	15	70	2.1	220	126	23		.5	.07	406	.55	74.5	191	10	44	2.2	638	7.9
Nov. 21-28	70.4	19		52	14	63	2.1	213	115	20		.7	--	393	.53	74.7	187	12	42	2.0	612	7.9
Nov. 29-30, Dec.1-10	72.7	20		65	18	88	2.7	257	167	30		.5	--	524	.71	103	236	26	44	2.5	801	7.9
Dec. 11-20	60.5	22		66	18	76	2.5	266	141	24		.4	.03	490	.67	80.0	238	20	41	2.1	741	7.9
Dec. 21-31	62.7	23		70	18	75	2.5	276	145	24		.4	--	497	.68	84.1	248	22	39	2.1	757	8.0
Jan. 1-10, 1955	59.0	20		60	16	68	2.4	240	132	20		.5	--	440	.60	70.1	216	19	40	2.0	677	7.9
Jan. 11-20	56.5	24		56	15	57	2.1	232	109	18		.4	.06	391	.53	59.6	201	11	38	1.7	607	--
Jan. 21-31	55.5	23		54	14	52	2.3	220	97	16		.6	--	365	.50	54.7	192	12	37	1.6	573	7.7
Feb. 1-10	56.5	23		54	14	54	1.9	222	100	16		.6	--	370	.50	56.4	192	10	38	1.7	573	7.9
Feb. 11-19	62.2	22		54	14	54	2.1	222	105	18		1.0	.07	368	.50	61.8	192	10	38	1.7	571	8.0
Feb. 20-28	58.3	21		54	14	54	2.1	219	97	16		.6	--	360	.49	56.7	192	12	37	1.6	566	7.6

a Sum of determined constituents.

Mar. 1-6, 10, 1955	94.3	22		47	12	54	2.2	193	92	19		1.1	--	340	.46	86.6	167	9	41	1.8	536	7.7
Mar. 7-9	103	23		58	15	97	3.2	200	176	50		1.3	--	516	.70	143	206	42	50	2.9	794	7.8
Mar. 11-20	447	16		35	6.9	70	2.2	165	88	27		1.9	.04	328	.45	39.6	116	0	56	2.8	526	7.8
Mar. 21-31	273	16		41	9.4	69	2.2	183	100	28		1.3	--	352	.48	259	141	0	51	2.5	563	7.6
Apr. 1-10	383	15		43	11	67	2.2	190	113	18		1.3	--	368	.50	381	152	0	48	2.4	575	7.6
Apr. 11-15, 17-20	572	16		43	11	56	2.2	175	104	14		1.4	.04	337	.46	520	152	9	44	2.0	526	7.7
Apr. 21-30	768	17		38	9.5	23	1.1	136	56	7.0		1.9	--	226	.31	469	134	22	27	.9	348	7.6
May 1-10	1,563	15		29	6.9	13	1.0	115	28	3.0		1.3	--	174	.24	734	101	7	22	.6	252	7.6
May 11-20	1,740	14		22	4.6	8.1	.6	85	16	2.1		.7	.00	124	.17	583	74	4	19	.4	181	7.6
May 21-31	1,507	15		23	5.0	5.1	.7	88	16	2.4		.6	--	125	.17	509	78	6	12	.2	179	7.4
June 1-10	1,230	15		26	5.2	11	.7	100	23	3.4		.5	--	142	.19	472	86	4	22	.5	213	7.4
June 11-20	1,089	15		24	5.5	12	.7	98	24	4.5		.1	.02	144	.20	423	82	2	24	.6	213	7.4
June 21-30	564	15		28	6.6	22	1.8	121	37	6.2		.5	--	186	.25	283	97	0	33	1.0	290	7.5
July 1-5	174	17		39	10	40	3.1	163	76	14		1.1	--	288	.39	135	138	5	38	1.5	460	7.5
July 6-10	55.4	17		52	13	71	4.4	204	132	22		.5	--	416	.57	62.2	183	16	45	2.3	645	7.6
July 11, 13, 19-20	23.0	19		89	17	103	6.4	214	278	46		.6	.07	685	.93	42.5	292	116	43	2.6	1,000	7.6
July 12, 14-18	86.0	21		130	24	181	10	230	486	106		.5	.09	1,090	1.48	253	423	234	47	3.8	1,550	7.5
July 21-23, 27	54.0	25		91	14	97		240	232	40		.8	--	640	.87	93.3	286	89	43	2.5	920	7.4
July 24	150	28		473	39	194		284	1,420	36		.8	--	a 2,330	3.17	944	1,340	1,110	24	2.3	2,670	7.1
July 25-26, 28-31	43.8	22		112	17	211	7.7	209	506	81		2.0	--	1,100	1.50	130	350	178	56	4.9	1,520	7.5
Aug. 1-10	19.7	23		92	18	166	7.5	226	389	58		.7	--	860	1.17	45.7	304	118	54	4.1	1,250	7.7
Aug. 11-18	55.5	26		70	15	221	6.0	252	377	83		1.4	.21	911	1.24	137	236	30	66	6.3	1,370	7.9
Aug. 19-20	7.5	25		--	--	122	4.3	232	188	41		2.8	--	581	.79	11.8	157	0	62	4.2	866	7.9
Aug. 21-31	104	22		86	20	140	6.1	212	351	52		1.0	--	789	1.07	222	296	123	50	3.5	1,160	7.7
Sept. 1-10	1.9	23		90	17	151	6.1	234	356	52		1.0	--	817	1.11	4.19	294	103	52	3.8	1,190	7.9
Sept. 11-20[b]	.1	27		89	19	124	5.2	230	308	53		.8	.13	749	1.02	.20	300	112	47	3.1	1,090	7.8
Sept. 21-24, 27	5.2	16		74	14	101	5.2	178	267	31		.8	--	597	.81	8.38	242	96	47	2.8	892	8.1
Sept. 25-26, 28-30	5.5	14		76	14	215	6.8	212	421	78		1.5	--	933	1.27	13.9	247	74	65	6.0	1,400	7.7
Weighted average	c 329	16		33	7.6	29	1.3	127	57	9.6		0.9	--	226	0.31	201	114	10	35	1.2	341	--

a Sum of determined constituents.
b Not included for computation of weighted averages.
c Represents 99 percent of runoff for water year October 1954 to September 1955.

GREEN RIVER BASIN--Continued

LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	52	32	32	32	32	34	50	52	55	72	80
2	45	34	32	32	32	32	35	46	50	73	--	57
3	50	38	33	32	32	32	32	45	51	72	72	60
4	50	33	32	32	32	32	32	54	50	74	71	63
5	50	32	32	32	32	32	32	50	52	78	68	62
6	47	32	33	32	32	32	32	51	53	74	66	57
7	52	34	33	32	32	32	32	53	55	72	70	56
8	55	32	32	32	32	32	40	53	60	68	65	68
9	51	32	32	32	32	32	40	51	55	74	65	55
10	47	32	32	32	32	32	49	48	53	78	69	55
11	42	32	32	32	32	32	38	50	55	78	65	54
12	44	34	32	32	32	33	38	51	62	74	62	52
13	45	42	32	32	32	33	40	54	58	80	64	55
14	34	37	32	32	32	32	48	51	59	80	68	55
15	34	37	32	32	32	32	44	50	58	87	68	56
16	36	40	32	32	32	32	41	46	60	87	62	54
17	42	35	32	32	32	32	45	48	57	88	65	56
18	44	35	32	32	32	32	44	48	58	62	65	54
19	46	34	32	32	32	34	41	49	60	66	71	49
20	49	33	32	32	32	32	39	53	60	67	70	56
21	48	--	32	32	32	33	45	57	60	--	64	44
22	50	35	32	32	32	32	43	54	63	65	75	55
23	49	35	32	32	32	33	44	52	65	63	75	50
24	46	35	32	32	32	32	47	53	61	65	63	52
25	39	32	32	32	32	32	49	52	60	70	64	54
26	39	34	32	32	32	32	49	53	59	65	61	49
27	32	35	32	32	32	33	45	51	60	--	65	45
28	35	32	32	32	32	34	47	47	56	65	63	48
29	49	32	32	32	--	36	43	50	58	65	62	46
30	33	32	32	32	--	--	45	54	54	77	61	45
31	32	--	32	32	--	32	--	54	--	68	71	--
Average	44	36	32	32	32	32	41	51	57	72	67	55

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR JENSEN, UTAH

LOCATION.--At gaging station, 1 mile downstream from Cub Creek, and Chew Ranch, 4 miles southeast of Dinosaur National Monument headquarters, 6½ miles northeast of Jensen, Uintah County, and 12 miles upstream from Brush Creek.
RECORDS AVAILABLE.--Water temperatures: October 1952 to September 1955.
Sediment records: May 1948 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 74°F Aug. 2, 14; minimum, freezing point on several days during January and February.
Sediment concentrations: Maximum daily, 15,000 ppm Aug. 27; minimum daily, 26 ppm July 11-12.
Sediment loads: Maximum daily, 146,000 tons Apr. 19; minimum daily, 82 tons on many days.
EXTREMES, 1948-55.--Water temperatures (1952-55): Maximum, 80°F June 23, 24, July 18-20, 1954; minimum, freezing point on several days during winter months.
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 chemical analyses from June 1947 to September 1952 and water temperatures from March 1949 to September 1952 for Green River at Jensen available in prior Water-Supply Papers. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	--	--	32	--	34	43	--	57	64	--	--
2	50	46	36	32	--	34	41	51	57	66	74	60
3	--	38	35	33	--	34	38	53	57	67	70	60
4	56	38	35	33	32	36	40	54	56	65	70	61
5	56	40	35	33	33	34	40	--	57	64	70	60
6	56	40	34	32	33	35	41	49	64	63	70	61
7	56	40	34	33	33	34	43	50	63	63	--	65
8	57	40	34	33	32	34	--	52	64	--	--	64
9	59	--	34	33	33	35	--	--	62	--	--	65
10	53	--	34	33	33	37	44	47	64	--	70	67
11	--	--	34	33	33	37	45	52	63	67	71	67
12	--	43	34	33	33	37	45	--	60	68	66	61
13	--	45	34	33	33	36	--	60	--	65	--	61
14	--	46	34	33	33	35	--	55	64	65	74	--
15	63	40	34	33	33	35	51	54	--	--	--	--
16	43	40	34	--	33	35	50	--	--	69	--	66
17	43	41	33	--	32	36	49	--	65	68	--	--
18	43	40	33	33	33	38	49	--	66	--	--	--
19	45	40	33	--	33	38	45	--	67	--	--	--
20	45	41	33	--	33	36	46	--	--	70	68	--
21	45	41	33	32	33	37	50	59	--	70	66	60
22	44	41	33	--	33	39	44	58	--	70	70	60
23	46	40	33	--	33	40	46	59	71	72	66	59
24	42	41	33	32	33	40	48	--	--	72	70	65
25	41	41	33	--	33	41	50	--	68	69	--	67
26	40	41	33	--	33	41	46	--	69	69	69	--
27	--	39	--	--	34	42	41	--	70	68	--	--
28	--	38	33	--	33	44	--	60	70	71	--	--
29	--	38	33	--	--	45	52	58	69	70	--	--
30	--	--	--	--	--	38	--	60	--	69	71	57
31	--	--	--	--	--	42	--	--	--	70	--	--
Average	--	41	34	--	33	37	45	--	--	68	--	--

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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	1,020	180	496	1,230	100	e 330	615	--	e 140
2	1,000	180	486	1,260	100	340	545		
3	1,000	150	a 400	1,280	103	356	582		
4	1,000	330	891	1,260	100	340	600	87	135
5	1,040	600	1,680	1,230	92	306	580		
6	1,110	210	629	1,220	94	310	570		
7	1,040	235	660	1,220	92	303	560		
8	1,080	976	s 3,290	1,220	93	306	560		
9	1,170	1,680	5,310	1,200	--	e 280	550	72	108
10	1,220	550	1,810	1,190	--	e 260	550		
11	1,220	480	a 1,600	1,190	--	e 240	550		
12	1,360	620	a 2,300	1,200	72	233	560		
13	1,480	840	a 3,400	1,160	96	301	600		
14	1,650	1,100	a 4,900	1,110	91	273	610	72	112
15	1,670	1,110	5,000	1,110	150	450	570		
16	1,520	1,450	5,950	1,160	147	460	530		
17	1,440	1,220	4,740	1,280	148	511	520		
18	1,400	1,160	4,380	1,310	151	534	510		
19	1,360	1,030	3,780	1,330	90	323	510	348	477
20	1,390	890	3,340	1,310	86	304	500		
21	1,360	345	1,270	1,290	87	303	500		
22	1,350	165	601	1,290	88	307	510		
23	1,320	165	588	1,280	88	304	530		
24	1,280	170	588	1,240	82	275	550		
25	1,250	160	540	1,200	79	256	570		
								85	111
26	1,220	95	313	1,220	80	264	560		
27	1,190	100	a 320	1,240	80	268	460		
28	1,190	100	a 320	1,220	78	257	330		
29	1,210	100	a 330	1,110	79	237	370		
30	1,260	100	a 340	953	--	e 210	450	--	e 85
31	1,240	100	a 330	--	--	--	520	--	e 84
Total	39,040	--	60,582	36,513	--	9,441	16,522	--	5,357

Day	January			February			March		
1	620			700	--	e 140	680		
2	800			770	--	e 160	700		
3	910	51	111	820	--	e 180	730	75	148
4	870			750			750		
5	820			700			800		
					70	135			
6	750	160	324	680			860		
7	660			700			930	70	185
8	580			750			1,010		
9	520	70	104	780			1,120		
10	500			730			1,200	250	810
					77	151			
11	490			680			1,410	625	2,380
12	500			700			1,690	820	3,740
13	530			750			2,380	2,150	13,800
14	540			800			4,500	3,530	42,900
15	550			850			3,700	2,960	29,600
					110	242			
16	540	59	82	850			3,170	2,520	21,600
17	520			820			2,370	2,220	14,200
18	490			760			2,050	1,480	8,190
19	480			720			1,920	1,170	6,070
20	480			690			1,820	615	3,020
					55	101			
21	500			670			1,400	500	1,890
22	580	--	e 120	660			1,420	500	1,920
23	640	--	e 160	650			1,590	500	2,150
24	680	119	218	640			1,630	425	1,870
25	630	--	e 180	640			1,670	520	2,340
					74	129			
26	580	--	e 150	640			1,570	550	2,330
27	550	--	e 120	640			1,420	525	2,010
28	530	--	e 100	660			1,560	540	2,270
29	520	--	e 84	--	--	--	1,620	530	2,320
30	560	--	e 98	--	--	--	1,730	700	3,270
31	620	--	e 120	--	--	--	2,010	1,720	9,330
Total	18,540	--	3,569	20,200	--	4,270	51,410	--	179,490

e Estimated.

s Computed by subdividing day.

a Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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	2,160	2,130	12,400	5,290	2,100	a 30,000	7,730	725	15,100
2	2,630	2,960	21,000	5,650	1,660	25,300	7,970	765	16,500
3	2,600	4,100	28,800	7,390	1,750	34,900	8,350	765	17,200
4	2,600	2,680	18,800	8,980	2,200	53,300	8,320	325	7,300
5	2,560	1,840	12,700	7,570	1,500	a 31,000	8,350	210	4,730
6	2,250	1,340	8,140	6,650	1,480	26,600	8,730	565	13,300
7	2,130	1,050	6,040	6,780	1,400	25,600	8,810	475	11,300
8	2,250	1,500	a 9,100	7,650	1,240	25,600	8,030	210	4,550
9	2,630	2,600	a 18,000	9,310	1,500	a 38,000	7,840	270	5,720
10	3,060	3,220	26,600	10,700	2,050	59,200	8,240	320	7,120
11	3,410	3,420	31,500	9,730	1,480	38,900	9,030	285	6,950
12	3,980	3,400	36,500	8,620	1,200	a 28,000	8,380	240	5,430
13	4,610	4,100	a 51,000	8,920	1,300	31,300	9,060	440	a 11,000
14	3,980	3,700	a 40,000	9,730	1,000	26,300	10,200	900	24,800
15	3,900	3,000	31,600	10,100	810	22,100	10,400	830	a 23,000
16	4,900	3,720	49,200	10,500	1,100	a 31,000	11,200	680	a 21,000
17	6,720	6,600	120,000	11,300	1,500	a 46,000	11,600	675	21,100
18	7,340	5,500	a 110,000	10,900	1,500	a 44,000	11,400	765	23,500
19	7,730	7,000	146,000	9,340	1,200	a 30,000	11,700	800	25,300
20	7,570	3,900	79,700	8,620	1,220	28,400	11,300	800	a 24,000
21	7,440	4,180	84,000	7,920	1,300	27,800	10,600	760	a 22,000
22	5,490	3,700	54,100	8,620	1,020	23,700	10,000	730	a 20,000
23	5,040	1,840	52,300	9,510	1,140	29,300	9,230	675	16,800
24	5,560	2,080	31,200	9,790	1,800	a 48,000	8,730	440	a 10,000
25	5,340	2,000	28,800	10,400	1,900	a 53,000	8,460	170	3,880
26	4,770	1,800	23,200	11,100	1,800	a 54,000	8,350	160	3,610
27	4,710	1,070	13,600	11,700	1,400	a 44,000	8,030	155	3,360
28	5,980	2,800	a 45,000	11,600	875	27,400	7,700	145	3,010
29	7,440	3,120	62,700	10,900	720	21,200	7,550	170	3,470
30	5,840	2,800	a 44,000	9,510	670	17,200	7,180	200	a 3,900
31	--	--	--	8,320	640	a 14,000	--	--	--
Total	136,620	--	1,295,980	283,100	--	1,035,100	272,470	--	378,930

Day	July			August			September		
1	6,620	370	6,610	2,580	4,100	a 29,000	1,250	960	a 3,200
2	6,010			2,460	1,120	7,440	1,190	380	1,220
3	5,380			2,360	1,100	7,010	1,130	495	1,510
4	4,890			2,080	1,300	7,300	1,070	685	1,980
5	4,420	126	1,600	1,920	1,200	6,220	1,030	320	890
6	3,980			1,790	300	1,450	993	190	509
7	3,620			1,770	300	a 1,400	938		
8	3,240	100	e 870	1,890	2,000	a 10,000	908		
9	2,930	80	e 630	2,130	4,300	a 25,000	870		
10	2,670	50	e 360	2,270	8,100	49,600	835	85	194
11	2,510	26	172	1,970	2,560	13,600	807		
12	2,410			1,880	4,820	24,500	787		
13	2,720	1,020	7,490	1,820	3,000	a 15,000	761		
14	2,470	1,180	7,870	1,700	1,000	4,590	742	70	a 140
15	2,330	960	a 6,000	1,870	7,400	sa 40,000	723	75	a 150
16	2,220	755	4,530	1,670	6,300	a 28,000	711	75	144
17	2,140	680	3,930	1,580	5,600	a 24,000	699	75	a 140
18	1,980	520	a 2,800	1,670	7,500	a 34,000	693	70	a 130
19	1,870	230	a 1,200	1,770	8,800	a 42,000	699	80	a 150
20	1,740			1,650	6,120	27,300	705	380	a 720
21	1,680	78	353	1,560	3,850	16,200	705	465	885
22	1,650			1,500	1,500	6,080	711	470	902
23	1,630			1,460	1,300	5,120	693	460	861
24	1,670	1,000	4,510	1,410	3,270	12,400	711	240	461
25	1,840	3,800	18,900	1,450	3,860	sa 15,000	699	150	283
26	1,860	1,600	8,040	2,070	12,400	s 72,600	705	160	a 305
27	2,310	4,270	s 30,400	2,340	15,000	a 95,000	693	160	a 300
28	2,780	7,200	54,000	1,710	7,300	a 34,000	814	390	a 860
29	2,600	6,400	44,900	1,380	2,400	a 8,900	1,060	640	a 1,800
30	2,800	5,030	38,000	1,290	1,250	4,350	1,040	625	1,760
31	2,600	4,460	31,300	1,320	1,700	a 6,100	--	--	--
Total	89,570	--	283,696	56,320	--	673,160	25,372	--	20,658

Total discharge for year (cfs-days) 1,045,677

Total load for year (tons) 3,950,233

e Estimated.

a Computed from estimated concentration graph.

s Computed by subdividing day.

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR JENSEN, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 15, 1954	3:00 p.m.	1,640	63	1,060	4,980		72		88	92	97	99	100		--	--	SPWCM
Nov. 2	1:00 p.m.	1,270	46	96	1,440		70		81	85	94	97	100		--	--	SPWCM
Dec. 17	2:00 p.m.	a520	32	199	5,480		37		64	87	97	99	100		--	--	SPWCM
Apr. 15, 1955	4:00 p.m.	3,840	51	3,140	4,440		60		80	86	89	94	99		100	--	SPWCM
Apr. 29	1:30 p.m.	7,680	52	3,080	4,300		31		49	59	68	77	92		100	--	SPWCM
May 13	12:45 p.m.	8,890	60	1,360	3,820		24		34	42	53	70	89		98	100	SPWCM
June 1	12:55 p.m.	7,650	58	702	2,700		22		34	42	53	69	90		98	100	SPWCM
June 14	2:05 p.m.	10,200	64	981	4,960		16		26	34	46	64	91		98	100	SPWCM
July 1	9:00 a.m.	6,600	64	378	867	14	15	19	25	32	45	62	88		98	100	SBWCM
Aug. 12	9:30 a.m.	1,900	73	5,140	4,090		82		100	--	--	--	--		--	--	PWCM
Aug. 30	3:00 p.m.	1,280	71	1,040	4,250		73		94	96	99	100	--		--	--	SPWCM
Sept. 30	11:00 a.m.	1,050	57	587	3,960		76		97	98	100	--	--		--	--	SPWCM

a Daily mean discharge.

WHITE RIVER NEAR WATSON, UTAH

LOCATION.--At gaging station, 250 feet downstream from bridge on State Highway 45, 1 mile downstream from Evacuation Creek, and 7 miles north of Watson, Uintah County.
DRAINAGE AREA.--4,020 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,120 ppm Jan. 16-18; minimum, 274 ppm June 11-20.
Hardness: Maximum, 1,410 ppm Aug. 4; minimum, 171 ppm June 11-20.
Specific conductance: Maximum daily, 4,450 micromhos Aug. 4; minimum daily, 370 micromhos June 12.
Water temperatures: Maximum, 85°F July 16, 17, 20; minimum, freezing point on many days during December to April.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 1,450 ppm Aug. 1, 1953; minimum, 230 ppm June 21-30, 1951.
Specific conductance: Maximum daily, 4,450 micromhos Aug. 4, 1955; minimum daily, 319 micromhos June 29, 1951.
Water temperatures: Maximum, 88°F Aug. 8, 1954; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-8, 10, 1954	448	15		85	27	80	3.2	232	200	65		2.6	--	588	0.80	711	323	133	35	1.9	927	7.7
Oct. 9a	1,280	--		--	--	--	--	334	521	30		2.4	--	--	--	--	610	336	--	--	1,440	7.2
Oct. 11-20	401	16		77	27	78	3.2	226	177	65		4.7	0.08	550	.75	595	303	118	36	1.9	884	7.6
Oct. 21-31	366	16		75	28	85	2.0	226	191	71		.8	--	571	.78	564	302	117	38	2.1	904	8.0
Nov. 1-10	343	16		81	29	87	2.0	241	188	76		.9	--	594	.81	550	321	124	37	2.1	934	7.8
Nov. 11-20	347	15		82	32	97	3.3	236	218	82		7.6	.09	654	.89	613	336	142	38	2.3	1,010	7.6
Nov. 21-30	318	15		78	32	99	2.8	244	208	83		7.7	--	647	.88	556	326	126	39	2.4	1,010	7.6
Dec. 1-10	337	16		82	34	100	2.5	249	227	82		4.3	--	681	.93	620	344	140	38	2.3	1,040	8.0
Dec. 11-20	274	16		92	31	108	2.5	253	230	97		1.4	.09	715	.97	529	357	150	39	2.5	1,110	7.6
Dec. 21-31	268	20		90	30	114	3.6	245	228	106		16	--	736	1.00	533	348	147	41	2.7	1,160	7.4
Jan. 1-10, 1955	259	19		81	25	100	2.2	234	194	88		2.7	--	632	.86	442	305	114	41	2.5	994	7.8
Jan. 11-15, 19-20	243	22		87	26	109	2.2	250	204	97		3.0	.06	678	.92	445	324	119	42	2.6	1,050	7.9
Jan. 16-18	247	32		141	45	175	5.4	405	343	156		5.4	--	1,120	1.52	747	537	205	41	3.3	1,660	7.9
Jan. 21-31	274	19		80	24	98	2.1	231	187	89		2.4	--	620	.84	459	298	108	41	2.5	971	7.7
Feb. 1-10	325	19		76	24	91	2.2	221	178	82		2.7	--	600	.82	526	288	107	40	2.3	935	7.5
Feb. 11-20	358	19		82	25	100	2.2	234	197	92		1.8	.09	653	.89	631	308	116	41	2.5	1,010	7.6
Feb. 21-22, 26-28	334	19		82	26	95	2.0	228	192	91		1.5	--	624	.85	563	312	124	40	2.3	991	7.8
Feb. 23-25	320	29		130	44	175	4.4	376	350	160		4.3	--	1,090	1.48	942	506	198	43	3.4	1,620	7.8
Mar. 1-10	465	15		66	21	81	2.8	208	172	59		4.3	--	532	.72	668	251	80	41	2.2	839	7.7
Mar. 11-20	1,282	11		66	25	77	4.2	195	207	50		3.6	.08	554	.75	1,920	268	108	38	2.0	856	7.6
Mar. 21-31	549	15		85	30	100	3.7	244	252	71		2.9	--	704	.96	1,040	336	136	39	2.4	1,070	7.6

a Not included for computation of weighted average.

GREEN RIVER BASIN--Continued

WHITE RIVER NEAR WATSON, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955 ..	438	16		82	32	105	3.7	242	254	72		7.2	--	718	0.98	849	336	138	40	2.5	1,080	7.7
Apr. 11-20	561	16		77	30	97	3.7	262	223	60		2.9	0.08	657	.89	995	316	101	40	2.4	1,010	7.4
Apr. 21-30	568	15		70	26	80	2.5	220	194	58		2.3	--	570	.78	874	282	101	38	2.1	882	7.8
May 1-10.....	1,081	17		56	18	42	2.5	184	110	32		4.0	--	380	.52	1,110	214	62	30	1.2	602	7.5
May 11-20.....	1,605	15		50	16	30	1.9	172	80	22		2.9	.07	308	.42	1,330	191	50	25	5.9	493	7.5
May 21-31.....	1,546	14		52	17	25	1.9	173	69	21		13	--	288	.39	1,200	200	58	21	.8	475	7.5
June 1-10	1,412	14		49	15	26	1.7	157	75	24		1.5	--	285	.39	1,090	184	56	23	.8	460	7.7
June 11-20	1,645	14		47	13	24	1.9	149	69	22		5.3	.04	274	.37	1,220	171	49	23	.8	442	7.5
June 21-30	757	15		58	17	42	2.2	180	104	35		4.7	--	376	.51	769	214	67	30	1.2	610	7.4
July 1-10.....	350	16		72	23	67	2.7	220	153	59		2.7	--	523	.71	494	274	94	34	1.8	827	7.4
July 11-20	193	20		78	31	97	3.2	204	230	88		3.3	.11	658	.89	343	302	155	39	2.4	1,020	7.6
July 21-24, 27-31 .	212	20		81	33	97	3.2	224	236	86		1.5	.12	684	.93	392	338	154	38	2.3	1,050	7.7
July 25-26a.....	240	18		--	--	--	--	314	916	82		.4	.42	--	--	--	596	339	--	--	2,320	7.5
Aug. 1-3, 5-10 ...	353	21		86	30	107	4.3	270	253	58		2.3	--	704	.96	671	338	117	40	2.5	1,070	7.6
Aug. 4a	338	21		283	170	--	--	736	2,160	73		1.9	--	--	--	--	1,410	806	--	--	4,450	7.6
Aug. 11-20	346	19		94	35	102	4.6	244	283	72		1.9	.16	743	1.01	694	378	178	37	2.3	1,110	7.6
Aug. 21-31	308	17		103	32	119	6.3	246	307	82		6.9	--	801	1.09	666	388	187	39	2.6	1,210	7.4
Sept. 1-10	219	18		77	32	105	3.1	226	225	92		2.1	--	679	.92	401	324	138	41	2.5	1,040	8.0
Sept. 11-20	177	17		79	33	110	3.1	217	237	101		3.0	.06	704	.96	336	332	154	42	2.6	1,080	7.4
Sept. 21-30.....	228	17		94	31	99	3.1	224	260	90		2.9	--	729	.99	449	362	178	37	2.3	1,100	7.6
Weighted average	b 536	16		68	23	67	2.7	205	159	53		4.5	--	502	0.68	726	264	96	35	1.8	784	--

a Not included for computation of weighted average.
b Represents 99 percent of runoff for water year October 1954 to September 1955.

GREEN RIVER BASIN--Continued

WHITE RIVER NEAR WATSON, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement at approximately 3:30 p. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	40	35	32	32	34	36	52	58	70	80	66
2	60	40	32	34	32	34	31	50	56	75	84	68
3	58	42	38	34	32	33	32	48	55	72	80	70
4	62	42	36	32	32	33	31	56	64	75	80	75
5	60	44	34	32	32	32	38	58	66	75	78	72
6	--	40	34	34	32	35	38	52	68	70	78	74
7	62	40	32	32	31	34	40	52	68	72	78	76
8	65	40	38	32	31	32	40	55	66	70	75	72
9	58	42	32	32	31	35	48	55	62	72	75	70
10	60	40	38	32	31	36	42	56	50	78	75	64
11	58	40	36	32	31	35	40	60	60	75	75	62
12	55	45	32	32	31	35	40	60	65	78	78	62
13	55	40	32	32	32	36	45	58	60	80	75	68
14	52	42	32	32	31	34	45	55	65	80	74	70
15	50	44	32	34	32	32	48	52	65	80	76	70
16	50	40	34	32	32	36	50	50	60	85	72	68
17	55	40	32	32	32	36	50	52	65	85	70	64
18	50	40	32	32	32	38	48	58	68	80	78	64
19	52	40	32	32	32	36	48	60	70	80	76	65
20	55	39	34	32	31	32	48	62	70	85	75	62
21	52	39	32	32	31	31	50	60	70	82	78	60
22	52	40	32	32	31	35	50	58	68	82	80	60
23	52	42	33	32	31	38	55	58	70	82	75	60
24	48	40	32	32	31	40	50	60	68	81	72	65
25	48	40	34	32	31	38	46	60	68	80	72	62
26	48	42	32	32	34	38	48	60	70	80	72	60
27	45	40	32	32	35	40	50	58	68	81	72	58
28	45	38	32	32	33	38	55	60	70	80	74	54
29	40	--	32	32	--	38	50	62	68	80	72	60
30	42	38	32	32	--	40	50	62	68	80	70	64
31	42	--	32	32	--	38	--	58	--	80	65	--
Average	53	41	33	32	32	36	45	57	65	78	75	66

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR OURAY, UTAH

LOCATION.--At gaging station, 2¾ miles upstream from Willow Creek and 3 miles southwest of Ouray, Uintah County.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1952.
Water temperatures: December 1950 to September 1955 (discontinued).
Sediment records: December 1950 to September 1955 (discontinued).
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	--	--	--	--	--	--	--	--	66	--	--
2	55	--	--	--	--	--	--	--	--	--	--	75
3	--	--	33	--	--	--	--	--	56	--	--	--
4	63	--	--	--	32	32	--	--	--	--	75	--
5	65	--	--	--	--	--	--	--	--	--	--	--
6	63	--	--	--	--	--	--	59	--	--	--	--
7	64	--	--	32	--	--	--	--	--	--	--	--
8	64	--	--	--	--	--	49	--	--	70	--	--
9	63	--	--	--	--	--	--	--	--	--	--	70
10	64	44	33	--	--	--	--	--	--	--	--	--
11	58	--	--	--	--	--	--	--	--	--	--	--
12	60	45	--	--	--	--	--	57	--	--	--	--
13	57	49	--	--	--	--	--	--	64	--	--	--
14	54	45	--	--	32	--	--	--	--	--	--	--
15	53	45	--	--	--	--	52	--	--	--	--	--
16	54	45	32	--	--	--	--	--	--	--	77	--
17	55	44	--	32	--	--	--	--	63	--	--	--
18	54	43	--	--	--	--	--	--	--	--	--	--
19	54	43	--	--	--	--	--	--	--	--	--	--
20	--	43	--	--	--	--	--	--	--	--	--	--
21	55	43	--	--	--	--	--	--	--	78	--	--
22	54	43	--	--	--	--	51	--	--	--	--	--
23	54	42	32	--	--	--	--	--	--	--	78	--
24	--	43	--	--	32	--	--	--	70	--	--	--
25	46	--	--	--	--	--	--	--	--	--	--	--
26	46	--	--	--	--	--	--	59	--	--	--	--
27	46	--	--	--	--	--	--	--	--	--	--	--
28	45	--	--	32	--	--	52	--	--	--	--	--
29	46	--	--	--	--	--	--	--	--	--	--	--
30	48	--	32	--	--	--	--	--	--	--	--	--
31	47	--	--	--	--	--	--	--	--	--	--	--
Average	55	--	--	--	--	--	--	--	--	--	--	--

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR OURAY, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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	1,550	1,980	8,290	2,040	720	a 4,000	1,810	--	b 4,400
2	1,550	1,570	6,570	2,010	720	a 3,900	1,680	--	b 3,500
3	1,550	1,600	a 6,700	2,000	710	a 3,800	1,330	377	
4	1,670	2,800	12,600	2,010	740	a 4,000	1,200	--	
5	2,070	4,600	25,700	2,020	660	3,600	1,250	--	
6	1,880	7,000	35,500	2,000	650	a 3,500	1,300	--	b 1,500
7	1,770	4,810	23,000	1,960	630	a 3,300	1,340	--	
8	1,990	7,350	39,500	1,920	600	a 3,100	1,300	--	
9	2,810	7,680	s 65,300	1,910	640	a 3,300	1,230		
10	3,120	19,400	163,000	1,890	640	3,270	1,040	420	
11	2,420	16,400	107,000	1,840	590	a 2,900	1,030	--	
12	2,110	9,400	53,600	1,840	580	2,880	1,040	--	
13	1,960	2,550	13,500	1,930	820	4,270	1,060	--	b 1,000
14	2,010	2,350	12,800	1,980	730	3,900	1,150	--	
15	2,110	2,200	12,500	1,940	730	3,820	1,330	--	
16	2,260	2,360	14,400	1,920	680	3,530	1,310	290	
17	2,260	1,800	11,000	1,940	700	3,670	1,250	--	
18	2,130	1,610	9,260	2,000	620	3,350	1,230	--	
19	2,050	2,060	11,400	2,050	780	4,320	1,200	--	
20	1,980	1,800	a 9,600	2,070	460	2,570	1,170	--	
21	1,930	1,580	8,230	2,050	400	2,210	1,150	--	
22	1,910	1,350	6,960	2,000	470	2,540	1,140	--	
23	1,890	1,130	5,770	1,960	510	2,700	1,130	206	
24	1,900	1,100	a 5,600	1,950	510	2,690	1,150	--	b 1,200
25	2,640	2,380	17,000	1,950	500	a 2,600	1,200	--	
26	2,370	2,460	15,700	1,930			1,300	--	
27	2,060	1,400	7,790	1,890			1,370	--	
28	2,020	630	3,440	1,890	522	2,680	1,200	--	
29	1,980	720	3,850	1,890			960	--	b 600
30	1,960	720	3,810	1,890			1,050	197	
31	1,990	790	4,240	--	--	--	1,150	--	b 680
Total	63,900	--	723,610	58,670	--	97,120	38,050	--	c 41,080

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	1,300	--	b 850	1,400	--		1,460	--	
2	1,450	--		1,550	--		1,510	--	b 1,200
3	1,600	--		1,700	--		1,550	--	
4	1,750	--		1,600	214		1,580	322	
5	1,600	--	b 1,300	1,500	--		1,620	--	
						b 1,100			
6	1,500	--		1,420	--		1,670	--	
7	1,400	261		1,400	--		1,740	--	b 1,700
8	1,260	--		1,430	--		1,780	--	
9	1,180	--		1,500	--		1,850	--	
10	1,150	--		1,600	--		2,000	375	
11	1,130	--		1,520	--		2,250	--	b 6,900
12	1,140	--		1,450	--		3,000	--	b 15,000
13	1,180	--		1,400	--		4,000	--	b 26,000
14	1,240	--	b 180	1,400	158		6,500	--	
15	1,280	--		1,490	--		6,400	--	
						b 1,300			
16	1,300	--		1,660	--		5,800	--	b 44,000
17	1,250	151		1,760	--		5,300	--	
18	1,150	--		1,750	--		5,100	--	
19	1,120	--		1,670	--		4,750	--	
20	1,100	--		1,500	--		4,450	--	
21	1,100	--		1,430	--		3,950	--	
22	1,120	--		1,400	--		3,350	--	
23	1,180	--		1,390	--		3,400	2,300	b 25,000
24	1,300	--		1,390	110		3,500	--	
25	1,410	--		1,400	--	b 680	4,490	--	
			b 220						
26	1,330	--		1,400	--		3,860	--	
27	1,250	--		1,410	--		3,600	--	
28	1,160	163		1,430	--		3,200	--	
29	1,100	--		--	--	--	2,800	--	b 16,000
30	1,120	--		--	--	--	2,950	1,890	
31	1,270	--		--	--	--	3,050	--	
Total	39,420	--	c 13,410	41,950	--	c 29,440	102,460	--	c 581,900

s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed on basis of samples obtained about four times a month.
c Partly estimated from water-sediment discharge curve.

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR OURAY, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	3,200	--		7,300	--		11,000	--	
2	3,380	--		6,320	--	b57,000	10,300	--	
3	3,540	--		6,680	--		10,200	1,120	
4	3,800	--		8,010	--		10,500	--	
5	3,650	--		9,710	--		10,400	--	
6	3,600	--	b21,000	8,570	2,920	b72,000	10,300	--	
7	3,500	--		7,540	--		10,200	--	b31,000
8	3,360	1,920		8,010	--		10,800	--	
9	3,250	--		9,710	--		10,700	--	
10	3,500	--		12,100	--		11,300	--	
11	3,900	--		13,200	--		11,800	--	
12	4,200	--		12,300	4,480		12,600	--	
13	4,600	--		11,300	--		11,800	1,310	
14	5,400	--	b36,000	11,900	--		11,900	--	
15	5,200	3,940		13,200	--		13,500	--	
16	4,900	--		13,900	--		13,300	--	
17	5,700	--		14,200	--		13,600	1,490	
18	6,800	--		14,100	--	b100,000	13,900	--	
19	8,300	--		13,000	2,740		13,700	--	b80,000
20	8,100	--	b61,000	11,500	--		13,900	--	
21	7,900	--		11,100	--		13,600	--	
22	7,600	3,580		11,300	--		12,900	--	
23	7,120	--		12,600	--		12,100	--	
24	6,390	--		13,600	--		11,000	824	
25	6,680	--		13,200	--		10,200	--	
26	6,700	--	b52,000	13,600	2,150		9,780	--	b22,000
27	6,140	--		14,300	--		9,540	--	
28	5,890	1,850		14,400	--	b110,000	9,110	--	
29	6,650	--		14,100	--		8,540	--	
30	8,100	--	b68,000	13,300	--	b56,000	8,180	--	b14,000
31	--	--	--	12,100	--	b45,000	--	--	--
Total	161,050	--	c1,218,000	356,180	--	c2,734,000	340,650	--	c1,300,000

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	7,810	579		2,940	--		1,770	--	
2	7,230	--	b9,300	2,900	--	b11,000	1,730	1,500	
3	6,850	--		2,820	--		1,640	--	
4	6,020	--		2,730	1,290		1,550	--	b5,000
5	5,560	--		2,640	--		1,480	--	
6	5,100	--	b3,800	2,500	--		1,390	--	
7	4,680	--		2,550	--		1,310	--	
8	4,320	235		2,680	--	b10,000	1,250	--	
9	3,950	--		2,550	--		1,160	467	
10	3,610	--	b2,300	2,500	--		1,150	--	b1,400
11	3,340	--		2,560	--		1,110	--	
12	3,120	--		2,540	--		1,070	--	
13	2,930	--		2,310	--		1,040	--	
14	3,010	--		2,300	--		984	--	
15	2,870	--	b2,000	2,340	--		939	--	
16	2,710	--		2,240	2,560	b14,000	906	--	
17	2,540	--		2,460	--		882	--	
18	2,440	--		2,220	--		858	--	
19	2,320	--		2,250	--		874	--	
20	2,200	--	b1,600	2,210	--		890	--	b580
21	2,080	274		2,140	--		906	--	
22	1,990	--		1,990	--		948	--	
23	1,930	--		1,850	3,770	b17,000	939	--	
24	1,910	--		1,780	--		930	--	
25	1,950	--		1,840	--		930	--	
26	2,340	--	b4,200	3,760	--	b64,000	975	--	
27	2,300	--		3,040	--		1,060	--	
28	2,200	--		2,860	--	b44,000	1,120	--	b1,100
29	2,860	--		2,770	--		1,070	--	
30	3,060	--	b12,000	2,050	--	b24,000	1,160	--	
31	2,910	--		1,830	--	b19,000	--	--	--
Total	108,140	--	c138,200	76,150	--	c560,000	34,021	--	c51,740

Total discharge for year (cfs-days)	1,420,641
Total load for year (tons)	7,488,500

b Computed on basis of samples obtained about four times a month.

c Partly estimated from water-sediment discharge curve.

GREEN RIVER NEAR OURAY, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 1, 1954	1:30 p.m.	1,540	61	1,860	5,020		44	--	64	80	94	99	100		--		SPWCM
Oct. 7	5:25 p.m.	1,740	64	3,760	5,320		61	--	78	85	94	98	100		--		SPWCM
Oct. 17	5:30 p.m.	2,240	55	1,570	4,270		46	--	61	73	87	96	100		--		SPWCM
Oct. 27	1:45 p.m.	2,060	46	1,270	3,260		55	--	69	77	87	96	100		--		SPWCM
Nov. 17	1:15 p.m.	1,940	44	627	2,590		19	--	31	41	55	75	94		100		SPWCM
Apr. 28	1:15 p.m.	5,910	52	1,850	3,340		40	--	63	72	81	90	99		100		SPWCM
May 12	11:00 a.m.	12,300	57	3,870	2,280		26	--	47	60	73	86	99		100		SPWCM
May 26	6:20 p.m.	13,800	59	2,060	3,940		16	--	28	39	63	85	98		100		SPWCM
June 17	10:10 a.m.	13,500	63	1,480	5,670		23	--	39	52	74	91	99		100		SPWCM
June 24	8:00 a.m.	11,200	70	889	4,960		30	--	47	61	77	91	99		100		SPWCM
July 1	9:00 a.m.	7,840	66	584	1,320		--	29	33	42	60	88	100		--		SBWCM
July 8	10:00 a.m.	4,340	70	223	730		--	52	58	69	81	95	99		100		SBWCM
July 21	10:30 a.m.	2,100	78	247	4,210		62	--	83	91	95	99	100		--		SPWCM
Aug. 4	9:30 a.m.	2,730	75	1,200	3,460		66	--	85	92	94	98	100		--		SPWCM
Aug. 16	12:00 m.	2,190	77	2,420	4,070		62	--	90	92	98	99	100		--		SPWCM

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GREEN RIVER BASIN--Continued

WILLOW CREEK NEAR OURAY, UTAH

LOCATION.--At gaging station, 8 miles upstream from mouth and 10 miles south of Ouray, Uintah County.
DRAINAGE AREA.--967 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to January 1955 (discontinued).
Water temperatures: December 1950 to January 1955 (discontinued).
EXTREMES, December 1950 to January 1955.--Specific conductance: Maximum daily, 8,770 micromhos July 8, 1951; minimum daily, 673 micromhos May 8, 1952.
Water temperatures: Maximum, 89°F July 14, 1951, June 8, 1953; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, October 1954 to January 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-7, 1954...	9.4	--		--	--	--		--	--	--		--	--	1,180	1.60	29.9	--	--	--	--	1,620	--
Oct. 8-10	19.3	--		--	--	--		--	--	--		--	--	835	1.14	43.5	--	--	--	--	1,180	--
Oct. 11-20	9.6	19		78	67	184		499	439	22		1.2	0.97	1,060	1.44	27.5	472	63	46	3.7	1,500	8.1
Oct. 21-31	13.1	--		--	--	--		--	--	--		--	--	956	1.30	33.8	--	--	--	--	1,360	--
Nov. 1-10	13.8	--		--	--	--		--	--	--		--	--	890	1.21	33.2	--	--	--	--	1,280	--
Nov. 11-20	17.1	16		67	54	138		416	329	18		.4	.66	816	1.11	37.7	391	50	44	3.0	1,210	8.2
Nov. 21-25	15.8	--		--	--	--		--	--	--		--	--	851	1.16	36.3	--	--	--	--	1,240	--
Dec. 1-10	11.0	--		--	--	--		--	--	--		--	--	1,160	1.58	34.5	--	--	--	--	1,620	--
Dec. 11-20	11.0	22		88	77	193		560	454	25		1.4	1.0	1,160	1.58	34.5	536	77	44	3.6	1,620	8.2
Dec. 21-31	11.0	--		--	--	--		--	--	--		--	--	977	1.33	29.0	--	--	--	--	1,390	--
Jan. 1-10, 1955..	10.0	--		--	--	--		--	--	--		--	--	952	1.29	25.7	--	--	--	--	1,360	--
Jan. 11-20.....	10.0	20		87	53	128		438	319	18		1.4	.57	862	1.17	23.3	434	75	39	2.7	1,240	8.2
Jan. 21-31	10.0	--		--	--	--		--	--	--		--	--	851	1.16	23.0	--	--	--	--	1,230	--

Temperature (°F) of water, October 1954 to January 1955

Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.
1	60	44	32	--	7	64	42	32	32	13	48	43	32	32	19	51	39	--	32	25	39	33	32	32
2	57	43	32	32	8	54	--	32	32	14	50	45	32	32	20	51	36	--	32	26	44	39	32	32
3	59	43	32	32	9	55	--	32	32	15	48	44	32	32	21	53	41	32	32	27	43	36	32	32
4	53	43	32	32	10	54	--	32	32	16	51	42	32	32	22	44	38	32	32	28	43	--	32	32
5	53	42	32	32	11	51	46	32	32	17	52	42	32	32	23	44	40	32	32	29	43	--	32	32
6	53	42	32	32	12	56	47	32	32	18	43	39	32	32	24	43	40	32	32	30	--	--	32	32
																				31	--	--	32	32
Average																					51	41	32	32

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 1949, February 1951 to September 1955.
Water temperatures: February 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 78°F July 23, 25, 26; minimum, freezing point on many days during December to March.
EXTREMES, 1951-55.--Dissolved solids (1951-54): Maximum, 8,220 ppm Dec. 11, 1951; minimum 592 ppm May 21-30, 1952.
Hardness (1951-54): Maximum 3,010 ppm Dec. 11, 1951; minimum, 353 ppm June 1-3, 6-10, 1952.
Specific conductance (1951-54): Maximum daily, 8,540 micromhos Dec. 11, 1951, minimum daily, 814 micromhos June 1, 1952.
Water temperatures: Maximum, 90°F July 10-11, 1954; minimum freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954..	254	9.6		281	108	354	12	207	1,650	44		3.9	--	2,560	3.48	1,760	1,140	976	40	4.5	3,060	7.5
Oct. 11-20	52.9	11		262	145	437	9.9	281	1,820	59		6.5	0.31	2,890	3.93	413	1,250	1,020	43	5.4	3,480	7.7
Oct. 21-31.....	97.1	9.0		241	181	600	9.1	294	2,240	70		7.9	--	3,500	4.76	918	1,350	1,100	49	7.1	4,110	7.8
Nov. 1-10	41.7	5.6		258	232	809	9.8	325	2,830	88		9.6	--	4,400	5.98	495	1,600	1,330	52	8.8	5,070	7.7
Nov. 11-20	65.7	4.2		270	268	849	9.4	331	3,070	98		8.9	.43	4,740	6.45	841	1,780	1,500	51	8.8	5,480	7.9
Nov. 21-30	38.4	5.3		253	223	791	9.6	296	2,780	85		10	--	4,300	5.85	446	1,550	1,310	52	8.7	5,020	7.6
Dec. 1-10	29.0	5.2		290	255	849	9.2	388	2,990	99		12	--	4,700	6.39	368	1,770	1,450	51	8.8	5,390	7.9
Dec. 11-20	24.0	18		449	336	602	89	1,020	2,650	206		5.1	.53	4,860	6.61	315	2,500	1,670	33	5.2	5,490	7.2
Dec. 21-31	20.0	32		410	394	506	124	900	2,700	274		1.0	.61	4,880	6.64	264	2,640	1,910	28	4.3	5,460	7.2
Jan. 1-10, 1955..	20.0	12		308	271	810	9.6	472	3,050	109		15	.41	4,820	6.56	260	1,880	1,500	48	8.1	5,420	7.7
Jan. 11-20	20.0	9.1		253	220	675	7.8	372	2,500	88		13	.32	3,950	5.37	213	1,540	1,230	49	7.5	4,530	7.9
Jan. 21-31	20.0	12		311	274	810	8.9	492	3,050	109		14	.39	4,830	6.57	261	1,900	1,500	48	8.1	5,430	7.7
Feb. 1-10	20.0	9.9		286	243	732	8.4	446	2,750	100		14	.35	4,360	5.93	235	1,710	1,350	48	7.7	4,980	7.6
Feb. 11-19	22.8	9.4		277	244	713	7.6	434	2,670	97		15	.35	4,250	5.78	262	1,690	1,340	48	7.5	4,870	7.8
Feb. 20-28	26.7	10		283	244	725	8.2	442	2,670	98		14	.34	4,270	5.81	308	1,710	1,350	48	7.6	4,890	7.7
Mar. 1-3	31.7	10		255	243	737	8.1	360	2,720	102		14	.37	4,270	5.81	365	1,640	1,340	49	7.9	4,930	7.8
Mar. 4-6, 8 ...	38.8	7.8		162	100	370	8.8	192	1,340	52		1.7	.29	2,140	2.91	224	815	658	49	5.6	2,690	7.2
Apr. 23-26	79.5	13		180	146	453	6.5	310	1,630	59		6.0	.27	2,650	3.60	569	1,050	796	48	6.1	3,280	8.0
Apr. 27-30	81.8	14		138	92	284	5.4	306	1,020	39		8.4	.19	1,750	2.38	387	723	472	46	4.6	2,360	7.7
May 1-10.....	77.2	12		167	136	439	7.1	310	1,540	56		4.7	.27	2,520	3.43	525	976	722	49	6.1	3,160	7.7
May 11-20.....	44.9	7.1		188	179	563	8.5	288	2,020	70		2.4	.31	3,180	4.32	386	1,210	969	50	7.1	3,890	7.8
May 21-31.....	38.4	3.5		192	176	563	8.5	274	2,030	72		2.0	.33	3,180	4.32	330	1,200	978	50	7.1	3,850	7.8
June 1-10.....	41.2	7.5		206	195	595	9.1	300	2,190	81		8.5	--	3,440	4.68	383	1,320	1,070	49	7.1	4,160	7.8
June 11-20.....	33.2	9.8		255	237	773	10	308	2,850	100		4.5	.40	4,390	5.97	394	1,610	1,360	51	8.4	5,110	7.8
June 21-30	27.3	6.2		226	222	699	9.4	279	2,560	87		4.3	--	3,950	5.37	291	1,480	1,250	51	7.9	4,650	7.7

GREEN RIVER BASIN--Continued

PRICE RIVER AT WOODSIDE, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
July 1-10, 1955 ..	14.4	5.4		272	273	851	11	276	3,210	110		2.1	--	4,870	6.62	189	1,800	1,580	50	8.7	5,470	7.5
July 11-20.....	12.0	5.7		249	258	815	10	240	3,020	102		2.1	0.38	4,580	6.23	148	1,680	1,490	51	8.6	5,230	7.6
July 21-31.....	47.9	6.0		239	239	751	11	240	2,810	94		1.6	--	4,270	5.81	552	1,580	1,380	51	8.2	4,900	7.4
Aug. 1-10.....	93.2	15		256	198	651	12	246	2,460	81		4.9	.43	3,800	5.17	956	1,450	1,250	49	7.4	4,470	7.8
Aug. 11.....	51.0	16		269	201	640	12	254	2,460	72		9.9	--	3,800	5.17	523	1,500	1,290	48	7.2	4,410	7.7
Aug. 12-20.....	110	15		248	107	301	10	268	1,400	44		1.7	.23	2,260	3.07	671	1,060	840	38	4.0	2,790	7.4
Aug. 21-23.....	27.0	18		204	109	330	9.3	300	1,310	43		7.6	.24	2,180	2.96	159	957	711	43	4.6	2,740	7.6
Aug. 24-31.....	47.5	7.6		262	280	841	11	264	3,180	105		2.5	.51	4,820	6.56	618	1,800	1,590	50	8.6	5,540	7.9
Sept. 1-10.....	11.1	6.3		256	266	791	11	266	3,010	92		3.7	.48	4,570	6.22	137	1,730	1,510	50	8.3	5,310	7.9
Sept. 11-17.....	10.4	4.7		270	252	812	11	246	3,050	92		3.7	.46	4,620	6.28	130	1,710	1,510	51	8.5	5,280	7.6
Sept. 26-30.....	21.6	9.5		233	222	719	10	284	2,600	80		8.2	.40	4,020	5.47	234	1,490	1,260	51	8.1	4,750	7.5

GREEN RIVER BASIN--Continued

PRICE RIVER AT WOODSIDE, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	69	41	32	32	33	--	62	65	63	75	67
2	60	67	42	32	32	33	--	62	65	63	75	67
3	63	67	40	32	32	33	--	62	62	63	76	67
4	67	63	40	32	32	33	--	62	59	63	75	67
5	62	64	41	32	32	33	--	--	59	63	67	67
6	60	65	38	32	32	31	--	60	65	64	65	67
7	57	70	40	33	32	--	--	62	65	68	67	67
8	59	72	40	32	33	32	--	62	65	70	65	67
9	61	68	38	32	32	--	--	62	74	75	66	67
10	65	62	38	32	32	--	--	62	65	73	65	67
11	67	62	36	32	32	--	--	60	69	71	64	71
12	62	63	34	32	32	--	--	60	68	70	63	72
13	69	56	34	32	33	--	--	60	64	70	63	72
14	63	56	34	32	32	--	--	60	64	70	66	72
15	53	57	33	32	33	--	--	60	64	70	66	72
16	59	53	33	32	33	--	--	60	73	70	73	67
17	52	53	33	32	33	--	--	60	73	70	73	67
18	51	50	33	--	33	--	--	60	72	70	66	--
19	60	50	33	--	33	--	--	60	69	75	66	--
20	59	50	33	--	33	--	--	60	69	75	66	--
21	62	50	33	--	33	--	--	60	69	75	66	--
22	64	46	33	--	33	--	--	60	69	75	70	--
23	60	46	33	--	33	--	63	60	70	78	70	--
24	60	46	33	33	33	--	67	60	68	77	67	--
25	67	43	33	32	33	--	68	60	68	78	67	--
26	55	46	33	32	33	--	67	60	69	78	67	68
27	60	46	33	32	33	--	60	60	68	73	67	65
28	54	46	33	32	33	--	60	60	69	72	67	65
29	56	45	33	32	--	--	60	60	68	73	67	67
30	56	43	33	33	--	--	60	60	67	72	67	67
31	68	--	32	32	--	--	--	60	--	74	--	--
Average	60	56	35	32	33	--	--	61	67	71	68	--

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 1955.
Water temperatures: May 1949 to September 1955.
Sediment records: May 1930 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,070 ppm Aug. 27, 31; minimum, 244 ppm May 21-31.
Hardness: Maximum, 500 ppm Sept. 3; minimum, 148 ppm May 21-31, July 1-10.
Specific conductance: Maximum daily, 1,620 micromhos Dec. 27; minimum daily, 349 micromhos May 31.
Water temperatures: Maximum, 82°F July 16, 23; minimum, freezing point on many days during December to March.
Sediment concentrations: Maximum daily, 41,800 ppm Oct. 8; minimum daily, 80 ppm Sept. 27.
Sediment loads: Maximum daily, 482,000 tons Mar. 15; minimum daily, 213 tons Sept. 27.
EXTREMES, 1928-55.--Dissolved solids: Maximum, 2,010 ppm Sept. 29, 1943; minimum, 194 ppm June 21-30, 1933.
Hardness: Maximum, 592 ppm Oct. 13, 1953; minimum, 128 ppm June 21-30, 1933.
Specific conductance (1941-55): Maximum daily, 2,420 micromhos Sept. 29, 1943; minimum daily, 321 micromhos May 30, 1948.
Water temperatures (1949-55): Maximum, 82°F July 31, Aug. 5, 6, 1949, July 20, 1953, July 16, 23, 1955; minimum, freezing point on many days during winter months.
Sediment concentrations (1930-55): Maximum daily, 63,100 ppm July 11, 1936; minimum daily, 34 ppm Sept. 27, 1951.
Sediment loads (1930-55): Maximum daily, 2,230,000 tons July 11, 1936; minimum daily, less than 100 tons on several days.
REMARKS: Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393. Flow affected by ice Dec. 16 to Mar. 18.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-10, 1954	2,160	--	--	132	32	121	--	--	--	--	--	--	--	960	1.31	5,600	462	--	36	2.5	1,320	--	--
Oct. 11-20	2,386	14	0.16	100	38	109	6.0	242	381	44	0.3	5.3	0.25	832	1.13	5,360	406	207	36	2.4	1,180	7.7	22
Oct. 21-23, 25-31	2,228	--	--	84	29	106	--	--	--	--	--	--	--	725	.99	4,360	332	--	41	2.5	1,060	--	--
Oct. 24	2,130	--	--	115	43	171	--	--	--	--	--	--	--	--	--	--	464	--	44	3.4	1,510	--	--
Nov. 1-10	2,014	--	--	84	32	126	--	--	--	--	--	--	--	761	1.03	4,140	344	--	45	3.0	1,060	--	--
Nov. 11-20	2,018	--	--	91	34	143	--	--	--	--	--	--	--	800	1.09	4,360	368	--	46	3.3	1,130	--	--
Nov. 21-24, 26	2,088	--	--	83	35	143	--	--	--	--	--	--	--	773	1.05	4,360	352	--	47	3.3	1,090	--	--
Dec. 1-10	1,484	--	--	81	44	156	--	--	--	--	--	--	--	839	1.14	3,360	384	--	47	3.5	1,190	--	--
Dec. 11-20	1,209	--	--	101	42	163	--	--	--	--	--	--	--	918	1.25	3,000	424	--	46	3.4	1,280	--	--
Dec. 21-31	1,203	--	--	114	50	136	--	--	--	--	--	--	--	1,030	1.40	3,350	490	--	38	2.7	1,420	--	--
Jan. 1-10, 1955	1,470	--	--	95	41	123	--	--	--	--	--	--	--	847	1.15	3,360	408	--	40	2.7	1,220	--	--
Jan. 11-20	1,219	12	.04	88	40	106	3.0	269	317	50	.2	3.2	.20	773	1.05	2,540	384	164	37	2.3	1,130	7.8	8
Jan. 21-31	1,209	--	--	91	34	103	--	--	--	--	--	--	--	737	1.00	2,410	368	--	38	2.3	1,080	--	--

Feb. 1-10, 1955 ...	1,535	--	--	87	31	89	--	--	--	--	--	--	--	684	.93	2,830	346	--	36	2.1	1,010	--	--
Feb. 11-20.....	1,641	--	--	85	31	90	--	--	--	--	--	--	--	677	.92	3,000	340	--	37	2.1	991	--	--
Feb. 21-28.....	1,475	--	--	77	33	89	--	--	--	--	--	--	--	636	.86	2,530	326	--	37	2.1	943	--	--
Mar. 1-10.....	1,820	--	--	81	31	93	--	--	--	--	--	--	--	668	.91	3,280	328	--	38	2.2	979	--	--
Mar. 11-20.....	6,095	--	--	77	26	101	--	--	--	--	--	--	--	665	.90	10,940	300	--	42	2.5	991	--	--
Mar. 21-31.....	3,688	--	--	76	29	105	--	--	--	--	--	--	--	704	.96	7,010	308	--	43	2.6	1,010	--	--
Apr. 1-10.....	3,491	--	--	83	30	99	--	230	--	--	--	--	--	703	.96	6,630	330	141	39	2.4	1,060	7.8	--
Apr. 11-20.....	5,159	12	.06	72	30	90	4.1	220	266	36	.2	3.5	.20	639	.87	8,900	303	122	39	2.2	945	7.7	12
Apr. 21-30.....	7,029	--	--	62	18	56	--	190	--	--	--	--	--	443	.60	8,410	228	72	35	1.6	678	7.8	--
May 1-10.....	8,053	--	--	55	14	42	--	177	--	--	--	--	--	360	.49	7,830	196	51	32	1.3	567	8.0	--
May 11-20	12,340	--	--	54	9.2	27	--	174	--	--	--	--	--	288	.39	9,600	172	29	25	.9	455	7.7	--
May 21-31.....	12,520	--	--	45	8.7	24	--	146	--	--	--	--	--	244	.33	8,250	148	28	26	.9	397	7.7	--
June 1-10	10,220	--	--	47	9.2	28	--	146	--	--	--	--	--	275	.37	7,590	156	36	28	1.0	436	7.8	--
June 11-20	12,230	--	--	45	10	29	--	140	--	--	--	--	--	260	.35	8,590	154	39	29	1.0	426	7.7	--
June 21-30	10,550	--	--	44	9.6	29	--	142	--	--	--	--	--	259	.35	7,380	150	34	30	1.0	428	7.7	--
July 1-10.....	6,036	--	--	45	8.8	29	--	135	--	--	--	--	--	263	.36	4,290	148	37	30	1.0	422	7.5	--
July 11-20.....	2,840	12	.05	49	18	44	2.5	162	122	24	.2	1.1	.08	362	.49	2,780	196	64	32	1.4	559	7.6	7
July 21-26, 28-31 ..	2,140	--	--	64	15	72	--	194	--	--	--	--	--	471	.64	2,720	224	65	41	2.1	736	7.6	--
July 27.....	2,060	--	--	94	28	104	--	182	--	--	--	--	--	758	1.03	4,220	352	203	39	2.4	1,060	8.1	--
Aug. 1-10.....	2,788	--	--	72	18	86	--	196	--	--	--	--	--	558	.76	4,200	256	95	42	2.3	842	8.0	--
Aug. 11-20.....	2,524	--	--	75	27	94	--	216	--	--	--	--	--	559	.76	3,810	300	123	41	2.4	967	7.8	--
Aug. 21-26, 28-30..	2,513	--	--	80	21	96	--	208	--	--	--	--	--	633	.86	4,290	288	117	42	2.5	939	7.9	--
Aug. 27, 31	2,685	--	--	133	39	133	--	252	--	--	--	--	--	1,070	1.46	7,760	492	285	37	2.6	1,450	7.6	--
Sept. 1-2, 4-10	1,541	--	--	89	22	98.	--	204	--	--	--	--	--	674	.92	2,800	312	145	41	2.4	994	7.8	--
Sept. 3	1,720	--	--	154	28	111	--	202	--	--	--	--	--	1,030	1.40	4,780	500	334	33	2.2	1,360	7.7	--
Sept. 11-20.....	1,024	--	--	77	24	99	--	206	--	--	--	--	--	644	.88	1,780	292	123	43	2.5	970	7.7	--
Sept. 21-30.....	980	--	--	77	30	108	--	204	--	--	--	--	--	699	.95	1,850	316	149	43	2.6	1,050	7.9	--
Weighted average.	a3,949	--	--	64	19	63	--	--	--	--	--	--	--	466	0.63	4,970	238	--	37	1.8	706	--	--

a Represents 99 percent of runoff for water year October 1954 to September 1955.

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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.....	1,980	7,250	38,800	2,000	700	3,780	1,850	250	a1,200
2.....	1,770	4,000	19,100	2,020	550	3,000	1,790	250	a1,200
3.....	1,680	5,150	23,400	2,060	440	2,450	1,650	260	1,160
4.....	1,870	8,800	44,400	2,060	475	2,640	1,650	250	1,110
5.....	1,720	3,100	14,400	2,040	410	2,260	1,470	250	992
6.....	1,770	1,600	7,650	2,040	420	2,310	1,220	185	609
7.....	2,260	9,940	s80,700	2,020	435	2,370	1,270	175	600
8.....	2,620	41,800	s327,000	2,000	290	1,570	1,360	235	863
9.....	3,220	32,600	s320,000	1,960	375	1,980	1,310	285	1,010
10.....	2,710	20,800	152,000	1,940	400	2,100	1,270	265	909
11.....	3,010	11,200	91,000	1,940	370	a1,900	1,060	240	687
12.....	3,170	7,250	62,100	1,940	350	1,830	1,100	300	891
13.....	2,460	15,000	99,600	2,060	580	3,230	1,130	240	732
14.....	2,150	18,000	104,000	2,080	2,120	11,900	1,100	185	549
15.....	2,040	9,200	50,700	2,020	1,080	5,890	1,210	210	686
16.....	2,110	6,850	39,000	2,060	530	2,950	1,400	320	1,210
17.....	2,190	3,100	18,300	2,040	580	3,190	1,350	345	1,260
18.....	2,280	1,550	9,540	2,000	455	2,460	1,280	335	1,160
19.....	2,280	1,500	9,230	2,000	400	2,160	1,240	230	770
20.....	2,170	1,300	a7,600	2,040	345	1,900	1,220	235	774
21.....	2,110	1,140	6,490	2,080	370	2,080	1,200	255	826
22.....	2,040	970	5,340	2,130	465	2,670	1,180	275	876
23.....	2,000	1,600	8,640	2,130	475	2,730	1,170	245	774
24.....	2,130	4,800	27,600	2,060	400	2,220	1,150	280	869
25.....	2,480	5,800	38,800	2,040	315	a1,740	1,170	275	869
26.....	2,260	3,200	a20,000	2,040	255	1,400	1,270	230	789
27.....	2,640	2,100	15,000	1,980	250	a1,300	1,370	200	740
28.....	2,410	1,730	11,300	1,920	250	a1,300	1,390	660	2,480
29.....	2,190	2,900	17,100	1,880	240	a1,200	1,250	660	2,230
30.....	2,110	2,300	13,100	1,870	250	a1,300	980	275	728
31.....	2,040	1,420	7,820	--	--	--	1,100	345	1,020
Total.	69,870	--	1,689,710	60,450	--	79,810	40,160	--	30,573
	January			February			March		
1.....	1,270	440	1,510	1,260	425	1,450	1,530	1,240	5,120
2.....	1,430	585	2,260	1,460	260	1,020	1,570	1,100	a4,700
3.....	1,600	535	2,310	1,600	370	1,600	1,650	1,000	a4,500
4.....	1,700	625	2,870	1,750	400	1,890	1,700	940	a4,300
5.....	1,800	515	2,500	1,650	305	1,360	1,750	810	3,830
6.....	1,600	805	3,480	1,530	280	1,160	1,800	585	2,840
7.....	1,500	665	2,690	1,500	325	1,320	1,900	815	4,180
8.....	1,370	705	2,610	1,500	270	1,090	2,000	930	5,020
9.....	1,270	665	2,280	1,500	245	992	2,100	890	5,050
10.....	1,160	610	a1,900	1,600	250	1,080	2,200	970	5,760
11.....	1,150	595	1,850	1,670	245	1,100	2,500	1,910	12,900
12.....	1,150	495	1,540	1,530	355	1,470	3,100	5,200	43,500
13.....	1,150	445	1,380	1,430	420	1,620	4,600	9,500	118,000
14.....	1,210	400	a1,300	1,480	270	1,080	7,000	14,000	265,000
15.....	1,300	330	1,160	1,600	305	1,320	9,500	18,800	482,000
16.....	1,320	320	a1,100	1,800	360	a1,700	10,000	13,300	359,000
17.....	1,320	475	1,690	1,750	360	1,700	8,000	8,000	173,000
18.....	1,280	345	1,190	1,800	370	1,800	6,000	5,600	90,700
19.....	1,160	850	2,660	1,750	380	1,800	5,280	4,000	57,000
20.....	1,150	650	2,020	1,600	300	1,300	4,970	3,000	40,300
21.....	1,150	455	1,410	1,500	240	a970	4,450	2,440	29,300
22.....	1,150	470	1,460	1,450	220	a860	3,810	2,150	22,100
23.....	1,150	430	1,340	1,450	200	783	3,360	1,430	13,000
24.....	1,220	395	1,300	1,460	195	769	3,410	1,440	13,300
25.....	1,330	375	1,350	1,470	215	853	3,580	1,440	13,900
26.....	1,400	620	2,340	1,480	230	a920	4,580	2,740	33,900
27.....	1,350	555	2,020	1,490	295	1,190	4,640	3,180	39,800
28.....	1,230	400	1,330	1,500	535	2,170	3,780	2,960	30,200
29.....	1,120	405	1,220	--	--	--	3,190	2,270	19,600
30.....	1,100	465	1,380	--	--	--	2,860	2,100	16,200
31.....	1,100	480	1,430	--	--	--	2,910	1,870	14,700
Total.	40,190	--	56,880	43,560	--	36,367	119,720	--	1,932,700

s Computed by subdividing day.
a Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	3,110	1,430	12,000	7,780	2,690	56,500	11,400	2,100	64,600
2.....	3,410	1,730	15,900	7,900	2,800	59,700	10,500	1,850	52,400
3.....	3,360	2,560	23,200	6,860	2,370	43,900	10,100	1,800	49,100
4.....	3,410	2,360	21,700	6,700	2,230	40,300	10,000	1,880	50,800
5.....	3,720	2,520	25,300	7,740	2,250	47,000	10,200	1,670	46,500
6.....	3,860	2,850	29,700	9,680	4,200	a110,000	10,000	1,410	38,100
7.....	3,720	2,400	24,100	9,230	3,810	94,900	9,860	1,360	36,200
8.....	3,690	2,180	21,700	8,070	2,970	64,700	9,820	1,600	a42,000
9.....	3,410	2,150	19,800	7,780	2,360	49,600	10,100	1,450	39,500
10.....	3,220	1,880	16,300	8,790	2,400	57,000	10,200	1,390	38,300
11.....	3,330	1,500	13,500	11,100	4,660	140,000	10,700	1,480	42,800
12.....	3,630	1,480	14,500	12,600	5,950	202,000	11,200	1,600	a48,000
13.....	4,420	2,000	23,900	11,800	5,000	159,000	11,700	1,840	58,100
14.....	4,940	3,140	41,900	10,900	3,800	112,000	11,500	1,700	52,900
15.....	5,110	3,650	50,400	11,000	3,370	100,000	11,400	1,550	47,700
16.....	5,560	4,000	60,000	12,200	3,620	119,000	12,600	2,120	72,100
17.....	5,320	4,730	67,900	13,000	4,040	142,000	13,000	2,200	77,200
18.....	5,210	3,750	52,800	13,400	4,230	153,000	13,400	2,000	a72,000
19.....	6,290	5,400	91,700	14,200	4,500	a170,000	13,400	2,200	a80,000
20.....	7,780	7,140	150,000	13,200	3,600	128,000	13,400	2,150	77,800
21.....	8,400	8,100	184,000	11,400	2,800	86,200	13,300	2,960	106,000
22.....	8,320	6,950	156,000	10,700	2,300	66,400	13,000	2,600	91,300
23.....	8,280	5,200	116,000	10,500	2,100	59,500	12,200	1,900	62,600
24.....	7,450	3,950	79,500	11,600	2,480	77,700	11,300	1,750	53,400
25.....	6,290	3,100	52,600	12,800	3,160	109,000	10,600	1,280	36,600
26.....	6,180	3,170	52,900	12,800	3,000	104,000	9,770	1,020	26,900
27.....	6,510	3,000	52,700	13,200	2,700	96,200	9,320	1,050	26,400
28.....	6,360	2,250	38,600	13,900	2,990	112,000	9,050	1,060	25,900
29.....	6,140	1,910	31,700	14,200	2,950	113,000	8,700	920	21,600
30.....	6,360	1,980	34,000	13,800	2,800	a100,000	8,280	675	15,100
31.....	--	--	--	12,800	2,700	93,300	--	--	--
Total.	156,790	--	1,574,300	341,630	--	3,059,900	330,000	--	1,551,900

	July			August			September		
1.....	7,940	705	15,100	2,880	1,300	10,100	2,020	7,600	41,400
2.....	7,740	670	a14,000	2,830	1,100	8,410	1,810	7,660	37,400
3.....	7,290	750	14,800	2,880	1,500	11,700	1,720	9,980	46,300
4.....	6,780	725	13,300	2,860	3,050	23,600	1,660	5,300	23,800
5.....	6,250	590	9,960	2,760	3,230	24,100	1,560	3,300	13,900
6.....	5,770	525	8,180	2,860	4,760	36,800	1,490	1,960	7,890
7.....	5,320	475	6,820	2,810	6,360	48,300	1,420	750	2,880
8.....	4,840	560	7,320	2,520	2,800	19,100	1,360	540	1,980
9.....	4,390	440	5,220	2,740	2,200	16,300	1,310	450	1,590
10.....	4,040	330	3,600	2,740	3,200	23,700	1,240	400	1,340
11.....	3,660	290	2,870	2,520	9,200	62,600	1,170	340	1,070
12.....	3,360	275	2,490	2,500	7,330	49,500	1,130	370	1,130
13.....	3,110	230	a1,900	2,570	4,760	33,000	1,100	350	1,040
14.....	2,880	180	a1,400	2,660	2,430	17,500	1,060	300	859
15.....	2,690	155	1,130	2,520	3,600	a24,000	1,020	270	744
16.....	2,780	155	1,160	2,430	7,040	46,200	986	230	612
17.....	2,690	140	1,020	2,500	5,240	35,400	950	165	423
18.....	2,520	145	987	2,430	4,790	31,400	926	175	438
19.....	2,390	260	1,680	2,740	6,200	45,900	962	1,130	2,940
20.....	2,320	220	1,380	2,370	4,600	29,400	938	750	1,900
21.....	2,210	210	a1,300	2,340	3,500	22,100	926	195	488
22.....	2,110	270	a1,500	2,300	3,200	19,900	926	190	475
23.....	1,980	370	1,980	2,190	4,700	27,800	914	355	876
24.....	1,980	335	1,790	2,040	3,850	21,200	950	255	654
25.....	1,880	375	1,900	1,920	3,350	17,400	962	105	273
26.....	1,980	1,350	7,220	1,900	2,390	12,300	974	85	224
27.....	2,060	4,350	24,200	2,780	8,600	64,600	986	80	213
28.....	2,260	2,400	14,600	3,860	12,400	129,000	986	90	240
29.....	2,230	600	3,610	3,090	12,600	105,000	1,040	100	281
30.....	2,150	430	2,500	2,980	12,800	103,000	1,140	170	523
31.....	2,620	700	4,950	2,590	13,700	95,800	--	--	--
Total.	112,220	--	179,867	81,110	--	1,215,110	35,636	--	193,883

Total discharge for year (cfs-days) 1,431,336
Total load for year (tons) 11,601,000

a Computed from estimated concentration graph.

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 11, 1954	9:00 a.m.	2,980	60	11,100	3,560		53		79	92	99	100	--				SPWCM
Nov. 17	11:15 a.m.	2,040	45	561	3,600		53		75	86	95	99	100				SPWCM
Dec. 10	3:30 p.m.	1,240	33	281	4,220		64		89	95	99	100	--				SPWCM
Mar. 22, 1955	12:00 m.	3,780	37	2,150	3,980		61		78	84	90	97	100				SPWCM
Mar. 31	3:15 p.m.	2,930	45	1,800	5,440		73		94	95	97	99	100				SPWCM
Apr. 12	10:00 a.m.	3,610	49	1,530	3,080		64		89	91	93	97	100				SPWCM
Apr. 19	11:25 a.m.	6,250	50	5,610	5,400		48		68	75	84	98	100				SPWCM
May 4	2:30 p.m.	6,740	57	2,210	4,340		49		73	82	86	94	100				SPWCM
May 15	12:30 p.m.	11,000	56	3,360	3,860		35		53	70	80	93	100				SPWCM
May 20	12:45 p.m.	13,200	61	3,520	2,750		29		44	63	76	92	100				SPWCM
May 26	11:10 a.m.	12,800	61	2,990	5,020		24		43	59	75	91	100				SPWCM
June 2	11:40 a.m.	10,600	61	2,030	2,960		27		40	55	72	90	100				SPWCM
June 20	9:15 a.m.	13,400	67	1,880	3,300		22		35	51	69	89	99		100		SPWCM
July 19	12:30 p.m.	2,370	81	227	2,300		46		65	83	95	97	100				SPWCM
Aug. 8	11:20 a.m.	2,520	74	2,050	4,430		76		97	99	100	--	--				SPWCM
Aug. 29	8:30 a.m.	3,190	72	12,700	5,500		71		98	98	100	--	--				SPWCM
Sept. 14	4:30 p.m.	1,080	71	287	3,060		78		93	99	100	--	--				SPWCM

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 AREA.--1,690 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: November 1946 to September 1949, November 1950 to September 1955.
Water temperatures: July to September 1949, October 1950 to September 1955.
Sediment records: March 1948 to September 1949, October 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 4,230 ppm July 23, 26-29; minimum, 1,250 ppm May 25-28.
Hardness: Maximum, 2,220 ppm July 23, 26-29; minimum, 623 ppm May 25-28.
Specific conductance: Maximum daily, 5,430 micromhos July 26; minimum daily, 1,400 micromhos June 11.
Water temperatures: Maximum, 93°F July 18, Aug. 1; minimum, freezing point on many days during December to March.
Sediment concentrations: Maximum daily, 60,500 ppm Aug. 14; minimum daily, 5 ppm on several days.
Sediment loads; Maximum daily, 50,200 tons Aug. 14; minimum daily, less than 0.50 tons on many days.
EXTREMES, 1948-49, 1950-55.--Dissolved solids: Maximum, 5,650 ppm July 11, 13-18, 1954; minimum, 541 ppm June 11-20, 1952.
Hardness: Maximum, 2,280 ppm July 11, 13-18, 1954; minimum, 330 ppm June 11-20, 1952.
Specific conductance: Maximum daily, 7,230 micromhos July 15, 1954; minimum daily, 756 micromhos June 14, 1952.
Water temperatures, 1949, 1950-55: Maximum, 95°F July 11, 1954; minimum, freezing point on many days during winter months.
Sediment concentrations (1948-55): Maximum daily, 115,000 ppm Aug. 4, 1951; minimum daily, 0 ppm (no flow) Sept. 5 to Oct. 3, 1948.
Sediment loads (1948-55): Maximum daily, 786,000 tons Aug. 4, 1951; minimum daily, 0 tons Sept. 5 to Oct. 3, 1948.
REMARKS: Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393. Flow affected by ice Dec. 3 to Mar. 17.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4-5, 8, 10-11, 1954	92.4	11		340	75	180	11	187	1,320	37		2.8	--	2,070	2.82	516	1,160	1,000	25	2.3	2,420	7.7
Oct. 6-7	23.5	12		367	169	493	13	284	2,280	83		2.4	--	3,560	4.84	226	1,610	1,380	40	5.3	4,060	7.6
Oct. 12-20	19.6	9.3		436	175	486	13	290	2,450	79		2.1	0.33	3,790	5.15	201	1,810	1,570	37	5.0	4,240	7.7
Oct. 21-31	24.5	11		348	210	656	13	271	2,700	83		2.2	--	4,160	5.66	275	1,730	1,510	45	6.9	4,650	7.8
Nov. 1-10	24.2	10		312	222	650	13	289	2,620	83		2.5	--	4,050	5.51	265	1,690	1,450	45	6.9	4,540	7.7
Nov. 11-20	32.0	9.6		290	198	615	11	259	2,440	71		3.5	.38	3,770	5.13	326	1,540	1,330	46	6.8	4,330	7.8
Nov. 21-30	29.7	9.3		282	209	600	10	284	2,410	74		2.9	--	3,740	5.09	300	1,560	1,330	45	6.6	4,230	7.8
Dec. 1-10	29.7	9.3		294	198	550	10	314	2,270	72		3.0	--	3,560	4.84	285	1,550	1,290	43	6.1	4,080	8.0
Dec. 11-20	43.5	13		272	194	494	7.4	288	2,150	64		3.5	.30	3,340	4.54	392	1,480	1,240	42	5.6	3,910	7.8
Dec. 21-31	40.0	14		284	193	456	7.8	378	1,970	69		3.4	--	3,180	4.32	343	1,500	1,190	40	5.1	3,730	7.7
Jan. 1-10, 1955	37.5	13		264	165	364	7.1	385	1,650	64		3.0	--	2,720	3.70	275	1,340	1,070	37	4.3	3,310	7.7
Jan. 11-20	32.5	14		278	162	374	7.1	464	1,630	59		3.2	.25	2,760	3.75	242	1,360	980	37	4.4	3,320	7.6
Jan. 21-31	32.1	12		242	151	354	5.9	415	1,480	55		3.0	--	2,510	3.41	218	1,220	885	38	4.4	3,080	7.7
Feb. 1-10	34.7	12		238	145	320	6.3	378	1,450	56		3.2	--	2,420	3.29	227	1,190	880	37	4.0	2,960	7.7
Feb. 11-19	37.8	11		256	153	347	6.3	424	1,540	60		3.6	.30	2,590	3.52	264	1,270	920	37	4.2	3,120	7.7
Feb. 20-28	36.7	12		226	149	326	6.3	360	1,460	55		3.1	--	2,410	3.28	239	1,180	882	37	4.1	2,940	7.7

Mar. 1-10, 1955..	53.8	11		156	80	218	4.9	294	883	33		3.4	.14	1,530	2.08	222	718	477	40	3.5	2,000	7.3
Mar. 11, 15, 17-18	161	9.8		212	102	375	6.5	250	1,480	41		3.3	.17	2,350	3.20	1,020	948	744	46	5.3	2,920	7.5
Mar. 21-31	103	9.6		228	137	409	6.9	300	1,650	55		3.1	.20	2,650	3.60	737	1,130	886	44	5.3	3,140	7.5
Apr. 1-10	55.3	9.7		249	170	465	7.5	300	1,960	64		2.6	.24	3,080	4.19	460	1,320	1,070	43	5.6	3,580	7.6
Apr. 11-20	35.6	7.8		275	193	552	8.7	302	2,270	77		1.3	.24	3,530	4.80	339	1,480	1,230	45	6.2	4,040	7.6
Apr. 21-30	36.5	8.5		230	170	466	11	266	1,870	70		1.3	--	2,960	4.03	292	1,270	1,060	44	5.7	3,440	7.9
May 1-10	18.5	6.3		302	217	602	14	296	2,510	94		.7	--	3,890	5.29	194	1,650	1,400	44	6.5	4,410	7.8
May 11-15	62.8	8.2		236	175	500	12	248	2,060	66		2.0	.28	3,180	4.32	539	1,310	1,110	45	6.0	3,740	7.9
May 16-20	59.6	8.9		166	101	250	12	282	1,070	39		1.5	.17	1,790	2.43	288	830	598	39	3.8	2,280	7.7
May 21-24, 29-31	70.0	8.3		181	129	316	8.3	266	1,320	47		1.5	--	2,140	2.91	404	982	764	41	4.4	2,680	7.8
May 25-28	123	7.3		126	75	163	5.4	267	719	22		1.7	--	1,250	1.70	415	623	404	36	2.8	1,700	7.6
June 1-9.....	84.7	11		183	130	355	8.2	276	1,410	44		1.6	--	2,280	3.10	521	991	765	44	4.9	2,830	7.4
June 10-11, 13-19	153	11		138	89	212	5.8	252	888	30		1.5	.17	1,500	2.04	620	710	504	39	3.5	1,990	7.5
June 12, 20	134	9.5		209	149	471	--	296	1,770	50		3.3	--	2,810	3.82	1,020	1,130	892	47	6.1	3,440	7.2
June 21-30.....	38.3	9.9		214	162	427	9.1	269	1,800	58		1.4	--	2,810	3.82	291	1,200	980	43	5.4	3,430	7.6
July 1-10	9.4	14		280	212	569	13	252	2,360	88		2.3	--	3,660	4.98	92.9	1,570	1,360	44	6.2	4,320	8.0
July 11-13, 18 ...	1.1	18		315	233	656	13	254	2,690	108		1.9	.42	4,160	5.66	12.4	1,740	1,540	45	6.8	4,760	7.9
July 23, 26-29	9.1	16		498	237	469	18	215	2,790	88		3.3	--	4,230	5.75	104	2,220	2,040	31	4.3	4,610	7.8
Aug. 1, 4, 6, 10..	50.3	13		417	178	375	18	240	2,210	66		1.6	--	3,400	4.62	462	1,770	1,580	31	3.9	3,830	7.5
Aug. 8	118	20		224	63	166	11	363	825	36		1.1	--	1,530	2.08	487	818	520	30	2.5	1,990	7.4
Aug. 12, 14, 18-19	78.2	15		405	131	345	15	262	1,940	60		1.2	.32	3,040	4.13	642	1,550	1,330	32	3.8	3,510	7.3
Aug. 15-17	58.0	17		219	52	227	7.9	243	975	30		1.2	--	1,650	2.24	258	760	562	39	3.6	2,110	7.4
Aug. 21-31.....	22.9	18		355	115	348	11	267	1,750	71		4.4	--	2,800	3.81	173	1,360	1,140	36	4.1	3,310	7.6
Sept. 1-6, 9, 12, 30	1.8	13		377	168	420	15	203	2,180	98		2.3	.34	3,370	4.58	16.4	1,630	1,460	36	4.5	3,880	7.8
Weighted average	a46.2	11		240	141	379	8.5	295	1,630	54		2.4	--	2,610	3.55	326	1,180	937	41	4.8	3,120	--

a Represents 91 percent of runoff for water year October 1954 to September 1955.

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	58	38	32	32	32	50	60	60	68	93	74
2	--	50	32	32	32	32	45	55	67	70	--	73
3	--	48	34	32	--	32	49	59	65	70	--	72
4	69	48	38	32	--	32	54	68	60	72	78	79
5	67	45	38	32	32	32	50	68	72	70	--	84
6	67	48	38	32	32	--	54	69	65	73	77	79
7	68	45	35	32	32	32	52	67	75	78	--	--
8	64	46	33	32	32	32	52	64	75	77	79	--
9	--	46	35	32	32	--	59	55	74	--	76	80
10	65	45	33	32	32	--	58	60	75	75	78	--
11	60	45	38	32	32	34	45	74	72	75	--	--
12	64	45	35	32	32	--	55	65	60	80	76	84
13	58	50	34	32	32	--	59	61	71	85	--	--
14	56	51	35	32	32	--	52	66	61	--	75	--
15	57	47	34	32	32	--	--	52	73	--	80	--
16	56	49	33	32	32	--	--	65	70	--	74	--
17	53	44	32	32	32	40	--	59	71	--	78	--
18	56	--	32	32	32	45	55	64	70	93	74	--
19	55	43	34	32	32	--	55	69	80	--	78	--
20	58	41	35	32	32	--	60	69	79	--	--	--
21	59	48	32	32	32	38	58	70	80	--	--	--
22	55	42	33	32	32	41	52	62	80	--	77	--
23	58	43	32	32	32	49	61	70	75	78	78	--
24	52	43	34	32	32	50	62	66	70	--	75	--
25	60	41	34	32	32	--	58	65	65	--	70	--
26	58	43	32	32	--	--	55	--	70	80	82	--
27	45	42	33	32	--	--	59	60	73	68	--	--
28	60	35	32	32	32	42	61	65	72	79	74	--
29	51	36	32	32	--	53	55	69	70	78	73	--
30	58	36	32	32	--	55	61	72	73	--	--	84
31	48	--	32	32	--	50	--	65	--	--	--	--
Average	58	45	34	32	32	--	55	64	71	--	--	--

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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.....	14	150	a6	24	415	27	25	155	10
2.....	14	150	a6	25	435	29	20	135	7
3.....	14	150	a6	24	390	25	23	220	14
4.....	53	6,870	s2,080	24	360	23	28	1,180	89
5.....	24	50	3	24	320	21	31	580	49
6.....	24	200	13	24	290	19	31	500	42
7.....	23	240	15	24	205	13	31	550	46
8.....	291	29,600	s30,800	24	155	10	34	500	46
9.....	149	24,000	b9,700	24	160	10	37	265	26
10.....	49	8,700	1,150	25	150	10	37	380	38
11.....	45	5,500	668	25	130	9	37	365	36
12.....	33	1,640	146	25	150	10	40	375	40
13.....	25	670	45	25	160	11	43	470	55
14.....	21	455	26	53	1,800	s298	45	460	56
15.....	18	360	17	34	1,830	168	45	625	76
16.....	17	255	12	34	1,650	151	45	550	67
17.....	15	170	7	32	1,400	121	45	320	39
18.....	15	220	9	31	965	81	45	240	29
19.....	15	245	10	31	800	67	45	375	46
20.....	17	245	11	30	475	38	45	350	43
21.....	17	270	12	29	225	18	40	210	23
22.....	17	210	10	29	160	13	40	195	21
23.....	17	195	9	29	150	12	40	190	21
24.....	18	155	8	30	135	11	40	260	28
25.....	19	90	5	31	130	11	40	185	20
26.....	36	1,160	s153	31	130	11	40	200	22
27.....	39	4,000	421	31	160	13	40	165	18
28.....	30	1,180	96	30	100	8	40	145	16
29.....	27	650	47	29	125	10	40	140	15
30.....	25	505	34	28	110	8	40	70	8
31.....	24	540	35	--	--	--	40	180	19
Total.	1,145	--	45,560	859	--	1,256	1,172	--	1,065
	January			February			March		
1.....	40	230	25	37	195	19	40	1,050	113
2.....	40	210	23	37	110	11	40	1,540	166
3.....	40	200	22	35	130	b12	40	3,580	387
4.....	40	155	17	34	160	b15	46	4,500	559
5.....	40	200	22	34	130	12	52	2,580	362
6.....	35	215	20	34	270	25	52	1,200	b170
7.....	35	175	17	34	145	13	54	750	109
8.....	35	185	17	34	190	17	60	2,040	330
9.....	35	200	19	34	185	17	70	730	138
10.....	35	265	25	34	175	16	84	2,660	603
11.....	35	380	36	34	180	17	100	2,650	716
12.....	35	370	35	34	205	19	116	5,000	1,570
13.....	35	255	24	34	215	20	133	9,900	b3,600
14.....	35	240	23	37	210	21	150	22,200	8,990
15.....	35	225	21	40	210	23	172	25,700	11,900
16.....	30	200	16	42	215	24	180	9,800	4,760
17.....	30	350	28	42	195	22	190	4,300	2,210
18.....	30	265	21	42	180	20	183	2,750	1,360
19.....	30	260	21	35	245	23	173	2,250	1,050
20.....	30	225	18	35	265	25	180	2,200	1,070
21.....	30	180	15	35	255	24	131	1,850	654
22.....	30	210	17	35	230	22	92	1,450	360
23.....	30	190	15	35	255	24	98	1,300	344
24.....	30	1195	16	35	220	21	135	1,550	565
25.....	30	185	15	35	240	23	137	2,100	777
26.....	30	200	16	40	290	31	135	2,650	966
27.....	33	230	20	40	140	15	98	2,200	b580
28.....	33	250	22	40	70	8	79	1,500	320
29.....	33	225	20	--	--	--	78	1,050	221
30.....	37	185	18	--	--	--	75	750	152
31.....	37	205	20	--	--	--	75	750	152
Total.	1,053	--	644	1,017	--	539	3,248	--	45,254

s Computed by subdividing day.
a Computed from water-sediment discharge curve.
b Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	70	1,750	331	24	70	5	77	485	101
2.....	61	1,000	165	23	55	3	89	685	165
3.....	61	535	88	19	35	2	86	400	93
4.....	60	335	54	19	55	3	72	320	62
5.....	55	250	37	21	80	5	58	250	39
6.....	51	290	40	16	35	2	53	150	21
7.....	51	250	34	13	15	1	42	135	15
8.....	52	260	37	12	30	1	71	1,340	s 393
9.....	47	300	38	11	40	1	214	7,530	s 4,570
10.....	45	305	37	27	60	4	333	12,100	s 11,000
11.....	39	300	32	36	70	7	294	9,200	7,300
12.....	38	255	26	37	100	10	206	5,500	b 3,100
13.....	39	215	23	45	140	17	155	3,770	1,580
14.....	37	145	14	84	1,570	356	133	1,600	575
15.....	34	120	11	112	2,340	708	108	600	175
16.....	32	95	8	93	1,490	374	114	405	125
17.....	34	95	9	78	590	121	95	425	109
18.....	36	180	17	55	440	65	78	400	84
19.....	33	90	8	40	325	35	69	250	47
20.....	34	100	9	32	200	17	62	175	29
21.....	38	155	16	26	120	8	59	160	25
22.....	51	275	38	49	200	26	53		
23.....	50	300	40	107	1,510	s 546	45	140	16
24.....	45	310	38	148	3,060	1,220	37		
25.....	39	250	26	152	2,530	1,040	38		
26.....	33	200	18	137	1,770	655	35	105	10
27.....	27	125	9	121	1,380	451	34	120	11
28.....	28	60	5	82	1,100	244	31	115	10
29.....	29	70	5	62	1,000	167	27	100	7
30.....	25	60	4	51	500	69	24	75	5
31.....	--	--	--	47	280	36	--	--	--
Total.	1,274	--	1,217	1,779	--	6,199	2,792	--	29,715

	July			August			September		
1.....	20	48	9	0.2	70	(t)	5.9	350	6
2.....	16			50	6,600	b 890	4.0	200	2
3.....	14			20	3,800	b 210	2.5	130	1
4.....	11			14	1,250	47	1.7	180	1
5.....	9.0			8.8	540	b 130	.9	80	(t)
6.....	7.0	100	2	149	43,700	s 30,200	.5	15	(et)
7.....	5.6	125	2	157	53,600	s 24,800	.4	10	(et)
8.....	5.1	115	2	164	56,500	s 27,900	.3	6	(et)
9.....	4.0	335	4	73	21,000	4,140	.3	6	(et)
10.....	2.5	285	2	38	10,000	a 1,000	.3	5	(et)
11.....	1.6	230	1	24	3,500	a 230	.2	5	(et)
12.....	1.2	320	1	18	1,000	49	.2	5	(et)
13.....	1.0	330	1	24	8,700	b 900	.2	5	(et)
14.....	.8	200	(bt)	179	60,500	s 50,200	.2	5	(et)
15.....	.7	140	(bt)	60	41,000	6,890	.2	5	(et)
16.....	.6	95	(bt)	52	25,700	3,610	.2	5	(et)
17.....	.5	50	(bt)	62	22,200	s 3,880	.2	5	(et)
18.....	.5	50	(et)	43	12,500	1,450	.2	30	(et)
19.....	.5	50	(et	73	19,500	3,840	1.2	100	(et)
20.....	.4	35	(et)	39	11,000	b 1,200	.2	30	(et)
21.....	.4	35	(et)	25	6,000	b 400	.2	12	(et)
22.....	.4	35	(et)	19	3,700	190	.2	5	(et)
23.....	.4	35	(et)	14	1,500	57	.3	6	(et)
24.....	.4	35	(et)	10	550	15	.3	6	(et)
25.....	3.0	120	e 1	9.1	350	9	.3	6	(et)
26.....	10	600	e 16	51	10,700	s 4,680	.2	5	(et)
27.....	24	3,400	220	57	30,000	s 4,900	.2	5	(et)
28.....	7.5	235	5	24	26,900	s 1,890	.2	5	(et)
29.....	3.6	50	(t)	21	19,100	1,080	.2	5	(et)
30.....	2.1	22	(t)	13	3,200	b 110	.2	5	(et)
31.....	.7	22	(bt)	8.8	490	b 12	--	--	--
Total.	154.5	--	304	1,499.9	--	174,909	22.1	--	10.7

Total discharge for year (cfs-days) 16,015.5
Total load for year (tons) 306,672.7

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from water-sediment discharge curve.
b Computed from estimated concentration graph.

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 11, 1954	4:15 p.m.	47	60	5,770	3,490		85		99	100	--	--	--				SPWCM
Nov. 17	2:05 p.m.	31	44	1,240	8,260		83		93	95	97	98	100				SPWCM
Mar. 22, 1955	2:50 p.m.	82	41	1,380	3,820		70		90	93	99	100	--				SPWCM
Mar. 28	2:40 p.m.	81	42	1,750	5,000		80		94	96	99	100	--				SPWCM
Apr. 18	3:00 p.m.	38	53	245	3,800		43		72	80	86	86	88		99	100	SPWCM
May 4	10:10 a.m.	23	57	68	891	35	54	68	76	85	90	98	100				SBWCM
May 16	2:50 p.m.	91	59	1,460	5,010		69		92	97	100	--	--				SPWCM
May 26	2:30 p.m.	146	66	2,050	4,540		47		72	82	95	99	100				SPWCM
Aug. 8	2:40 p.m.	102	79	47,100	3,840		71		94	96	99	100	--				SPWCM
Aug. 16	2:30 p.m.	48	74	23,600	3,550		87		98	100	--	--	--				PWCM
Aug. 29	2:15 p.m.	19	78	13,600	4,400		91		100	--	--	--	--				PWCM

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COLORADO RIVER MAIN STEM

COLORADO RIVER AT HITE, UTAH

LOCATION.--At gaging station at Hite, Garfield County, a quarter of a 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 1955.
Water temperatures: May 1949 to September 1955.
Sediment records: October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,420 ppm Sept. 21-30; minimum, 313 ppm May 21-30.
Hardness: Maximum, 708 ppm July 27; minimum, 184 ppm May 21-30.
Specific conductance: Maximum daily, 2,120 micromhos Jan. 2; minimum daily, 459 micromhos May 30.
Water temperatures: Maximum, 83°F July 17; minimum, freezing point December 29, February 19.
Sediment concentrations: Maximum daily, 21,400 ppm Oct. 9; minimum daily, 175 ppm on several days.
Sediment loads: Maximum daily, 712,000 tons Mar. 17; minimum daily, 1,440 tons Jan. 25.
EXTREMES, 1948-55.--Dissolved solids (1950-55): Maximum, 1,990 ppm Sept. 22, 1952; minimum, 251 ppm June 11-20, 1952.
Hardness(1950-55) Maximum, 1,080 ppm Sept. 22, 1952; minimum, 155 ppm June 11-20, 1952.
Specific conductance (1950-55): Maximum daily,2,470 micromhos Sept. 22, 1952; minimum daily, 355 micromhos June 19, 1952.
Water temperatures (1949-55): Maximum, 83°F July 31, 1951, July 14, 29, 1953, July 27, 1955; minimum, freezing point on several days during winter months.
Sediment concentrations: Maximum daily, 34,300 ppm Aug. 4, 1951; minimum daily, 49 ppm Jan. 10, 1951.
Sediment loads: Maximum daily, 1,770,000 tons Aug. 4, 1951; minimum daily, 447 tons Jan. 10, 1951.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954....	6,075	16		150	48	160	7.0	224	561	106		2.9	--	1,160	1.58	19,030	572	388	37	2.9	1,660	7.7
Oct. 11-20	6,892	15		155	47	145	7.2	220	560	93		4.8	0.13	1,140	1.55	21,210	580	400	35	2.6	1,610	7.7
Oct. 21-31.....	5,595	17		121	46	141	5.9	214	465	101		4.6	--	1,010	1.37	15,260	490	315	38	2.8	1,470	7.8
Nov. 1-10	5,241	14		119	50	154	5.7	216	476	110		5.0	--	1,040	1.41	14,720	502	326	40	3.0	1,530	7.9
Nov. 11-20	5,159	11		125	49	165	6.2	218	490	125		4.7	.29	1,080	1.47	15,040	514	335	41	3.2	1,600	7.6
Nov. 21-30	4,882	12		119	52	169	6.2	232	486	127		4.4	--	1,090	1.48	14,370	511	321	41	3.3	1,620	7.7
Dec. 1-10	4,519	12		120	52	179	6.2	229	484	146		5.0	--	1,120	1.52	13,670	514	326	43	3.4	1,670	7.8
Dec. 11-20	3,688	15		128	56	192	6.5	246	523	154		5.8	.15	1,200	1.63	11,950	550	348	43	3.6	1,760	8.1
Dec. 21-22, 29-31..	2,846	13		140	61	210	6.9	285	548	177		6.9	--	1,300	1.77	9,990	600	367	43	3.7	1,910	8.0
Jan. 1-10, 1955....	3,730	14		139	60	210	7.1	276	539	184		9.3	--	1,300	1.77	13,090	594	368	43	3.7	1,920	7.7
Jan. 11-20	3,485	16		120	51	182	4.8	236	452	160		6.6	.26	1,110	1.51	10,440	509	316	43	3.5	1,670	7.8
Jan. 21-31	3,195	16		124	52	187	4.8	248	458	172		5.9	--	1,140	1.55	9,830	524	320	43	3.5	1,740	7.9

Feb. 1-10, 1955 ...	3,852	13		110	48	179	4.4	227	422	165		5.6	--	1,060	1.44	11,020	472	286	45	3.6	1,630	7.8
Feb. 11-19	3,661	12		106	45	167	4.8	223	392	152		5.5	.25	994	1.35	9,830	450	267	44	3.4	1,550	7.9
Feb. 20-28	3,854	12		106	44	167	4.8	217	388	154		6.6	--	989	1.35	10,290	446	268	45	3.4	1,530	7.8
Mar. 1-10.....	6,150	12		114	42	161	4.8	201	412	144		5.8	--	995	1.35	16,520	457	292	43	3.3	1,520	7.7
Mar. 11-20	11,950	9.4		112	35	127	3.8	181	425	73		5.3	.17	880	1.20	28,390	424	275	39	2.7	1,310	7.6
Mar. 21-31	6,740	12		90	38	136	5.1	201	379	94		5.7	--	859	1.17	15,630	380	214	43	3.0	1,280	7.5
Apr. 1-10	6,365	12		98	40	149	5.6	210	385	118		5.1	--	916	1.25	15,740	409	237	44	3.2	1,370	7.5
Apr. 11-20	9,101	13		86	34	121	5.1	196	319	93		5.0	.15	773	1.05	18,990	354	194	42	2.8	1,180	7.5
Apr. 21-30	14,150	11		67	23	75	4.2	176	206	51		4.4	--	529	.72	20,210	262	118	38	2.0	825	7.5
May 1-10.....	17,030	13		60	20	52	3.5	166	147	36		4.0	--	418	.57	19,220	232	96	32	1.5	669	7.5
May 11-20.....	26,430	11		54	17	38	2.2	155	118	25		3.2	.07	344	.47	24,550	204	78	28	1.2	545	7.6
May 21-31.....	24,450	10		49	15	35	2.2	136	108	24		3.2	--	313	.43	20,660	184	72	29	1.1	509	7.6
June 1-10	20,150	13		54	16	38	2.5	142	123	32		2.7	--	351	.48	19,100	200	84	29	1.2	559	7.4
June 11-20	26,810	14		51	15	38	2.5	132	122	28		2.5	.02	338	.46	24,470	188	80	30	1.2	537	7.3
June 21-30	22,390	13		52	16	38	2.5	136	125	30		2.3	--	346	.47	20,920	196	84	29	1.2	556	7.3
July 1-10.....	12,940	11		59	18	48	3.4	142	149	44		2.8	--	405	.55	14,150	221	104	32	1.4	658	7.3
July 11-20.....	6,501	12		74	26	79	4.0	157	220	70		3.5	.11	566	.77	9,930	292	163	37	2.0	883	7.6
July 21-26, 28-31 ..	4,752	12		100	39	125	5.3	180	367	100		5.5	--	843	1.15	10,820	410	262	39	2.7	1,260	7.3
July 27 a	4,660	--		--	--	--	--	211	697	174		--	--	--	--	--	708	535	--	--	2,020	7.1
Aug. 1-10	6,462	17		125	41	126	6.2	190	431	98		8.7	--	947	1.29	16,520	480	325	36	2.5	1,390	7.3
Aug. 11-20	5,977	18		146	42	132	7.4	201	516	87		8.5	.20	1,060	1.44	17,110	537	372	34	2.5	1,480	7.3
Aug. 21-31	5,081	16		143	46	147	7.2	200	544	99		9.0	--	1,110	1.51	15,230	546	382	37	2.7	1,570	7.3
Sept. 1-10	4,012	16		134	48	150	7.2	207	531	101		10	--	1,100	1.50	11,920	532	362	38	2.8	1,570	7.4
Sept. 11-20.....	2,547	10		143	58	176	7.2	189	596	134		8.0	.21	1,230	1.67	8,460	596	440	39	3.1	1,780	7.4
Sept. 21-30.....	3,135	10		162	67	204	7.2	205	701	155		9.8	--	1,420	1.93	12,020	680	512	39	3.4	1,980	7.5
Weighted average	b8,719	13		84	30	93	4.1	175	280	70		4.4	--	666	0.91	15,680	333	190	37	2.2	1,010	--

a Not included for computation of weighted average.
b Represents 99 percent of runoff for water year October 1954 to September 1955.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	50	39	33	34	36	50	58	62	69	80	76
2	64	50	39	34	34	37	50	56	60	69	79	75
3	65	49	40	34	33	39	48	54	61	69	80	79
4	65	49	40	34	34	40	47	55	61	71	80	74
5	65	49	41	34	33	40	46	57	62	71	79	75
6	66	49	40	34	33	40	47	59	63	73	79	74
7	66	49	39	34	34	39	48	62	65	72	80	75
8	67	48	38	33	35	38	48	60	68	72	79	76
9	64	48	38	33	33	38	50	60	69	72	80	75
10	66	48	37	34	34	42	52	61	69	73	80	74
11	65	46	38	34	34	42	52	61	67	73	78	73
12	64	48	36	33	34	40	52	62	68	73	79	73
13	63	48	37	33	35	38	51	62	67	75	78	73
14	61	49	37	33	35	42	52	62	66	77	77	73
15	61	49	36	33	35	42	54	60	66	79	78	72
16	59	49	36	35	36	43	54	59	67	79	78	71
17	59	40	36	34	34	40	56	58	67	83	78	70
18	57	47	35	34	--	40	55	57	67	79	78	69
19	56	47	34	34	32	41	54	58	69	79	78	68
20	57	47	33	33	33	40	54	59	70	79	77	65
21	57	46	35	33	33	41	53	60	70	79	78	65
22	57	45	33	33	33	40	54	63	71	78	78	65
23	--	45	--	--	35	41	53	63	72	80	79	64
24	57	45	--	33	34	42	53	64	72	79	78	66
25	55	47	--	34	34	45	58	64	71	79	77	64
26	53	46	--	35	35	45	56	64	70	79	77	63
27	50	44	--	35	37	45	53	63	70	78	77	63
28	51	44	--	34	36	45	54	62	70	78	76	63
29	50	42	32	35	--	45	56	62	70	77	77	63
30	50	40	33	35	--	48	57	62	71	78	75	63
31	50	--	33	33	--	49	--	--	--	79	75	--
Average	60	47	37	34	34	41	52	60	67	76	78	70

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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	7,070	7,100	136,000	5,200	1,250	17,600	4,730	435	5,560
2	6,430	13,400	233,000	5,220	850	12,000	4,730	405	5,170
3	5,890	11,300	180,000	5,190	1,170	16,400	4,460	360	4,340
4	5,430	7,400	108,000	5,260	1,280	18,200	4,190	405	4,580
5	5,020	5,600	75,900	5,320	980	14,100	4,090	380	4,200
6	4,880	4,600	60,600	5,380	650	9,440	4,360	785	9,240
7	5,240	4,500	63,700	5,510	550	8,180	4,790	785	10,200
8	7,080	9,680	s196,000	5,170	540	7,540	5,110	545	7,520
9	7,260	21,400	s466,000	5,090	465	6,390	4,610	600	7,470
10	6,450	9,900	172,000	5,070	425	5,820	4,120	570	6,340
11	8,120	7,500	164,000	4,970	755	10,100	4,040	755	8,240
12	8,610	11,200	260,000	4,720	525	6,690	3,910	1,020	10,800
13	7,910	10,300	220,000	4,770	510	6,570	3,710	800	8,010
14	7,540	12,500	254,000	4,930	565	7,520	3,550	480	4,600
15	7,120	10,400	200,000	6,220	800	13,400	3,760	400	4,060
16	6,320	9,880	169,000	5,830	2,130	33,500	3,850	400	4,160
17	5,950	7,700	124,000	5,150	3,370	46,900	3,720	340	3,410
18	5,810	6,140	96,300	5,090	3,000	41,200	3,620	270	2,640
19	5,730	6,800	105,000	4,930	2,870	38,200	3,440	220	2,040
20	5,810	5,400	84,700	4,980	1,620	21,800	3,280	195	1,730
21	5,890	3,660	58,200	4,970	1,020	13,700	3,100	190	1,590
22	5,790	2,050	32,000	4,950	725	9,690	2,980	205	1,650
23	5,690	1,500	a23,000	4,890	585	7,720	2,940	210	a1,700
24	5,530	1,550	23,100	4,950	600	8,020	3,020	210	a1,700
25	5,450	1,320	19,400	4,970	505	6,780	3,110	210	a1,800
26	5,430	1,260	18,500	4,890	460	6,070	3,160	220	a1,900
27	5,430	1,390	20,400	4,880	445	5,860	3,150	220	a1,900
28	5,590	1,090	16,500	4,790	450	5,820	3,040	230	a1,900
29	5,450	1,120	16,500	4,730	465	5,940	2,750	250	a1,900
30	5,730	1,610	24,900	4,800	455	5,900	2,700	275	2,000
31	5,570	2,070	31,100	--	--	--	2,700	325	2,370
Total	191,220	--	3,651,800	152,820	--	417,050	114,720	--	134,720
	January			February			March		
1	2,750	375	2,780	3,760	255	2,590	4,060	1,060	11,600
2	2,810	310	2,350	3,790	240	2,460	4,510	2,070	25,200
3	2,970	285	2,290	3,920	270	2,860	5,070	1,420	19,400
4	3,330	330	2,970	4,040	285	3,110	5,510	1,580	23,500
5	3,620	385	3,760	3,970	290	3,110	5,970	2,820	45,500
6	4,170	470	5,290	4,020	265	2,880	6,570	2,740	48,600
7	4,970	855	11,500	3,790	285	2,920	8,120	2,940	64,500
8	4,840	780	10,200	3,880	255	2,670	7,980	3,400	73,300
9	4,090	835	9,220	3,710	180	1,800	7,010	3,280	62,100
10	3,750	715	7,240	3,640	195	1,920	6,700	2,800	50,700
11	3,690	490	4,880	3,430	190	1,760	7,930	3,200	68,500
12	3,660	400	3,950	3,440	190	1,760	14,600	10,900	s429,000
13	3,780	325	3,320	3,480	175	1,640	12,800	17,500	605,000
14	3,660	310	3,060	3,590	175	1,700	9,800	12,200	323,000
15	3,540	735	7,030	3,540	195	1,860	9,000	12,200	296,000
16	3,290	320	2,840	3,540	240	2,290	15,600	11,900	s514,000
17	3,250	260	2,280	3,580	175	1,690	16,700	15,800	712,000
18	3,320	230	2,060	4,080	460	a5,100	13,900	11,500	432,000
19	3,380	190	1,730	4,270	490	5,650	10,600	7,700	220,000
20	3,280	185	1,640	4,350	435	5,110	8,560	5,500	127,000
21	3,270	205	1,810	4,510	565	6,880	8,070	4,180	91,100
22	3,270	210	1,850	4,220	530	6,040	7,610	3,380	69,400
23	2,930	210	a1,700	3,840	425	4,410	7,010	2,620	49,600
24	2,930	200	1,580	3,570	275	2,650	6,360	2,120	36,400
25	2,880	185	1,440	3,440	220	2,040	5,890	1,930	30,700
26	3,080	200	1,660	3,240	230	2,010	5,830	1,650	26,000
27	2,990	185	1,490	3,520	320	3,040	6,090	1,480	24,300
28	3,020	180	1,470	4,000	575	6,210	6,870	1,530	28,400
29	3,320	190	1,700	--	--	--	7,470	1,680	33,900
30	3,610	220	2,140	--	--	--	6,870	1,630	30,200
31	3,850	260	2,700	--	--	--	6,070	1,700	27,900
Total	107,300	--	109,930	106,160	--	88,160	255,160	--	4,598,800

s Computed by subdividing day.
a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	5,670	1,620	24,800	14,700	4,100	163,000	22,000	2,740	163,000
2.....	5,530	1,670	24,900	14,300	3,600	139,000	21,300	2,590	149,000
3.....	5,830	1,440	22,700	16,600	3,700	166,000	21,700	2,140	125,000
4.....	6,300	1,310	22,300	17,700	3,800	182,000	21,300	1,910	110,000
5.....	6,510	1,440	25,300	18,500	4,000	200,000	20,100	1,750	95,000
6.....	6,660	1,260	22,700	16,500	3,900	174,000	19,400	1,580	82,800
7.....	6,870	1,170	21,700	16,500	3,740	167,000	19,000	1,480	75,900
8.....	6,920	1,200	22,400	17,300	3,470	162,000	18,700	1,400	70,700
9.....	6,720	1,500	27,200	16,900	3,600	164,000	17,900	1,550	74,900
10.....	6,640	1,460	26,200	21,300	5,150	296,000	20,100	1,880	102,000
11.....	6,760	1,550	28,300	25,600	6,900	477,000	26,400	2,400	171,000
12.....	6,790	1,310	24,000	24,600	6,600	438,000	28,200	2,600	198,000
13.....	7,290	1,280	25,200	25,600	5,400	373,000	26,800	2,650	192,000
14.....	8,760	1,740	41,200	25,200	5,250	357,000	26,800	2,500	181,000
15.....	9,380	2,320	58,800	24,200	5,010	327,000	27,700	2,320	174,000
16.....	9,330	2,340	58,900	25,100	4,780	324,000	27,200	2,170	159,000
17.....	9,030	2,600	63,400	28,200	4,800	365,000	27,400	2,300	170,000
18.....	9,770	3,100	81,800	30,100	4,580	372,000	27,000	2,150	157,000
19.....	11,200	3,980	120,000	29,000	4,450	348,000	25,600	2,020	140,000
20.....	12,700	4,740	163,000	26,700	4,050	292,000	25,000	2,020	136,000
21.....	14,000	5,000	189,000	24,400	3,800	250,000	24,400	2,000	132,000
22.....	15,500	6,060	254,000	21,400	3,400	196,000	24,000	1,910	124,000
23.....	15,000	5,600	227,000	20,300	3,000	164,000	24,400	2,180	144,000
24.....	14,300	5,300	205,000	22,000	2,900	172,000	24,200	2,300	150,000
25.....	14,000	5,030	190,000	24,200	2,900	189,000	24,200	2,050	134,000
26.....	13,500	4,350	159,000	25,400	3,200	219,000	23,800	1,920	123,000
27.....	12,600	3,620	123,000	26,600	3,180	228,000	22,100	1,800	107,000
28.....	12,700	3,080	106,000	27,400	2,940	218,000	20,200	1,670	91,100
29.....	14,300	3,500	135,000	27,300	2,900	214,000	18,700	1,560	78,800
30.....	15,600	4,050	171,000	25,900	2,620	183,000	17,900	1,450	70,100
31.....	--	--	--	24,100	2,600	a 170,000	--	--	--
Total.	296,160	--	2,663,800	703,600	--	7,689,000	693,500	--	3,880,300

	July			August			September		
1.....	16,800	1,330	60,300	6,640	2,100	37,600	5,550	5,600	83,900
2.....	15,900	1,180	50,700	5,810	2,270	35,600	5,320	7,000	101,000
3.....	15,200	1,120	46,000	5,470	2,260	33,400	4,820	7,700	100,000
4.....	14,200	980	37,600	5,650	2,540	38,700	4,150	9,150	103,000
5.....	13,300	1,000	35,900	6,110	1,500	24,700	3,790	7,000	71,600
6.....	12,500	915	30,900	5,890	2,300	36,600	3,680	3,550	35,300
7.....	11,600	910	28,500	6,240	4,800	80,900	3,450	3,120	29,100
8.....	10,700	855	24,700	7,520	5,000	102,000	3,320	2,000	17,900
9.....	9,940	790	21,200	7,770	6,550	137,000	3,140	2,900	24,600
10.....	9,230	775	19,300	7,520	6,400	130,000	2,900	2,900	22,700
11.....	8,660	675	15,800	6,740	7,550	137,000	2,650	2,040	14,600
12.....	7,930	635	13,600	6,570	9,300	165,000	2,600	1,000	7,020
13.....	7,230	710	13,900	6,130	6,300	104,000	2,620	650	4,600
14.....	6,720	545	9,890	5,950	17,400	280,000	2,620	455	3,220
15.....	6,360	415	7,130	5,810	14,000	220,000	2,610	435	3,070
16.....	6,090	415	6,820	5,830	7,100	112,000	2,550	340	2,340
17.....	5,850	365	5,770	5,670	6,000	91,900	2,510	280	1,900
18.....	5,610	365	5,530	5,810	9,200	144,000	2,400	270	1,750
19.....	5,470	310	4,580	5,490	10,400	154,000	2,440	260	1,710
20.....	5,090	345	4,740	5,770	8,000	125,000	2,470	250	1,670
21.....	4,720	325	4,140	6,090	4,920	80,900	2,630	285	2,020
22.....	4,440	300	3,600	5,750	4,250	66,000	2,820	295	2,250
23.....	4,200	260	2,950	5,150	3,310	46,000	3,200	335	2,890
24.....	4,150	470	5,270	4,700	4,110	52,200	3,230	400	3,490
25.....	4,120	275	3,060	4,440	6,200	74,300	3,240	465	4,070
26.....	4,220	3,540	s 48,500	4,190	4,000	45,300	3,340	1,050	9,470
27.....	4,660	13,300	s 174,000	4,280	12,200	141,000	3,320	1,140	10,200
28.....	4,350	5,600	65,800	4,650	7,200	90,400	3,270	940	8,300
29.....	4,860	3,280	43,000	4,860	5,350	70,200	3,190	745	6,420
30.....	5,650	1,550	23,600	5,500	4,210	62,500	3,110	440	3,690
31.....	6,810	2,750	50,600	6,280	5,540	93,900	--	--	--
Total.	246,560	--	867,380	180,280	--	3,012,100	96,940	--	683,780

Total discharge for year (cfs-days)	3,144,420
Total load for year (tons)	27,796,820

s Computed by subdividing day.

a Computed from estimated concentration graph.

COLORADO RIVER AT HITE, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 21, 1954	5:45 p.m.	5,910	59	3,250	5,190		73		87	92	95	98	100		--		SPWCM
Nov. 20	9:50 a.m.	5,060	47	1,670	5,140		69		90	92	95	98	100		--		SPWCM
Dec. 20	9:05 a.m.	3,340	33	208	2,360		55		75	80	86	94	99		100		SPWCM
Jan. 22, 1955	3:30 p.m.	3,230	33	207	3,670		49		77	85	90	96	99		100		SPWCM
Mar. 1	9:50 a.m.	3,940	36	1,170	4,080		49		82	93	97	99	100		--		SPWCM
Mar. 12	7:10 a.m.	16,700	40	9,320	4,960		33		59	75	90	98	100		--		SPWCM
Mar. 13	7:25 a.m.	14,700	38	18,900	5,240		50		82	91	95	98	100		--		SPWCM
Mar. 14	7:30 a.m.	10,000	42	11,800	3,820		49		77	90	94	98	100		--		SPWCM
Mar. 16	9:35 a.m.	16,500	44	10,400	5,900		41		68	78	89	98	100		--		SPWCM
Mar. 16	5:55 p.m.	19,100	44	13,200	4,020		34		67	83	93	98	100		--		SPWCM
Mar. 17	6:30 p.m.	15,900	41	16,300	4,930		37		77	89	95	98	100		--		SPWCM
Mar. 19	6:15 p.m.	9,770	43	6,710	3,500		50		83	88	94	98	99		100		SPWCM
Apr. 9	8:35 a.m.	6,740	50	1,400	4,420		64		84	90	93	98	100		--		SPWCM
Apr. 20	6:30 p.m.	13,000	56	4,720	4,740		38		63	77	86	95	99		100		SPWCM
Apr. 23	7:25 a.m.	15,200	53	5,630	4,160		41		65	79	86	96	98		100		SPWCM
May 1	6:55 a.m.	14,900	58	3,750	5,550		35		57	73	84	96	100		--		SPWCM
May 8	7:20 p.m.	17,300	61	3,340	4,960		31		55	73	85	97	100		--		SPWCM
May 10	7:15 p.m.	24,000	62	5,700	4,200		23		43	68	83	97	99		100		SPWCM
May 11	1:05 p.m.	25,800	63	6,820	5,130		30		52	75	88	98	100		--		SPWCM
May 17	6:40 p.m.	29,000	59	4,710	6,140		22		42	55	77	95	99		100		SPWCM
May 25	7:55 a.m.	23,700	64	2,700	3,640		22		38	57	80	98	100		--		SPWCM
June 6	7:20 p.m.	19,300	67	1,520	5,130		23		40	56	75	94	99		100		SPWCM
June 12	12:05 p.m.	28,300	69	2,530	4,040		19		37	56	79	95	100		--		SPWCM
June 24	7:05 a.m.	24,300	72	2,250	3,840		30		40	53	73	94	100		--		SPWCM
July 4	7:30 a.m.	14,400	71	907	2,950		21		30	46	57	92	100		--		SPWCM
July 21	6:05 p.m.	4,630	84	285	4,700		32		49	57	64	87	99		100		SPWCM
July 27	1:00 p.m.	4,500	80	11,400	3,560		59		90	99	99	100	--		--		SPWCM
July 28	6:45 a.m.	4,060	78	4,250	4,880		59		86	97	98	99	100		--		SPWCM
July 29	6:20 a.m.	4,890	77	3,680	4,070		64		88	95	97	99	100		--		SPWCM
July 31	6:50 a.m.	6,700	79	1,250	3,100		44		59	73	83	97	100		--		SPWCM

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955--Continued

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
Aug. 1, 1955	6:00 p.m.	6,490	82	1,730	3,620		54		76	82	87	97	100		--		SPWCM
Aug. 5	7:40 p.m.	6,400	80	1,450	4,540		50		70	82	86	96	100		--		SPWCM
Aug. 6	7:50 p.m.	5,830	80	3,630	3,920		66		93	96	96	99	100		--		SPWCM
Aug. 7	1:25 p.m.	6,220	82	6,240	3,510		71		92	97	97	99	100		--		SPWCM
Aug. 8	10:00 a.m.	7,290	81	4,880	5,440		68		83	91	95	99	100		--		SPWCM
Aug. 10	7:20 a.m.	7,590	80	6,400	3,630		69		86	90	96	99	100		--		SPWCM
Aug. 11	6:20 a.m.	6,920	78	7,440	4,110		73		91	94	97	99	100		--		SPWCM
Aug. 13	6:20 a.m.	6,260	78	7,500	4,140		72		93	95	98	99	100		--		SPWCM
Aug. 14	7:05 a.m.	5,570	77	3,070	3,360		72		91	92	95	99	100		--		SPWCM
Aug. 14	3:35 p.m.	6,430	80	32,100	4,750		52		85	96	99	100	--		--		SPWCM
Aug. 14	5:00 p.m.	6,240	80	30,400	4,450		51		83	97	99	100	--		--		SPWCM
Aug. 15	7:25 a.m.	5,950	78	14,300	3,880		59		85	96	99	100	--		--		SPWCM
Aug. 17	6:45 a.m.	5,810	78	5,790	4,140		69		83	89	97	100	--		--		SPWCM
Aug. 18	12:15 p.m.	5,890	82	8,320	5,220		61		86	94	98	100	--		--		SPWCM
Aug. 19	1:30 p.m.	5,410	82	8,290	5,020		68		81	90	98	100	--		--		SPWCM
Aug. 21	7:05 a.m.	6,300	78	4,870	5,740		67		84	88	96	99	100		--		SPWCM
Aug. 27	9:50 a.m.	4,390	78	16,800	4,140		55		90	99	99	100	--		--		SPWCM
Aug. 28	7:10 a.m.	4,500	76	7,950	4,890		63		87	96	99	100	--		--		SPWCM
Aug. 30	7:40 p.m.	6,220	78	4,510	5,260		66		80	87	95	99	100		--		SPWCM
Aug. 31	4:25 p.m.	6,170	80	5,080	3,370		66		85	88	94	98	100		--		SPWCM
Sept. 1	6:30 p.m.	5,340	78	5,210	3,370		72		90	94	96	99	100		--		SPWCM
Sept. 16	7:55 a.m.	2,550	71	307	3,540		62		72	78	88	98	100		--		SPWCM

SAN JUAN RIVER NEAR ARCHULETA, N. MEX.

LOCATION.--At gaging station, 4½ miles downstream from Los Pinos River and 4½ miles northeast of Archuleta, San Juan County.
DRAINAGE AREA.--3,240 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1954 to September 1955.
Water temperatures: December 1954 to September 1955.
Sediment records: December 1954 to September 1955.
EXTREMES, 1954-55.--Specific conductance: Maximum daily, 634 micromhos Aug. 5; minimum daily, 127 micromhos June 12.
Water temperatures: Maximum, 79°F Aug. 19; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 32,800 ppm July 27; minimum daily, 20 ppm Dec. 7, Feb. 12.
Sediment loads: Maximum daily, 152,000 tons July 27; minimum daily, 10 tons (estimated) Dec. 1-6.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Flow affected by ice Dec. 16, Dec. 18 to Mar. 10. This station was formerly operated at a site about 12 miles downstream and records were published as San Juan River near Blanco, N. Mex. Records of discharge for December 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, December 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Dec. 11-20, 1954.	199	18	0.00	46	12	39	3.2	164	97	9.0	0.3	0.0	0.06	310	0.42	167	164	30	34	1.3	471	7.8
Dec. 21-31.....	190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	491	--
Jan. 1-10, 1955 ..	221	19	.00	46	10	37	3.3	150	96	8.5	.3	.2	.02	296	.40	177	156	33	33	1.3	457	7.9
Jan. 11-31.....	186	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	454	--
Feb. 1-28	230	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	430	--
Mar. 1-31	446	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	414	--
Apr. 1-10	479	16	.04	37	7.6	23	3.0	117	68	5.2	.3	.5	.11	219	.30	283	124	28	28	.9	340	7.5
Apr. 11-30	900	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	268	--
May 1-31	2,140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	183	--
June 1-30.....	2,010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	165	--
July 1-10	684	16	.06	32	5.9	19	3.3	111	46	6.0	.3	.1	.08	183	.25	338	104	14	28	.8	284	7.5
July 11-31	689	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	344	--
Aug. 1-31	1,080	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	328	--
Sept. 1-30	472	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	325	--
Weighted average	a 847	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	257	--

a Average for 294 days.

SAN JUAN RIVER BASIN--Continued

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

Temperature (°F) of water, December 1954 to September 1955
(Once-daily measurement, generally between 11 a. m. and 6 p. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			--	32	32	32	a46	b51	53	a62	78	71
2			--	32	32	32	b44	51	b53	a68	76	a66
3			--	32	32	32	b40	b51	b56	a66	a68	a64
4			--	32	32	32	b42	b51	58	a62	a70	a63
5			--	32	32	33	44	b56	b56	a62	72	--
6			--	32	32	32	b46	b58	b60	a64	b72	a64
7			42	32	32	32	a42	b56	64	a64	b72	a65
8			31	32	32	33	a42	b54	60	a62	b74	69
9			34	32	32	32	a43	49	60	a62	78	--
10			33	32	32	34	a44	b48	b57	a70	b73	b71
11			38	33	32	36	a45	51	b59	66	b74	a64
12			37	32	32	40	49	58	b56	a62	b74	a60
13			38	32	32	49	a46	b56	b59	a68	63	a60
14			36	33	32	44	a46	b57	60	a68	b74	a61
15			37	32	32	50	b53	b53	b61	a66	b75	b70
16			32	32	32	b69	b59	b53	a58	a68	a70	b69
17			32	32	32	b40	49	b50	b60	a68	--	a62
18			32	32	32	b44	b49	b48	a57	74	76	b67
19			33	32	32	36	49	50	b65	a66	79	a63
20			32	32	32	40	b51	b56	a59	a66	b75	64
21			32	32	32	b36	b53	a54	a59	a66	b75	63
22			33	32	32	40	b48	b57	a60	b74	b70	63
23			a31	32	32	b46	49	b57	a63	a68	74	a57
24			33	32	b32	b48	a48	b56	a63	a66	b72	a59
25			32	32	32	46	b57	a58	a65	b72	b74	a57
26			32	32	32	48	55	a54	a59	72	b76	61
27			32	32	32	46	b50	b54	a60	68	b72	a54
28			32	32	32	46	52	a54	72	66	b72	58
29			32	32	--	b50	b53	b67	a62	a66	a65	62
30			32	32	--	b48	b50	a54	70	a72	a65	a54
31			32	32	--	b46	--	59	--	b74	a65	--
Average			--	32	32	41	48	54	60	67	72	63

a Measurement before 11 a. m.
b Measurement after 6 p. m.

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, December 1954 to September 1955

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.....							220		
2.....							220		
3.....							210		
4.....							230	--	e10
5.....							250		
6.....							235		
7.....							240	20	13
8.....							232	24	15
9.....							202	130	71
10.....							188	108	55
11.....							248	52	35
12.....							296	42	34
13.....							264	34	24
14.....							228	21	13
15.....							168	32	15
16.....							130	42	15
17.....							146	121	48
18.....							160	125	54
19.....							160	91	39
20.....							190	108	55
21.....							200	89	48
22.....							210	84	48
23.....							210	22	12
24.....							210	86	49
25.....							230	57	35
26.....							230	76	47
27.....							200	58	31
28.....							150	53	21
29.....							140	45	17
30.....							150	97	39
31.....							160	32	14
Total.							6,307	--	907

	January			February			March		
1.....	180	92	45	210	82	46	300	51	41
2.....	200	106	57	220	102	61	330	67	60
3.....	230	169	105	220	59	35	350	730	690
4.....	240	124	80	220	36	21	360	1,600	1,560
5.....	240	70	45	210	28	16	370	3,150	3,150
6.....	220	122	72	210	25	14	350	3,950	3,730
7.....	210	112	64	210	29	16	330	750	668
8.....	230	75	47	220	28	17	400	1,380	1,490
9.....	230	112	70	230	40	25	500	5,300	7,160
10.....	230	59	37	220	33	20	600	6,200	10,000
11.....	220	52	31	210	32	18	786	4,300	9,130
12.....	210	91	52	210	20	11	702	3,400	6,440
13.....	190	50	26	220	23	14	613	2,610	4,320
14.....	170	65	30	230	33	20	639	2,800	4,830
15.....	180	42	20	250	57	38	613	2,680	4,440
16.....	190	40	23	260	50	35	618	2,300	3,810
17.....	200	60	32	270	59	43	500	1,800	2,430
18.....	200	52	28	250	68	46	405	615	673
19.....	190	58	30	240	54	35	380	340	349
20.....	200	47	25	230	46	29	385	190	198
21.....	180	46	22	210	27	15	410	387	428
22.....	160	28	12	220	33	20	345	147	137
23.....	130	37	13	240	44	29	296	107	86
24.....	140	43	16	240	34	22	315	88	75
25.....	150	46	19	230	21	13	345	114	106
26.....	170	62	28	230	33	20	420	144	163
27.....	190	58	30	250	40	27	410	202	224
28.....	200	55	30	270	57	42	375	176	178
29.....	210	54	31	--	--	--	385	87	90
30.....	210	42	24	--	--	--	435	266	312
31.....	210	50	28	--	--	--	565	721	1,100
Total.	6,110	--	1,172	6,430	--	748	13,827	--	68,068

e Estimated.

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

Suspended sediment, December 1954 to September 1955--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	577	511	796	1,250	1,500	5,060	2,450	540	3,570
2	589	790	1,260	1,210	1,280	4,180	1,980	340	1,820
3	674	878	1,600	1,350	1,450	5,290	1,690	253	1,150
4	529	287	410	1,140	740	2,280	1,660	247	1,110
5	410	278	308	1,130	860	2,620	1,700	295	1,350
6	430	432	502	1,210	1,130	3,690	1,770	457	2,180
7	435	234	275	1,510	2,300	9,380	2,530	1,490	10,200
8	410	118	131	2,300	5,370	33,300	3,260	2,310	20,300
9	365	106	104	3,100	8,400	70,300	3,560	2,200	21,100
10	375	112	113	2,800	4,050	30,600	3,260	1,380	12,100
11	445	105	126	2,600	3,880	27,200	2,790	780	5,880
12	577	300	467	2,400	2,160	14,000	2,640	710	5,060
13	461	131	163	2,300	1,460	9,070	2,480	530	3,550
14	517	108	151	2,400	1,230	7,970	2,500	670	4,520
15	751	1,000	2,030	2,500	1,460	9,660	2,370	460	2,940
16	865	2,320	5,420	2,500	1,340	9,040	2,080	364	2,040
17	1,130	3,220	9,820	2,300	850	5,280	2,070	350	1,960
18	1,110	3,110	9,320	1,980	590	3,150	2,080	414	2,330
19	858	1,310	3,030	1,770	432	2,060	1,970	243	1,290
20	779	652	1,370	1,580	428	1,830	1,880	219	1,110
21	737	503	1,000	1,720	348	1,620	1,800	190	923
22	888	980	2,350	2,200	910	5,410	1,710	163	753
23	1,080	1,630	4,750	2,540	1,140	7,820	1,600	135	583
24	966	1,010	2,630	2,570	990	6,870	1,580	140	597
25	942	830	2,110	2,680	1,150	8,320	1,470	112	445
26	1,020	1,200	3,300	2,670	880	6,340	1,280	95	328
27	1,180	2,240	7,140	2,490	700	4,710	1,170	90	284
28	1,180	1,900	6,050	2,200	490	2,910	1,040	89	250
29	1,240	1,920	6,430	2,300	732	4,550	934	68	171
30	1,270	2,100	7,200	2,770	950	7,110	910	60	147
31	--	--	--	2,980	1,130	9,090	--	--	--
Total	22,790	--	80,356	66,450	--	320,910	60,214	--	110,041

	July			August			September		
1	835	77	174	842	1,200	2,730	793	607	1,300
2	786	73	155	744	3,200	6,430	653	283	499
3	751	91	185	895	4,500	10,900	565	219	334
4	730	113	223	918	8,100	20,100	535	164	237
5	723	107	209	1,390	17,900	67,200	505	138	188
6	681	107	197	1,120	13,200	39,900	415	102	114
7	632	106	181	1,050	3,600	10,200	365	85	84
8	577	98	153	1,160	8,940	28,000	325	68	60
9	520	87	122	1,050	2,820	7,990	310	61	51
10	600	114	185	1,070	5,600	16,200	310	63	53
11	758	4,980	s 16,600	1,020	6,600	18,200	315	69	59
12	667	5,150	9,270	1,050	2,020	5,730	320	82	71
13	639	1,600	2,760	1,400	10,800	40,800	355	84	81
14	619	489	817	1,200	9,000	29,200	340	67	62
15	450	290	352	900	3,010	7,310	335	64	58
16	450	189	230	1,100	8,940	26,600	335	70	63
17	500	341	460	1,000	2,820	7,610	385	400	416
18	550	664	986	1,000	6,120	16,500	595	2,500	4,020
19	577	138	215	1,000	3,709	9,990	762	4,810	s 16,800
20	490	181	239	1,100	4,920	13,700	786	15,000	31,800
21	500	659	890	1,200	2,920	9,460	607	4,750	7,780
22	553	2,220	3,310	1,100	15,800	46,900	483	2,000	2,610
23	601	923	1,500	1,200	10,000	32,400	440	362	430
24	500	2,700	3,640	950	5,610	14,400	435	184	216
25	610	3,430	5,650	926	2,180	5,450	639	3,500	6,040
26	1,000	3,000	8,100	850	1,060	2,430	577	3,940	6,140
27	1,650	32,800	152,000	1,820	6,920	s 89,000	500	3,140	4,240
28	1,130	11,800	36,000	1,430	15,600	60,200	425	442	507
29	902	4,000	9,740	1,210	11,400	37,200	395	177	189
30	646	859	1,500	1,010	11,100	30,300	355	128	123
31	681	692	1,270	872	1,600	3,770	--	--	--
Total	21,308	--	257,313	33,577	--	716,800	14,160	--	84,625

Total discharge for period (cfs-days) 251,173
Total load for period (tons) 1,640,940

s Computed by subdividing day.

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

Particle-size analyses of suspended sediment, December 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Mar. 3, 1955...	8:25 a.m.	a 470	32	1,260	3,160		84		90		97	99	100		--		SPWCM
Mar. 9.....	6:00 p.m.	a 600	32	9,500	5,130		65		89		98	100	--		--		VPWCM
Mar. 15.....	11:45 a.m.	571	50	2,880	2,640		67		89		98	99	100		--		SPWCM
Mar. 17.....	7:30 a.m.	535	34	2,250	2,820		67		91		99	99	100		--		SPWCM
May. 8.....	6:36 p.m.	b 2,900	54	10,200	4,290		21		38		84	96	99		100		VPWCM
May 9.....	12:37 p.m.	b 3,400	49	8,130	3,560		26		46		76	90	99		100		VPWCM
May 12.....	4:45 p.m.	2,600	58	2,180	3,200		27		38		60	76	96		100		VPWCM
June 8.....	1:12 p.m.	4,110	60	3,510	6,100		18		33		74	84	95		100		VPWCM
June 9.....	1:52 p.m.	4,270	60	3,170	6,760		21		41		86	89	97		100		VPWCM
July 11.....	5:50 p.m.	2,600	66	15,800	4,030		59		88		99	100	--		--		SPWCM
July 13.....	9:00 a.m.	625	68	1,660	4,230		85		97		99	100	--		--		SPWCM
July 27.....	9:15 a.m.	1,520	66	33,200	4,630		64		91		99	100	--		--		VPWCM
Aug. 9.....	4:15 p.m.	1,130	78	3,090	3,470		47		72		94	100	--		--		VPWCM
Aug. 23.....	2:00 p.m.	1,260	75	7,780	3,780		30		59		93	98	99		100		VPWCM
Aug. 24.....	7:12 a.m.	974	68	8,080	3,620		65		86		97	100	--		--		VPWCM
Aug. 30.....	7:08 a.m.	1,020	65	13,900	4,740		71		93		98	99	100		--		SPWCM
Sept. 20.....	8:45 a.m.	709	59	16,600	4,140		75		97		100	--	--		--		PWCM

a Flow affected by ice.
b Doubtful gage-height record; discharge estimated.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLANCO, N. MEX.

LOCATION.--At highway bridge, half a mile downstream from gaging station which is 1 mile upstream from Canyon Largo and 1½ miles east of Blanco, San Juan County.
DRAINAGE AREA.--3,560 square miles, approximately (at gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1945 to December 1954(discontinued).
Water temperatures: March 1949 to December 1954(discontinued).
Sediment records: March 1949 to December 1954(discontinued).
EXTREMES, 1945-54.--Dissolved solids: Maximum, 1,030 ppm Aug. 16, 1947; minimum, 80 ppm July 1-8, 1949.
Hardness: Maximum, 680 ppm Aug. 16, 1947; minimum, 48 ppm July 1-8, 1949.
Specific conductance: Maximum daily, 1,420 micromhos Aug. 16, 1947; minimum daily, 107 micromhos June 20, 1952.
Water temperatures(1949-54): Maximum, 87°F July 10, 1954; minimum, freezing point on many days during winter months.
Sediment concentrations(1949-54): Maximum daily, 51,300 ppm July 23, 1954; minimum daily, 8 ppm Nov. 4, 1952, Jan. 10, 1953.
Sediment loads(1949-54): Maximum daily, 418,000 tons July 23, 1954; minimum daily, 1 ton Sept. 20-25, 1951.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. No appreciable inflow between gaging station and sampling point. Site of data collection moved about 12 miles upstream in December 1954 to gaging station located on San Juan River near Archuleta, N. Mex. Records of discharge for period October to December 1954 given in WSP 1393.

Chemical analyses, in parts per million, period October to December 1954

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	734	14	0.00	32	5.7	19	3.5	114	45	5.0	0.2	0.6	0.08	174	0.24	345	104	10	28	0.8	286	7.5
Oct. 11-20.....	619																				274	
Oct. 21-31.....	374																				333	
Nov. 1-10	352																				356	
Nov. 11-20	232																				425	
Nov. 21-30	173																				474	
Dec. 1-10	163																				494	
Dec. 11-20	158																				523	
Dec. 21-23	193																				554	

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLANCO, N. MEX.--Continued

Temperature (°F) of water, October to December 1954
(Once-daily measurement, generally between 11 a. m. and 6 p. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 59	54	39									
2	--	52	41									
3	--	52	42									
4	--	54	38									
5	67	51	40									
6	61	45	39									
7	70	48	42									
8	a 64	45	38									
9	66	55	35									
10	64	53	40									
11	68	59	39									
12	64	56	40									
13	69	42	39									
14	60	52	39									
15	a 58	52	37									
16	60	49	37									
17	60	48	35									
18	60	51	--									
19	61	45	38									
20	57	45	40									
21	58	45	--									
22	60	46	38									
23	61	50	--									
24	55	51	39									
25	55	50	37									
26	53	48	--									
27	52	45	--									
28	50	39	--									
29	58	42	--									
30	54	45	--									
31	a 48	--	--									
Average	60	49	--									

a Measurement obtained before 11 a. m.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLANCO, N. MEX.--Continued

Suspended sediment, October to December 1954

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	662	421	752	361	99	96	151	57	23
2	632	400	a 680	369	78	78	165	22	10
3	680	--	b 1,500	365	94	93	162	37	16
4	668	430	a 780	369	65	65	165	31	14
5	680	800	1,470	385	93	97	167	45	20
6	731	1,300	2,570	377	50	51	206	36	20
7	745	1,150	2,310	365	51	50	169	32	15
8	780	2,630	5,540	349	41	39	165	82	37
9	836	1,700	3,840	329	45	40	138	34	13
10	928	1,610	4,030	249	52	35	142	50	19
11	936	1,190	3,010	230	36	22	155	45	19
12	830	630	1,410	227	105	64	221	19	11
13	820	191	423	230	32	20	206	17	9
14	660	332	592	262	48	34	172	136	63
15	572	461	712	256	27	19	132	60	21
16	536	410	593	236	26	17	115	58	18
17	500	371	501	230	35	22	119	54	17
18	460	541	672	230	26	16	147	200	a 80
19	440	203	241	224	24	15	147	278	110
20	440	171	203	195	25	13	169	139	63
21	416	154	173	195	29	15	182	210	a 100
22	398	129	139	203	29	16	195	283	149
23	377	121	123	206	46	26	201	212	115
24	365	169	167	192	32	17	190	155	80
25	365	89	88	169	32	15	201	132	72
26	381	118	121	169	32	15	221	--	b 80
27	377	92	94	160	26	11	201	--	b 70
28	377	74	75	149	26	10	149	--	b 40
29	361	55	54	142	108	41	124	--	b 30
30	349	79	74	149	42	17	120	--	b 30
31	345	51	48	--	--	--	130	--	b 30
Total	17,647	--	32,985	7,572	--	1,069	5,127	--	1,394
Total discharge for period (cfs-days)									30,346
Total load for period (tons)									35,448

a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

ANIMAS RIVER AT FARMINGTON, N. MEX.

528172 O - 59 - 9

LOCATION.--At gaging station at bridge on 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 1955.
Water temperatures: December 1950 to September 1955.
Sediment records: December 1950 to September 1955.
EXTREMES, 1954-55.--Specific conductance: Maximum daily, 1,380 micromhos July 28; minimum daily, 227 micromhos June 12.
Water temperatures: Maximum, 84°F July 31; minimum, freezing point on several days during December, January and February.
Sediment concentrations: Maximum daily, 22,600 ppm Aug. 5; minimum daily, 13 ppm Sept. 16.
Sediment loads: Maximum daily, 50,200 tons Aug. 13; minimum daily, less than 0.50 ton Sept. 16.
EXTREMES, 1940-55.--Dissolved solids (1940-49, 52-54): Maximum, 1,500 ppm Aug. 19, 1949; minimum 111 ppm June 11-17, 19-20, 1944.
Specific conductance (1941-55): Maximum daily, 1,980 micromhos Aug. 19, 1944; minimum daily, 170 micromhos June 27, 1944.
Water temperatures (1950-55).--Maximum, 88°F July 29, 1951; minimum , freezing point on many days during winter months.
Sediment concentrations (1950-55).--Maximum daily, 36,100 ppm July 23, 1954; minimum daily, 9 ppm Sept. 28-30, 1951, Sept.3, 4, 1953.
Sediment loads (1950-55).--Maximum daily, 337,000 tons July 23, 1954; minimum daily, less than 0.5 ton Sept. 16,1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393. Flow affected by ice Dec. 17 to Jan. 2, Jan. 13, 19-29, Feb. 22-24.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	787	10	0.01	72	11	30	3.9	150	139	15	0.4	1.0	0.09	354	0.48	752	224	102	22	0.9	551	7.4
Oct. 11-20.....	805	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	512	--
Oct. 21-31.....	425	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	671	--
Nov. 1-10.....	309	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	761	--
Nov. 11-20	260	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	838	--
Nov. 21-30	231	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	855	--
Dec. 1-10	244	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	856	--
Dec. 11-20	243	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	895	--
Dec. 21-31	233	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	879	--
Jan. 1-10, 1955 ..	243	11	.00	111	17	61	5.4	199	263	31	.5	1.0	.12	607	.83	398	347	184	27	1.4	881	7.7
Jan. 11-20.....	238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	880	--
Jan. 21-31.....	219	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	897	--
Feb. 1-10.....	207	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	862	--
Feb. 11-20.....	214	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	822	--
Feb. 21-28	224	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	868	--
Mar. 1-10	258	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	817	--

SAN JUAN RIVER BASIN--Continued

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

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 11-20, 1955	308	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	823	--
Mar. 21-31	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	860	--
Apr. 1-10	306	7.6	0.01	97	16	47	4.7	185	213	25	0.5	0.8	0.14	518	0.68	428	308	156	25	1.2	765	7.5
Apr. 11-20	464	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	659	--
Apr. 21-30	644	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	511	--
May 1-10	942	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	423	--
May 11-20	1,350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	347	--
May 21-31	1,913	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	306	--
June 1-10	2,183	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	324	--
June 11-20	2,277	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	271	--
June 21-30	1,634	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	308	--
July 1-10	618	8.4	.01	61	9.0	26	3.4	117	125	16	.4	.2	.09	308	.42	514	189	93	23	.8	483	7.7
July 11-20	339	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	645	--
July 21-31	324	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	804	--
Aug. 1-10	437	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	682	--
Aug. 11-20	577	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	654	--
Aug. 21-31	475	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	663	--
Sept. 1-10	97.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	901	--
Sept. 11-20	43.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,040	--
Sept. 21-30	138	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	938	--
Weighted average	570	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	510	--

SAN JUAN RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally between 11 a. m. and 6 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	51	45	33	46	a 45	55	56	57	72	a 75	76
2	62	a 52	43	33	45	a 47	47	52	b 50	a 73	80	a 75
3	62	51	a 40	a 41	49	46	47	59	61	73	79	76
4	57	51	a 43	40	41	45	49	62	63	68	a 77	77
5	68	50	43	36	34	46	51	63	63	a 74	a 75	78
6	a 65	50	43	a 33	35	42	50	65	68	72	77	78
7	65	49	45	35	34	46	54	62	62	74	77	a 75
8	65	49	38	a 36	37	a 48	56	57	63	a 74	75	b 65
9	65	48	37	38	39	50	57	56	62	a 73	a 76	75
10	64	47	40	a 37	33	a 47	59	51	58	72	a 72	75
11	59	48	40	a 36	36	a 49	51	56	60	a 70	78	75
12	60	48	40	35	38	53	50	a 62	56	a 78	76	77
13	59	49	40	33	40	54	56	61	60	a 78	73	77
14	55	51	40	a 36	42	53	57	62	63	79	75	75
15	56	50	36	39	44	54	59	58	65	a 77	a 77	71
16	57	49	34	36	43	49	61	56	a 60	a 77	a 74	72
17	56	46	a 32	36	a 39	50	51	50	a 62	75	77	72
18	57	a 45	33	33	b 38	50	55	53	63	74	a 77	70
19	56	48	33	36	33	51	54	55	66	a 73	a 77	a 67
20	56	46	34	a 33	32	44	55	63	a 65	a 76	78	68
21	56	47	a 33	32	34	42	a 59	65	65	77	78	66
22	58	46	33	31	33	47	51	58	65	76	78	67
23	59	46	a 34	a 31	35	51	56	60	a 64	b 65	80	65
24	a 55	46	a 35	32	a 39	52	62	58	64	b 73	b 68	66
25	54	47	36	33	32	a 50	a 63	56	a 65	a 72	76	67
26	52	45	37	32	39	52	61	52	67	a 75	77	64
27	50	45	32	32	46	51	55	59	67	78	77	65
28	49	41	32	32	42	a 47	60	58	70	77	76	65
29	50	45	32	35	--	b 42	55	62	68	a 77	75	65
30	50	45	a 32	45	--	52	53	46	a 69	81	75	65
31	50	--	32	a 46	--	50	--	57	--	84	a 77	--
Average	58	48	37	35	38	49	55	58	63	75	76	71

a Measurement after 6 p. m.
b Measurement before 11 a. m.

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1954 to September 1955

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.....	526	520	739	335	205	185	234	196	124
2.....	496	510	683	306	276	228	234	153	97
3.....	532	625	898	326	177	156	250	144	97
4.....	592	1,480	2,370	330	96	86	258	194	135
5.....	768	2,100	4,350	326	174	153	254	204	140
6.....	849	2,000	4,580	318	177	152	258	207	144
7.....	930	1,900	4,770	302	125	102	234	190	120
8.....	1,020	2,200	6,060	294	125	99	242	194	127
9.....	1,060	3,160	9,040	274	150	111	226	218	133
10.....	1,100	3,700	11,000	278	156	117	250	219	148
11.....	1,120	1,650	4,990	266	140	101	274	300	222
12.....	1,090	1,380	4,060	274	124	92	286	294	227
13.....	1,010	770	2,100	278	106	80	274	263	195
14.....	903	800	1,950	274	164	121	242	186	122
15.....	808	730	1,590	266	220	158	238	144	93
16.....	736	680	1,350	246	142	94	246	150	100
17.....	688	660	1,230	250	164	111	230	222	138
18.....	604	500	815	250	176	119	200	238	129
19.....	556	435	653	254	125	86	210	309	175
20.....	532	415	596	246	114	76	230	388	241
21.....	526	400	568	264	126	86	250	354	239
22.....	490	340	450	242	120	78	260	260	183
23.....	466	285	359	226	173	106	260	190	133
24.....	442	400	477	234	148	94	260	220	154
25.....	436	410	483	230	127	79	260	190	133
26.....	415	356	399	226	120	73	260	203	143
27.....	415	260	291	230	148	92	270	255	186
28.....	385	315	327	236	127	77	230	230	143
29.....	375	300	304	226	140	85	170	150	69
30.....	365	290	286	214	174	101	160	140	60
31.....	360	220	214	--	--	--	180	190	92
Total	20,595	--	67,982	8,001	--	3,298	7,430	--	4,442
	January			February			March		
1.....	200	313	169	240	280	180	210	350	198
2.....	230	500	310	240	280	180	226	210	128
3.....	258	366	255	210	440	250	238	355	228
4.....	262	245	173	200	390	210	250	425	287
5.....	262	263	186	180	270	130	274	794	587
6.....	234	280	177	190	190	100	298	1,120	901
7.....	246	277	184	200	790	430	266	900	646
8.....	234	200	126	200	500	270	258	900	627
9.....	254	200	137	210	490	280	278	1,080	811
10.....	246	215	143	200	550	300	282	1,160	883
11.....	246	176	117	190	360	180	335	1,260	1,140
12.....	230	300	186	200	200	110	360	1,430	1,390
13.....	210	270	153	210	520	290	314	1,180	1,000
14.....	242	250	163	220	260	150	306	1,040	859
15.....	262	195	138	220	280	170	302	1,480	1,210
16.....	262	210	149	230	260	160	314	1,080	916
17.....	266	214	154	220	420	250	306	844	697
18.....	234	170	107	230	920	570	290	450	352
19.....	200	190	103	220	670	400	278	290	218
20.....	230	228	142	200	280	150	278	260	195
21.....	210	166	94	190	230	120	274	355	263
22.....	200	157	85	200	160	90	254	235	161
23.....	190	136	70	210	364	206	242	160	105
24.....	200	150	81	210	230	130	250	160	108
25.....	230	375	233	222	190	114	254	200	137
26.....	220	480	285	250	500	338	250	270	182
27.....	230	600	373	250	395	267	250	375	253
28.....	230	584	363	258	626	436	234	220	139
29.....	230	490	304	--	--	--	222	280	168
30.....	230	450	280	--	--	--	246	185	123
31.....	240	520	340	--	--	--	274	335	248
Total	7,218	--	5,780	6,000	--	6,461	8,413	--	15,160

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1954 to September 1955--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.....	294	455	361	824	1,450	3,230	2,060	975	5,420
2.....	302	365	298	712	1,300	2,500	1,410	1,110	4,230
3.....	314	395	335	720	1,110	2,160	1,090	660	1,940
4.....	330	435	388	598	800	1,290	1,000	470	1,270
5.....	306	280	231	520	660	927	1,080	515	1,500
6.....	310	280	234	610	760	1,250	1,130	775	2,360
7.....	322	320	278	760	1,210	2,480	2,480	2,250	s 18,500
8.....	306	325	269	1,320	3,090	11,000	3,670	2,990	29,600
9.....	294	235	187	1,860	3,390	17,000	4,130	2,380	26,500
10.....	282	180	137	1,500	1,720	6,970	3,780	1,480	15,100
11.....	282	180	137	1,220	1,880	6,190	3,320	1,230	11,000
12.....	330	315	281	1,160	2,090	6,550	2,960	975	7,790
13.....	345	495	461	1,260	1,870	6,360	2,690	725	5,270
14.....	318	280	240	1,390	1,470	5,520	2,400	480	3,110
15.....	350	440	416	1,640	1,780	7,880	2,020	470	2,560
16.....	425	830	952	1,860	1,560	7,830	1,680	550	2,490
17.....	604	2,080	3,390	1,610	1,620	7,040	1,770	510	2,440
18.....	816	2,740	6,040	1,330	1,590	5,710	1,990	555	2,980
19.....	638	1,070	1,840	1,060	1,570	4,490	1,980	420	2,250
20.....	532	780	1,120	966	1,200	3,130	1,960	530	2,800
21.....	420	550	624	1,150	1,120	3,480	2,080	390	2,190
22.....	442	710	847	1,880	1,560	7,920	2,170	480	2,810
23.....	592	1,210	1,930	2,200	1,570	9,330	2,170	370	2,170
24.....	562	920	1,400	1,990	1,320	7,090	2,000	290	1,570
25.....	520	625	878	2,050	1,110	6,140	1,770	245	1,170
26.....	562	640	971	2,120	955	5,470	1,500	210	850
27.....	728	1,280	2,520	1,960	875	4,630	1,320	200	713
28.....	858	1,670	3,870	1,570	730	3,090	1,220	190	626
29.....	849	1,330	3,050	1,400	800	3,020	1,110	160	480
30.....	912	2,050	5,050	2,120	1,640	9,390	1,000	130	351
31.....	--	--	--	2,600	1,510	10,600	--	--	--
Total.	14,145	--	38,735	43,960	--	179,667	60,940	--	162,040

	July			August			September		
1.....	894	84	203	234	245	155	214	218	126
2.....	816	104	229	196	200	106	172	183	85
3.....	768	96	199	226	250	153	145	148	58
4.....	688	75	139	415	10,200	11,200	122	126	42
5.....	624	60	101	586	22,500	s 39,200	82	100	22
6.....	550	76	113	508	4,450	6,100	70	73	14
7.....	538	67	97	610	6,580	s 24,500	63	65	11
8.....	478	44	57	704	17,400	s 39,800	40	52	6
9.....	436	43	51	508	1,850	2,540	33	37	3
10.....	390	34	36	380	1,250	1,280	29	40	3
11.....	400	196	212	360	2,300	2,240	19	34	2
12.....	420	80	91	330	1,950	1,740	11	35	1
13.....	448	84	102	676	8,620	s 50,200	6.9	41	1
14.....	370	60	60	720	14,700	s 35,700	6.4	46	1
15.....	335	62	56	478	1,800	2,320	7.8	39	1
16.....	298	45	36	425	1,450	1,660	8.3	13	(t)
17.....	274	30	22	598	4,150	6,700	13	15	1
18.....	266	44	32	824	8,350	18,600	118	1,470	s 597
19.....	294	265	210	696	1,500	2,820	125	1,870	631
20.....	282	146	111	659	4,730	s 13,600	122	530	175
21.....	306	140	116	586	8,660	s 14,900	148	650	260
22.....	322	516	449	478	1,000	1,290	157	415	176
23.....	298	126	101	415	450	504	151	223	91
24.....	278	150	113	405	1,210	s 2,410	132	138	49
25.....	274	150	111	550	5,000	7,420	130	97	34
26.....	286	148	114	574	6,550	10,200	145	119	47
27.....	360	2,950	s 5,460	592	2,900	s 6,900	148	114	46
28.....	514	8,920	s 13,600	604	6,300	10,300	132	84	30
29.....	380	1,150	1,180	425	1,300	1,490	120	67	22
30.....	286	440	340	326	900	792	113	74	23
31.....	258	300	209	274	294	218	--	--	--
Total.	13,131	--	23,950	15,362	--	317,038	2,783.4	--	558

Total discharge for year (cfs-days) 207,978.4
Total load for year (tons) 827,111

s Computed by subdividing day.
t Less than 0.50 ton.

SAN JUAN RIVER BASIN--Continued

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

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 10, 1954	6:50 a.m.	1,100	55	4,810	3,510	--	35	--	49	--	65	76	93		100	--	VPWCM
Feb. 20, 1955	4:30 p.m.	200	32	277	--	--	--	--	--	--	44	60	90		100	--	V
Mar. 15	2:40 p.m.	340	54	2,930	3,800	--	49	--	58	--	61	62	66		93	100	VPWCM
Apr. 18	6:30 a.m.	832	45	3,270	2,620	--	20	--	37	--	60	71	90		100	--	VPWCM
May 1	5:00 p.m.	832	56	1,240	1,100	--	15	--	20	--	35	54	84		100	--	VPWCM
May 10	6:25 p.m.	1,460	51	1,580	1,500	--	13	--	21	--	37	61	88		98	100	VPWCM
May 13	2:30 p.m.	1,240	61	1,840	1,560	--	10	--	14	--	24	31	59		84	100	VPWCM
May 31	6:15 p.m.	2,960	57	1,690	2,180	--	16	--	27	--	54	76	91		99	100	VPWCM
June 7	12:25 p.m.	2,650	62	2,100	1,530	10	13	18	20	28	50	76	93		99	100	VPWCM
June 7	12:25 p.m.	2,650	62	2,100	1,290	9	11	15	20	27	50	76	93		99	100	VPN
July 28	6:25 a.m.	680	64	15,200	4,260	--	59	--	87	--	99	100	--		--	--	VPWCM
Aug. 5	6:25 a.m.	849	67	5,100	3,280	--	41	--	73	--	94	97	99		100	--	VPWCM
Aug. 8	6:40 a.m.	894	67	21,800	4,250	--	59	--	87	--	98	99	99		100	--	VPWCM
Aug. 10	8:15 a.m.	430	67	1,600	2,300	--	19	--	33	--	41	41	46		86	100	VPWCM
Aug. 21	6:40 a.m.	617	65	14,300	3,950	--	65	--	92	--	98	99	100		--	--	VPWCM
Aug. 30	6:00 p.m.	330	75	545	1,360	--	59	--	75	--	93	98	99		100	--	SPWCM

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER AT SHIP ROCK, N. MEX.

LOCATION.--At gaging station, 3 miles west of Ship Rock, San Juan County, and 6 miles downstream from Chaco River.
DRAINAGE AREA.--12,900 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: December 1950 to September 1955.
Sediment records: December 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 81°F July 30, Aug. 4, 21; minimum, freezing point Jan. 13, 17-19, 21, 23.
Sediment concentrations: Maximum daily, 86,000 ppm Aug. 14; minimum daily, 75 ppm Nov. 17.
Sediment loads: Maximum daily, 1,200,000 tons Aug. 14; minimum daily, 46 tons Sept. 15.
EXTREMES, 1950-55.--Water temperatures: Maximum, 83°F June 25, 1954; 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, 1,330,000 tons July 24, 1954; minimum daily, 5 tons July 21, Aug. 21, Sept. 12-24, 1951.
REMARKS.--Records of specific conductance of daily samples, available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Temperature (°F) of water, January to September 1955
(Once-daily measurement, generally between 11 a.m. and 6 p.m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				--	34	35	52	55	a56	77	b70	a75
2				--	35	37	--	a54	61	a75	a77	a75
3				--	34	a42	39	58	64	75	b72	a72
4				40	33	65	45	b50	b57	--	81	a72
5				--	33	63	49	b55	b57	a76	80	a70
6				--	33	43	54	67	--	a72	78	79
7				--	34	43	55	62	71	a76	--	--
8				33	34	47	--	57	70	--	a75	a75
9				33	35	a43	54	a58	a62	--	a71	78
10				35	33	a43	a50	b54	64	b72	--	a69
11				37	34	50	a46	b50	65	b65	--	a79
12				36	35	52	a46	b58	--	a76	--	a75
13				a32	33	49	a53	59	a62	a80	--	a75
14				33	35	55	a52	--	65	--	76	a72
15				37	34	53	b47	--	--	--	a77	a67
16				a36	36	a50	a55	59	65	b71	--	a68
17				a32	35	b39	54	55	67	79	--	a69
18				a31	--	a46	57	56	b59	a70	--	a69
19				a31	--	49	a49	58	70	b68	--	a67
20				33	--	44	56	a64	74	a77	--	a63
21				32	33	--	a58	68	74	--	81	--
22				--	33	49	--	66	74	b69	--	a63
23				32	34	49	a53	--	a70	--	a78	a62
24				36	35	52	54	64	72	a74	a75	a58
25				36	--	51	63	63	71	--	78	67
26				36	a34	a49	b52	60	b65	--	a77	67
27				36	a35	44	55	a59	70	--	a70	a59
28				36	a37	47	57	60	75	--	a73	66
29				--	--	55	58	a65	74	a78	a73	67
30				--	--	44	a54	64	74	81	a72	b59
31				34	--	--	--	a59	--	79	73	--
Average				--	34	48	52	59	67	--	--	69

a After 6 p.m.
b Before 11 a.m.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER AT SHIP ROCK, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	1,270	3,400	11,700	730	187	369	460	125	155
2	1,140	2,150	6,620	692	303	566	474	146	187
3	1,110	2,000	a6,000	770	281	584	506	186	254
4	1,180	2,200	7,010	711	199	382	506	--	e250
5	1,270	2,250	7,720	711	177	340	527	157	223
6	1,500	4,100	16,600	750	498	1,010	541	169	247
7	1,700	4,000	18,400	730	175	345	569	176	270
8	1,790	5,000	24,200	692	--	e300	534	116	167
9	1,820	6,200	30,500	644	--	e240	520	148	208
10	2,280	10,100	62,200	617	126	210	548	--	e240
11	2,190	7,000	41,400	554	110	165	659	--	e300
12	2,050	4,300	23,800	545	118	174	591	--	e280
13	1,800	3,000	a15,000	536	--	e170	675	--	e320
14	1,670	2,100	9,470	563	115	175	651	--	e300
15	1,450	2,200	8,610	608	198	325	555	314	471
16	1,310	1,900	6,720	644	151	263	474	246	315
17	1,190	1,150	3,690	554	75	112	448	388	469
18	1,150	1,100	a3,400	563	134	204	435	445	523
19	1,080	930	2,710	572	186	287	448	112	135
20	1,010	1,050	2,860	563	194	295	405	230	252
21	970	1,050	2,750	554	353	528	448	1,500	1,810
22	910	700	1,720	536	268	388	467	1,100	1,390
23	880	550	1,310	536	124	179	486	930	1,220
24	850	620	1,420	520	131	184	493	310	413
25	850	520	1,190	520	173	243	506	192	262
26	820	460	1,020	502	123	167	506	210	287
27	820	419	928	502	131	178	520	256	359
28	770	459	954	486	134	176	435	300	352
29	711	311	597	460	99	123	337	--	e250
30	682	268	493	452	338	412	260	248	174
31	692	271	506	--	--	--	250	203	137
Total	38,915	--	321,498	17,817	--	9,094	15,234	--	12,220

Day	January			February			March		
1	411	208	231	591	500	798	723	2,900	5,660
2	534	650	937	614	630	1,040	683	3,870	s7,890
3	675	1,340	2,440	584	520	820	748	6,080	s13,700
4	808	1,840	4,010	423	490	560	882	6,350	15,100
5	691	1,430	2,670	454	310	380	882	6,550	15,600
6	591	590	941	411	300	333	980	5,300	14,000
7	480	480	622	520	600	842	882	5,550	13,200
8	520	320	449	534	970	1,400	930	2,950	7,410
9	598	310	501	576	1,100	1,710	817	2,750	6,070
10	591	330	527	506	640	874	826	2,950	6,580
11	591	350	558	435	550	646	1,180	4,550	14,500
12	562	365	554	493	750	998	1,260	5,000	17,000
13	474	460	589	541	1,020	1,490	1,200	3,750	12,200
14	467	340	429	644	1,780	3,100	1,020	3,000	8,260
15	534	350	505	683	1,620	2,990	1,020	2,750	7,570
16	527	290	413	765	2,280	4,710	990	3,400	9,090
17	548	220	326	765	2,750	5,680	980	2,700	7,140
18	493	130	173	800	2,200	a4,800	870	2,050	4,820
19	393	100	a110	651	1,600	a2,800	760	1,500	3,080
20	500	300	405	348	1,200	a1,100	730	950	1,870
21	460	432	537	387	770	805	702	850	a1,600
22	260	180	a130	417	580	653	730	750	1,480
23	230	138	86	683	420	775	682	600	1,100
24	200	110	59	576	520	a810	654	470	830
25	280	190	144	527	550	783	635	430	737
26	381	495	509	576	890	1,380	654	460	812
27	534	1,010	1,460	882	1,050	2,500	692	600	1,120
28	576	1,210	1,880	960	6,200	s18,300	730	620	1,220
29	548	840	a1,200	--	--	--	682	540	994
30	534	620	a890	--	--	--	654	630	1,110
31	541	480	701	--	--	--	702	770	a1,500
Total	15,532	--	24,986	16,346	--	63,077	25,880	--	203,243

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER AT SHIP ROCK, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	860	1,760	4,090	2,100	3,480	19,700	4,760	3,200	41,100
2.....	930	2,170	5,450	1,880	2,620	13,300	3,310	2,200	19,700
3.....	960	1,940	5,030	1,870	2,650	13,400	2,800	950	7,180
4.....	1,100	2,500	7,420	1,730	2,340	10,900	2,170	1,600	9,370
5.....	880	1,660	3,940	1,490	1,540	6,200	2,350	2,200	14,000
6.....	750	820	1,660	1,450	1,750	6,850	2,150	1,300	7,550
7.....	760	810	1,660	1,680	2,170	9,840	3,080	2,050	17,000
8.....	750	880	a 1,800	2,480	5,750	38,500	5,410	3,800	55,500
9.....	730	900	1,770	4,270	12,500	144,000	6,660	5,450	98,000
10.....	682	710	1,310	4,330	9,300	109,000	6,970	4,600	86,600
11.....	617	1,170	1,950	4,030	7,750	84,300	6,080	3,600	59,100
12.....	608	920	1,510	3,330	6,800	61,100	5,410	2,450	35,800
13.....	860	2,300	5,340	3,220	5,150	44,800	5,060	2,200	30,100
14.....	730	1,140	2,250	3,330	4,500	40,500	4,730	2,300	29,400
15.....	673	730	1,330	3,480	4,700	44,200	4,500	2,800	a 34,000
16.....	1,000	1,730	4,670	4,030	5,150	56,000	3,570	1,850	17,800
17.....	1,320	3,920	15,900	3,840	4,300	44,600	3,520	1,450	13,800
18.....	1,920	6,470	33,500	3,240	3,700	32,400	3,640	1,600	15,700
19.....	1,790	5,000	24,200	2,620	2,800	19,800	3,920	1,700	18,000
20.....	1,380	2,570	9,580	2,390	2,600	16,800	3,550	1,200	11,500
21.....	1,150	1,960	6,090	2,220	2,200	13,200	3,550	1,350	12,900
22.....	990	2,250	6,010	3,040	4,550	37,300	3,500	1,450	13,700
23.....	1,430	2,850	11,000	4,300	3,500	40,600	3,380	1,460	13,300
24.....	1,560	3,280	13,800	4,130	3,850	42,900	3,240	1,100	9,620
25.....	1,380	2,080	7,750	4,050	3,900	42,600	3,040	1,150	9,440
26.....	1,250	2,060	6,950	4,410	3,800	45,200	2,890	1,620	12,600
27.....	1,490	2,480	9,980	4,050	3,800	41,600	2,420	1,380	9,020
28.....	1,850	3,680	18,400	3,640	2,850	28,000	2,120	800	4,580
29.....	1,900	3,600	18,500	3,020	1,800	14,700	1,820	820	4,030
30.....	2,150	3,650	21,200	3,770	2,550	26,000	1,790	640	3,090
31.....	--	--	--	4,820	3,650	47,500	--	--	--
Total.	34,450	--	254,040	98,240	--	1,195,790	111,390	--	713,480

	July			August			September		
1.....	1,660	480	2,150	910	8,500	20,900	980	6,300	16,700
2.....	1,490	540	2,170	850	7,000	16,100	780	4,100	8,630
3.....	1,350	420	1,530	1,230	38,000	sb 170,000	664	3,450	6,190
4.....	1,210	390	a 1,300	1,270	35,000	b 120,000	572	3,100	4,790
5.....	1,150	370	1,150	1,760	32,000	158,000	528	2,100	2,990
6.....	1,040	300	842	2,150	27,000	157,000	452	1,850	2,260
7.....	900	260	632	2,740	31,000	a 230,000	358	1,700	1,640
8.....	820	210	465	3,720	74,000	b 770,000	278	1,200	901
9.....	730	132	260	2,660	51,500	384,000	264	1,050	748
10.....	644	220	383	1,850	20,800	s 114,000	213	550	316
11.....	608	149	245	2,660	50,000	a 370,000	178	314	151
12.....	1,040	13,600	s 48,100	2,310	24,000	a 150,000	178	244	117
13.....	960	13,200	34,200	1,950	20,000	sa 130,000	190	143	73
14.....	880	8,600	20,400	5,000	86,000	1,200,000	173	--	e 55
15.....	644	2,300	a 4,000	2,080	57,000	332,000	158	107	46
16.....	590	2,200	3,500	1,430	27,000	a 100,000	158	149	64
17.....	536	1,030	1,490	2,900	82,000	a 670,000	196	450	238
18.....	528	490	699	1,760	42,000	a 210,000	251	450	305
19.....	511	590	814	1,670	17,000	a 77,000	599	3,500	5,660
20.....	590	3,300	5,260	1,450	9,000	a 35,000	790	6,150	s 15,000
21.....	494	1,180	1,570	1,820	14,000	68,800	730	11,000	a 22,000
22.....	460	280	348	2,720	44,000	s 406,000	711	12,400	23,800
23.....	520	1,300	a 1,800	1,950	34,000	186,000	608	7,950	13,100
24.....	536	2,780	4,020	1,700	18,000	82,600	528	3,500	4,990
25.....	528	1,950	2,780	1,840	34,000	175,000	511	2,100	2,900
26.....	900	11,500	27,900	1,470	17,000	67,500	617	3,350	5,580
27.....	3,060	79,000	sb 770,000	1,670	10,000	45,100	617	6,050	10,100
28.....	3,370	79,500	s 816,000	2,770	28,600	s 262,000	626	5,150	8,700
29.....	1,960	45,000	s 261,000	1,920	32,500	175,000	599	3,900	6,310
30.....	1,340	13,500	48,800	1,240	21,000	70,300	460	1,900	2,360
31.....	970	7,500	19,600	960	11,500	29,800	--	--	--
Total.	32,019	--	2,083,408	62,410	--	6,982,100	13,967	--	166,714

Total discharge for year (cfs-days) 482,200

Total load for year (tons) 12,029,650

e Estimated.

s Computed by subdividing day.

a Computed from estimated concentration graph.

b Computed from partly estimated concentration graph.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER AT SHIP ROCK, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	0.350	1.000	
Oct. 6, 1954	8:30 a.m.	1,500	--	3,840	3,760		26		35		65	88	97	100		--	VPWCM
Oct. 6	8:30 a.m.	1,500	--	3,840	3,100		7		32		65	88	97	100		--	VPN
Oct. 11	7:45 p.m.	2,190	76	4,660	4,290		58		72		89	94	98	100		--	VPWCM
Oct. 26	10:30 a.m.	800	49	422	1,410		24		33		44	66	95	100		--	VPWCM
Mar. 4, 1955	2:45 p.m.	675	65	10,700	3,700		42		50		59	73	84	94		100	VPWCM
Mar. 6	11:15 a.m.	723	43	6,710	3,580		57		76		92	96	98	100		--	VPWCM
Apr. 18	7:15 p.m.	2,060	55	8,330	3,120		17		31		56	73	80	87		100	VPWCM
Apr. 20	3:15 p.m.	1,400	56	2,360	3,730		19		30		57	89	99	100		--	VPWCM
Apr. 27	6:30 p.m.	1,740	55	3,110	2,310		14		22		60	94	100	--		--	VPWCM
May 9	7:05 p.m.	4,880	58	13,900	2,920		24		36		73	92	98	98		100	VPWCM
May 13	11:00 a.m.	3,730	59	5,070	4,120		20		27		52	79	95	98		100	SPWCM
June 1	6:50 a.m.	5,220	54	4,100	3,980		11		19		44	72	98	100		--	VPWCM
June 11	7:20 p.m.	5,600	65	2,760	2,980		12		19		42	70	98	100		--	VPWCM
June 27	1:00 p.m.	2,420	70	1,170	--		--		--		16	33	82	94		100	V
July 29	7:20 a.m.	2,720	74	72,500	3,770		63		80		92	96	99	100		--	VPWCM
Aug. 10	12:00 m.	1,960	--	16,900	4,450		59		75		92	98	100	--		--	VPWCM
Aug. 24	8:30 a.m.	1,660	73	21,700	4,780		51		66		84	94	100	--		--	VPWCM
Sept. 25	1:30 p.m.	494	67	1,830	2,460		44		53		67	90	100	--		--	VPWCM

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 1955.
Water temperatures: May 1944 to September 1955.
Sediment records: August to September 1928, July 1929 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,050 ppm July 27-31; minimum, 212 ppm June 11-20.
Hardness: Maximum, 520 ppm Aug. 29; minimum, 131 ppm June 11-20.
Specific conductance: Maximum daily, 1,670 micromhos July 28; minimum daily, 282 micromhos June 12.
Water temperatures: Maximum, 78°F Aug. 2-3; minimum, freezing point on several days during December to February.
Sediment concentrations: Maximum daily, 99,100 ppm Aug. 6; minimum daily, 160 ppm Jan. 1.
Sediment loads: Maximum daily, 1,070,000 tons Oct. 9; minimum daily, 102 tons Jan. 1.
EXTREMES, 1929-55.--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, 104 ppm June 11-20, 1952.
Specific conductance (1941-55): Maximum daily, 2,110 micromhos Aug. 13, 1954; minimum daily, 208 micromhos June 17, 1952..
Water temperatures (1944-55): Maximum, 85°F July 21, 1945, July 5, 1953; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 309,000 ppm Sept. 21, 1929; minimum daily, 0 ppm July 3-13, 1934, Aug. 24-27, 29, 1939.
Sediment loads: Maximum daily, 12,000,000 tons Oct. 14, 1941; minimum daily, 0 tons July 3-13, 1934, Aug. 24-27, 29, 1939.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-11, 1954 ...	2,201	16		97	17	64	5.2	220	243	17		2.5	--	584	0.79	3,470	312	132	30	1.6	839	7.6
Oct. 12-20.....	1,533	14		75	15	45	3.5	157	196	13		2.1	0.07	453	.62	1,880	248	120	28	1.2	661	7.6
Oct. 21-31.....	918	13		87	22	63	2.9	164	273	20		3.0	--	586	.80	1,450	308	173	31	1.6	830	7.8
Nov. 1-10.....	748	12		95	25	76	3.2	176	325	22		3.1	--	670	.91	1,350	340	196	32	1.8	935	8.1
Nov. 11-20.....	649	11		106	32	92	3.3	183	393	26		3.4	.09	794	1.08	1,390	396	246	33	2.0	1,080	7.8
Nov. 21-30.....	582	12		112	37	101	3.7	180	443	30		4.0	--	843	1.15	1,320	432	284	33	2.1	1,180	7.8
Dec. 1-10.....	586	14		122	42	109	3.9	196	496	33		5.0	--	943	1.28	1,490	477	316	33	2.2	1,280	7.8
Dec. 11-20.....	658	15		124	38	112	4.1	196	491	33		5.8	.10	942	1.28	1,670	466	305	34	2.3	1,280	7.9
Dec. 21, 28, 31 ...	426	14		120	39	119	4.3	181	502	36		5.8	--	937	1.27	1,080	460	312	36	2.4	1,300	7.9
Jan. 1-10, 1955 ...	546	14		127	40	112	4.3	207	488	36		6.8	--	944	1.28	1,390	482	312	33	2.2	1,300	7.8
Jan. 11-20.....	562	16		118	35	101	4.1	198	443	32		5.3	.12	866	1.18	1,310	438	276	33	2.1	1,200	8.0
Jan. 21-31.....	400	14		134	40	117	4.1	212	517	37		6.0	--	998	1.36	1,080	499	326	34	2.3	1,340	7.9
Feb. 1-10.....	528	13		116	33	101	4.0	200	429	32		5.1	.17	844	1.15	1,200	425	261	34	2.1	1,170	7.9
Feb. 14-18.....	666	12		116	32	98	4.0	194	425	32		5.1	--	829	1.13	1,490	421	262	33	2.1	1,150	7.8
Feb. 21-28.....	600	12		113	35	107	4.1	194	441	32		5.3	--	854	1.16	1,380	426	267	35	2.3	1,180	7.8
Mar. 1-10	1,128	12		110	32	98	5.0	178	425	27		6.6	--	830	1.13	2,530	406	260	34	2.1	1,140	7.5

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 11-20, 1955..	1,297	12		92	26	75	5.0	168	321	24		6.5	0.10	664	0.90	2,330	336	199	32	1.8	947	7.6
Mar. 21-31.....	682	14		110	31	75	4.6	185	365	28		4.7	--	746	1.01	1,370	402	250	29	1.6	1,050	7.7
Apr. 1-10.....	782	15		94	25	73	3.8	173	305	25		4.0	--	645	.88	1,360	338	196	32	1.7	927	7.6
Apr. 11-20.....	943	14		92	24	69	3.8	172	291	24		2.9	.06	617	.84	1,570	328	187	31	1.7	903	7.6
Apr. 21-30.....	1,425	13		67	16	43	2.6	140	186	23		2.7	--	426	.58	1,640	233	118	28	1.2	639	7.6
May 1-10	2,096	15		60	13	34	2.8	128	154	9.5		2.7	--	360	.49	2,040	203	98	26	1.0	548	7.9
May 11-20	3,406	14		51	7.9	22	1.5	127	95	5.8		2.1	.06	266	.36	2,450	160	56	23	.8	420	7.7
May 21-31.....	3,537	13		45	7.6	22	2.1	105	96	6.5		2.1	--	251	.34	2,400	144	58	25	.8	393	7.7
June 1-10.....	3,618	12		46	10	22	2.7	114	95	7.2		1.4	--	256	.35	2,500	156	62	23	.8	395	7.8
June 11-20.....	4,228	10		40	7.5	17	2.1	96	77	5.8		1.5	.00	212	.29	2,420	131	52	22	.6	328	7.8
June 21-30.....	2,648	15		43	7.6	21	1.8	98	88	6.9		1.5	--	240	.33	1,720	138	58	24	.8	365	7.6
July 1-10	1,152	16		54	9.9	26	2.6	120	139	12		1.5	--	340	.46	1,060	175	76	31	1.2	511	7.7
July 11-14, 16-20..	712	18		82	14	72	4.6	160	255	18		2.5	.11	562	.76	1,080	262	131	37	1.9	801	7.8
July 15[a].....	944	23		128	17	--	--	192	346	24		1.1	--	--	--	--	388	231	--	--	1,200	7.4
July 21-26	527	16		91	19	74	4.6	174	284	24		2.5	--	627	.85	892	305	162	34	1.8	876	7.7
July 27-31	2,124	25		134	21	160	6.6	238	531	23		1.2	--	1,050	1.43	6,020	421	226	45	3.4	1,390	7.3
Aug. 1-10.....	2,238	21		111	21	116	5.7	258	361	18		.4	--	796	1.08	4,810	364	152	40	2.6	1,120	7.5
Aug. 11-20.....	2,753	22		118	18	128	5.7	252	398	18		.2	.09	854	1.16	6,350	368	162	43	2.9	1,170	7.6
Aug. 21-28, 30-31.	1,916	21		94	17	87	4.6	226	284	16		.1	--	659	.90	3,410	304	120	38	2.2	931	7.4
Aug. 29[a]	2,770	20		--	--	--	--	222	517	17		.1	--	--	--	--	520	338	--	--	1,270	7.2
Sept. 1-10	609	17		80	16	65	4.6	164	244	18		2.8	--	549	.75	903	266	131	34	1.7	780	7.7
Sept. 11-20	189	15		90	24	111	4.6	144	393	30		1.9	.07	758	1.03	387	323	205	42	2.7	1,060	7.4
Sept. 21[a].....	472	14		--	--	--	--	184	503	34		4.5	--	--	--	--	424	273	--	--	1,310	7.4
Sept. 22-30	605	15		85	17	76	4.6	182	261	22		3.5	--	600	.82	980	282	133	36	2.0	860	7.6
Weighted average	b 1,395	15		78	17	61	3.5	161	237	16		2.4	--	522	0.71	1,970	264	132	33	1.6	747	--

a Not included for computation of weighted averages.

b Represents 98 percent of runoff for water year October 1954 to September 1955.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	47	39	33	33	39	43	55	57	69	76	70
2	63	48	40	32	33	43	51	52	56	70	78	70
3	65	46	40	35	32	41	40	51	58	71	78	73
4	64	47	43	35	33	47	39	55	62	70	75	67
5	66	47	42	33	33	44	45	60	62	70	75	73
6	65	46	40	33	33	42	45	62	64	68	75	70
7	66	46	41	33	34	39	48	65	68	67	74	71
8	65	44	40	33	34	41	48	63	70	66	73	72
9	58	44	38	34	38	42	51	58	67	69	73	71
10	60	43	--	34	37	47	50	57	63	69	74	69
11	59	44	--	37	--	46	49	58	63	71	72	67
12	59	47	39	33	--	47	47	60	66	70	74	66
13	58	48	39	33	--	48	48	61	62	73	73	68
14	57	47	37	33	40	48	--	60	63	74	75	68
15	53	46	34	35	38	48	52	56	66	74	73	68
16	54	47	34	33	38	48	54	54	66	74	73	65
17	55	45	33	33	41	46	55	56	63	74	74	65
18	53	44	34	32	42	43	52	53	66	72	74	64
19	55	44	32	--	--	44	47	57	70	72	74	65
20	53	43	33	--	--	45	47	60	68	72	74	61
21	57	44	33	32	--	35	54	66	70	75	--	61
22	55	42	--	--	--	38	53	65	69	75	75	63
23	--	43	--	--	--	42	51	62	73	75	75	61
24	--	43	--	33	33	46	55	60	68	75	73	63
25	50	45	--	34	33	48	55	59	65	72	73	58
26	49	45	--	37	35	46	56	60	68	71	73	60
27	48	42	--	35	38	43	52	60	66	71	73	60
28	48	41	33	33	39	42	53	56	69	71	73	59
29	46	39	--	35	--	47	55	59	65	71	72	59
30	47	38	--	33	--	50	57	66	70	75	70	58
31	47	--	32	33	--	44	--	61	--	77	70	--
Average	56	44	--	34	--	44	50	59	65	72	74	66

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955

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.....	1,410	13,500	51,400	756	1,400	2,860	534	730	1,050
2.....	1,340	8,000	28,900	769	1,700	3,530	529	635	907
3.....	1,290	5,800	20,200	750	1,400	2,840	513	740	1,020
4.....	1,400	8,500	32,100	756	1,120	2,290	546	780	1,150
5.....	1,530	12,000	49,600	743	1,260	2,530	590	1,000	1,590
6.....	1,500	10,000	40,500	718	1,160	2,250	596	1,060	1,710
7.....	1,530	8,800	36,400	730	1,180	2,330	649	960	1,680
8.....	2,170	18,200	s 120,000	756	1,320	2,690	649	1,010	1,770
9.....	5,650	59,700	s1,070,000	763	1,180	2,430	649	880	1,540
10.....	4,080	47,000	s 633,000	737	1,220	2,430	608	820	a 1,300
11.....	2,310	18,800	117,000	698	1,060	2,000	698	1,100	a 2,100
12.....	2,090	13,600	76,700	668	870	1,570	900	5,560	s 14,200
13.....	1,910	8,000	41,300	631	780	1,330	790	4,700	10,000
14.....	1,730	5,400	25,200	619	850	1,420	705	4,180	7,960
15.....	1,660	4,780	21,400	614	1,070	1,770	711	2,500	4,800
16.....	1,470	4,430	17,600	668	915	1,650	668	2,310	4,170
17.....	1,330	4,350	15,600	705	880	1,680	619	1,600	2,670
18.....	1,270	2,920	10,000	619	960	1,600	540	1,020	1,490
19.....	1,190	2,900	9,320	602	950	1,540	482	610	794
20.....	1,150	3,900	12,100	662	1,010	1,810	471	890	1,130
21.....	1,080	2,500	7,290	637	920	1,580	437	680	802
22.....	1,040	2,250	6,320	619	800	1,340	437	640	a 755
23.....	1,000	2,200	a 5,900	556	775	1,160	452	620	a 760
24.....	974	2,200	a 5,800	590	1,420	2,260	492	640	a 850
25.....	944	2,180	5,560	585	2,400	3,790	492	620	a 824
26.....	900	3,650	8,870	573	750	1,160	513	610	a 845
27.....	872	2,300	5,420	579	760	1,190	535	630	a 910
28.....	830	1,850	4,150	556	715	1,070	540	735	1,070
29.....	879	1,680	3,990	562	660	1,000	460	590	a 730
30.....	803	1,390	3,010	562	715	1,080	360	510	a 500
31.....	776	1,480	3,100	--	--	--	301	440	358
Total.	48,108	--	2,487,730	19,783	--	58,180	17,466	--	71,435
	January			February			March		
1.....	235	160	102	497	880	1,180	1,010	4,500	12,300
2.....	223	255	154	534	1,420	2,050	908	3,850	9,440
3.....	378	540	551	602	1,490	2,420	937	5,480	13,900
4.....	711	1,400	2,690	619	720	1,200	1,260	7,650	26,000
5.....	783	2,060	4,360	655	955	1,690	1,250	9,420	31,800
6.....	790	2,050	4,370	524	690	976	1,200	9,700	31,400
7.....	674	1,850	3,370	418	780	880	1,260	9,680	32,900
8.....	585	1,920	3,030	466	1,000	1,260	1,200	9,100	29,500
9.....	513	1,130	1,570	456	1,040	1,280	1,090	8,100	23,800
10.....	573	1,200	1,860	513	1,140	1,580	1,160	8,830	27,700
11.....	631	1,510	2,570	551	1,100	a 1,600	1,500	11,200	45,400
12.....	585	1,140	1,800	461	1,200	a 1,500	1,680	12,100	54,900
13.....	579	1,220	1,910	423	1,200	a 1,370	1,620	11,700	51,200
14.....	573	1,300	2,010	482	1,160	1,510	1,530	11,700	48,300
15.....	540	1,480	2,160	513	820	1,140	1,380	10,300	38,400
16.....	524	1,620	2,290	631	1,300	2,210	1,250	8,780	29,600
17.....	590	1,100	1,750	743	2,120	4,250	1,110	4,900	14,700
18.....	600	580	940	959	5,500	14,200	1,010	4,900	13,400
19.....	530	530	a 760	1,310	6,100	a 22,000	989	4,000	10,700
20.....	470	510	a 650	900	5,000	a 12,000	900	3,800	9,230
21.....	409	525	580	508	3,900	5,300	796	4,200	9,030
22.....	520	640	a 899	342	3,200	a 3,000	705	2,700	5,140
23.....	380	530	a 540	428	2,500	a 2,900	686	2,510	4,650
24.....	287	230	178	518	1,710	2,390	763	2,580	5,320
25.....	235	190	121	529	1,500	2,140	686	2,110	3,910
26.....	266	280	201	585	1,610	2,540	649	2,190	3,840
27.....	316	650	555	962	5,380	14,000	625	2,190	3,700
28.....	396	730	781	930	5,270	13,200	596	3,050	4,910
29.....	534	1,100	1,590	--	--	--	680	2,200	4,040
30.....	540	1,950	2,840	--	--	--	692	2,300	4,300
31.....	518	810	1,130	--	--	--	619	1,950	3,260
Total.	15,488	--	48,312	17,059	--	121,766	31,741	--	606,670

s Computed by subdividing day.
a Computed from estimated concentration graph.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	573	1,610	2,490	2,010	5,550	30,100	4,560	7,000	86,200
2.....	698	2,000	3,770	2,010	5,050	27,400	4,240	5,800	66,400
3.....	886	6,000	14,400	1,940	4,450	23,300	3,130	4,170	35,200
4.....	858	3,450	7,990	1,930	4,900	25,500	2,510	2,700	18,300
5.....	900	3,500	8,500	1,830	4,100	20,300	2,140	2,540	14,700
6.....	908	4,550	11,200	1,450	3,230	12,600	2,380	4,350	28,000
7.....	803	2,520	5,460	1,380	2,820	10,500	2,120	4,410	25,200
8.....	743	2,200	4,410	1,560	3,300	13,900	3,510	5,600	53,100
9.....	730	2,300	4,530	2,410	8,170	s55,800	5,370	7,870	114,000
10.....	724	2,600	5,080	4,440	12,900	155,000	6,220	9,520	160,000
11.....	674	1,950	3,550	3,920	12,400	131,000	5,970	7,360	119,000
12.....	643	1,570	2,730	3,750	9,460	95,800	5,300	6,030	86,300
13.....	568	1,550	2,380	3,290	8,200	72,800	4,900	4,830	63,900
14.....	590	1,600	2,550	3,160	7,350	62,700	4,620	4,600	57,400
15.....	803	2,730	5,920	3,250	6,700	58,800	4,230	3,900	44,500
16.....	649	1,780	3,120	3,400	6,970	64,000	4,170	3,780	42,600
17.....	750	1,850	3,750	3,780	7,710	78,700	3,230	3,400	29,700
18.....	1,210	4,630	15,100	3,580	6,070	58,700	3,180	3,370	28,900
19.....	1,900	7,920	40,600	3,270	4,770	42,100	3,270	3,320	29,300
20.....	1,640	6,400	28,300	2,660	3,900	28,000	3,410	3,530	32,500
21.....	1,330	4,780	17,200	2,500	3,990	26,900	3,170	3,020	25,800
22.....	1,210	3,790	12,400	2,240	2,950	17,800	3,200	3,100	26,800
23.....	1,060	2,750	7,870	3,440	7,520	s70,300	3,160	2,800	23,900
24.....	1,390	6,320	23,700	4,090	8,450	93,300	3,050	3,160	26,000
25.....	1,590	4,800	20,600	3,900	6,420	67,600	2,950	2,650	21,100
26.....	1,330	3,620	13,000	4,020	5,280	57,300	2,740	2,210	16,300
27.....	1,270	3,090	10,600	4,270	6,160	71,000	2,450	2,260	14,900
28.....	1,430	3,130	12,100	3,970	6,890	73,900	2,050	1,820	10,100
29.....	1,810	5,110	25,000	3,570	4,970	47,900	1,910	1,420	7,320
30.....	1,830	4,570	22,600	3,030	4,150	34,000	1,800	1,420	6,900
31.....	--	--	--	3,880	5,900	61,800	--	--	--
Total.	31,500	--	340,900	93,930	--	1,688,800	104,940	--	1,314,320

Day	July			August			September		
1.....	1,640	1,600	7,080	1,140	24,000	73,900	1,080	18,700	54,500
2.....	1,500	1,200	4,860	981	14,800	39,200	937	12,200	30,900
3.....	1,360	1,300	4,770	966	12,800	33,400	810	8,760	19,200
4.....	1,270	1,610	5,520	1,580	20,200	s98,500	692	6,320	11,800
5.....	1,200	1,290	4,180	2,100	41,500	s248,000	590	4,150	6,610
6.....	1,080	1,210	3,530	2,710	99,100	s759,000	524	3,500	4,950
7.....	1,010	970	2,650	2,350	72,300	s478,000	452	2,710	3,310
8.....	922	1,380	3,440	4,380	83,000	s1,040,000	423	2,610	2,980
9.....	810	2,150	4,700	3,680	69,700	718,000	323	1,990	1,740
10.....	730	2,700	5,320	2,490	62,700	437,000	263	1,310	930
11.....	698	1,800	3,390	2,360	54,300	359,000	232	1,160	727
12.....	724	2,180	4,260	2,710	41,000	311,000	215	1,290	749
13.....	655	2,420	4,280	2,140	51,800	310,000	203	503	276
14.....	1,200	10,700	sa34,900	3,840	73,200	s1,050,000	185	373	186
15.....	944	20,000	51,000	4,410	75,900	s1,030,000	175	332	157
16.....	796	13,300	28,600	1,980	47,500	263,000	168	276	125
17.....	655	8,300	a15,000	2,570	38,800	s313,000	163	281	124
18.....	590	4,600	7,330	3,420	53,100	508,000	159	291	125
19.....	562	2,950	4,480	2,000	49,300	276,000	168	401	182
20.....	529	2,880	4,110	1,780	29,100	140,000	218	1,000	589
21.....	551	1,750	2,600	1,520	25,000	a100,000	472	4,040	s5,670
22.....	568	1,510	2,320	1,690	16,700	76,200	900	8,400	s20,800
23.....	476	1,130	1,450	2,720	23,100	s180,000	655	6,880	12,200
24.....	405	1,750	1,910	1,710	40,000	192,000	614	11,600	19,200
25.....	432	1,950	2,270	1,940	31,500	165,000	518	11,500	16,100
26.....	730	7,500	14,800	2,660	40,800	304,000	482	7,040	9,160
27.....	1,820	21,000	103,000	1,540	33,000	142,000	452	4,330	5,280
28.....	2,860	48,600	s408,000	1,780	25,600	s130,000	631	4,650	7,920
29.....	2,920	75,700	s668,000	2,770	35,200	s289,000	662	4,600	8,220
30.....	1,840	57,300	295,000	2,180	35,500	217,000	529	4,650	6,640
31.....	1,180	44,000	145,000	1,420	32,600	130,000	--	--	--
Total.	32,657	--	1,847,750	71,517	--	10,410,200	13,895	--	251,350

Total discharge for year (cfs-days) 498,084
Total load for year (tons) 19,247,413

s Computed by subdividing day.
a Computed from estimated concentration graph.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, 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. 10, 1954	8:25 a.m.	5,080	60	49,900	3,380	--	38	--	52	66	85	96	99	100	--		SPWCM
Oct. 21	9:40 a.m.	1,090	57	2,690	3,320	--	12	--	15	20	53	59	86	98	100		SPWCM
Nov. 1	8:25 a.m.	769	47	1,510	2,000	7	8	11	13	17	31	62	91	99	100		SBWCM
Nov. 16	10:30 a.m.	655	47	1,040	1,940	23	24	25	26	29	42	70	93	100	--		SBWCM
Jan. 7, 1955	10:30 a.m.	790	33	1,620	3,600	--	14	--	19	24	40	70	96	100	--		SPWCM
Feb. 16	9:30 a.m.	668	38	1,510	2,240	--	7	--	8	13	26	51	87	99	100		SPWCM
Mar. 2	4:20 p.m.	823	46	3,520	4,090	--	46	--	59	66	74	87	97	100	--		SPWCM
Mar. 3	3:15 p.m.	893	47	6,040	4,010	--	45	--	57	63	68	76	85	95	100		SPWCM
Mar. 4	10:05 a.m.	1,270	43	7,750	6,540	--	45	--	63	70	78	90	98	100	--		SPWCM
Mar. 4	11:55 a.m.	1,210	45	7,210	3,290	--	46	--	61	71	78	88	97	99	100		SPWCM
Mar. 4	4:00 p.m.	1,060	47	12,100	--	--	--	--	--	--	42	47	54	72	94		S
Mar. 16	8:40 a.m.	1,210	48	9,220	4,580	--	52	--	69	79	88	94	99	100	--		SPWCM
Mar. 29	9:45 a.m.	718	47	2,010	2,280	--	14	--	21	32	53	73	95	100	--		SPWCM
Apr. 11	8:45 a.m.	692	49	1,890	3,960	--	14	--	20	29	48	70	93	100	--		SPWCM
May 3	9:40 a.m.	2,010	51	4,350	2,950	--	17	--	26	35	59	81	94	99	100		SPWCM
May 9	1:15 p.m.	2,840	61	9,810	3,630	--	12	--	22	41	70	91	98	100	--		SPWCM
May 12	8:15 a.m.	3,970	60	8,910	3,620	--	22	--	32	45	70	91	98	100	--		SPWCM
May 19	9:25 a.m.	3,440	57	4,730	4,990	--	12	--	17	27	48	81	96	100	--		SPWCM
June 8	8:20 a.m.	3,260	67	6,320	3,760	--	13	--	22	31	53	83	96	100	--		SPWCM
June 11	7:40 a.m.	5,530	63	7,730	5,180	--	16	--	24	34	54	80	95	99	100		SPWCM
July 14	7:30 a.m.	1,640	74	5,160	4,600	--	41	--	52	61	71	88	98	100	--		SPWCM
July 15	7:30 a.m.	997	74	25,700	3,240	--	77	--	89	90	90	92	95	99	100		SPWCM
July 17	7:20 a.m.	661	74	9,030	4,080	--	82	--	92	94	94	96	99	100	--		SPWCM
Aug. 1	7:40 a.m.	1,270	76	26,200	6,170	--	63	--	78	82	83	85	88	94	99		SPWCM
Aug. 4	3:20 p.m.	2,370	81	24,700	3,170	--	56	--	75	89	93	97	100	--	--		SPWCM
Aug. 6	7:50 a.m.	1,990	75	155,000	3,530	--	33	--	45	53	64	95	100	--	--		SPWCM

Aug. 6, 1955	11:00 a. m.	1,960	78	109,000	3,470	--	29	--	44	51	65	98	100	--	--	SPWCM
Aug. 12	8:00 a. m.	3,390	74	48,900	5,380	--	45	--	62	75	83	93	99	100	--	SPWCM
Aug. 15	8:15 a. m.	4,480	73	73,700	4,210	--	46	--	60	73	81	91	99	100	--	SPWCM
Aug. 20	8:00 a. m.	1,700	74	27,200	3,000	--	54	--	70	76	82	96	100	--	--	SPWCM
Aug. 31	8:15 a. m.	1,410	70	36,100	4,350	--	68	--	84	88	91	96	100	--	--	SPWCM
Sept. 21	8:40 a. m.	524	61	4,300	3,260	--	30	--	45	54	71	89	99	100	--	SPWCM
Sept. 24	9:20 a. m.	668	63	12,600	6,250	--	68	--	82	85	88	96	100	--	--	SPWCM

COLORADO RIVER MAIN STEM

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, 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 1955.
Water temperatures: July 1949 to September 1955.
Sediment records: October 1928 to December 1933, November 1942 to September 1944, October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,370 ppm Sept. 21-30; minimum, 355 ppm June 11-20.
Hardness: Maximum, 645 ppm Sept. 21-30; minimum, 211 ppm June 1-10.
Specific conductance: Maximum daily, 2,020 micromhos Sept. 23; minimum daily, 480 micromhos May 24.
Water temperatures: Maximum, 83°F Aug. 6; minimum, 32°F on several days during December to February.
Sediment concentrations: Maximum daily, 32,400 ppm Oct. 10; minimum daily, 500 ppm Dec. 31.
Sediment loads: Maximum daily, 1,550,000 tons Oct. 10; minimum daily, 4,560 tons Dec. 31.
EXTREMES, 1928-33, 1942-45, 1947-55.--Dissolved solids (1928-30, 1942-45, 1947-55): Maximum, 1,410 ppm Oct. 11-20, 1928; minimum, 209 ppm June 11-20,1929.
Hardness (1928-30, 1942-45, 1947-55): Maximum, 720 ppm Oct. 11-20, 1928; minimum, 132 ppm June 11-20, 1944.
Specific conductance (1942-45, 1947-55) Maximum daily, 2,280 micromhos Oct. 15, 1945; minimum daily, 318 micromhos June 9, 1948.
Water temperatures (1949-55): Maximum, 84°F Aug. 3, 1952; minimum, freezing point many days during winter months.
Sediment concentrations (1928-33, 1942-44, 1947-55): Maximum daily, 83,300 ppm Aug. 11, 1930; minimum daily, 300 ppm Jan. 8, 1949.
Sediment loads (1928-33, 1942-44, 1947-55): Maximum daily, 9,450,000 tons Aug. 7, 1929; minimum daily, 1,220 tons Jan. 8, 1949.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	9,472	15	0.13	167	40	141	8.6	266	532	80	0.4	4.8	0.18	1,120	1.52	28,640	581	363	34	2.5	1,560	7.4
Oct. 11-20.....	9,227	15	.55	159	36	131	7.8	262	494	76	.4	6.5	.16	1,060	1.44	26,410	544	330	34	2.4	1,470	7.4
Oct. 21-31.....	6,479	13	.00	131	39	129	6.3	230	430	86	.3	6.8	.16	954	1.30	16,690	488	299	36	2.5	1,370	7.5
Nov. 1-10	6,057	13	.01	123	42	142	6.1	218	443	99	.3	5.6	.17	981	1.33	16,040	480	301	39	2.8	1,430	7.7
Nov. 11-20	5,949	12	.00	123	42	148	6.4	226	441	111	.3	5.0	.16	1,000	1.36	16,060	480	294	40	2.9	1,460	7.6
Nov. 21-30	5,579	12	.02	131	46	159	6.3	234	489	118	.4	5.6	.21	1,080	1.47	16,270	516	324	40	3.0	1,570	7.7
Dec. 1-10	5,317	12	.01	119	44	158	6.0	233	444	126	.4	5.0	.22	1,030	1.40	14,790	478	287	41	3.1	1,510	7.9
Dec. 11-20.....	4,756	12	.00	129	46	172	7.1	237	482	141	.4	6.2	.20	1,110	1.51	14,250	511	317	42	3.3	1,630	7.8
Dec. 21-31.....	3,605	14	.01	137	52	191	6.9	262	516	159	.4	8.9	.22	1,210	1.65	11,780	556	342	42	3.5	1,760	8.0
Jan. 1-10, 1955 ..	4,047	18	.01	134	61	192	7.0	278	516	162	.3	7.4	.08	1,230	1.67	13,440	586	358	41	3.5	1,840	7.8
Jan. 11-20.....	4,310	16	.01	124	58	168	6.9	260	461	144	.4	7.2	.07	1,110	1.51	12,920	548	335	40	3.1	1,680	7.5
Jan. 21-31	3,588	18	.01	123	58	176	6.6	256	463	156	.3	7.1	.09	1,130	1.54	10,950	546	336	41	3.2	1,680	7.8

Feb. 1-10, 1955..	4,406	19	.02	119	48	166	6.3	233	435	149	.3	6.2	.20	1,060	1.44	12,610	494	304	42	3.2	1,580	7.9
Feb. 11-20.....	4,135	17	.01	119	44	154	6.3	243	402	139	.3	6.3	.22	1,010	1.37	11,280	478	279	41	3.1	1,510	7.6
Feb. 21-28.....	4,655	18	.01	117	39	155	6.0	221	393	143	.3	6.7	.19	987	1.34	12,410	452	272	42	3.2	1,480	7.7
Mar. 1-10	6,695	17	.01	129	40	148	6.5	246	414	130	.3	6.7	.19	1,010	1.37	18,260	486	285	39	2.9	1,500	7.7
Mar. 11-20.....	13,710	15	.16	145	37	128	6.6	265	430	86	.3	7.7	.18	986	1.34	36,500	514	297	35	2.5	1,420	7.3
Mar. 21-31	8,021	15	.01	109	33	123	5.9	229	361	77	.4	4.8	.24	842	1.15	18,230	408	220	39	2.6	1,240	7.7
Apr. 1-10	6,952	15	.01	111	39	146	6.3	229	397	108	.4	5.1	.26	941	1.28	17,660	438	250	42	3.0	1,390	7.6
Apr. 11-20.....	8,712	15	.01	109	36	130	5.9	243	349	96	.4	4.7	.23	865	1.18	20,350	420	221	40	2.8	1,290	7.7
Apr. 21-30	15,470	17	.01	89	27	86	5.1	227	238	57	.4	6.0	.18	638	.87	26,650	333	147	36	2.0	964	7.6
May 1-10	18,390	15	.02	78	20	57	5.3	213	163	42	.3	4.4	.16	490	.67	24,330	276	102	30	1.5	763	7.6
May 11-20	29,890	16	.06	66	19	43	4.4	201	131	26	.4	4.5	.11	409	.56	33,010	242	78	27	1.2	635	7.8
May 21-31	28,050	17	.07	62	16	37	3.3	185	108	22	.4	4.3	.09	361	.49	27,340	220	69	26	1.1	572	7.6
June 1-10	23,640	16	.10	60	15	38	3.4	168	113	25	.3	3.1	.08	357	.49	22,790	211	74	28	1.1	570	7.7
June 11-20.....	30,680	14	.04	60	16	37	3.2	174	113	22	.3	3.0	.07	355	.48	29,410	216	73	27	1.1	575	7.7
June 21-30.....	25,660	15	.12	62	16	37	3.4	166	125	25	.3	2.9	.07	369	.50	25,570	220	84	26	1.1	569	7.7
July 1-10	14,630	14	.00	60	18	47	4.0	156	141	34	.3	2.7	.07	398	.54	15,720	224	96	31	1.4	631	7.6
July 11-20.....	7,641	15	.05	73	21	67	4.3	167	192	51	.4	2.8	.12	509	.69	10,500	268	132	35	1.8	784	7.6
July 21-30.....	5,692	13	.05	98	28	96	6.3	196	295	70	.4	3.6	.13	706	.96	10,850	360	199	36	2.2	1,080	7.6
July 31	8,060	18	--	172	52	150		240	621	88	.6	1.6	--	1,220	1.66	26,550	643	446	34	2.6	1,630	7.3
Aug. 1-10	8,264	17	.02	161	27	134	7.7	242	468	87	.5	4.0	.28	1,030	1.40	22,980	512	314	36	2.6	1,430	7.7
Aug. 11-20.....	9,666	19	.04	155	34	134	8.3	242	491	71	.5	2.4	.32	1,030	1.40	26,880	526	328	35	2.5	1,440	7.6
Aug. 21-31	7,058	18	.00	143	41	132	8.0	250	490	72	.5	3.8	.17	1,030	1.40	19,630	526	320	35	2.5	1,420	7.5
Sept. 1-10	5,481	17	.00	137	45	144	8.0	240	514	84	.5	7.4	.19	1,070	1.46	15,830	527	330	37	2.7	1,480	7.5
Sept. 11-20	2,893	16	.00	141	53	160	7.9	210	594	104	.5	6.5	.19	1,190	1.62	9,300	570	398	38	2.9	1,600	7.6
Sept. 21-30	3,207	11	.00	148	67	192	8.3	200	701	138	.6	6.5	.19	1,370	1.86	11,860	645	481	39	3.3	1,850	7.5
Weighted average	10,070	15	0.06	97	29	91	5.3	211	283	64	0.4	4.6	0.14	694	0.94	18,870	361	188	35	2.1	1,030	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
[Once-daily measurement, generally between 8 a. m. and 6 p. m.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	53	42	32	35	43	50	50	60	71	79	75
2	65	51	42	33	37	40	49	55	59	72	79	75
3	65	52	40	34	35	45	46	56	61	70	80	76
4	65	--	44	--	32	--	44	55	--	--	79	77
5	--	--	--	--	--	--	--	--	--	--	--	73
6	67	51	--	37	35	43	49	62	66	73	83	--
7	72	49	42	35	35	45	50	63	68	73	81	79
8	70	49	42	35	35	45	53	60	69	72	80	76
9	68	49	39	35	36	43	54	57	71	75	80	74
10	67	48	38	36	33	45	51	60	71	76	80	77
11	63	47	38	36	35	46	50	61	69	72	79	72
12	63	49	38	35	35	46	50	66	69	73	80	71
13	66	50	39	33	34	48	52	65	63	78	77	72
14	62	50	39	33	36	50	57	63	--	78	78	72
15	62	50	39	33	37	47	57	58	69	78	81	73
16	60	50	36	35	37	45	54	58	67	78	--	69
17	60	45	--	35	40	44	57	58	66	77	--	71
18	59	--	35	34	--	47	--	58	70	79	81	69
19	60	47	35	35	38	45	--	59	70	79	78	65
20	59	45	35	32	38	42	57	--	70	78	80	--
21	58	45	34	--	34	39	56	63	72	--	80	65
22	--	46	34	33	34	--	55	63	73	78	78	66
23	61	46	34	32	34	44	53	64	75	81	79	65
24	57	46	34	33	--	48	58	65	73	79	79	67
25	55	45	34	33	35	50	58	62	71	78	78	64
26	54	45	33	35	38	49	58	65	70	78	80	66
27	52	45	33	37	39	48	55	64	69	77	77	64
28	53	45	33	34	41	49	56	63	70	77	79	68
29	52	43	32	36	--	45	57	62	70	78	75	66
30	52	43	32	35	--	54	59	64	70	79	76	64
31	52	--	32	36	--	47	--	65	--	78	77	--
Average	61	48	37	34	36	46	54	61	69	76	79	70

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs) 6	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	9,040	21,300	520,000	6,370	2,300	39,600	5,430	1,570	23,000
2.....	8,660	18,400	430,000	6,440	2,450	42,600	5,460	1,420	20,900
3.....	8,320	13,100	294,000	6,150	2,750	45,700	5,520	1,420	21,200
4.....	7,740	8,800	184,000	5,960	2,500	a40,000	5,490	1,460	21,600
5.....	7,180	10,000	a190,000	5,870	2,300	a36,000	5,520	1,500	a22,000
6.....	6,840	13,200	244,000	5,780	1,980	30,900	5,150	1,500	a21,000
7.....	6,770	9,900	181,000	5,870	2,350	37,200	4,860	1,400	18,400
8.....	8,170	14,000	309,000	5,930	2,300	36,800	4,840	1,550	20,300
9.....	14,900	21,600	s1,020,000	6,120	2,180	36,000	5,180	1,960	27,400
10.....	17,100	32,400	1,550,000	6,080	1,850	30,400	5,720	1,930	29,800
11.....	11,500	29,900	928,000	5,930	1,830	29,300	5,690	1,700	26,100
12.....	9,280	23,000	576,000	5,810	1,840	28,900	5,210	1,250	17,600
13.....	10,400	15,400	432,000	5,720	1,630	25,200	4,820	1,100	14,300
14.....	10,900	9,900	291,000	5,630	1,460	22,200	4,790	1,100	14,200
15.....	9,720	11,400	299,000	5,580	1,660	25,000	4,740	1,210	15,500
16.....	9,320	10,600	267,000	5,550	1,530	22,900	4,490	1,410	17,100
17.....	8,850	11,600	277,000	6,410	2,100	36,300	4,420	1,400	a17,000
18.....	7,770	14,000	294,000	6,870	2,200	a41,000	4,620	1,280	16,000
19.....	7,380	9,000	179,000	6,150	1,870	31,100	4,490	1,160	14,100
20.....	7,150	8,100	156,000	5,840	1,820	28,700	4,290	1,030	11,900
21.....	7,110	6,900	132,000	5,720	3,350	51,700	4,080	895	9,860
22.....	7,110	6,800	a130,000	5,630	3,240	49,300	3,900	840	8,850
23.....	6,940	6,700	126,000	5,660	3,110	47,500	3,700	720	7,190
24.....	6,600	5,600	99,800	5,660	2,500	38,200	3,510	610	5,780
25.....	6,440	4,400	76,500	5,580	1,830	27,600	3,430	600	5,560
26.....	6,340	3,300	56,500	5,520	1,770	26,400	3,450	590	5,500
27.....	6,210	2,600	43,600	5,550	1,500	22,500	3,570	595	5,740
28.....	6,050	2,500	40,800	5,490	1,510	22,400	3,660	550	5,440
29.....	6,080	2,200	36,100	5,490	1,560	23,100	3,600	560	5,440
30.....	6,210	2,300	38,600	5,490	1,490	22,100	3,380	645	5,890
31.....	6,180	2,550	42,500	--	--	--	3,380	500	4,560
Total.	258,260	--	9,443,400	175,850	--	996,600	140,390	--	459,210
	January			February			March		
1.....	3,220	540	4,690	3,880	897	9,400	4,010	865	9,370
2.....	3,300	685	6,100	4,320	1,120	13,100	4,640	1,160	14,500
3.....	3,280	696	6,160	4,490	1,200	14,500	4,990	1,420	19,100
4.....	3,420	650	a5,700	4,420	1,090	13,000	5,260	1,700	a24,000
5.....	3,300	630	a5,600	4,460	1,100	a13,000	5,690	2,200	a34,000
6.....	3,570	940	9,060	4,620	1,130	14,100	6,640	2,970	53,200
7.....	4,390	1,770	21,000	4,590	1,070	13,300	7,460	3,620	72,900
8.....	4,840	1,790	23,400	4,520	1,110	13,500	8,210	4,400	97,500
9.....	5,460	2,220	32,700	4,490	1,000	12,100	10,200	6,690	184,000
10.....	5,870	2,400	38,000	4,270	920	10,600	9,850	5,770	153,000
11.....	5,180	1,690	23,600	4,170	800	9,010	8,700	5,200	122,000
12.....	4,560	1,370	16,900	4,060	720	7,890	8,020	4,900	106,000
13.....	4,440	1,370	16,400	3,970	700	7,500	16,800	10,700	s492,000
14.....	4,420	1,360	16,200	3,900	675	7,110	16,200	10,300	451,000
15.....	4,340	1,250	14,600	3,920	700	7,410	12,400	13,000	435,000
16.....	4,220	1,080	12,300	3,850	720	7,480	11,300	12,800	391,000
17.....	4,200	1,000	11,300	4,080	780	8,590	15,800	13,500	s599,000
18.....	3,990	960	10,300	4,220	850	a9,700	19,200	14,100	731,000
19.....	3,900	920	9,690	4,420	1,000	11,900	16,000	15,200	657,000
20.....	3,850	950	9,880	4,760	1,300	16,700	12,700	12,600	432,000
21.....	3,920	920	a9,700	5,370	1,990	28,900	10,400	9,500	267,000
22.....	3,970	890	9,540	5,230	2,010	28,400	9,580	7,400	a190,000
23.....	3,970	670	7,180	5,120	2,300	31,800	9,120	6,500	160,000
24.....	3,600	670	6,510	4,860	1,700	22,000	8,510	5,500	126,000
25.....	3,570	780	7,520	4,290	1,020	11,800	7,950	5,000	107,000
26.....	3,570	740	7,130	4,200	755	8,560	7,380	4,300	85,700
27.....	3,380	595	5,430	4,130	820	9,140	6,910	3,500	65,300
28.....	3,280	600	5,310	4,040	865	9,440	6,540	3,050	53,900
29.....	3,360	610	5,530	--	--	--	6,600	2,700	48,100
30.....	3,340	600	5,410	--	--	--	7,320	3,350	66,200
31.....	3,510	690	6,540	--	--	--	7,920	3,450	73,800
Total.	123,040	--	369,380	122,650	--	369,930	292,300	--	6,320,570

s Computed by subdividing day.
a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	7,520	3,150	64,000	17,400	5,250	247,000	27,200	4,820	354,000
2.....	6,600	2,800	49,900	17,100	5,200	240,000	27,200	4,600	338,000
3.....	6,180	2,570	42,900	16,500	5,200	232,000	28,400	4,480	319,000
4.....	6,120	2,450	40,500	18,600	5,590	281,000	25,300	4,200	a290,000
5.....	6,500	2,300	a40,000	19,800	5,600	a300,000	24,200	3,700	a240,000
6.....	8,910	2,700	50,400	20,400	5,500	303,000	22,100	3,400	203,000
7.....	7,040	2,700	51,300	18,000	5,000	243,000	21,400	3,400	196,000
8.....	7,420	2,850	57,100	17,100	5,100	235,000	20,800	3,000	168,000
9.....	7,600	2,750	56,400	19,200	5,500	285,000	20,100	2,760	150,000
10.....	7,630	2,680	55,200	19,800	5,520	295,000	21,700	3,240	190,000
11.....	7,560	2,550	52,100	26,800	7,500	543,000	24,500	3,600	238,000
12.....	7,380	2,500	49,800	30,800	8,300	690,000	32,900	4,400	391,000
13.....	7,490	2,560	51,800	29,200	8,400	662,000	33,800	4,700	429,000
14.....	7,250	2,680	52,500	28,400	7,500	575,000	31,600	4,700	a400,000
15.....	7,320	2,870	56,700	28,000	6,960	526,000	31,200	4,750	400,000
16.....	8,510	3,450	79,300	27,600	7,300	544,000	31,600	4,200	358,000
17.....	9,720	3,650	95,800	29,200	7,150	564,000	31,200	3,600	303,000
18.....	10,000	4,000	a110,000	32,500	6,700	588,000	30,800	3,660	304,000
19.....	9,890	4,300	a120,000	34,300	7,800	722,000	30,400	4,100	337,000
20.....	12,000	5,150	167,000	32,100	7,500	a650,000	28,800	3,500	272,000
21.....	14,900	6,450	259,000	29,200	6,180	487,000	28,800	3,450	268,000
22.....	15,400	6,500	270,000	26,400	5,250	374,000	27,600	3,200	238,000
23.....	18,300	7,200	356,000	23,400	5,200	329,000	26,800	3,000	217,000
24.....	16,800	7,300	331,000	22,400	4,750	287,000	27,200	3,520	259,000
25.....	15,100	6,950	283,000	26,000	5,350	376,000	26,800	3,300	239,000
26.....	15,400	6,980	290,000	28,800	5,250	408,000	26,400	3,300	235,000
27.....	15,700	6,850	290,000	30,000	5,050	409,000	26,000	3,600	253,000
28.....	14,600	6,250	246,000	31,200	5,250	442,000	24,500	3,200	212,000
29.....	13,600	5,200	191,000	31,600	5,050	431,000	22,100	2,750	164,000
30.....	14,900	5,000	201,000	30,800	4,800	399,000	20,400	2,580	142,000
31.....	--	--	--	28,800	4,510	351,000	--	--	--
Total.	311,340	--	4,059,700	791,400	--	13,018,000	799,800	--	8,107,000

Day	July			August			September		
1.....	18,900	2,450	125,000	7,420	20,300	407,000	7,320	13,600	269,000
2.....	17,700	2,400	115,000	7,770	14,200	298,000	7,560	11,750	240,000
3.....	16,500	2,200	98,000	7,630	9,200	190,000	6,670	11,200	202,000
4.....	15,700	2,100	a89,000	7,280	9,150	180,000	6,150	8,800	146,000
5.....	14,600	1,900	a75,000	6,910	9,400	a180,000	5,840	7,650	121,000
6.....	14,100	1,760	67,000	7,950	9,600	206,000	5,100	7,500	a100,000
7.....	13,400	1,800	65,100	7,770	9,500	199,000	4,520	7,450	90,900
8.....	12,700	1,800	61,700	8,660	10,200	238,000	4,200	7,750	87,900
9.....	11,800	1,700	54,200	8,850	17,800	425,000	3,830	9,100	94,100
10.....	10,900	1,600	47,100	12,400	18,100	606,000	3,620	5,100	49,800
11.....	9,970	1,450	39,000	11,100	21,900	656,000	3,470	3,800	35,600
12.....	9,320	1,340	33,700	9,520	19,600	504,000	3,320	2,600	23,300
13.....	8,510	1,240	28,500	10,000	18,000	486,000	3,140	2,100	17,800
14.....	7,810	1,140	24,000	9,640	17,800	463,000	2,980	2,850	22,900
15.....	7,250	970	19,000	9,120	16,000	394,000	2,840	2,250	17,300
16.....	7,110	1,130	21,700	12,000	21,000	sa690,000	2,710	1,700	12,400
17.....	6,980	1,080	20,400	9,600	25,000	a650,000	2,660	1,400	10,100
18.....	6,910	1,050	19,600	8,060	28,100	612,000	2,650	1,040	7,440
19.....	6,470	1,400	24,500	8,770	22,500	533,000	2,610	870	6,130
20.....	6,080	2,110	34,600	8,850	18,900	452,000	2,550	820	a5,600
21.....	5,810	1,800	a28,000	7,380	15,600	311,000	2,520	820	5,580
22.....	5,520	1,350	20,100	7,180	16,600	322,000	2,570	780	5,410
23.....	5,120	1,040	14,400	7,320	14,500	287,000	2,550	900	a6,200
24.....	4,720	795	10,100	7,150	10,600	205,000	2,840	1,290	9,890
25.....	5,100	1,750	24,100	7,840	8,470	179,000	3,380	2,460	22,400
26.....	5,720	3,800	58,700	7,420	9,000	180,000	3,570	2,030	19,600
27.....	5,460	3,170	46,700	7,380	15,800	315,000	3,680	1,840	18,300
28.....	5,430	6,000	88,000	6,910	15,100	282,000	3,640	1,840	18,100
29.....	6,340	9,400	161,000	5,690	13,200	203,000	3,680	1,970	19,600
30.....	7,700	8,570	178,000	5,810	10,500	165,000	3,640	2,140	21,000
31.....	8,060	17,200	374,000	7,560	14,750	301,000	---	--	--
Total.	287,690	--	2,065,200	256,940	--	11,119,000	115,810	--	1,705,350

Total discharge for year (cfs-days) 3,675,470
Total load for year (tons) 58,033,340

s Computed by subdividing day.
a Computed from estimated concentration graph.

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water, C; chemically dispersed; M, mechanically dispersed; V, visual accumulation; tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 1, 1954	11:15 a.m.	9,120	66	20,300	3,320	--	69	--	88	--	96	99	100		--		VPWCM
Oct. 9	10:30 a.m.	12,400	68	13,900	4,110	--	51	--	71	--	92	97	100		--		VPWCM
Oct. 10	10:00 a.m.	17,700	67	28,900	3,670	--	52	--	79	--	94	98	100		--		VPWCM
Oct. 12	10:30 a.m.	8,970	63	22,400	3,860	--	64	--	86	--	96	99	100		--		VPWCM
Oct. 14	9:30 a.m.	11,100	62	9,030	4,000	--	52	--	78	--	94	98	100		--		VPWCM
Oct. 29	11:30 a.m.	6,120	52	2,170	3,620	--	40	--	58	--	79	95	100		--		VPWCM
Nov. 16	10:45 a.m.	5,520	50	1,400	3,610	--	37	--	53	--	74	94	100		--		VPWCM
Dec. 15	12:00 m.	4,760	39	1,180	3,540	--	36	--	52	--	72	89	100		--		VPWCM
Dec. 31	12:15 p.m.	3,450	32	488	2,860	--	33	--	45	--	63	88	100		--		VPWCM
Jan. 29, 1955	3:15 p.m.	3,340	36	608	3,340	--	22	--	36	--	58	87	100		--		VPWCM
Feb. 26	1:50 p.m.	4,150	38	720	4,980	--	36	--	52	--	74	89	99		100		VPWCM
Mar. 13	2:00 p.m.	17,400	48	9,150	4,040	--	28	--	48	--	83	94	100		--		VPWCM
Mar. 15	2:45 p.m.	12,700	47	13,500	3,910	--	55	--	78	--	92	98	100		--		VPWCM
Mar. 17	3:45 p.m.	20,400	45	16,100	4,100	--	43	--	65	--	84	94	100		--		VPWCM
Apr. 9	11:30 a.m.	7,600	54	2,540	3,640	--	31	--	50	--	67	88	98		100		VPWCM
Apr. 22	10:10 a.m.	15,100	55	6,290	4,460	--	29	--	50	--	76	93	100		--		VPWCM
May 2	10:30 a.m.	17,700	55	5,050	3,690	--	28	--	48	--	73	91	98		100		VPWCM
May 13	11:00 a.m.	29,200	65	8,420	4,130	26	31	40	51	63	77	92	99		100		VPWCM
May 13	11:00 a.m.	29,200	65	8,420	3,820	3	6	30	49	63	77	92	99		100		VPN
May 24	11:15 a.m.	21,700	65	4,740	3,520	--	20	--	36	--	64	90	100		--		VPWCM
June 13	12:40 p.m.	32,900	63	4,750	3,570	--	18	--	29	--	62	80	94		100		VPWCM
July 15	10:00 a.m.	7,350	78	932	2,740	--	16	--	25	--	63	88	100		--		VPWCM
July 29	10:00 a.m.	6,020	78	9,360	4,580	--	63	--	90	--	95	99	100		--		VPWCM
July 31	12:30 p.m.	8,060	78	18,300	4,920	--	72	--	93	--	97	99	100		--		VPWCM
Aug. 10	10:00 a.m.	13,100	80	17,100	4,800	--	58	--	80	--	91	98	100		--		VPWCM
Aug. 10	9:45 a.m.	11,300	79	21,700	5,650	--	65	--	85	--	94	98	100		--		VPWCM
Aug. 14	10:30 a.m.	9,600	78	16,800	5,080	--	70	--	88	--	95	99	100		--		VPWCM
Aug. 30	10:00 a.m.	5,460	76	10,400	5,750	--	71	--	87	--	94	99	100		--		VPWCM
Sept. 13	10:30 a.m.	3,140	72	1,830	3,740	--	71	--	85	--	94	99	100		--		VPWCM

PARIA RIVER BASIN

PARIA RIVER AT LEES FERRY, ARIZ.

LOCATION.--At gaging station half a 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.
Sediment records: October 1947 to September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 355,000 ppm Aug. 26; minimum daily, 2 ppm May 21-25.
Sediment loads: Maximum daily, 1,100,000 tons Oct. 8; minimum daily, less than 0.05 ton on many days.
EXTREMES, 1947-55.--Sediment concentrations: Maximum daily, 411,000 ppm Aug. 27, 1952; minimum daily, 1 ppm June 1-10, 1950.
Sediment loads: Maximum daily, 1,740,000 tons Aug. 5, 1948; minimum daily, less than 0.05 ton on many days.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1393. Flow affected by ice Dec. 17 to Jan. 1, Jan. 13-15, 17-18, 22-23, 25-28, Feb. 5-14, 19-22.

Suspended sediment, water year October 1954 to September 1955

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	9.6	27,500	713	14			20	450	24
2	8.6	15,000	348	14			18	1,000	49
3	8.2	7,000	115	15			21	1,250	71
4	83	100,000	sa120,000	15	49	1.8	79	13,600	s6,100
5	79	250,000	sa75,000	15			120	48,800	s16,500
6	23	127,000	8,470	10			43	34,000	a4,100
7	35	104,000	s13,700	12			25	22,900	1,550
8	587	320,000	sb1,100,000	12			22	16,100	956
9	555	200,000	sa490,000	9.6			18	4,950	241
10	62	80,000	13,900	12	20	.6	18	850	41
11	24	60,000	4,030	13			23	820	51
12	18	38,000	1,920	12			23	740	46
13	16	14,500	626	15			20	610	33
14	15	1,730	70	17			23	760	47
15	14	560	21	15	49	2.1	22	600	36
16	14	380	14	14			18	510	25
17	15			17			14	400	a15
18	15			16			10	347	9.4
19	14	155	6.1	15			12	165	5.3
20	14			14	17	.6	7.5	131	2.7
21	14			13			14	682	26
22	14			13			11	685	20
23	14	79	2.9	12			12	441	14
24	13			10			12	123	4.0
25	12			10	7	.2	15	156	6.3
26	12			10			17	349	16
27	13	66	2.3	10			13	562	20
28	14			9.6			3.4	98	.9
29	14			12	10	.3	11	290	8.6
30	14	46	1.7	13			11	260	7.7
31	14			--	--	--	8.0	134	2.9
Total	1,757.4	--	1,826,017.9	389.2	--	31.4	683.9	--	30,028.8

s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from partly estimated concentration graph.

PARIA RIVER BASIN--Continued

PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

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	125	4.4	30	1,130	s 105	32	1,950	168
2.....	12	130	4.2	30	925	s 82	34	1,500	138
3.....	12	195	6.3	28	1,080	82	85	14,900	s 4,930
4.....	23	310	a 19	17	1,610	s 79	102	25,300	s 7,940
5.....	33	620	a 55	15	1,000	a 40	94	25,000	sa 6,800
6.....	25	1,300	88	16	376	16	62	21,900	s 3,800
7.....	19	1,590	82	14	259	9.8	45	15,500	s 1,980
8.....	23	775	48	17	265	12	55	15,300	s 2,820
9.....	15	550	22	20	266	14	66	23,800	s 4,320
10.....	17	390	18	23	372	23	68	22,800	s 4,680
11.....	19	390	20	18	428	21	78	30,200	6,360
12.....	18	295	14	15	332	13	54	25,500	3,720
13.....	10	430	12	20	352	19	40	27,700	2,990
14.....	12	368	12	24	315	20	39	26,300	2,770
15.....	11	133	4.0	31	1,020	s 98	32	17,900	1,550
16.....	17	108	5.0	53	1,810	259	25	13,100	884
17.....	20	384	21	76	3,520	722	21	6,800	386
18.....	20	376	20	157	24,000	s 12,100	20	5,250	284
19.....	18	292	s 16	47	10,700	1,360	18	1,190	58
20.....	19	388	s 25	9.6	3,900	101	19	1,130	58
21.....	14	350	sa 20	8.2	1,360	30	18	1,260	61
22.....	10	130	2.3	9.1	622	15	12	1,300	a 42
23.....	12	329	11	13	900	32	17	1,370	63
24.....	20	220	12	30	4,300	sa 370	15	1,090	44
25.....	20	290	16	27	3,300	s 276	13	940	33
26.....	22	500	a 30	25	2,440	s 196	14	555	21
27.....	24	450	a 29	33	1,500	134	14	730	28
28.....	23	340	21	29	1,800	141	15	1,450	59
29.....	24	412	s 32	--	--	--	13	2,530	89
30.....	25	600	40	--	--	--	13	3,140	110
31.....	26	975	68	--	--	--	12	1,310	42
Total.	576	--	777.2	834.9	--	16,369.8	1,145	--	57,228

	April			May			June		
1.....	12	430	14	4.3			4.0		
2.....	8.6	500	12	4.6			4.0		
3.....	9.1	495	12	4.6	9	0.1	3.7	10	0.1
4.....	12	1,450	47	4.6			4.0		
5.....	12	840	27	4.6			4.0		
6.....	11	323	9.6	4.6			4.0		
7.....	7.3	495	9.8	4.6			4.0		
8.....	7.3	265	5.2	4.3	4	.1	4.0	9	.1
9.....	9.6	132	3.4	5.2			4.0		
10.....	12	153	5.0	6.0			4.0		
11.....	9.1	415	10	6.0			4.0	8	.1
12.....	9.6	280	7.3	4.6			4.9		
13.....	9.1	150	3.7	4.3	5	.1	19	1,720	88
14.....	7.8	105	2.2	4.0			19	1,500	a 77
15.....	6.4	129	2.2	3.7			11	27,200	808
16.....	4.9	178	2.4	4.0			6.8	11,800	217
17.....	4.6	28	.3	4.6			5.2	2,000	28
18.....	5.2	40	a .6	4.9	3	(t)	4.9	650	8.6
19.....	7.3	50	a 1.0	4.6			4.6	370	4.6
20.....	7.8	25	.5	4.6			3.7	238	2.4
21.....	5.6	185	2.8	4.3			2.9	180	1.4
22.....	6.8	220	4.0	4.3			3.4	139	1.3
23.....	6.4	73	1.3	4.3	2	(t)	3.7	124	1.2
24.....	5.6	63	1.0	4.0			3.4		
25.....	5.2	47	.7	4.0			3.4	69	.6
26.....	4.6	50	.6	4.6			3.4		
27.....	4.3			4.0			3.4		
28.....	4.9	20	.3	4.0	3	(t)	3.4	44	.4
29.....	5.6			4.3			3.4		
30.....	5.2			4.3			3.4		
31.....	--	--	--	4.3			--	--	--
Total.	226.9	--	186.8	139.1	--	2.0	156.6	--	1,242.1

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated concentration graph.

PARIA RIVER BASIN--Continued

PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	3.7			8.0	22,000	475	7.2	4,800	93
2.....	3.7			8.8	10,000	238	6.4	810	14
3.....	3.2	29	0.3	11	24,800	s1,000	6.0	243	3.9
4.....	3.2			37	66,000	sa11,000	6.0	134	2.2
5.....	3.2			211	270,000	sa300,000	5.6	90	1.4
6.....	3.2			58	200,000	36,000	5.2	58	.8
7.....	3.4			20	123,000	7,130	4.8	37	.5
8.....	3.4	17	.2	9.9	60,000	1,660	4.8	50	.6
9.....	3.2			18	39,600	s2,120	5.2	35	.5
10.....	3.2			16	38,000	1,700	4.8		
11.....	3.4			8.5	27,000	620	4.5	6	.1
12.....	3.4			49	86,000	sa42,000	4.5		
13.....	3.7	15	.1	58	140,000	sa27,000	4.5		
14.....	3.7			49	81,900	s15,700	4.5		
15.....	3.7			86	154,000	s51,500	4.5		
16.....	3.7			37	86,000	8,910	4.2	7	.1
17.....	3.7			776	230,000	sa880,000	4.5		
18.....	4.3	3	(t)	249	167,000	136,000	4.5		
19.....	6.0			60	95,000	16,500	4.5		
20.....	7.3			24	68,000	4,570	4.5		
21.....	6.0	10	a.2	15	41,000	1,720	4.5	4	(t)
22.....	10	43,000	1,200	11	14,500	431	4.5		
23.....	11	44,000	1,360	9.5	3,500	90	4.2		
24.....	10	31,000	837	12	7,100	sa620	4.2		
25.....	159	216,000	s171,000	101	37,100	s13,400	4.5		
26.....	42	158,000	19,900	383	355,000	s573,000	4.5		
27.....	38	97,200	s11,500	53	130,000	s21,200	4.2	3	(t)
28.....	33	89,000	8,520	20	87,000	5,050	4.5		
29.....	15	73,000	3,070	12	60,000	2,020	4,5		
30.....	11	39,500	1,220	10	40,000	1,120	4.5		
31.....	9.2	27,500	683	8.0	20,500	443	--	--	--
Total.	420.5	--	219,293.4	2,428.7	--	2,163,217	144.8	--	118.4

Total discharge for year (cfs-days) 8,903.0
Total load for year (tons)..... 4,314,512.8

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated concentration graph.

PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, *in distilled water*; C, *chemically dispersed*; M, *mechanically dispersed*; V, *visual accumulation tube*)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct 8, 1954	4:30 p.m.	435	--	427,000	4,740		24		35		52	72	95		100		SPWCM
July 25, 1955	9:00 a.m.	364	72	243,000	4,510		27		43		67	91	100		--		SPWCM
Aug 18	6:20 p.m.	160	78	165,000	4,200		55		82		99	100	--		--		VPWCM
Aug. 26	11:10 a.m.	408	75	468,000	3,280		15		22		36	58	90		100		SPWCM

LITTLE COLORADO RIVER BASIN

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.

LOCATION.--At gaging station on county bridge in Woodruff, Navajo County, 3¾ miles downstream from Silver Creek.
DRAINAGE AREA.--8,100 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: June 1950 to September 1955.
Water temperatures: June 1950 to September 1955.
Sediment records: June 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 992 ppm Feb. 25-28; minimum, 212 ppm July 17, 21-27, 30.
Hardness: Maximum, 410 ppm Feb. 25-28; minimum, 98 ppm Aug. 1-8.
Specific conductance: Maximum daily, 1,950 micromhos Feb. 26; minimum daily, 253 micromhos July 26.
Water temperatures: Maximum, 82°F July 17; minimum, 33°F Dec. 21, 30, Jan. 22.
Sediment concentrations: Maximum daily, 55,800 ppm Aug. 8; minimum, no flow on many days.
Sediment loads: Maximum daily, 372,000 tons Aug. 8; minimum, 0 tons on many days.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 1,350 ppm June 15, 1953; minimum, 129 ppm Mar. 29 to Apr. 2, 1954.
Hardness: Maximum, 422 ppm Sept. 29, 1953; minimum, 40 ppm July 29-30, 1952.
Specific conductance: Maximum daily, 2,170 micromhos June 15, 1953; minimum daily, 166 micromhos Mar. 30, 1952.
Water temperatures: Maximum, 90°F July 23, 1953; minimum, freezing point Dec. 22, 26, 27, 29, 30, 1953.
Sediment concentrations: Maximum daily, 66,400 ppm Aug. 4, 1951; minimum, no flow on many days each year.
Sediment loads: Maximum daily, 409,000 tons Aug. 28, 1951; minimum daily, 0 tons on many days each year.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Flow affected by ice Dec. 21-26, Dec. 28 to Jan. 1, Jan. 19-25, Feb. 7-8, 10-11, 19-22. No gage-height record Sept. 2-4. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 7-10, 1954	20.7	18		39	12	60		199	79	23		0.5		330	0.45	18.4	147	0	47	2.2	534	7.9
Oct. 6	31	16		42	9.4	214		298	240	81		1.0		750	1.02	63	144	0	76	7.8	1,180	7.7
Oct. 11-20	7.08	19		44	18	32		209	54	19		.3		289	.39	5.52	184	12	28	1.0	478	7.9
Oct. 21-31	6.12	20		48	22	26		222	56	19		.3		300	.41	4.96	210	28	21	.8	498	8.0
Nov. 1-10	5.98	23		45	21	29		214	57	19		.2		299	.41	4.83	199	24	24	.9	489	8.0
Nov. 11-20	5.28	20		49	22	27		218	61	21		.4		307	.42	4.38	213	34	22	.8	503	8.0
Nov. 21-30	5.42	19		48	21	28		204	66	22		.3		304	.41	4.45	206	40	23	.8	499	8.0
Dec. 1-10	5.79	20		49	24	27		232	59	20		.2		313	.43	4.89	221	31	21	.8	517	8.0
Dec. 11-20	5.66	20		48	22	28		216	63	21		.2		308	.42	4.71	210	34	23	.8	509	8.1
Dec. 21-31	5.72	19		50	22	28		216	64	23		.2		312	.42	4.82	216	38	22	.8	513	8.1
Jan. 1-10, 1955	6.40	20		47	22	28		209	65	21		.1		306	.42	5.29	208	36	23	.8	500	7.9
Jan. 11-20	6.39	22		44	24	29		216	62	21		.1		308	.42	5.31	208	32	23	.9	504	7.9
Jan. 21-31	5.56	20		48	22	28		214	63	21		.1		307	.42	4.61	210	35	22	.8	511	7.4
Feb. 1-12	4.95	21		49	23	28		223	64	21		.1		316	.43	4.22	217	34	22	.8	521	8.0
Feb. 13-20	7.15	22		81	37	127		241	235	133		.2		754	1.03	14.6	354	156	44	2.9	1,220	7.9
Feb. 21-24	4.30	22		47	23	30		215	66	23		.2		317	.43	3.68	212	36	23	.9	525	8.0
Feb. 25-28	10.8	19		97	41	187		222	337	201		1.2		992	1.35	28.9	410	228	50	4.0	1,580	8.0

Mar. 1-10, 1955 ..	6.35	22		93	26	130	222	239	135		.2		754	1.03	12.9	339	157	45	3.1	1,200	7.9
Mar. 11-13	5.50	22		55	32	82	206	158	81		.2		531	.72	7.89	268	100	40	2.2	862	8.2
Mar. 14-20	3.61	21		48	22	31	193	76	28		.5		322	.44	3.14	210	52	24	.9	539	7.7
Mar. 21-30[a]	2.05	20		48	20	29	185	75	25		.0		308	.42	1.70	202	50	24	.9	508	8.1
Apr. 17[a]	.40	23		42	23	49	180	102	36		1.0		365	.50	.39	200	52	35	1.5	564	8.2
Apr. 25-30	.53	43		38	23	48	183	89	34		3.1		368	.50	.53	190	40	35	1.5	550	8.2
May 1, 5-10[a]	2.26	46		39	25	46	211	80	29		4.7		374	.51	2.28	200	28	33	1.4	562	8.2
May 11-23, 28-30[a]	2.65	27		39	23	37	202	67	26		2.3		320	.44	2.29	192	26	30	1.2	507	8.2
May 24-27	1.98	11		40	19	169	188	215	118		.2		664	.90	3.55	178	24	67	5.5	1,090	8.2
June 7[a]	.50	19		40	22	47	212	75	29		.0		336	.46	.45	190	17	35	1.5	551	8.1
June 13-16	644	21		35	17	72	212	89	34		.2		372	.51	647	158	0	50	2.5	595	8.1
June 17-25[a]	6.41	20		35	14	41	179	57	20		1.1		276	.38	4.78	145	0	38	1.5	442	--
July 13-16, 18-20, 28-29, 31	82.3	20		43	14	73	234	75	37		3.4		380	.52	84.4	165	0	49	2.5	615	7.8
July 17, 21-27, 30..	89.3	18		40	8.8	21	160	35	9.5		.7		212	.29	51.1	136	5	25	.8	342	7.9
Aug. 1-8	961	22		31	5.0	107	258	73	31		.8		397	.54	1,030	98	0	70	4.7	633	8.1
Aug. 9-19	858	19		64	17	169	198	279	101		1.8		748	1.02	1,730	230	68	62	4.8	1,170	8.0
Aug. 20-31	1,030	17		59	16	140	198	230	81		1.4		641	.87	1,780	213	51	59	4.1	1,010	8.0
Sept. 1-10	42.4	14		87	21	165	191	329	114		2.7		827	1.12	94.7	304	147	54	4.1	1,270	8.0
Sept. 11-18	4.65	20		70	22	97	211	195	70		.7		579	.79	7.27	265	92	44	2.6	902	8.2
Sept. 19-30	1.74	25		48	20	32	212	63	22		.4		314	.43	1.48	202	28	25	1.0	500	--
Weighted average.	b115	19		51	14	129	213	187	68		1.3		574	0.78	151	184	10	60	4.1	905	--

a No flow Mar. 31 to Apr. 16, Apr. 18-24, May 2-4, May 31 to June 6, 8-12, June 26 to July 12.
b Mean for 309 days of flow.

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally between 11 a.m. and 6 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	55	44	36	39	53	--	58	--	--	a72	b72
2	--	54	46	36	40	54	--	--	--	--	a75	74
3	--	a45	47	37	35	52	--	--	--	--	74	a68
4	68	a46	48	38	36	52	--	--	--	--	77	b74
5	70	a43	45	38	36	47	--	a60	--	--	74	a68
6	65	a41	44	35	35	49	--	a58	--	--	a76	70
7	b62	51	46	38	35	40	--	a57	a67	--	72	74
8	64	a44	43	37	39	48	--	61	--	--	72	b74
9	b65	52	40	38	43	54	--	a55	--	--	73	a67
10	66	a41	42	37	40	53	--	a54	--	--	78	a67
11	a54	47	41	39	37	50	--	a60	--	--	72	78
12	a54	49	39	36	38	58	--	a59	--	--	76	72
13	a53	52	37	38	44	59	--	a59	58	--	70	77
14	64	a45	37	37	44	54	--	a58	62	a69	b73	77
15	a52	a46	37	36	46	45	--	a54	67	a74	78	71
16	a49	47	37	38	46	43	--	a54	a67	78	72	a65
17	a51	48	37	36	45	49	58	a55	a62	82	b71	a65
18	a50	48	35	35	40	53	--	a54	a66	70	b72	70
19	a52	a40	35	36	38	53	--	a58	a65	a68	a71	a65
20	a50	a40	35	36	36	42	--	72	a65	a65	75	69
21	a51	44	a33	36	38	45	--	a67	a69	a69	74	68
22	a51	43	b35	33	39	54	--	58	a74	b70	75	73
23	a52	48	b37	38	42	54	--	69	a70	b71	b70	68
24	a51	46	36	39	40	54	--	a62	a73	71	74	68
25	a48	45	35	38	43	57	--	a52	a66	70	74	a60
26	a47	45	34	36	45	55	a56	a52	--	a69	79	70
27	a46	45	34	37	48	55	a56	a58	--	a70	78	67
28	a47	45	35	37	46	56	a55	a60	--	79	73	70
29	a46	43	34	38	--	60	a55	a62	--	78	b75	68
30	54	41	33	38	--	51	a54	a61	--	a75	b70	65
31	55	--	34	39	--	--	--	--	--	76	74	--
Average	55	46	39	37	40	52	--	59	--	--	74	70

a Measurement before 11 a.m.
b Measurement after 6 p.m.

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	5.1	210	a2.9	4.6	157	1.9	5.1	103	1.4
2	6.3	170	a2.9	5.1	155	2.1	5.1	90	1.2
3	9.2	140	a3.5	5.5	148	2.2	7.2	104	2.0
4	5.9	111	1.8	5.1	154	2.1	6.3	111	1.9
5	5.9	103	1.6	6.3	132	2.2	6.7	110	2.0
6	31	33,800	s4,640	6.3	115	2.0	6.3	89	1.5
7	27	26,100	1,900	6.7	109	2.0	5.5	53	.8
8	31	21,800	s2,070	7.2	99	1.9	5.1	40	.6
9	73	43,900	s9,680	6.7	99	1.8	5.1	47	.6
10	23	22,400	1,390	6.3	100	1.7	5.5	83	1.2
11	13	1,480	52	5.9	127	2.0	5.5	55	.8
12	9.7	103	2.7	5.5	131	1.9	5.5	29	.4
13	8.0	90	1.9	5.5	126	1.9	5.9	31	.5
14	6.7	85	1.5	5.1	129	1.8	5.9	20	.3
15	5.5	105	1.6	4.6	137	1.7	5.9	16	.3
16	5.1	105	1.4	4.6	136	1.7	5.9	17	.3
17	5.9	108	1.7	5.1	131	1.8	5.5	16	.2
18	5.9	108	1.7	5.5	127	1.9	5.5	23	.3
19	5.5	108	1.6	5.5	119	1.8	5.5	31	.5
20	5.5	109	1.6	5.5	100	1.5	5.5	20	.3
21	4.6	127	1.6	5.5	82	1.2	5.9	20	.3
22	4.2	144	1.6	5.1	88	1.2	5.9	25	.4
23	4.2	154	1.7	5.1	73	1.0	5.9	22	.4
24	4.2	213	2.4	5.1	55	.8	5.9	20	.3
25	4.6	174	2.2	5.1	42	.6	5.9	33	.5
26	7.2	189	3.7	5.1	69	1.0	6.7	35	.6
27	9.2	174	4.3	5.5	74	1.1	5.1	33	.5
28	9.7	163	4.3	5.9	88	1.4	5.5	40	.6
29	8.0	158	3.4	5.9	214	3.4	5.5	62	.9
30	6.3	134	2.3	5.9	220	3.5	5.1	38	.5
31	5.1	128	1.8	--	--	--	5.5	18	.3
Total	355.5	--	19,789.7	166.8	--	53.1	177.4	--	22.4
	January			February			March		
1	5.9	15	0.2	5.5	11	0.2	8.6	98	2.3
2	5.9	25	.4	5.1	37	.5	8.0	104	2.2
3	7.2	41	.8	4.6	39	.5	7.2	92	1.8
4	7.2	25	.5	4.2	40	.5	6.3	93	1.6
5	6.7	18	.3	4.6	19	.2	5.9	89	1.4
6	6.3	37	.6	4.2	17	.2	6.3	83	1.4
7	5.9	29	.5	3.8	20	.2	5.5	78	1.2
8	6.3	20	.3	4.2	15	.2	5.5	79	1.2
9	6.3	16	.3	5.1	17	.2	5.1	106	1.5
10	6.3	18	.3	5.9	26	.4	5.1	101	1.4
11	6.7	15	.3	5.9	28	.4	5.1	133	1.8
12	6.7	14	.3	6.3	48	.8	5.5	128	1.9
13	6.7	13	.2	6.3	32	.5	5.9	118	1.9
14	6.3	13	.2	7.2	34	.7	5.1	155	2.1
15	6.3	16	.3	10	70	1.9	3.8	203	2.1
16	6.7	50	.9	9.2	83	2.1	3.8	186	1.9
17	7.2	29	.6	9.0	111	2.4	3.8	162	1.7
18	5.9	30	.5	7.2	151	2.9	3.5	204	1.9
19	5.9	43	.7	5.1	106	1.5	2.9	182	1.4
20	5.5	23	.3	4.2	45	.5	2.4	149	1.0
21	4.6	20	.2	3.8	22	.2	2.6	124	.9
22	5.5	13	.2	4.2	16	.2	2.4	87	.6
23	6.3	14	.2	4.6	21	.3	2.6	74	.5
24	5.9	15	.2	4.6	32	.4	2.6	107	.8
25	5.9	13	.2	9.2	112	2.8	2.9	132	1.0
26	5.9	25	.4	11	167	5.0	2.9	152	1.2
27	5.9	16	.3	12	143	4.6	2.4	122	.8
28	5.5	12	.2	11	103	3.1	1.2	78	.3
29	5.1	14	.2	--	--	--	.7	69	.1
30	5.1	13	.2	--	--	--	.2	99	.1
31	5.5	15	.2	--	--	--	0	--	0
Total	189.1	--	11.0	177.0	--	33.4	125.8	--	40.0

s Computed by subdividing day.
a Computed from estimated concentration graph.

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955--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	0	--	0	0.3	83	0.1	0	--	0
2	0	--	0	0	--	0	0	--	0
3	0	--	0	0	--	0	0	--	0
4	0	--	0	0	--	0	0	--	0
5	0	--	0	.3	56	(t)	0	--	0
6	0	--	0	.5	65	.1	0	--	0
7	0	--	0	5.2	167	s 2.5	.5	111	.1
8	0	--	0	5.1	239	3.3	0	--	0
9	0	--	0	3.9	155	1.6	0	--	0
10	0	--	0	.5	86	.1	0	--	0
11	0	--	0	.3	60	(t)	0	--	0
12	0	--	0	.3	68	.1	0	--	0
13	0	--	0	.3	65	.1	717	12,600	s 62,900
14	0	--	0	5.1	134	1.8	1,740	42,600	s 202,000
15	0	--	0	5.9	103	1.6	92	27,100	s 7,520
16	0	--	0	5.9	104	1.7	28	12,500	s 1,050
17	.4	46	s .1	5.9	118	1.9	13	635	22
18	0	--	0	3.9	104	1.1	13	329	12
19	0	--	0	.5	85	.1	9.7	186	4.9
20	0	--	0	.9	92	.2	10	190	5.1
21	0	--	0	.6	75	.1	5.9	148	2.4
22	0	--	0	.6	104	.2	1.4	81	.3
23	0	--	0	6.3	146	s 2.7	3.2	67	.6
24	0	--	0	2.0	114	.6	1.2	80	.3
25	.4	62	s .1	.7	113	.2	.3	68	.1
26	1.0	110	.3	.6	84	.1	0	--	0
27	.5	100	.1	4.6	175	2.2	0	--	0
28	.2	53	(t)	5.1	86	1.2	0	--	0
29	.7	72	.1	.6	66	.1	0	--	0
30	.4	72	.1	.2	61	(t)	0	--	0
31	--	--	--	0	--	0	--	--	--
Total	3.6	--	0.8	66.1	--	23.8	2,635.2	--	273,517.8

Day	July			August			September		
1	0	--	0	33	45,200	4,180	138	7,400	2,760
2	0	--	0	180	34,700	s 31,600	90	3,800	923
3	0	--	0	209	45,600	s 27,200	60	2,200	356
4	0	--	0	944	42,200	s 127,000	40	860	93
5	0	--	0	214	18,900	s 13,200	27	628	46
6	0	--	0	1,870	15,900	s 82,600	20	361	19
7	0	--	0	1,800	40,600	s 154,000	16	215	9.3
8	0	--	0	2,440	55,800	s 372,000	13	180	6.3
9	0	--	0	1,490	43,900	s 187,000	11	197	5.8
10	0	--	0	678	23,100	42,300	9.1	161	4.0
11	0	--	0	980	33,800	92,700	9.1	168	4.1
12	0	--	0	955	23,000	59,300	6.8	210	3.9
13	5.4	50	s 4.3	1,060	24,100	69,000	5.4	191	2.8
14	19	230	12	837	20,700	s 51,600	3.0	163	1.3
15	5.1	191	2.6	961	30,000	s 97,800	3.3	185	1.6
16	9.5	908	s 58	610	17,100	28,200	2.7	162	1.2
17	82	10,800	s 2,470	655	16,900	29,900	3.3	184	1.6
18	536	39,200	s 65,100	678	17,800	32,600	3.6	188	1.8
19	100	24,200	s 6,480	538	13,800	20,000	3.3	184	1.6
20	85	15,400	s 6,090	1,610	44,400	s 231,000	1.4	124	.5
21	242	11,800	s 12,800	812	27,300	59,900	1.2	141	.5
22	227	12,300	s 8,670	1,180	41,200	136,000	1.6	118	.5
23	73	11,200	s 2,320	905	23,350	57,100	3.0	132	1.1
24	84	6,020	s 1,770	1,380	44,200	171,000	1.8	154	.7
25	26	2,390	168	1,260	34,100	120,000	1.6	151	.7
26	15	1,420	58	980	24,200	64,000	1.8	113	.5
27	22	670	40	1,300	27,300	s 99,500	2.2	115	.7
28	15	350	14	1,220	35,200	s 113,000	1.6	137	.6
29	8.6	159	3.7	700	33,200	65,100	.8	120	.3
30	33	15,900	s 4,010	768	33,300	71,600	.6	95	.2
31	39	52,900	5,780	244	16,500	10,900	--	--	--
Total	1,626.6	--	115,850.6	29,491	--	2,721,280	482.2	--	4,248.6

Total discharge for year (cfs-days) 35,496.3
Total load for year (tons) 3,134,871.2

s Computed by subdividing day.
t Less than 0.05 ton.

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 10, 1954	4:30 p.m.	21	66	19,400	3,840	--	97	--	100	--	--	--	--		--		PWCM
Mar. 20, 1955	8:00 a.m.	2.4	42	130	--	--	--	--	--	--	100	--	--		--		S
June 13	6:00 p.m.	2,140	58	24,400	3,920	--	47	--	67	--	89	98	100		--		VPWCM
June 14	2:30 p.m.	1,130	62	42,700	3,980	--	65	--	83	--	95	98	99		100		VPWCM
July 18	8:00 a.m.	1,280	65	43,200	3,700	--	54	--	84	--	94	97	99		100		VPWCM
July 19	5:30 p.m.	185	69	17,500	4,670	--	76	--	92	--	99	100	--		--		VPWCM
Aug. 6	7:00 p.m.	5,650	70	15,000	4,500	--	63	--	87	--	99	100	--		--		VPWCM
Aug. 8	7:00 p.m.	4,360	70	46,700	3,730	--	69	--	80	--	84	90	96		100		SPWCM
Aug. 20	9:00 a.m.	2,780	70	58,900	3,490	43	49	60	69	74	81	90	98		100		SPWCM
Aug. 20	9:00 a.m.	2,780	70	58,900	4,080	2	9	58	67	73	81	90	98		100		SPN
Aug. 27	2:00 p.m.	1,080	78	21,500	2,960	--	41	--	64	--	77	94	100		--		VPWCM

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LITTLE COLORADO RIVER BASIN--Continued

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 9.5 miles downstream from Moenkopi Wash.
DRAINAGE AREA.--26,500 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1955.
Water temperatures: October 1951 to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for gaging station near Cameron (below Moenkopi Wash) for water year October 1954 to September 1955 given in WSP 1393. Appreciable inflow between sampling site and gaging station during periods of storm runoff. Most of this inflow is from Moenkopi Wash but other arroyos may at times become sizeable contributors.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-4, 8-9, 1954..		29	0.10	13	4.3	160	2.7	284	8	80	44	1.0	1.2	0.69	488	0.66		50	0	87	9.8	768	8.5
Oct. 6, 7, 10		22	--	66	15	220		312	0	286	106	1.0	.0	--	909	1.24		226	0	68	6.4	1,410	8.0
Oct. 11-14.....		--	--	41	11	182	--	272	0	--	--	--	--	--	666	.91		148	0	73	6.5	1,080	7.5
Oct. 22		--	--	27	4.2	198	--	201	0	--	--	--	--	--	644	.88		85	0	84	9.3	1,070	7.7
Mar. 13-14, 1955 ...		--	--	236	63	166	--	248	0	--	--	--	--	--	1,590	2.16		848	645	30	2.5	1,940	7.6
Mar. 23, 26-31		--	--	45	10	216	--	164	0	--	--	--	--	--	758	1.03		154	19	75	7.6	1,350	8.0
Mar. 24-25.....		--	--	63	19	330	--	190	0	--	--	--	--	--	1,130	1.54		235	80	75	9.4	2,010	8.0
Apr. 1, 5-10		13	.01	64	11	280	5.0	178	0	106	398	.4	3.5	.19	975	1.33		204	58	74	8.5	1,720	7.8
Apr. 11, 12		--	--	71	24	364	--	202	0	--	--	--	--	--	1,210	1.65		276	110	74	9.5	2,170	7.6
June 13		--	--	--	--	110	--	178	6	--	--	--	--	--	355	.48		26	0	90	9.4	508	8.5
June 14-20		--	--	33	8.6	232	--	266	0	--	--	--	--	--	736	1.00		118	0	81	9.3	1,230	7.8
June 21-26		--	--	29	6.1	194	--	219	0	--	--	--	--	--	617	.84		98	0	81	8.5	1,070	7.9
July 18-31.....		--	--	87	23	224	--	392	0	--	--	--	--	--	906	1.23		312	0	61	5.5	1,430	7.6
Aug. 1-10		--	--	91	30	189	--	307	0	--	--	--	--	--	878	1.19		350	99	54	4.4	1,310	7.5
Aug. 11-20		--	--	51	15	199	--	274	0	--	--	--	--	--	736	1.00		188	0	70	6.3	1,170	8.0
Aug. 21-31		--	--	39	10	180	--	213	0	--	--	--	--	--	647	.88		138	0	74	6.7	1,040	8.0
Sept. 1-10		--	--	40	11	172	--	177	0	--	--	--	--	--	613	.83		145	0	72	6.2	1,010	7.9

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally during daylight hours/

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62						74		--	--	88	80
2	60						--		--	--	85	71
3	62						--		--	--	87	78
4	65						--		--	--	83	72
5	--						55		--	--	72	78
6	66						60		--	--	85	80
7	64						57		--	--	72	79
8	62						58		--	--	84	72
9	55						60		--	--	76	78
10	67						62		--	--	85	82
11	64						51		--	--	77	--
12	68						53		--	--	74	--
13	64						--		60	--	68	--
14	69						--		71	--	72	--
15	--						--		60	--	76	--
16	--						--		76	--	80	--
17	--						--		75	--	75	--
18	--						--		72	85	75	--
19	--						--		85	85	84	--
20	--						--		81	85	71	--
21	--						--		85	73	89	--
22	69						--		75	87	85	--
23	--						--		70	89	89	--
24	--						--		67	71	75	--
25	--						--		72	76	82	--
26	--						--		65	83	73	--
27	--						--		--	80	82	--
28	--						--		--	72	83	--
29	--						--		--	85	70	--
30	--						--		--	85	70	--
31	--					55	--		--	85	82	--
Average	--					--	--		--	--	79	--

COLORADO RIVER MAIN STEM

COLORADO RIVER NEAR GRAND CANYON, ARIZ.

LOCATION.--At gaging station at Kaibab Bridge, a quarter of a 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 1955.
Water temperatures: October 1936 to October 1942, September 1943 to September 1955.
Sediment records: October 1925 to November 1942, September 1943 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,340 ppm Jan. 1-10, Sept. 21-30; minimum, 383 ppm May 21-31.
Hardness: Maximum, 608 ppm Oct. 1-10; minimum, 223 ppm June 21-30.
Specific conductance: Maximum daily, 2,090 micromhos Jan. 1; minimum daily, 550 micromhos May 25.
Water temperatures: Maximum, 82°F July 17-24, Aug. 11-12; minimum, freezing point Dec. 30-31.
Sediment concentrations: Maximum daily, 43,600 ppm Aug. 19; minimum daily, 204 ppm Jan. 27.
Sediment loads: Maximum daily, 1,820,000 tons Oct. 10; minimum daily, 2,000 tons Jan. 5.
EXTREMES, 1925-42, 1943-55.--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, 1943-55): Maximum daily, 2,900 micromhos Sept. 6, 1940; minimum daily, 341 micromhos June 15, 1942.
Water temperatures (1936-42, 1943-55): Maximum, 88°F July 17, 1944; minimum, freezing point on several days during winter months.
Sediment concentrations: Maximum daily, 138,000 ppm Sept. 13, 1927; minimum daily, 100 ppm on many days.
Sediment loads: Maximum daily, 27,600,000 tons Sept. 13, 1927; minimum daily, 497 tons July 22, 1934.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.
REVISIONS.--WSP 1353, 1954 water year: Suspended sediment load total June 2,294,600 tons; and August 2,820,200 tons.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954....	9,113	17	1.0	181	38	165	9.7	273	558	115	0.4	2.7	0.17	1,220	1.66	30,020	608	384	37	2.9	1,710	7.3
Oct. 11-20	9,999	16	1.1	161	38	142	8.4	270	472	104	.4	4.0	.17	1,080	1.47	29,160	558	336	35	2.6	1,530	7.4
Oct. 21-31	6,743	13	.01	143	37	149	7.8	241	440	124	.3	8.0	.16	1,040	1.41	18,930	509	312	38	2.9	1,520	7.4
Nov. 1-10.....	6,201	12	.02	123	42	162	7.1	233	421	141	.3	4.8	.16	1,030	1.40	17,240	480	288	42	3.2	1,530	7.6
Nov. 11-20.....	6,128	11	.02	129	40	170	7.7	240	428	152	.3	4.9	.19	1,060	1.44	17,540	486	290	43	3.4	1,580	7.6
Nov. 21-30.....	5,799	13	.01	133	48	189	7.5	253	481	164	.4	7.9	.22	1,170	1.59	18,320	530	322	43	3.6	1,710	7.6
Dec. 1-10.....	5,527	14	.01	121	48	190	7.1	257	440	170	.4	7.0	.22	1,120	1.52	16,710	500	289	45	3.7	1,670	7.7
Dec. 11-20.....	5,131	14	.01	127	50	199	7.4	263	456	192	.4	7.3	.22	1,180	1.60	16,350	522	307	45	3.8	1,760	7.6
Dec. 21-31.....	3,869	15	.01	133	54	218	7.6	277	482	209	.4	7.7	.22	1,260	1.71	13,160	554	327	46	4.0	1,870	7.7
Jan. 1-10, 1955 ...	4,059	18	.00	134	63	232	8.6	291	501	232	.3	7.6	.08	1,340	1.82	14,690	594	355	45	4.1	2,040	8.0
Jan. 11-20	4,791	17	.02	125	58	208	8.0	280	458	202	.3	6.9	.08	1,220	1.66	15,780	550	321	45	3.9	1,850	7.6
Jan. 21-31	3,917	18	.01	121	55	208	7.5	278	429	210	.3	6.9	.09	1,190	1.62	12,590	528	300	46	3.9	1,830	7.6
Feb. 1-10.....	4,712	17	.02	114	48	206	7.0	246	424	212	.3	8.4	.21	1,160	1.58	14,760	482	280	48	4.1	1,760	8.0
Feb. 11-20	4,602	16	.02	114	48	191	8.4	265	379	198	.3	7.7	.19	1,090	1.48	13,540	482	265	46	3.8	1,710	7.6
Feb. 21-28	5,290	16	.01	113	45	185	8.1	256	370	187	.3	7.4	.18	1,060	1.44	15,140	467	257	46	3.7	1,650	7.6
Mar. 1-10.....	6,620	18	.03	121	46	171	7.7	253	393	175	.4	8.0	.31	1,060	1.44	18,950	491	284	43	3.4	1,620	7.7
Mar. 11-20.....	13,440	16	.01	137	44	141	7.8	260	425	122	.4	6.9	.27	1,030	1.40	37,380	523	310	37	2.7	1,520	7.4
Mar. 21-31.....	8,615	15	.01	115	36	137	6.4	257	351	107	.3	7.0	.33	901	1.23	20,960	435	224	40	2.9	1,350	7.4

Apr. 1-10, 1955...	7,459	15	.01	107	44	156	6.8	243	374	142	.3	5.0	.33	969	1.32	19,520	448	249	43	3.2	1,480	7.4
Apr. 11-20.....	8,692	16	.07	103	38	159	6.7	250	361	136	.4	6.3	.17	949	1.29	22,270	413	208	45	3.4	1,450	7.7
Apr. 21-30.....	15,170	16	.07	89	30	110	6.1	244	256	84	.5	6.7	.13	718	.98	29,410	346	146	40	2.6	1,110	7.7
May 1-10.....	18,100	17	.04	74	24	72	6.2	230	170	58	.5	5.7	.12	540	.73	26,390	283	94	35	1.9	864	7.6
May 11-20.....	28,190	15	.03	67	18	48	4.6	218	120	37	.5	3.0	.11	420	.57	31,970	241	62	30	1.3	682	7.7
May 21-31.....	27,370	15	.02	64	16	44	3.9	194	108	34	.5	3.5	.09	383	.52	28,300	226	66	29	1.3	628	7.7
June 1-10.....	23,730	15	.02	68	18	44	3.7	195	113	40	.4	2.7	.17	401	.55	25,690	244	84	28	1.2	645	7.8
June 11-20.....	31,150	19	.02	65	15	53	4.2	193	118	38	.4	2.8	.19	410	.56	34,480	224	66	33	1.5	647	7.8
June 21-30.....	25,560	17	.02	63	16	47	4.3	178	118	40	.4	2.3	.18	396	.54	27,330	223	77	31	1.4	625	7.9
July 1-10.....	15,390	15	.04	66	18	57	4.6	174	137	54	.4	2.2	.17	440	.60	18,280	238	96	34	1.6	707	7.8
July 11-20.....	8,461	14	.02	73	24	82	4.9	180	185	84	.4	2.9	.24	559	.76	12,770	280	133	38	2.1	894	7.6
July 21-22, 24-31..	6,698	17	.03	112	33	134	8.4	234	339	118	.4	4.3	.29	881	1.20	15,930	415	224	41	2.9	1,310	7.6
July 23.....	6,140	14	.02	68	24	48		176	156	45	--	2.2	--	444	.60	7,360	268	124	28	1.3	697	7.9
Aug. 1-10	10,510	19	.04	143	32	158	8.3	259	437	114	.6	.8	.32	1,040	1.41	29,510	488	276	41	3.1	1,520	7.6
Aug. 11-20.....	12,690	19	.03	145	27	158	7.9	258	452	92	.5	.2	.32	1,030	1.40	35,290	473	262	42	3.2	1,430	7.6
Aug. 21-31.....	9,507	19	.02	127	27	165	8.1	262	424	106	.6	5.8	.24	1,010	1.37	25,930	428	214	45	3.5	1,450	7.6
Sept. 1-10.....	6,434	19	.01	140	41	170	9.7	270	467	130	.5	9.4	.26	1,120	1.52	19,460	518	297	41	3.2	1,610	7.5
Sept. 11-20.....	3,437	18	.01	130	49	201	9.9	239	497	181	.6	10	.27	1,210	1.65	11,230	526	330	45	3.8	1,780	7.5
Sept. 21-30.....	3,468	13	.01	141	56	220	9.6	226	572	213	.6	6.9	.25	1,340	1.82	12,550	582	398	45	4.0	1,960	7.4
Weighted average	10,470	16	0.02	99	30	111	6.2	228	281	93	0.4	4.5	0.19	753	1.02	21,290	370	184	39	2.5	1,140	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Continuous-recording thermograph/

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

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955

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	8,670	22,500	527,000	6,420	1,460	25,300	5,650	780	11,900
2	8,980	21,400	519,000	6,530	1,570	27,700	5,620	610	9,260
3	8,590	19,200	445,000	6,490	1,500	26,300	5,620	600	9,100
4	8,290	16,500	369,000	6,190	1,490	24,900	5,680	620	a 9,500
5	7,920	13,000	a 280,000	6,080	1,400	a 23,000	5,760	650	10,100
6	7,330	9,000	178,000	5,970	1,400	a 23,000	5,810	1,050	16,500
7	7,100	8,350	160,000	5,930	1,350	21,600	5,390	1,910	27,800
8	7,050	10,700	204,000	6,040	1,140	18,600	5,120	1,190	16,500
9	10,100	18,700	s 575,000	6,110	1,050	17,300	5,120	910	12,600
10	17,100	37,500	s1,820,000	6,250	1,330	22,400	5,500	790	11,700
11	14,800	19,300	s 798,000	6,190	1,240	20,700	5,990	700	11,300
12	11,400	23,300	717,000	6,060	1,090	17,800	5,930	940	15,100
13	9,780	26,000	687,000	5,950	830	13,300	5,470	820	12,100
14	10,600	20,000	572,000	5,890	780	12,400	5,120	610	8,430
15	10,700	13,100	378,000	5,840	770	12,100	5,070	570	7,800
16	9,610	9,150	237,000	5,770	720	11,200	4,990	650	8,760
17	9,170	10,500	260,000	5,760	920	14,300	4,690	600	7,600
18	8,610	9,650	224,000	6,700	1,150	20,800	4,600	710	8,820
19	7,840	9,900	210,000	6,870	1,540	28,600	4,780	830	10,700
20	7,480	11,200	226,000	6,250	1,440	24,300	4,670	758	9,560
21	7,230	8,100	158,000	5,950	1,360	21,800	4,500	640	7,780
22	7,160	7,500	145,000	5,880	1,740	27,600	4,300	542	6,290
23	7,100	7,000	134,000	5,850	2,210	34,900	4,110	490	5,440
24	7,020	6,100	116,000	5,860	2,060	32,600	3,940	455	4,840
25	6,820	6,100	112,000	5,810	2,110	33,100	3,730	400	a 4,000
26	6,700	5,100	92,300	5,740	1,580	24,500	3,650	340	3,350
27	6,570	3,800	67,400	5,730	1,090	16,900	3,660	310	3,060
28	6,460	2,500	43,600	5,740	980	15,200	3,770	325	3,310
29	6,320	1,930	32,900	5,720	810	12,500	3,790	304	3,110
30	6,370	1,640	28,200	5,710	800	12,300	3,650	303	2,990
31	6,420	1,460	25,300	--	--	--	3,460	265	2,480
Total	265,290	--	10,340,700	181,280	--	637,000	149,140	--	281,780
	January			February			March		
1	3,510	218	2,070	3,840	240	2,490	4,540	395	4,840
2	3,390	230	2,110	4,250	260	2,980	4,520	425	5,190
3	3,530	300	a 2,900	4,720	345	4,400	5,190	530	a 7,400
4	3,590	275	2,670	4,870	420	a 5,500	5,600	610	a 9,200
5	3,520	210	2,000	4,780	420	a 5,400	5,890	760	12,100
6	3,580	260	2,510	4,850	387	5,070	6,240	1,360	22,900
7	3,820	359	3,700	4,960	390	5,220	7,150	2,100	40,500
8	4,670	485	6,120	4,990	372	5,010	7,840	2,600	55,000
9	5,160	667	9,290	4,950	368	4,920	8,830	3,500	83,400
10	5,820	779	12,200	4,910	350	4,640	10,400	5,600	157,000
11	6,140	888	14,700	4,700	328	4,160	9,560	5,600	145,000
12	5,420	807	11,800	4,650	312	3,920	8,530	4,250	97,900
13	4,860	688	9,030	4,520	300	3,660	10,900	8,150	s 298,000
14	4,770	590	7,600	4,430	263	3,150	16,500	12,000	535,000
15	4,670	555	7,000	4,370	258	3,040	14,700	11,900	472,000
16	4,590	685	8,490	4,430	270	3,230	12,200	9,250	305,000
17	4,510	650	7,920	4,420	305	3,640	11,200	13,400	405,000
18	4,470	470	5,670	4,680	245	3,100	18,600	18,400	924,000
19	4,280	420	4,850	4,870	370	4,870	17,600	17,400	827,000
20	4,200	408	4,630	4,950	580	7,750	14,600	15,600	615,000
21	4,150	348	3,900	5,290	1,240	17,700	12,100	13,500	441,000
22	4,200	320	3,630	5,940	656	10,500	10,400	10,200	286,000
23	4,190	315	3,560	5,780	760	11,900	9,580	7,750	200,000
24	4,170	368	4,140	5,670	865	13,200	9,020	6,750	164,000
25	3,830	345	3,570	5,410	760	11,100	8,620	5,400	126,000
26	3,850	305	3,170	4,850	610	7,990	8,130	4,200	92,200
27	3,910	204	2,150	4,740	520	6,650	7,600	3,500	71,800
28	3,710	264	2,640	4,640	500	6,260	7,230	2,900	56,600
29	3,640	290	2,850	--	--	--	7,060	2,300	43,800
30	3,720	260	2,610	--	--	--	7,200	2,200	42,800
31	3,720	240	2,410	--	--	--	7,830	2,400	50,700
Total	131,590	--	161,890	135,460	--	171,450	295,360	--	6,596,330

s Computed by subdividing day.
a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955--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	8,350	2,500	56,400	15,900	6,480	278,000	26,900	5,620	408,000
2	7,890	2,500	53,300	17,500	6,550	309,000	26,500	6,300	451,000
3	7,100	2,000	a38,000	16,800	6,050	274,000	25,800	4,950	345,000
4	6,680	1,900	a34,000	16,700	6,100	275,000	25,300	4,300	a290,000
5	6,540	1,750	30,900	19,100	7,600	a390,000	24,500	4,000	a260,000
6	6,990	1,500	28,300	19,900	8,200	441,000	23,300	3,500	220,000
7	7,440	1,680	33,700	19,900	7,300	392,000	21,800	2,900	171,000
8	7,680	1,950	40,400	17,500	6,500	307,000	21,400	3,400	196,000
9	7,940	1,750	37,500	18,200	6,030	296,000	20,600	2,600	145,000
10	7,980	1,900	40,900	19,500	6,900	363,000	21,200	3,000	172,000
11	7,980	1,600	34,500	20,900	6,250	353,000	22,600	4,200	256,000
12	7,800	1,580	33,300	29,300	10,000	a790,000	27,400	5,680	s424,000
13	7,770	1,500	31,500	28,600	11,200	865,000	35,100	13,000	s1,300,000
14	7,860	1,750	37,100	28,100	12,500	948,000	36,700	16,500	1,630,000
15	7,700	1,800	37,400	27,400	12,500	925,000	34,700	16,700	1,560,000
16	7,940	2,000	42,900	27,100	9,600	702,000	33,900	17,000	1,560,000
17	9,370	3,250	82,200	27,100	8,700	637,000	31,300	9,200	777,000
18	10,400	3,500	98,300	29,300	9,000	712,000	30,600	6,750	558,000
19	10,000	3,700	99,900	32,400	10,600	927,000	30,200	5,200	424,000
20	10,100	3,350	91,400	31,700	7,750	663,000	29,000	4,570	358,000
21	13,000	5,900	207,000	29,300	6,500	514,000	28,000	3,750	284,000
22	14,900	7,300	294,000	27,300	6,050	446,000	27,600	3,690	275,000
23	16,300	10,100	445,000	24,700	6,600	440,000	26,500	3,550	254,000
24	17,500	9,100	430,000	22,200	4,480	269,000	26,300	3,480	247,000
25	15,900	7,530	323,000	23,000	5,250	326,000	26,300	3,000	213,000
26	15,300	7,750	320,000	26,500	6,250	447,000	26,000	2,970	208,000
27	15,400	7,450	310,000	28,300	6,800	520,000	25,800	3,950	275,000
28	15,200	6,900	283,000	29,900	6,630	535,000	25,000	3,250	219,000
29	14,300	6,400	247,000	30,600	6,000	496,000	23,200	2,400	150,000
30	13,900	5,620	211,000	30,200	6,400	522,000	20,900	2,600	147,000
31	--	--	--	29,100	5,800	456,000	--	--	--
Total	313,210	--	4,051,900	764,000	--	15,818,000	804,400	--	13,777,000

	July			August			September		
1	19,600	2,500	132,000	8,300	9,600	215,000	8,670	14,500	339,000
2	18,700	1,840	92,900	8,190	20,400	451,000	8,330	16,100	362,000
3	17,600	1,580	75,100	8,410	25,000	568,000	8,120	12,700	278,000
4	16,400	1,400	a62,000	8,020	16,200	351,000	7,130	10,000	193,000
5	15,600	1,300	a55,000	10,000	23,000	sa730,000	6,540	10,200	180,000
6	14,800	1,230	49,200	11,500	34,000	a1,100,000	6,170	8,600	143,000
7	13,900	1,320	49,500	10,600	27,800	s800,000	5,510	7,200	107,000
8	13,300	1,040	37,300	11,400	30,200	s1,000,000	4,960	6,400	85,700
9	12,400	870	29,100	13,800	36,200	1,400,000	4,610	6,750	84,000
10	11,600	790	24,700	14,900	40,100	1,670,000	4,300	6,400	74,300
11	10,800	660	19,200	15,400	33,300	1,440,000	4,090	7,900	87,200
12	10,100	625	17,000	12,700	25,000	857,000	3,930	7,100	75,300
13	9,460	560	14,300	12,000	29,300	s991,000	3,760	3,700	37,600
14	8,750	520	12,300	12,600	39,100	1,380,000	3,590	2,740	26,600
15	8,190	452	10,000	12,200	34,300	1,170,000	3,430	1,890	17,500
16	7,710	525	10,900	11,300	24,400	s741,000	3,270	1,530	13,500
17	7,620	355	7,300	14,200	27,200	1,040,000	3,150	1,400	11,900
18	7,580	5,880	120,000	12,500	28,900	s980,000	3,090	1,360	11,300
19	7,370	7,950	158,000	12,700	43,600	1,550,000	3,050	1,100	a9,100
20	7,030	4,080	77,400	11,300	38,200	1,210,000	3,010	850	a6,900
21	6,870	6,230	116,000	9,780	27,800	734,000	2,950	680	5,420
22	6,420	7,560	131,000	9,180	23,500	s586,000	2,920	690	a5,400
23	6,140	4,030	66,800	8,730	22,000	519,000	2,970	710	a5,700
24	6,000	5,250	85,000	9,170	21,100	522,000	2,930	800	6,330
25	5,480	4,750	70,300	10,000	20,800	s571,000	3,130	930	a7,900
26	6,480	6,800	s130,000	12,100	24,000	784,000	3,780	1,040	10,600
27	6,810	13,100	s247,000	10,900	24,800	730,000	3,950	1,000	10,700
28	7,100	23,700	s473,000	10,100	23,200	633,000	4,060	1,030	11,300
29	6,400	20,500	354,000	8,780	16,500	391,000	3,990	1,030	11,100
30	7,090	13,000	249,000	8,070	16,200	353,000	4,000	1,440	15,600
31	8,330	12,400	279,000	7,770	16,300	342,000	--	--	--
Total	311,630	--	3,254,300	336,600	--	25,809,000	133,390	--	2,232,950

Total discharge for year (cfs-days) 3,821,350
Total load for year (tons) 83,132,300

s Computed by subdividing day.
a Computed from estimated concentration graph.

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Oct. 2, 1954	8:45 a.m.	9,070	67	21,000	4,100	--	70	--	92	--	98	100	--		--		VPWCM
Oct. 9	10:45 a.m.	8,590	68	9,850	5,280	--	69	--	89	--	98	100	--		--		SPWCM
Oct. 10	9:30 a.m.	20,100	69	36,800	3,570	--	44	--	65	--	85	99	100		--		VPWCM
Oct. 13	8:00 a.m.	9,510	66	26,600	3,980	--	64	--	89	--	98	100	--		--		VPWCM
Oct. 15	7:40 a.m.	10,800	64	13,900	3,790	--	62	--	84	--	96	99	100		--		VPWCM
Oct. 20	9:00 a.m.	7,560	61	12,900	4,410	--	75	--	96	--	99	100	--		--		VPWCM
Nov. 18	9:00 a.m.	6,610	50	1,020	2,280	--	55	--	80	--	93	98	100		--		SPWCM
Dec. 20	9:00 a.m.	4,700	38	829	4,710	--	69	--	89	--	97	98	100		--		SPWCM
Jan. 22, 1955	1:30 p.m.	4,230	37	326	4,300	--	57	--	84	--	94	97	100		--		SPWCM
Feb. 23	8:30 a.m.	5,850	37	696	1,520	--	33	--	66	--	95	99	100		--		SPWCM
Mar. 6	8:45 a.m.	6,040	48	1,340	3,190	--	54	--	75	--	96	99	100		--		SPWCM
Mar. 8	8:45 a.m.	7,800	47	2,590	5,960	--	41	--	66	--	93	99	100		--		SPWCM
Mar. 10	8:45 a.m.	10,500	48	6,180	5,080	--	25	--	45	--	88	97	100		--		VPWCM
Mar. 13	11:00 a.m.	8,290	50	3,780	3,680	--	53	--	75	--	94	99	100		--		VPWCM
Mar. 14	9:00 a.m.	15,800	49	11,600	3,200	--	27	--	41	--	83	97	100		--		VPWCM
Mar. 18	11:45 a.m.	19,500	47	20,600	4,470	--	32	--	47	--	78	97	100		--		VPWCM
Mar. 23	8:45 a.m.	9,680	44	7,560	3,220	--	50	--	80	--	90	98	100		--		VPWCM
Apr. 20	8:45 a.m.	9,870	57	3,110	3,170	--	36	--	56	--	80	96	100		--		VPWCM
Apr. 25	8:30 a.m.	16,200	57	7,910	3,850	19	23	36	47	57	76	95	100		--		VPWCM
Apr. 25	8:30 a.m.	16,200	57	7,910	3,920	1	4	16	44	54	76	95	100		--		VPN
May 2	8:30 a.m.	17,400	58	6,510	4,030	--	24	--	37	--	67	94	100		--		VPWCM
May 6	3:00 p.m.	20,200	61	8,580	4,880	--	17	--	27	--	56	88	99		100		VPWCM
May 14	8:30 a.m.	28,000	65	13,600	3,920	--	19	--	31	--	51	79	96		100		SPWCM
May 28	12:00 m.	30,000	66	6,130	3,760	--	15	--	23	--	55	84	97		100		VPWCM
June 9	6:15 a.m.	20,500	72	2,790	2,410	12	16	20	26	38	57	83	97		100		VPWCM
June 9	6:15 a.m.	20,500	72	2,790	2,120	2	12	18	26	38	57	83	97		100		VPN
June 13	8:40 a.m.	33,500	69	6,650	4,040	--	13	--	21	--	54	80	96		100		VPWCM
June 14	8:00 a.m.	40,000	66	16,700	5,010	--	31	--	45	--	66	88	98		100		VPWCM
June 26	8:00 a.m.	26,000	71	3,030	4,020	--	14	--	24	--	54	83	98		100		VPWCM

COLORADO RIVER MAIN STEM

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955--Continued
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
July 10, 1955	7:30 a.m.	11,900	75	849	1,720	--	25	--	42	--	76	87	98		100		SPWCM
July 26	8:15 a.m.	6,100	79	2,860	3,200	69	82	89	95	97	99	100	--		--		SPWCM
July 26	8:15 a.m.	6,100	79	2,860	3,320	0	2	13	94	98	99	100	--		--		SPN
July 27	7:30 a.m.	7,370	78	14,200	4,370	--	66	--	86	--	99	100	--		--		SPWCM
July 29	8:00 a.m.	6,470	78	22,800	3,640	--	69	--	88	--	100	--	--		--		SPWCM
July 30	7:00 a.m.	6,630	79	10,200	3,860	--	72	--	92	--	100	--	--		--		PWCM
Aug. 3	8:00 a.m.	8,320	80	26,200	3,240	--	76	--	95	--	99	100	--		--		PWCM
Aug. 7	8:30 a.m.	10,100	80	31,700	4,180	--	64	--	86	--	98	100	--		--		VPWCM
Aug. 10	7:30 a.m.	14,100	79	41,100	5,060	--	58	--	74	--	92	99	100		--		VPWCM
Aug. 11	8:20 a.m.	16,200	80	29,900	3,460	--	71	--	75	--	90	99	100		--		VPWCM
Aug. 12	8:00 a.m.	13,000	80	26,600	4,200	55	66	77	84	90	94	99	100		--		VPWCM
Aug. 12	8:00 a.m.	13,000	80	26,600	4,320	2	3	8	86	89	94	99	100		--		VPN
Aug. 15	8:30 a.m.	13,000	79	36,200	5,020	--	63	--	84	--	94	99	100		--		VPWCM
Aug. 19	8:30 a.m.	13,300	79	50,800	4,060	--	60	--	77	--	93	99	100		--		VPWCM
Aug. 25	8:05 a.m.	9,560	78	19,700	5,050	--	64	--	85	--	95	99	100		--		VPWCM
Aug. 26	8:05 a.m.	12,300	77	25,400	3,840	--	59	--	77	--	94	100	--		--		VPWCM
Aug. 29	8:15 a.m.	9,080	78	19,000	3,810	--	68	--	85	--	97	100	--		--		VPWCM
Sept. 5	8:05 a.m.	6,560	78	10,100	4,150	--	80	--	95	--	98	100	--		--		VPWCM
Sept. 27	8:05 a.m.	3,940	68	965	1,420	49	60	79	91	95	98	99	100		--		SPWCM
Sept. 27	8:05 a.m.	3,940	68	965	1,330	4	10	57	93	96	98	99	100		--		SPN

VIRGIN RIVER AT VIRGIN, UTAH

LOCATION.--At gaging station, 1½ miles southwest of Virgin, Washington County, and about 2 miles downstream from North Creek.
DRAINAGE AREA.--934 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1955.
Water temperatures: October 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,090 ppm Oct. 7-10; minimum, 310 ppm Dec. 3-4.
Specific conductance: Maximum daily, 2,770 micromhos Aug. 11; minimum daily, 458 micromhos Dec. 4.
Water temperatures: Maximum, 86°F July 31; minimum, 36°F Jan. 22.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 2,710 ppm Aug. 4, 1954; minimum, 245 ppm May 1-10, 1952.
Specific conductance: Maximum daily, 2,870 micromhos Aug. 4, 1954; minimum daily, 383 micromhos May 7, 1952.
Water temperatures: Maximum, 88°F July 18, 28-30, 1952; minimum, freezing point on several days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. No discharge records available for this station during 1954-55 water year.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 1954		--		--	--	--	--	--	--	--		--	--	580	0.79		--	--	--	--	904	--
Oct. 7-10		--		--	--	--	--	--	--	--		--	--	1,090	1.48		--	--	--	--	1,370	--
Oct. 11-20		13		92	28	56	--	217	212	60		2.3	0.11	582	.79		348	170	26	1.3	888	8.0
Oct. 21-31		--		--	--	--	--	--	--	--		--	--	532	.72		--	--	--	--	832	--
Nov. 1-10		--		--	--	--	--	--	--	--		--	--	522	.71		--	--	--	--	818	--
Nov. 11-20		12		83	27	51	--	231	161	59		1.7	.09	511	.69		317	128	26	1.2	811	8.1
Nov. 21-30		--		--	--	--	--	--	--	--		--	--	519	.71		--	--	--	--	817	--
Dec. 1-2, 5-10		--		--	--	--	--	--	--	--		--	--	535	.73		--	--	--	--	837	8.0
Dec. 3-4		--		--	--	--	--	--	--	--		--	--	310	.42		--	--	--	--	484	6.1
Dec. 11-20		12		86	28	51	--	234	162	56		1.6	.08	533	.72		332	140	25	1.2	826	8.0
Dec. 21-31		--		--	--	--	--	--	--	--		--	--	552	.75		--	--	--	--	869	--
Jan. 1-10, 1955		--		--	--	--	--	--	--	--		--	--	520	.71		--	--	--	--	813	--
Jan. 11-20		.13		81	30	50	--	229	157	63		1.7	.11	527	.72		356	168	23	1.2	822	8.2
Jan. 21-31		--		--	--	--	--	--	--	--		--	--	534	.73		--	--	--	--	829	--
Feb. 1-10		--		--	--	--	--	--	--	--		--	--	532	.72		--	--	--	--	834	--
Feb. 11-19		11		77	22	46	--	206	141	50		1.6	.07	463	.63		284	115	26	1.2	730	8.0
Feb. 20-28		--		--	--	--	--	--	--	--		--	--	533	.72		--	--	--	--	830	--
Mar. 1-10		--		--	--	--	--	--	--	--		--	--	488	.66		--	--	--	--	759	--
Mar. 11-20		12		73	26	42	--	209	150	44		2.1	.10	470	.64		290	119	24	1.1	716	8.1
Mar. 21-31		--		--	--	--	--	--	--	--		--	--	480	.65		--	--	--	--	738	--
Apr. 1-10		--		--	--	--	--	--	--	--		--	--	497	.68		--	--	--	--	752	--
Apr. 11-20		12		76	22	36	--	209	130	39		2.2	.10	497	.68		278	107	22	.9	671	8.0
Apr. 21-30		--		--	--	--	--	--	--	--		--	--	416	.57		--	--	--	--	637	--

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT VIRGIN, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-10, 1955		--		--	--	--	--	--	--	--		--	--	404	0.55		--	--	--	--	632	--
May 11-20		14		77	20	35	3.7	202	111	49		2.2	0.09	441	.60		274	108	21	0.9	688	8.1
May 21-31		--		--	--	--	--	--	--	--		--	--	508	.69		--	--	--	--	786	--
June 1-10		--		--	--	--	--	--	--	--		--	--	533	.72		--	--	--	--	815	--
June 11-20		13		78	27	55	4.6	201	175	62		1.6	.08	534	.73		308	143	28	1.4	817	7.8
June 21-30		--		--	--	--	--	--	--	--		--	--	528	.72		--	--	--	--	818	--
July 1-10		--		--	--	--	--	--	--	--		--	--	536	.73		--	--	--	--	816	--
July 11-16, 18-20		14		86	26	49	--	220	167	59		2.2	.05	543	.74		320	140	25	1.2	817	7.6
July 17		16		206	40	69	--	314	502	50		2.1	--	a1,040	1.41		678	421	18	1.2	1,450	7.1
July 21-31		--		--	--	--	--	--	--	--		--	--	639	.87		--	--	--	--	947	--
Aug. 1-3, 6-8, 10		--		--	--	--	--	--	--	--		--	--	586	.80		--	--	--	--	872	--
Aug. 4-5		--		--	--	--	--	--	--	--		--	--	1,010	1.37		--	--	--	--	1,330	--
Aug. 9		--		--	--	--	--	266	675	38		--	--	--	--		832	614	--	--	1,600	6.9
Aug. 11		--		--	--	--	--	302	1,600	53		--	--	--	--		1,810	1,560	--	--	2,770	6.9
Aug. 12-20		16		102	19	48	--	222	187	52		1.7	.08	565	.77		333	151	24	1.2	843	7.6
Aug. 21-23, 26-31		--		--	--	--	--	--	--	--		--	--	626	.86		--	--	--	--	923	--
Aug. 24		--		--	--	--	--	193	1,620	17		--	--	--	--		1,750	1,590	--	--	2,580	7.2
Aug. 25		12		387	17	--	--	306	873	14		1.1	--	--	--		1,040	789	--	--	1,840	7.2
Sept. 1-10		--		--	--	--	--	--	--	--		--	--	585	.80		--	--	--	--	881	--
Sept. 11-20		15		90	24	56	--	194	194	68		2.0	--	552	.75		322	163	27	1.4	848	7.8
Sept. 21-30		--		--	--	--	--	--	--	--		--	--	553	.75		--	--	--	--	866	--

a Sum of determined constituents.

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT VIRGIN, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	55	54	42	47	55	57	58	65	80	84	81
2	70	54	53	47	47	53	54	56	68	78	85	78
3	70	55	48	45	45	54	55	65	68	78	83	77
4	68	56	49	48	44	55	54	67	74	77	75	83
5	68	55	52	49	42	55	56	71	74	77	81	81
6	71	56	52	45	45	50	56	69	75	79	83	78
7	68	53	52	45	45	55	61	68	79	81	84	82
8	--	55	54	43	47	--	61	65	80	79	82	78
9	60	56	45	40	48	--	65	64	81	79	80	78
10	62	56	46	39	44	55	60	68	75	78	83	77
11	65	56	48	41	45	55	54	69	78	80	82	78
12	64	57	45	41	48	57	59	70	76	82	74	78
13	65	56	44	41	47	60	65	--	--	83	75	78
14	65	56	42	44	49	59	60	64	74	84	82	74
15	63	54	43	43	54	52	55	62	72	85	84	77
16	65	59	43	45	48	52	65	62	72	84	78	72
17	62	53	42	43	47	55	64	61	78	80	80	73
18	64	53	45	39	38	55	59	67	80	80	82	72
19	62	54	44	40	44	55	60	70	80	79	80	70
20	65	54	45	40	42	49	62	70	80	80	83	71
21	--	53	45	38	43	50	60	70	83	80	85	72
22	64	55	46	36	40	54	55	69	80	84	81	70
23	64	56	46	38	47	55	64	71	80	--	80	70
24	54	54	45	41	47	56	65	70	80	75	73	68
25	55	55	43	43	46	57	64	67	73	77	69	70
26	54	56	40	42	46	55	61	70	76	83	79	70
27	56	50	38	43	46	57	60	71	78	82	77	70
28	55	48	39	45	50	55	64	73	78	83	81	69
29	56	47	38	46	--	59	65	71	78	84	83	67
30	56	58	48	47	--	54	65	68	79	83	83	68
31	56	--	40	47	--	57	--	69	--	86	82	--
Average	63	54	46	43	46	55	60	67	76	81	80	74

VIRGIN RIVER BASIN--Continued

WASHINGTON FIELDS CANAL NEAR WASHINGTON, UTAH

LOCATION.--At gaging station, about 1½ miles southeast of Washington, Washington County.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5, 9, 19, 1954		20		246	52	300	--	306	642	412		3.0	0.65	1,830	2.49		830	579	44	4.5	2,740	7.4
Nov. 4, 9, 16		18		153	41	250	--	240	416	342		3.7	.57	1,340	1.82		552	355	50	4.6	2,150	7.6
Dec. 1, 8, 13, 20 .		18		150	38	221	--	260	375	295		3.4	.49	1,230	1.67		530	317	48	4.2	1,960	7.9
Jan. 5, 11, 17, 24, 1955		17		143	35	205	--	264	343	280		2.6	.45	1,160	1.58		504	288	47	4.0	1,840	7.9
Feb. 7, 14, 21....		16		143	35	199	--	270	347	280		3.0	.42	1,160	1.58		502	281	46	3.9	1,850	7.9
Mar. 1, 8, 14, 28.		17		135	39	186	--	276	319	252		4.1	.41	1,090	1.48		498	272	45	3.6	1,700	7.9
Apr. 4, 11, 20....		18		154	38	229	--	274	371	342		3.9	.50	1,290	1.75		542	317	48	4.3	2,020	7.9
Apr. 26		14		110	26	118	--	236	223	158		4.6	--	770	1.05		380	186	40	2.6	1,240	7.6
May 2, 11, 16		16		144	32	197	18	230	334	289		2.9	.47	1,150	1.56		494	305	45	3.9	1,860	7.7
May 26, 30		21		175	54	360	31	262	526	520		3.3	.77	1,820	2.48		660	445	53	6.1	2,780	7.8
June 6, 22, 29		23		170	52	390	--	209	556	578		4.2	.81	1,880	2.56		640	469	57	6.7	3,000	7.5
July 5, 12, 16, 20, 25.....		22		358	40	289	--	240	942	412		2.6	.67	2,180	2.96		1,060	863	37	3.9	3,050	7.4
July 21.....		31		752	73	108	22	730	1,640	118		2.9	--	3,110	4.23		2,180	1,580	10	1.0	3,390	7.1
July 28, Aug. 4, 12, 30		23		382	35	244	--	245	970	338		2.7	--	2,120	2.88		1,100	899	33	3.2	2,850	7.2
Aug. 8		22		198	39	260	--	255	524	370		1.4	--	1,540	2.09		656	447	46	4.4	2,430	7.2
Aug. 17, 24		21		221	19	105	--	272	524	92		.2	--	1,120	1.52		632	409	27	1.8	1,550	7.3
Sept. 19, 27.....		24		213	59	452	--	203	689	642		4.9	--	2,180	2.96		775	609	56	7.1	3,420	7.3

SANTA CLARA RIVER ABOVE WINSOR DAM, NEAR SANTA CLARA, UTAH

LOCATION.--At gaging station, 2 miles upstream from Winsor Dam, 2½ miles downstream from Sandy Wash, 8 miles downstream from Magotsu Creek, and 9 miles northwest of Santa Clara, Washington County.
DRAINAGE AREA.--338 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 6, 11, 18, 1954	10.7	34		49	19	21		218	35	25		0.9	0.07	296	0.40	8.55	202	23	18	0.6	475	7.5
Nov. 8, 16, 19....	14.7	34		66	15	19		236	40	26		.8	.08	324	.44	12.9	225	31	16	.6	524	7.7
Dec. 9, 14, 20....	15.7	32		58	15	19		220	32	25		.5	.04	296	.40	12.5	206	26	17	.6	469	7.9
Jan. 5, 12, 17, 25, 1955.....	16.5	33		62	14	19		230	34	24		.9	.09	300	.41	13.4	212	23	16	.6	486	7.8
Feb. 7, 14, 21, 27	19.8	32		59	14	19		221	32	24		.9	.07	291	.40	15.6	204	23	17	.6	464	8.0
Mar. 8, 14, 28 ...	20.3	35		55	13	19		215	30	23		1.1	.10	276	.38	15.1	192	16	18	.6	444	8.1
Apr. 3, 12, 17, 26	11.8	28		54	13	18		209	32	23		.6	.03	272	.37	8.67	190	19	17	.6	449	7.6
May 2, 10, 17, 26,31	16.2	33		47	12	15	3.2	181	24	20		1.0	.09	252	.34	11.0	166	18	16	.5	395	7.9
June 6, 30.....	11.0	--		48	13	16		191	27	22		1.2	--	256	.35	7.60	174	17	17	.5	401	7.6
July 5, 13, 25.....	16.3	30		49	12	17		181	33	24		1.4	.02	268	.36	11.8	174	26	18	.6	410	7.5
July 20, Aug. 1, 13, 17, 25, 30.....	50.8	32		62	9.7	14		211	30	18		1.1	--	273	.37	37.4	195	22	14	.4	428	7.6
Sept. 14, 20, 27...	5.3	38		65	13	19		234	35	21		1.6	--	311	.42	4.45	218	26	16	.6	486	7.8

VIRGIN RIVER BASIN--Continued

SANTA CLARA RIVER AT ST. GEORGE, UTAH

LOCATION.--At gaging station, half a mile upstream from mouth and 2 miles south of St. George, Washington County.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 6, 11, 18, 1954	0.4	38		383	105	148		446	1,170	90		0.4	0.52	2,150	2.92	2.32	1,390	31,020	19	1.7	2,580	7.5
Nov. 4, 9, 16	4.1	36		248	52	80		362	630	58		.9	.29	1,280	1.74	14.2	835	538	17	1.2	1,690	7.7
Dec. 2, 8, 13, 20	11.6	31		157	32	54		310	325	40		1.4	.17	793	1.08	24.8	522	268	18	1.0	1,130	7.8
Jan. 5, 12, 17, 24, 1955	8.0	33		194	42	74		336	467	49		.8	.25	1,030	1.40	22.2	656	380	20	1.3	1,390	8.0
Feb. 7, 14, 21	9.2	32		194	43	70		326	471	50		1.1	.22	1,020	1.39	25.3	662	395	19	1.2	1,390	8.0
Mar. 1, 8, 15	11.1	34		186	37	65		326	419	46		1.5	.20	950	1.29	28.5	616	349	19	1.1	1,270	8.1
Mar. 26	3.8	39		273	72	118		277	869	69		1.2	--	1,580	2.15	16.2	980	753	21	1.6	2,050	7.7
Apr. 4, 11, 20, 26	1.7	34		350	84	130		424	1,010	79		.6	.39	1,900	2.58	8.72	1,220	872	19	1.6	2,290	7.6
May 3, 10, 16, 26, 31	1.6	38		343	78	113	9.5	418	940	82		.4	.43	1,810	2.46	7.82	1,180	837	17	1.4	2,240	7.6
June 6, 22, 29	.9	44		319	79	118		376	955	77		.6	.36	1,780	2.42	4.33	1,120	812	19	1.5	2,180	7.6
July 5, 12, 20	.5	39		348	70	119		304	1,040	76		2.3	.39	1,840	2.50	2.48	1,160	911	18	1.5	2,230	7.6
July 23	.3	28		150	22	36		459	117	32		2.2	--	613	.83	.497	465	89	14	.7	984	7.2
July 25	164	17		144	9.5	10		151	288	6.0		1.3	--	550	.75	244	400	276	5	.2	789	7.1
Aug. 1, 17	20.0	36		132	17	24		378	126	20		.2	--	541	.74	29.2	400	90	12	.5	823	7.6
Aug. 22	41.0	32		253	29	36		831	108	32		1.9	--	902	1.23	99.9	750	69	9	.6	1,210	7.2
Aug. 24	465	35		155	19	14		584	19	12		.8	--	543	.74	682	464	0	6	.3	886	7.3
Aug. 30	2.5	56		368	73	133		448	960	109		.6	--	1,920	2.61	13.0	1,220	855	19	1.7	2,360	7.5
Sept. 15, 20, 26	.5	43		391	96	144		429	1,160	104		1.7	--	2,150	2.92	2.90	1,370	1,020	19	1.7	2,610	7.6

VIRGIN RIVER NEAR ST. GEORGE, UTAH

LOCATION.--At gaging station, 8 miles southwest of St. George, Washington County.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to August 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to Spetember 1955 given in WSP 1393.

Chemical analyses, in parts per million, October 1954 to August 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954....	55.0	15		460	63	314		252	1,270	445		5.8	0.80	2,700	3.67	401	1,410	1,200	33	3.6	3,620	7.9
Nov. 9, 15.....	92.5	18		291	59	324		278	841	415		4.0	.73	2,090	2.84	522	970	742	42	4.5	3,020	7.8
Dec. 2,8,14,20..	142	18		237	48	220		268	626	332		4.0	.55	1,620	2.20	621	790	570	38	3.4	2,440	7.9
Jan. 6,17,26,1955	142	18		211	45	231		270	572	315		3.6	.51	1,530	2.08	587	714	493	41	3.8	2,300	7.8
Feb. 21.....	184	16		204	40	212		288	504	288		4.5	.44	1,410	1.92	700	674	438	41	3.5	2,120	8.1
Mar. 2, 8, 15, 26.	124	20		177	49	223		258	496	278		3.3	.48	1,370	1.86	459	644	432	43	3.8	1,990	8.0
Apr. 6, 11, 20...	39.3	19		271	79	350		260	887	455		4.0	.72	2,190	2.98	232	1,000	787	43	4.8	3,200	7.5
May 4, 10, 16 ...	35.3	20		246	73	300	23	232	784	425		3.5	.68	1,990	2.71	190	915	725	41	4.3	2,850	7.8
July 26.....	349	18		624	29	120		179	1,560	127		1.4	--	2,570	3.50	2,420	1,680	1,530	13	1.3	2,870	7.2
Aug. 4.....	865	26		547	47	246		752	1,030	245		.2	--	2,510	3.41	5,860	1,560	945	26	2.7	3,160	7.3
Aug. 5.....	1,410	24		706	61	121		530	1,660	110		.3	--	2,940	4.00	11,190	2,020	1,580	12	1.2	3,200	7.5
Aug. 25.....	5,490	20		693	23	43		266	1,620	35		.2	--	2,570	3.50	38,100	1,830	1,610	5	.4	2,740	7.3
Aug. 30.....	49.0	26		551	44	329		202	1,490	430		5.5	--	2,980	4.05	394	1,560	1,390	31	3.6	3,750	7.6

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VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.

LOCATION.--At gaging station, three-eighths of a mile downstream from Beaverdam Wash and three-eighths of a mile upstream from Littlefield, Mohave County, and 36 miles upstream from water line of Lake Mead at elevation 1,221 feet above mean sea level.
DRAINAGE AREA.--5,090 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: July 1949 to September 1955.
Water temperatures: October 1947 to September 1955.
Sediment records: October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,780 ppm Aug. 1-10; minimum, 1,160 ppm Feb. 19.
Hardness: Maximum, 1,720 ppm Aug. 1-10; minimum, 684 ppm Feb. 19.
Specific conductance: Maximum daily, 3,660 micromhos Oct. 19; minimum daily, 1,660 micromhos Feb. 19.
Water temperatures: Maximum, 89°F July 30; minimum, 41°F Feb. 19.
Sediment concentrations: 150,000 ppm Oct. 9; minimum daily, 390 ppm May 27, 30.
Sediment loads: 1,740,000 tons Aug. 25; minimum daily, 67 tons May 30.
EXTREMES, 1947-55.--Dissolved solids (1949-50, 1953-55): Maximum, 2,780 ppm Aug. 1-10, 1955; minimum, 1,030 ppm Apr. 19-30, 1954.
Hardness (1949-50, 1953-55): Maximum, 1,720 ppm Aug. 1-10, 1955; minimum, 588 ppm Apr. 19-30, 1954.
Specific conductance (1949-55): Maximum daily, 3,960 micromhos July 14, 1954; minimum daily, 734 micromhos Apr. 28, 1952.
Water temperatures: Maximum, 92°F July 7, 1953; minimum, 35°F Jan. 4, 1949, Jan. 4, 1950.
Sediment concentrations: 150,000 ppm Oct. 9, 1954; minimum daily, 150 ppm Oct. 13, 1948.
Sediment loads: 1,740,000 tons Aug. 25, 1955; minimum daily, 30 tons Oct. 3, 1947.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	183	22		401	112	234	22	314	1,240	322		1.3	0.94	2,510	3.41	1,240	1,460	1,200	25	2.7	3,250	7.4
Oct. 11-20	116	19		426	108	290	23	351	1,260	390		2.3	.92	2,690	3.66	843	1,510	1,220	29	3.3	3,510	7.5
Oct. 21-31	123	20		364	106	300	23	329	1,130	410		3.4	.99	2,520	3.43	837	1,340	1,070	32	3.6	3,390	7.5
Nov. 1-10	134	21		345	104	295	26	314	1,070	420		3.3	.83	2,440	3.32	883	1,290	1,030	33	3.6	3,280	7.9
Nov. 11-20	168	21		328	98	272	23	314	983	385		3.3	.74	2,270	3.09	1,030	1,220	964	32	3.4	3,060	7.8
Nov. 21-30	166	20		318	99	272	23	306	955	390		3.3	.77	2,230	3.03	999	1,200	950	32	3.4	3,030	7.9
Dec. 1-10	256	17		306	82	229	20	302	863	320		2.8	.63	1,990	2.71	1,380	1,100	853	31	3.0	2,710	7.9
Dec. 11-20	210	19		284	82	246	20	322	814	338		3.4	.61	1,970	2.68	1,120	1,050	782	33	3.3	2,700	7.9
Dec. 21-31	181	21		294	84	252	18	327	830	352		2.2	.70	2,010	2.73	982	1,080	811	33	3.3	2,850	7.7
Jan. 1-10, 1955	194	21		263	81	249	18	301	779	340		2.4	.70	1,900	2.58	995	989	742	35	3.4	2,690	7.7
Jan. 11-20	198	19		265	81	243	18	311	794	338		2.1	.70	1,910	2.60	1,020	994	739	34	3.4	2,720	7.8
Jan. 21-31	182	19		266	82	243	18	305	798	345		2.2	.70	1,920	2.61	943	1,000	750	34	3.3	2,710	7.7
Feb. 1-10	181	19		276	82	243	18	317	793	338		1.9	.71	1,930	2.62	943	1,030	766	34	3.3	2,740	7.8
Feb. 11-18	255	20		270	82	243	18	318	794	338		2.0	.71	1,920	2.61	1,320	1,010	750	34	3.3	2,710	8.0
Feb. 19	387	13		200	45	112	9.6	210	540	140		2.3	--	1,160	1.58	1,210	684	512	26	1.9	1,660	8.2
Feb. 20-28	206	18		264	80	230	17	318	758	310		2.1	.66	1,840	2.50	1,020	988	727	33	3.2	2,590	8.0
Mar. 1-10	189	21		250	78	219	22	300	744	312		3.1	.60	1,800	2.45	919	944	698	33	3.1	2,580	7.8
Mar. 11-20	171	20		256	79	219	22	298	764	305		2.9	.60	1,820	2.48	840	964	720	32	3.1	2,600	7.5
Mar. 21-31	157	20		274	85	233	23	305	836	332		2.7	.70	1,960	2.67	831	1,030	783	32	3.1	2,780	7.6

Apr. 1-10, 1955...	82.1	22		351	111	262	29	313	1,100	372		1.5	.90	2,400	3.26	532	1,330	1,080	29	3.1	3,240	7.4
Apr. 11-20.....	102	21		340	105	262	28	320	1,040	375		1.6	.80	2,330	3.17	642	1,280	1,020	30	3.2	3,160	7.4
Apr. 21-30.....	116	19		322	99	257	26	328	975	355		2.0	.80	2,220	3.02	695	1,210	942	31	3.2	3,070	7.5
May 1-10	108	24		300	99	261	24	274	989	365		3.0	.89	2,200	2.99	642	1,160	931	32	3.3	3,010	7.4
May 11-20	79.0	25		342	111	259	26	305	1,120	372		1.8	1.0	2,410	3.28	514	1,310	1,060	30	3.1	3,200	7.3
May 21-31	66.8	25		359	115	258	28	316	1,150	372		1.9	1.0	2,470	3.36	445	1,370	1,110	29	3.0	3,260	7.4
June 1-10.....	65.9	26		344	126	245	31	276	1,170	375		1.1	1.0	2,460	3.35	438	1,380	1,150	27	2.9	3,250	7.6
June 11-20.....	66.6	24		356	127	250	32	311	1,170	370		1.9	.96	2,480	3.37	446	1,410	1,160	27	2.9	3,280	7.6
June 21-30.....	67.3	23		368	126	251	33	326	1,190	375		1.8	.96	2,530	3.44	460	1,440	1,170	27	2.9	3,330	7.4
July 1-10	67.8	30		340	120	275	33	254	1,170	378		1.7	.93	2,470	3.36	452	1,340	1,130	30	3.3	3,240	7.5
July 11-20	78.9	28		358	118	270	32	291	1,180	368		2.1	.93	2,500	3.40	533	1,380	1,140	29	3.2	3,260	7.4
July 21-31	335	26		492	97	236	23	343	1,390	288		2.2	.68	2,720	3.70	2,460	1,630	1,350	24	2.5	3,310	7.4
Aug. 1-10.....	351	24		538	93	200	22	346	1,460	270		3.3	.55	2,780	3.78	2,630	1,720	1,440	20	2.1	3,340	7.4
Aug. 11-20.....	397	23		564	73	151	19	272	1,490	210		2.6	.49	2,670	3.63	2,860	1,710	1,480	16	1.6	3,110	7.3
Aug. 21-31.....	1,167	25		540	82	182	21	284	1,470	245		2.6	.55	2,710	3.69	8,540	1,680	1,450	19	1.9	3,210	7.5
Sept. 1-10	81.8	30		344	111	251	30	250	1,140	358		2.5	--	2,390	3.25	528	1,310	1,110	29	3.0	3,510	7.2
Sept. 11-20	73.2	29		347	118	256	30	280	1,130	355		3.0	1.0	2,410	3.28	476	1,350	1,120	29	3.0	3,250	7.2
Sept. 21-30	70.7	27		347	113	248	28	272	1,130	352		2.7	--	2,380	3.24	454	1,330	1,110	28	3.0	3,170	7.2
Weighted average	187	22		388	91	228	22	305	1,120	314		2.5	0.69	2,340	3.18	1,180	1,340	1,090	27	2.7	3,030	--

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally between 7 a. m. and 10 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	56	52	48	52	49	56	63	60	68	73	71
2	63	a65	54	50	a53	52	58	59	63	68	--	69
3	a78	58	55	50	46	52	55	59	63	71	77	69
4	67	56	54	52	47	51	56	60	67	71	75	69
5	64	57	50	48	46	52	a68	61	67	66	72	69
6	64	55	52	49	47	48	56	63	a82	67	76	69
7	66	54	52	47	46	a53	59	66	69	65	76	69
8	67	54	50	45	47	a63	a72	60	69	66	a87	74
9	64	56	49	46	48	56	59	62	68	66	74	69
10	60	55	53	48	46	56	a72	a76	a77	67	75	67
11	61	57	50	49	45	55	58	63	68	68	74	68
12	62	62	49	48	46	a62	58	70	67	68	75	67
13	65	57	50	46	49	56	61	65	66	69	71	a77
14	63	57	49	46	50	57	a69	61	67	73	75	a77
15	61	57	50	47	53	a60	69	61	63	75	75	a76
16	60	61	48	47	55	50	a72	61	67	a86	73	a76
17	60	57	46	a50	59	50	62	64	66	72	73	65
18	a75	54	47	a53	58	53	60	64	67	74	76	65
19	63	55	46	50	41	•54	56	63	a80	72	78	a72
20	.62	53	46	47	44	51	55	66	66	71	76	a78
21	62	55	47	47	46	a51	60	64	66	a88	74	a78
22	a73	55	46	46	45	51	60	68	67	74	75	a75
23	--	56	47	46	46	53	59	68	67	76	77	a77
24	60	56	47	a55	46	a62	61	66	67	75	75	66
25	58	55	47	47	a51	56	62	67	67	77	74	65
26	57	55	48	47	51	57	58	a80	66	74	74	a76
27	56	55	44	47	51	51	58	74	a77	75	74	62
28	57	54	44	47	52	56	59	63	a79	73	72	62
29	57	53	46	47	--	57	66	63	75	71	71	a79
30	57	52	46	50	--	60	66	64	a84	a89	71	70
31	57	--	48	51	--	58	--	64	--	75	71	--
Average	63	56	49	48	49	55	61	65	69	73	75	71

a Reading obtained between 10:00 a. m. and 7:00 p. m.

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955

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	69	680	127	144	3,200	1,240	170	3,300	1,510
2	61	702	116	142	3,600	1,380	154	2,950	1,230
3	71	670	128	140	3,350	1,270	173	4,250	2,010
4	72	770	150	147	4,300	1,710	477	23,700	s 60,800
5	72	610	119	127	3,000	1,030	484	27,000	s 42,800
6	69	635	118	129	2,750	958	264	6,500	4,630
7	69	595	111	125	2,500	844	228	4,600	2,830
8	209	36,100	s 29,500	127	2,600	892	201	4,250	2,310
9	904	150,000	s 483,000	125	2,200	742	193	4,000	2,080
10	235	65,200	s 44,500	129	2,600	906	220	4,800	2,850
11	180	30,000	14,600	129	2,600	906	255	6,350	4,370
12	135	10,000	3,640	158	3,600	1,540	223	4,550	2,740
13	106	4,700	1,350	172	7,300	s 3,420	214	4,300	2,480
14	102	4,050	1,120	185	5,900	2,950	212	4,650	2,660
15	102	3,050	840	173	4,150	1,940	203	4,450	2,440
16	94	3,500	888	166	3,950	1,770	201	3,950	2,140
17	98	2,850	754	178	4,400	2,110	196	4,400	2,330
18	108	2,650	773	183	4,600	2,270	190	4,130	2,150
19	133	4,500	1,620	173	3,950	1,850	193	4,800	2,500
20	100	2,400	648	161	3,450	1,500	209	4,350	2,450
21	104	1,700	477	158	3,500	1,490	209	3,900	2,200
22	108	1,520	443	170	3,450	1,580	201	3,950	2,140
23	110	2,000	a 590	170	3,850	1,810	196	3,800	2,010
24	114	2,250	693	170	3,650	1,680	196	3,850	2,040
25	122	4,400	1,450	168	3,900	1,770	188	4,200	2,130
26	142	6,300	2,420	168	3,650	1,660	178	3,500	1,680
27	114	3,600	1,110	166	3,800	1,700	161	2,600	1,130
28	116	3,200	1,000	161	3,300	1,430	151	2,200	897
29	127	3,600	1,230	158	3,550	1,510	166	2,800	1,250
30	135	3,850	1,400	168	3,550	1,610	168	3,150	1,430
31	163	5,400	2,380	--	--	--	173	4,850	2,270
Total	4,344	--	597,295	4,670	--	47,468	6,647	--	168,487
	January			February			March		
1	183	3,400	1,680	183	3,400	1,680	197	2,850	1,520
2	193	4,100	2,140	193	3,950	2,060	180	2,650	1,290
3	201	4,150	2,250	198	4,100	2,170	169	2,950	1,350
4	206	4,400	2,420	185	2,900	1,450	192	3,250	1,680
5	212	4,800	2,750	170	2,250	1,030	180	3,450	1,680
6	190	4,200	2,150	170	2,700	1,240	195	3,800	2,000
7	183	3,900	1,930	173	2,700	1,260	216	4,970	s 2,920
8	190	4,250	2,180	175	2,700	1,280	202	3,400	1,850
9	190	3,050	1,560	183	2,900	1,430	176	3,400	1,620
10	190	3,000	1,540	180	3,200	1,560	183	3,800	1,880
11	212	4,200	2,400	183	2,950	1,460	158	4,350	1,860
12	198	4,350	2,330	175	3,000	1,420	212	4,290	s 2,490
13	190	3,050	1,560	175	2,800	1,320	197	4,300	2,290
14	183	3,050	1,510	180	2,850	1,390	187	3,450	1,740
15	180	3,050	1,480	175	2,700	1,280	187	3,800	1,920
16	209	3,850	2,170	178	2,400	1,150	167	3,100	1,400
17	223	4,700	2,830	203	2,750	1,510	153	2,300	950
18	193	3,700	1,930	774	24,400	s 68,400	138	2,150	801
19	198	3,550	1,900	387	12,500	s 14,400	126	1,850	629
20	198	3,750	2,000	237	4,600	2,940	182	4,220	s 2,210
21	188	3,250	1,650	214	3,300	1,910	195	3,000	1,580
22	188	2,950	1,500	217	3,650	2,140	176	2,650	1,260
23	175	2,800	1,320	204	3,050	1,680	180	3,150	1,530
24	178	3,100	1,490	197	3,200	1,700	178	2,950	1,420
25	196	3,450	1,830	202	3,400	1,850	180	3,000	948
26	175	3,000	1,420	190	2,600	1,330	174	1,900	893
27	180	3,350	1,630	187	3,250	1,640	160	3,050	1,320
28	183	3,300	1,630	202	2,850	1,550	147	2,550	615
29	183	3,250	1,610	--	--	--	120	2,050	664
30	178	2,750	1,320	--	--	--	115	1,900	590
31	183	2,850	1,410	--	--	--	102	1,600	441
Total	5,929	--	57,520	6,090	--	124,230	5,324	--	45,341

s Computed by subdividing day.
a Computed from estimated concentration graph.

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	98	1,800	476	93	1,650	414	66	470	84
2.....	87	1,650	388	113	1,780	543	66	480	86
3.....	87	1,400	329	104	1,500	421	67	510	92
4.....	92	1,600	397	90	1,190	289	66	590	105
5.....	84	1,180	268	80	1,280	276	67	640	116
6.....	78	1,350	284	90	1,400	340	66	570	102
7.....	77	1,430	297	113	2,320	s730	66	720	128
8.....	72	1,500	292	135	3,120	s1,170	66	720	128
9.....	73	1,030	203	153	3,000	s1,270	65	670	118
10.....	73	850	168	104	1,650	463	64	640	111
11.....	74	1,070	214	80	1,350	292	65	710	125
12.....	78	1,450	305	92	1,290	320	67	850	154
13.....	86	1,300	302	86	1,450	337	77	8,260	s3,070
14.....	74	900	180	80	910	197	66	860	153
15.....	85	1,220	s307	79	950	203	66	860	153
16.....	118	2,550	812	80	920	199	65	870	153
17.....	119	2,730	s883	74	820	164	65	1,020	179
18.....	152	3,280	s1,360	74	840	168	65	690	121
19.....	118	2,050	653	73	670	132	65	580	102
20.....	111	1,690	480	72	630	122	65	950	167
21.....	115	1,980	615	71	660	127	66	690	123
22.....	115	1,580	491	71	580	111	67	660	119
23.....	142	2,340	s913	68	470	86	68	640	118
24.....	118	1,820	589	67	600	109	70	560	106
25.....	105	1,480	s428	67	500	90	68	580	106
26.....	127	2,390	s845	66	400	71	68	700	129
27.....	130	2,660	s933	66	390	69	68	610	112
28.....	113	2,000	610	66	400	71	66	510	91
29.....	92	1,480	368	65	450	79	66	440	78
30.....	98	1,530	405	64	390	67	66	530	94
31.....	--	--	--	64	400	69	--	--	--
Total.	2,991	--	14,795	2,600	--	8,999	1,998	--	6,523
	July			August			September		
1.....	66	690	123	146	31,400	s15,800	92	825	205
2.....	67	730	132	92	6,300	1,560	87	790	186
3.....	67	660	119	80	2,500	540	84	835	189
4.....	68	570	105	650	55,500	s110,000	84	880	200
5.....	68	580	106	1,540	131,000	s619,000	76	630	129
6.....	70	570	108	272	92,000	s74,500	74	525	105
7.....	68	640	118	154	47,000	20,300	79	525	112
8.....	68	610	112	84	22,000	4,990	84	685	155
9.....	68	570	105	330	65,400	s84,600	79	660	141
10.....	68	540	99	162	67,500	30,600	79	875	187
11.....	68	570	105	114	29,200	s10,200	74	850	170
12.....	67	560	101	226	47,700	s31,300	74	830	166
13.....	68	500	92	997	83,300	s257,000	71	745	143
14.....	71	680	130	572	50,700	s83,200	76	725	149
15.....	72	1,050	204	226	22,000	13,400	74	775	155
16.....	72	3,300	642	237	35,300	s33,700	74	675	135
17.....	70	2,150	406	1,060	74,300	s239,000	76	685	141
18.....	81	7,060	s2,960	208	31,900	s19,200	74	465	93
19.....	77	5,000	1,040	167	30,100	s16,000	71	480	92
20.....	143	31,600	s18,100	165	28,400	s16,700	68	570	105
21.....	86	12,000	2,790	84	2,500	567	68	550	101
22.....	321	74,900	s92,600	87	1,500	352	66	495	88
23.....	118	50,000	16,500	193	52,500	s34,300	63	480	82
24.....	282	63,500	s107,000	1,940	88,800	s668,000	63	445	76
25.....	1,840	118,000	s627,000	6,330	102,000	s1,740,000	89	3,200	s859
26.....	516	36,400	s56,800	3,280	74,900	s824,000	71	510	98
27.....	183	22,100	s11,300	223	31,200	s23,300	74	575	115
28.....	106	7,250	2,070	278	12,500	9,380	74	525	105
29.....	86	2,500	580	154	4,500	1,870	71	400	77
30.....	77	1,250	260	139	1,780	668	68	520	95
31.....	74	2,000	400	125	1,050	354	--	--	--
Total.	5,156	--	942,207	20,315	--	4,984,381	2,257	--	4,654

Total discharge for year (cfs-days)..... 68,321
Total load for year (tons)..... 7,001,900

s Computed by subdividing day.

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Particle-size analyses of suspended sediment for water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, 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. 8, 1954	9:00 a.m.	482	70	51,900	4,110	--	31	--	61	81	93	97	99	100			SPWCM
Oct. 9	7:00 a.m.	2,110	64	128,000	4,240	--	21	--	35	49	72	85	95	100			SPWCM
Oct. 15	9:00 a.m.	90	61	2,630	5,270	--	52	--	67	69	81	82	97	100			SPWCM
Oct. 31	8:00 a.m.	a163	57	5,250	5,210	--	22	--	38	63	80	90	97	100			SPWCM
Nov. 30	8:00 a.m.	154	52	3,260	4,240	--	13	--	21	33	55	84	95	100			SPWCM
Dec. 5	6:00 a.m.	579	50	25,500	2,670	--	29	--	44	54	66	85	96	100			SPWCM
Dec. 15	8:00 a.m.	228	50	4,170	5,140	--	12	--	19	29	52	81	97	100			SPWCM
Dec. 31	8:00 a.m.	156	48	2,390	2,090	--	10	--	14	20	37	68	93	100			SPWCM
Jan. 22, 1955	9:00 a.m.	170	46	2,730	2,540	--	7	--	11	15	29	69	95	100			SPWCM
Jan. 31	8:00 a.m.	170	51	2,630	2,570	--	8	--	12	17	32	77	98	100			SPWCM
Feb. 15	8:00 a.m.	173	53	2,570	4,700	--	9	--	14	18	31	75	97	100			SPWCM
Feb. 18	9:00 a.m.	a774	47	38,400	2,140	--	9	--	13	25	50	85	98	100			SPWCM
Feb. 18	6:00 p.m.	1,000	42	34,600	3,800	--	19	--	26	33	44	69	93	100			SPWCM
Feb. 28	7:30 a.m.	199	52	2,570	2,440	--	9	--	15	21	34	65	93	100			SPWCM
Mar. 15	5:00 p.m.	187	60	3,500	3,160	--	18	--	23	29	38	69	94	100			SPWCM
Mar. 30	10:00 a.m.	107	60	2,240	1,950	--	11	--	14	19	36	73	97	100			SPWCM
Apr. 15	9:30 a.m.	72	69	789	777	4	10	14	15	16	21	52	92	100			SBWCM
Apr. 30	10:00 a.m.	78	66	874	2,100	--	15	--	26	28	40	71	97	100			SPWCM
May 30																	
May 31	7:00 a.m.	64	64	194	625	8	20	23	24	28	34	55	91	100			SBWCM
June 29	10:00 a.m.	67	75	291	684	10	22	24	26	27	31	54	90	100			SBWCM
June 30	2:00 p.m.	65	84	439	581	6	12	14	15	16	18	35	77	99	100		SBWCM
July 16	7:30 p.m.	70	81	4,880	3,700	--	80	--	97	97	97	98	99	100			SPWCM
July 20	2:00 p.m.	263	84	69,200	3,500	--	51	--	91	97	97	99	100	--			SPWCM
July 22	8:00 a.m.	698	74	125,000	4,750	--	30	--	67	81	89	96	99	100			SPWCM
July 23	6:30 p.m.	99	76	45,800	3,500	--	64	--	91	96	96	98	100	--			SPWCM

a Daily mean discharge.

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955--Continued
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	0.500	1.000	
July 24, 1955	7:30 a.m.	120	75	22,900	4,320	--	65	--	91	95	95	97	99	100			SPWCM
July 24	6:30 p.m.	693	80	176,000	4,000	--	27	--	54	74	83	93	99	100			SPWCM
July 25	8:30 a.m.	3,150	73	151,000	4,860	--	24	--	48	62	75	85	97	100			SPWCM
July 26	6:30 a.m.	720	74	36,400	2,860	--	40	--	70	83	87	93	98	100			SPWCM
July 27	6:30 a.m.	209	75	26,100	4,000	--	65	--	89	93	95	97	100	--			SPWCM
July 31	7:00 a.m.	71	75	654	746	15	25	30	37	42	49	73	98	100			SPWCM
Aug. 1	5:00 p.m.	244	86	40,800	3,550	--	49	--	81	95	95	98	100	--			SPWCM
Aug. 4	6:30 a.m.	940	75	75,600	3,360	--	29	--	58	75	88	93	98	100			SPWCM
Aug. 5	6:30 a.m.	2,260	72	150,000	3,500	--	26	--	47	60	71	83	96	100			SPWCM
Aug. 6	7:00 a.m.	294	76	103,000	3,840	--	52	--	79	89	94	97	99	100			SPWCM
Aug. 7	7:00 a.m.	201	76	50,000	3,700	--	61	--	88	95	95	98	100	--			SPWCM
Aug. 9	1:00 p.m.	652	78	90,900	3,950	--	34	--	54	75	90	97	99	100			SPWCM
Aug. 10	8:00 a.m.	183	75	70,800	3,210	--	61	--	88	96	96	98	100	--			SPWCM
Aug. 11	7:00 a.m.	87	74	22,300	4,020	--	68	--	87	93	95	98	100	--			SPWCM
Aug. 12	8:30 a.m.	68	77	55,800	3,580	--	40	--	58	77	88	96	99	100			SPWCM
Aug. 13	8:00 a.m.	995	71	59,600	3,370	--	26	--	50	63	77	91	98	100			SPWCM
Aug. 14	7:30 a.m.	450	75	35,200	4,730	--	43	--	71	82	89	95	99	100			SPWCM
Aug. 17	7:00 a.m.	1,810	75	85,800	4,780	--	21	--	44	59	74	86	96	100			SPWCM
Aug. 18	7:00 a.m.	223	76	37,200	3,300	--	58	--	85	95	95	97	100	--			SPWCM
Aug. 19	8:00 a.m.	89	78	6,190	3,420	--	64	--	83	86	91	96	99	100			SPWCM
Aug. 20	8:00 a.m.	201	76	34,500	3,070	--	45	--	85	95	96	100	--	--			SPWCM
Aug. 24	9:30 a.m.	1,070	75	137,000	3,280	--	17	--	38	56	75	88	97	100			SPWCM
Aug. 25	8:00 a.m.	1,940	74	112,000	3,640	--	33	--	67	80	87	93	98	100			SPWCM
Aug. 25	4:30 p.m.	6,130	76	77,400	4,150	--	32	--	50	63	74	87	99	100			SPWCM
Aug. 26	6:30 a.m.	3,440	74	91,000	5,500	--	27	--	47	60	72	83	95	100			SPWCM
Aug. 27	8:00 a.m.	535	74	34,600	3,350	--	52	--	84	92	94	97	99	100			SPWCM

LAKE MEAD NEAR BOULDER CITY, NEV.

Chemical analyses, in parts per million, water year October 1954 to September 1955
/The miles given below represent distances measured along the Colorado River downstream from the gaging station at Lees Ferry, Ariz.
A resistance thermometer was used in measuring the temperature of the water/

Date of collection	Depth (feet)	Elevation (feet)	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$	Specific conductance (micromhos at 25°C)
AT LINE OF DEMARCATION BETWEEN TURBID AND CLEAR WATER, MILE 282.75												
Mar. 28, 1955	0	1,093	54.7	14	96	25	212	314	92	6.9	344	1,210
Mar. 28	0	1,093	54.7	9.6	92	26	199	316	89	4.3	334	1,180
GRAND WASH, MILE 284.7												
Mar. 29, 1955	5	1,088	56.8	8.9	116	27	185	390	96	5.4	400	1,310
Mar. 29	50	1,043	52.3	15	115	31	187	408	94	4.7	414	1,320
Mar. 29	64	1,029	--	12	134	33	234	424	101	1.5	470	1,420
ICEBERG CANYON, MILE 287.5												
Mar. 29, 1955	5	1,088	55.7	12	109	27	180	354	103	3.3	382	1,240
Mar. 29	80	1,013	53.0	8.9	97	28	183	343	94	5.0	358	1,220
Mar. 29	90	1,003	--	15	120	34	317	332	96	3.3	440	1,360
SANDY POINT, MILE 293.5												
Mar. 29, 1955	50	1,043	53.6	13	108	28	177	356	103	3.0	386	1,220
Mar. 29	148	945	52.8	17	102	29	186	381	100	4.5	376	1,240
Mar. 29	150	943	53.1	13	121	34	280	366	103	2.8	444	1,360
VIRGIN CANYON, MILE 305.5												
Mar. 29, 1955	5	1,088	56.6	11	103	30	173	300	95	2.3	382	1,180
Mar. 29	100	993	52.9	9.1	106	31	180	355	106	2.7	390	1,260
Mar. 29	150	943	52.7	11	107	33	188	371	105	7.9	404	1,330
Mar. 29	243	850	52.5	--	103	33	179	374	113	3.2	392	1,310
Mar. 29	244	849	--	12	131	40	360	356	115	2.3	492	1,470

COLORADO RIVER MAIN STEM--Continued

LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--Continued

Date of collection	Depth (feet)	Elevation (feet)	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$	Specific conductance (micromhos at 25°C)
OVERTON ARM OF LAKE AT LINE OF DEMARCATION BETWEEN TURBID AND CLEAR WATER, 27 MILES ABOVE MOUTH OF VIRGIN RIVER												
Mar. 30, 1955	0	1,092	53.0	22	340	107	189	1,210	462	3.1	1,290	3,510
OVERTON ARM OF LAKE OPPOSITE SALT MINE, 22 MILES ABOVE MOUTH OF VIRGIN RIVER												
Mar. 31, 1955	0	1,093	54.2	11	116	28	165	368	99	1.9	404	1,280
OVERTON ARM OF LAKE, 9.3 MILES ABOVE MOUTH OF VIRGIN RIVER (LOWER VIRGIN NARROWS)												
Mar. 31, 1955	5	1,088	54.2	13	106	28	174	348	98	2.4	380	1,170
Mar. 31	100	993	52.4	14	111	28	168	355	99	2.4	392	1,200
Mar. 31	198.5	894	--	--	119	30	215	369	103	.9	420	1,280
BOULDER CANYON, MILE 334												
Apr. 7, 1955	5	1,087	55.8	13	99	27	166	326	89	1.8	358	1,140
Apr. 7	150	942	52.7	11	104	27	170	342	94	2.0	372	1,180
Apr. 7	300	792	51.0	12	107	29	180	351	105	2.6	388	1,240
Apr. 7	328	764	51.1	10	105	30	158	351	102	2.4	386	1,230
Apr. 7	329	763	--	11	116	34	291	304	105	6.7	432	1,290
NEAR INTAKE TOWERS, MILE 354.7												
Oct. 6, 1954	100	1,015	66.7	12	90	22	152	282	73	1.9	318	1,000
Oct. 6	250	865	54.5	12	93	25	157	296	79	2.3	336	1,050
Oct. 6	388	727	54.1	11	94	26	173	300	82	2.8	342	1,070
Oct. 29	5	1,108	71.0	12	88	23	140	310	78	.8	314	1,030
Oct. 29	150	963	59.8	16	92	24	165	295	72	1.3	328	1,020
Oct. 29	200	913	55.9	11	96	23	162	295	77	1.7	334	1,040
Oct. 29	300	813	54.3	--	91	26	170	304	80	1.7	332	1,070
Oct. 29	387	726	54.1	11	98	24	175	298	81	1.9	342	1,080

Nov. 30, 1954	5	1,105	64.8	13	90	25	147	307	78	1.4	326	1,020
Nov. 30	200	910	56.8	12	93	24	164	306	78	2.3	334	1,030
Nov. 30	300	810	54.1	11	95	25	171	302	82	2.3	342	1,050
Nov. 30	384	726	53.9	11	96	25	177	304	84	2.5	344	1,080
Nov. 30	385	725	--	19	96	27	184	300	84	2.5	350	1,080
Jan. 4, 1955	5	1,100	57.4	16	91	26	156	301	80	1.0	332	1,080
Jan. 4	50	1,055	57.2	16	92	27	154	295	79	.9	340	1,060
Jan. 4	100	1,005	56.9	17	91	26	153	299	81	1.0	336	1,050
Jan. 4	150	955	56.9	11	91	28	153	298	79	1.0	340	1,040
Jan. 4	200	905	55.1	15	92	26	164	295	79	1.4	340	1,050
Jan. 4	250	855	54.3	12	93	31	168	295	80	1.2	362	1,070
Jan. 4	300	800	54.0	11	92	27	170	295	82	1.4	344	1,070
Jan. 4	350	755	53.8	13	93	28	174	292	84	1.6	350	1,080
Jan. 4	379	726	53.8	12	93	27	178	286	82	1.4	346	1,080
Jan. 4	380	725	53.8	13	93	32	184	287	83	2.0	362	1,090
Feb. 3	5	1,095	54.0	14	97	23	160	311	86	2.3	338	1,090
Feb. 3	150	950	53.9	12	97	25	161	311	86	2.1	346	1,100
Feb. 3	250	850	53.9	15	97	27	165	313	107	2.4	354	1,110
Feb. 3	300	800	53.8	12	106	27	170	336	115	2.6	374	1,190
Feb. 3	374	726	53.8	12	107	26	173	344	100	3.0	376	1,190
Feb. 3	375	725	53.8	12	105	29	184	342	98	3.5	380	1,210
Mar. 1	100	996	52.7	13	99	26	163	322	87	2.1	354	1,110
Mar. 1	200	896	52.9	11	104	27	173	340	96	2.4	370	1,170
Mar. 1	300	796	53.1	8.3	104	28	164	352	103	1.5	376	1,210
Mar. 1	369	727	53.1	16	99	24	133	351	102	1.7	346	1,160
Mar. 1	372	724	53.1	12	111	32	262	312	102	3.8	410	1,240
Apr. 5	100	992	54.4	12	102	24	166	328	90	1.9	356	1,120
Apr. 5	200	892	52.1	12	107	28	175	356	101	2.7	384	1,190
Apr. 5	300	792	51.5	24	108	29	184	354	102	2.7	388	1,220
Apr. 5	365	727	51.4	14	109	28	180	349	102	2.7	386	1,210
Apr. 5	368	724	51.4	7.8	112	27	210	335	104	2.3	390	1,240

COLORADO RIVER MAIN STEM--Continued

LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--Continued

Date of collection	Depth (feet)	Elevation (feet)	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$	Specific conductance (micromhos at 25°C)
NEAR INTAKE TOWERS, MILE 354.7--Continued												
Apr. 29, 1955	50	1,040	56.0	11	103	27	167	336	94	1.9	368	1,160
Apr. 29	200	890	51.8	20	109	29	180	353	104	2.6	390	1,220
Apr. 29	350	740	51.5	11	108	29	176	354	104	2.7	388	1,220
Apr. 29	365.5	724	52.3	15	108	30	223	324	102	2.7	394	1,220
May 27	5	1,089	65.6	12	103	29	170	338	98	1.9	378	1,160
May 27	200	894	52.5	11	95	29	142	348	104	1.4	356	1,160
May 27	300	794	52.1	12	107	30	174	345	104	2.6	390	1,210
May 27	368	726	52.0	12	106	28	169	342	102	2.1	380	1,180
May 27	370.5	724	52.7	11	85	33	247	261	103	.4	350	1,140
June 30	5	1,101	73.5	11	99	27	158	338	96	1.9	360	1,140
June 30	150	951	56.7	12	106	27	168	342	98	2.5	378	1,170
June 30	250	851	52.1	20	109	27	177	303	102	2.9	384	1,190
June 30	350	751	51.9	12	109	25	176	347	106	2.7	376	1,200
June 30	382	719	--	13	108	34	248	314	53	5.0	412	1,250
Aug. 1	5	1,098	82.0	12	90	26	146	309	87	1.7	332	1,080
Aug. 1	100	1,003	62.8	12	102	27	162	335	94	2.2	368	1,160
Aug. 1	250	853	51.9	12	106	27	167	338	97	2.6	376	1,190
Aug. 1	300	803	51.9	11	107	28	170	342	100	2.6	384	1,210
Aug. 1	379	724	51.9	13	107	28	174	340	101	2.2	384	1,220
Aug. 31	50	1,053	78.6	15	89	31	146	305	86	2.5	350	1,080
Aug. 31	150	953	58.2	19	106	33	172	342	95	3.3	398	1,190
Aug. 31	200	903	54.7	23	102	33	168	336	95	3.3	392	1,180
Aug. 31	300	803	52.3	29	107	30	180	346	100	3.7	390	1,230
Aug. 31	378	725	52.0	13	106	29	178	343	100	3.7	384	1,220
Sept. 30	1,049	1,049	75.8	11	88	25	144	305	86	2.0	324	1,060
Sept. 30	150	949	61.1	13	104	28	164	341	94	2.6	374	1,180
Sept. 30	250	849	53.6	13	105	28	169	347	98	2.6	378	1,200
Sept. 30	350	749	52.9	13	107	28	173	349	100	3.0	384	1,210
Sept. 30	375	724	52.8	17	110	29	242	312	99	4.4	396	1,230

COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.

LOCATION.--At Hoover Dam, state line between Mohave County, Arizona and Clark County, Nevada, about 1 mile upstream from gaging station.
DRAINAGE AREA.--167,800 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1939 to September 1955.
Water temperatures: October 1941 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 836 ppm May 1-10; minimum, 690 ppm Oct. 11-20.
Hardness: Maximum, 391 ppm July 11-20; minimum, 336 ppm Oct. 1-10, 21-31, Nov. 1-10, 11-20.
Specific conductance: Maximum daily, 1,580 micromhos June 20; minimum daily, 1,020 micromhos Oct. 8, 10.
EXTREMES, 1939-55.--Dissolved solids (1939-44, 1945-55): Maximum, 836 ppm May 1-10, 1955; minimum, 477 ppm Nov. 21, 24-26, 28, 1952.
Hardness (1939-44, 1950-55): 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 several days in 1947 and 1948; minimum, 50°F Mar. 23, 28, 30, 1949.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	12,240	--	--	94	24	97	--	--	--	--	--	--	--	702	0.95	23,200	336	--	39	2.3	1,040	--
Oct. 11-20.....	13,260	12	0.05	88	29	90	4.5	166	291	76	0.1	2.2	0.10	690	.94	24,700	338	202	36	2.1	1,040	7.6
Oct. 21-31.....	12,400	--	--	94	24	96	--	--	--	--	--	--	--	692	.94	23,170	336	--	39	2.3	1,040	--
Nov. 1-10	11,880	--	--	95	24	96	--	--	--	--	--	--	--	697	.95	22,360	336	--	38	2.3	1,040	--
Nov. 11-20	11,740	--	--	94	24	96	--	--	--	--	--	--	--	695	.95	22,030	336	--	39	2.3	1,040	--
Nov. 21-30	10,440	--	--	95	25	95	--	--	--	--	--	--	--	697	.95	19,650	340	--	38	2.2	1,040	--
Dec. 1-10.....	12,370	--	--	96	24	95	--	--	--	--	--	--	--	704	.96	23,510	338	--	38	2.2	1,050	--
Dec. 11-20	11,320	--	--	95	24	96	--	--	--	--	--	--	--	708	.96	21,640	338	--	38	2.3	1,050	--
Dec. 21-31	12,430	--	--	94	25	95	--	--	--	--	--	--	--	726	.99	24,370	340	--	38	2.2	1,060	--
Jan. 1-10, 1955 ..	12,380	--	--	95	25	97	--	--	---	--	--	--	--	729	.99	24,370	340	--	38	2.3	1,050	--
Jan. 11-20.....	12,630	13	.01	89	30	96	4.6	160	299	84	.3	1.7	.13	714	.97	24,350	346	214	37	2.2	1,070	7.6
Jan. 21-31.....	10,480	--	--	95	27	97	--	--	--	--	--	--	--	748	1.02	21,170	348	--	38	2.3	1,090	--
Feb. 1-10	13,120	--	---	97	25	106	--	--	--	--	--	--	--	763	1.04	27,030	348	--	40	2.5	1,080	--
Feb. 11-20.....	12,070	--	--	99	26	103	--	--	--	--	--	--	--	758	1.03	24,700	356	--	39	2.4	1,120	--
Feb. 21-28.....	12,940	--	--	99	26	103	--	--	--	--	--	--	--	770	1.05	26,900	356	--	39	2.4	1,130	--
Mar. 1-10.....	13,060	--	--	103	27	104	--	--	--	--	--	--	--	791	1.08	27,890	366	--	38	2.3	1,160	--
Mar. 11-20	14,740	--	--	105	26	114	--	167	--	--	--	--	--	788	1.07	31,360	370	233	40	2.6	1,180	7.5
Mar. 21-31	16,250	--	--	106	28	114	--	175	--	--	--	--	--	807	1.10	35,410	378	234	40	2.5	1,190	7.5
Apr. 1-10	14,600	--	--	106	29	114	--	174	--	--	--	--	--	811	1.10	31,970	382	239	39	2.5	1,210	7.7
Apr. 11-20	15,470	14	.05	98	35	114	4.1	174	342	102	.3	2.5	.15	821	1.12	34,290	388	246	39	2.5	1,200	7.2
Apr. 21-30	14,420	--	--	107	28	117	--	178	--	--	--	--	--	820	1.12	31,930	384	238	40	2.6	1,210	7.8
May 1-10	14,460	--	--	107	28	110	--	173	--	--	--	--	--	836	1.14	32,640	382	240	38	2.5	1,200	7.7
May 11-20	15,720	--	--	108	27	110	--	173	--	--	--	--	--	800	1.14	35,440	382	240	39	2.5	1,200	7.9
May 21-31	15,070	--	--	106	29	119	--	172	--	--	--	--	--	800	1.09	32,550	384	243	40	2.6	1,200	7.4

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.--Continued

Chemical analyaes, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 1-10, 1955..	12,240	--	--	108	28	119	--	171	--	--	--	--	--	812	1.10	26,830	386	246	40	2.6	1,210	7.5
June 11-20.....	9,010	--	--	110	27	112	--	174	--	--	--	--	--	835	1.14	20,310	388	245	39	2.5	1,270	7.4
June 21-30	13,010	--	--	110	27	112	--	172	--	--	--	--	--	826	1.12	29,010	384	243	39	2.5	1,220	7.7
July 1-10.....	11,700	--	--	110	25	118	--	172	--	--	--	--	--	811	1.10	25,620	380	239	40	2.6	1,210	7.6
July 11-20	15,590	15	0.00	104	32	113	5.2	174	343	100	0.2	4.0	0.19	823	1.12	34,640	391	248	38	2.5	1,210	7.1
July 21-31.....	14,010	--	--	106	28	106	--	172	--	--	--	--	--	814	1.11	30,790	380	239	38	2.4	1,200	8.2
Aug. 1-10.....	13,300	--	--	108	27	106	--	174	--	--	--	--	--	821	1.12	29,480	380	237	38	2.4	1,210	8.0
Aug. 11-20.....	12,320	--	--	109	27	109	--	172	--	--	--	--	--	833	1.13	27,710	384	243	38	2.4	1,240	7.9
Aug. 21-31.....	12,870	--	--	110	26	114	--	174	--	--	--	--	--	818	1.11	28,420	380	237	39	2.5	1,220	7.6
Sept. 1-10	12,650	--	--	108	27	110	--	166	--	--	--	--	--	811	1.10	27,700	380	244	39	2.5	1,220	7.8
Sept. 11-20.....	9,620	--	--	110	26	110	--	172	--	--	--	--	--	821	1.12	21,320	384	243	39	2.5	1,220	7.8
Sept. 21-30.....	9,060	--	--	109	28	110	--	172	--	--		--	--	825	1.12	20,180	388	250	38	2.4	1,220	7.9
Weighted average	12,810	--	--	102	27	106	--	--	--	--	--	--	--	778	1.06	26,910	366	--	39	2.4	1,150	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	58	58	--	56	54	53	--	55	54	55	56
2	--	57	58	--	56	54	--	53	53	--	55	56
3	--	58	59	58	56	54	--	53	53	--	--	--
4	58	58	--	58	55	54	53	53	--	--	55	--
5	57	58	--	58	54	--	53	53	--	54	55	--
6	57	--	58	58	--	--	53	53	53	55	--	56
7	57	--	58	58	55	54	53	--	54	55	--	56
8	57	58	58	--	55	53	53	--	54	55	55	56
9	--	58	58	--	56	53	--	53	54	--	55	56
10	--	58	58	58	56	53	--	53	54	--	55	--
11	57	--	--	58	--	53	53	53	--	55	55	--
12	57	58	--	57	--	--	53	53	--	55	55	56
13	58	--	58	57	--	--	53	53	54	55	--	56
14	57	--	58	57	54	53	53	--	54	55	--	56
15	57	58	58	--	54	53	53	--	54	55	55	56
16	--	58	58	--	54	53	--	53	54	--	56	56
17	--	58	58	56	54	53	--	53	54	--	56	--
18	57	58	--	56	54	53	53	53	--	55	55	--
19	57	58	--	56	--	--	53	53	--	56	55	--
20	57	--	58	56	--	--	53	53	54	59	--	57
21	58	--	58	56	54	53	53	--	54	58	--	57
22	57	58	58	--	--	53	53	--	54	56	55	57
23	--	58	58	--	54	53	--	53	54	--	55	57
24	--	59	--	56	54	53	--	53	54	--	56	--
25	57	--	--	56	54	53	52	53	--	56	55	--
26	58	58	--	56	--	--	54	53	--	55	55	57
27	58	--	59	56	--	--	53	53	54	62	--	57
28	58	--	58	56	54	53	53	--	54	61	--	57
29	58	58	58	--	--	53	53	--	54	57	56	57
30	--	58	58	--	--	53	--	--	54	--	56	57
31	--	--	58	56	--	53	--	55	--	--	56	--
Average	--	--	--	--	--	--	--	--	--	--	--	--

COLORADO RIVER MAIN STEM--Continued

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 Parker Dam, and 49 miles downstream from Davis Dam.
DRAINAGE AREA.--172,300 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 76°F Aug. 11, 12, 14, 26, 27; minimum, 49°F Dec. 27-29, Feb. 5, 11, 12, 19-22.
EXTREMES, 1952-55.--Water temperatures: Maximum, 76°F Aug. 11, 12, 14, 26, 27, 1955; minimum, 49°F Dec. 28, 29, 1953, Dec. 27-29, 1954, Feb. 5, 11, 12, 19-22, 1955.
REMARKS.--Recorder equipped with thermograph June 17, 1952. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Temperature (°F) of water, water year October 1954 to September 1955
/Continuous-recording thermograph/

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	67	67	65	65	59	59	53	52	52	51	53	53	57	56	62	62	66	64	68	68	73	73	74	72
2	67	67	65	65	59	59	53	53	52	51	53	53	57	57	62	60	65	65	68	68	73	72	72	72
3	69	67	65	65	61	60	53	53	51	50	53	53	57	56	62	60	67	65	68	68	74	73	71	70
4	69	68	65	65	61	60	53	53	51	50	54	54	57	56	63	62	69	67	68	68	73	71	72	72
5	68	67	65	65	61	60	53	53	50	49	54	54	57	55	64	63	71	69	68	68	73	71	73	71
6	69	68	65	65	60	60	53	53	50	50	54	51	57	56	64	64	71	71	68	68	73	72	73	72
7	70	69	65	64	60	60	53	52	50	50	53	51	57	57	64	64	71	70	69	68	73	72	72	71
8	69	69	64	64	60	58	52	51	51	50	55	53	59	58	64	62	71	70	71	69	73	72	73	71
9	69	69	64	64	58	58	52	51	51	51	56	55	59	59	63	62	71	69	71	70	73	72	72	70
10	69	67	64	63	58	58	52	52	52	50	56	56	59	59	64	63	70	69	70	70	74	72	71	70
11	68	67	64	63	58	58	52	52	50	49	56	56	60	59	66	65	69	68	70	69	76	74	71	69
12	68	68	64	63	57	57	52	51	51	49	56	56	59	59	66	66	68	67	70	69	76	73	72	71
13	68	68	65	63	57	57	51	50	52	51	57	57	60	59	66	66	67	67	71	70	75	74	72	71
14	68	66	63	63	57	57	52	50	52	51	57	57	61	60	66	64	67	66	73	71	76	74	71	70
15	67	65	64	63	57	57	52	51	52	52	57	54	61	61	64	62	67	66	73	72	74	74	71	70
16	69	67	64	63	57	55	52	52	53	52	54	53	61	61	64	63	67	66	74	73	74	73	71	70
17	70	69	64	62	55	54	52	51	53	52	55	54	61	61	65	64	67	66	74	74	73	71	70	68
18	69	68	62	62	54	54	51	51	53	50	55	54	61	61	65	64	69	67	74	73	73	72	69	67
19	69	68	62	61	54	54	51	51	50	49	56	55	61	57	67	66	69	69	73	73	73	73	68	66
20	68	68	61	61	55	54	52	51	49	49	56	54	60	59	68	68	69	69	73	72	75	74	69	67
21	68	67	61	61	55	55	51	51	49	49	54	53	60	60	69	68	69	69	73	73	75	74	70	69
22	67	67	61	61	55	55	51	50	50	49	56	54	60	59	69	67	69	69	73	73	75	74	70	69
23	67	67	61	61	54	54	50	50	51	50	55	54	61	59	68	67	69	69	73	73	74	72	71	70
24	67	63	61	61	54	54	51	50	51	51	56	55	62	61	67	65	69	68	74	72	74	73	70	69
25	64	63	62	62	54	54	51	51	51	51	56	56	62	62	65	64	68	67	73	71	74	73	69	68
26	64	64	62	62	54	53	51	51	52	51	57	56	62	61	65	64	67	67	72	71	76	73	69	68
27	63	63	62	62	53	49	51	50	52	52	57	55	61	59	66	65	67	67	72	72	76	74	69	68
28	64	63	62	61	49	49	50	50	53	52	57	55	61	60	68	66	67	67	72	71	74	73	70	69
29	65	64	61	60	51	49	50	50	--	--	57	57	62	61	68	67	68	68	73	72	74	73	70	70
30	65	65	60	59	51	50	51	51	--	--	58	57	61	61	68	68	68	68	73	72	74	72	69	69
31	65	65	--	--	52	51	51	51	--	--	57	56	--	--	68	66	--	--	74	73	74	72	--	--
Average	67	67	63	63	56	56	52	51	51	50	55	55	60	59	65	64	68	68	71	71	74	73	71	70

COLORADO RIVER BELOW PARKER DAM, ARIZ.-CALIF.

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LOCATION.--Temperature recorder at gaging station, 3.9 miles downstream from Parker Dam, 10.4 miles upstream from Headgate Rock Dam, and 11 miles northeast of Parker, Ariz.
DRAINAGE AREA.- 178,800 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: February 1954 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 83°F Aug. 12, 13, 18; minimum, 48°F Jan. 10 to Feb. 15, Feb. 23-25.
REMARKS.--Thermograph installed Feb. 8, 1954. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Temperature (°F) of water, water year October 1954 to September 1955
/Continuous-recording thermograph/

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	75	74	67	67	60	60	50	50	48	48	51	49	59	59	63	63	71	69	75	75	81	80	82	81
2	75	74	67	67	60	60	50	50	48	48	52	51	59	59	63	63	72	71	75	75	81	81	82	80
3	74	74	67	67	60	60	50	50	48	48	52	52	59	59	64	63	72	72	75	75	81	81	81	81
4	74	74	66	66	60	59	50	50	48	48	52	52	59	59	65	64	73	72	75	75	81	81	81	81
5	74	74	66	66	59	59	50	50	48	48	52	52	59	59	65	64	73	73	75	75	82	81	81	81
6	74	74	66	66	59	59	50	50	48	48	52	52	59	59	65	64	73	73	75	75	82	82	81	81
7	74	74	66	65	59	59	50	50	48	48	52	52	59	58	65	64	74	73	75	75	82	81	81	80
8	74	74	65	65	59	59	49	49	48	48	53	53	59	59	65	64	74	73	75	75	81	81	81	80
9	74	74	65	65	59	58	49	49	48	48	53	53	59	59	66	65	75	73	75	75	81	81	80	79
10	74	73	65	65	58	58	48	48	48	48	54	54	60	59	67	66	73	73	75	75	81	81	79	79
11	74	73	65	64	58	57	48	48	48	48	54	54	60	60	68	67	73	73	76	76	81	81	81	79
12	73	73	64	64	57	57	48	48	48	48	54	54	60	60	67	67	73	73	76	76	83	81	80	80
13	73	72	64	64	57	57	48	48	48	48	55	54	60	60	68	67	73	73	76	76	83	81	79	79
14	74	73	64	63	57	57	48	48	48	48	55	55	60	60	67	66	74	73	77	76	82	82	79	79
15	74	73	63	63	57	56	48	48	49	48	55	55	60	60	68	66	74	73	77	77	82	82	78	77
16	73	73	63	63	56	56	48	48	49	49	57	56	60	60	68	68	75	74	77	77	82	81	77	77
17	73	73	63	63	56	55	48	48	49	49	57	57	61	60	69	68	75	75	77	77	82	81	76	75
18	73	72	63	62	55	55	48	48	49	49	57	57	61	61	69	69	75	75	--	--	83	82	75	75
19	73	72	62	62	55	55	48	48	49	49	57	57	61	61	69	69	75	75	--	--	82	82	75	74
20	72	72	62	62	54	54	48	48	49	49	57	57	62	61	69	69	76	75	--	--	82	82	76	75
21	72	72	62	62	54	54	48	48	49	49	57	57	61	61	69	69	76	76	--	--	82	82	76	75
22	72	72	62	62	54	54	48	48	49	49	57	57	61	61	69	69	76	76	--	--	82	81	75	75
23	72	72	62	62	54	54	48	48	48	48	57	57	62	61	69	69	76	76	80	80	81	80	76	75
24	72	71	62	62	54	54	48	48	48	48	57	57	62	62	69	69	76	75	80	79	80	80	76	76
25	71	70	62	62	53	53	48	48	48	48	57	57	62	62	69	69	75	75	80	80	80	80	75	75
26	70	70	61	61	53	53	48	48	50	49	58	57	62	62	70	69	75	75	80	80	81	80	75	75
27	70	69	61	61	52	52	48	48	50	49	58	58	63	62	70	69	75	75	80	80	82	81	76	75
28	69	68	61	61	51	51	48	48	50	50	58	58	63	63	71	70	75	75	80	80	82	82	76	75
29	68	68	61	61	51	51	48	48	--	--	58	58	63	63	72	71	75	75	80	80	82	81	75	74
30	68	68	61	60	50	50	48	48	--	--	58	58	63	63	72	71	75	75	81	81	82	81	75	74
31	68	67	--	--	50	50	48	48	--	--	59	58	--	--	71	69	--	--	81	81	82	82	--	--
Average	72	72	64	63	56	56	49	49	48	48	55	55	61	60	68	67	74	74	--	--	82	81	78	77

GILA RIVER BASIN

GILA RIVER AT KELVIN, ARIZ.

LOCATION.--Just above mouth of Mineral Creek, and 1,200 feet upstream from gaging station at Kelvin, Pinal County, 17 miles downstream from San Pedro River, and 19½ miles upstream from Ashurst-Hayden Dam.
DRAINAGE AREA.--18,011 square miles, (at gaging station) of which 5,125 square miles is below Coolidge Dam.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,360 ppm July 15; minimum, 409 ppm Sept. 8-20.
Hardness: Maximum, 1,500 ppm July 1-10; minimum, 166 ppm Sept. 8-20.
Specific conductance: Maximum daily, 3,860 micromhos July 15; minimum daily, 601 micromhos July 30.
Water temperatures: Maximum, 89°F July 18-19; minimum, 41°F Jan. 25, Feb. 23.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 2,360 p pm July 15, 1955; minimum, 294 ppm Sept. 24, 1954.
Hardness: Maximum, 1,500 ppm July 1-10, 1955; minimum, 166 ppm Sept. 8-20, 1955.
Specific conductance: Maximum daily, 3,860 micromhos July 15, 1955; minimum daily, 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.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393. 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 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	231	25	0.07	64	12	100	6.8	234	0	110	94	1.0	1.3	0.18	530	0.72	331	209	18	50	3.0	864	7.7
Oct. 11-20	198	--	--	64	14	105	--	--	--	--	--	--	--	--	538	.73	288	217	--	51	3.1	890	--
Oct. 21-31	160	--	--	71	15	113	--	--	--	--	--	--	--	--	581	.79	251	238	--	51	3.2	950	--
Nov. 1-10	144	--	--	75	15	116	--	--	--	--	--	--	--	--	595	.81	231	248	--	50	3.2	981	--
Nov. 11-20	190	--	--	70	14	117	--	--	--	---	--	--	--	--	573	.78	294	232	--	52	3.4	947	--
Nov. 21-30	190	--	--	71	16	120	--	--	--	--	--	--	--	--	585	.80	300	243	--	52	3.3	973	--
Dec. 1-10	178	--	--	69	19	132	--	242	0	--	--	--	--	--	644	.88	310	250	52	53	3.6	1,030	7.7
Dec. 11-20	240	--	--	51	17	136	--	209	9	--	--	--	--	--	645	.88	418	197	11	60	4.2	991	8.3
Dec. 21-31	280	--	--	63	18	134	--	240	0	--	--	--	--	--	643	.87	486	231	34	56	3.8	1,050	8.0
Jan. 1-10, 1955	72.4	31	.01	120	28	167	8.6	294	0	287	175	1.2	2.4	.23	957	1.30	187	414	174	46	3.6	1,470	8.0
Jan. 11-16	42.0	--	--	151	40	224	--	293	0	--	182	--	--	---	1,160	1.58	132	541	301	47	4.2	1,710	8.1
Jan. 17-20	91.0	--	--	121	26	140	--	260	0	--	122	--	--	---	834	1.13	205	409	196	43	3.0	1,290	7.9
Jan. 21-31	38.6	--	--	159	37	208	--	300	0	--	188	--	--	--	894	1.22	93	548	302	45	3.9	1,740	8.2
Feb. 1-10	59.8	--	--	131	44	202	--	294	0	--	196	--	--	--	1,040	1.41	168	508	267	46	3.9	1,610	8.1
Feb. 11-20	140	--	--	93	25	169	--	272	0	--	194	--	--	--	799	1.09	302	335	112	52	4.0	1,330	8.1
Feb. 21-28	154	--	--	99	20	177	--	266	0	--	210	--	--	--	802	1.09	333	329	111	54	4.2	1,380	8.0
Mar. 1-10	161	--	--	86	26	185	--	267	0	--	--	--	--	--	912	1.24	396	322	102	56	4.5	1,420	7.8
Mar. 11-20	263	--	--	84	25	185	--	279	0	--	--	--	--	--	922	1.35	655	312	84	56	4.6	1,440	7.8
Mar. 21-31	370	--	--	989	26	210	--	283	0	--	--	--	--	--	1,020	1.39	1,020	329	97	58	5.0	1,530	7.7

Apr. 1-10, 1955 ..	421	23	.00	103	27	220	8.0	296	0	158	307	1.1	3.5	.27	1,000	1.36	1,140	368	126	56	5.0	1,680	7.7
Apr. 11-20	367	--	--	104	32	262	--	303	0	--	--	--	--	---	1,250	1.70	1,250	391	142	59	5.8	1,880	7.8
Apr. 21-30	140	--	--	122	41	298	--	286	0	--	--	--	--	--	1,460	1.99	552	473	238	58	5.9	2,150	7.7
May 1-10	21.9	--	--	149	48	288	--	253	0	--	--	--	--	--	1,650	2.24	97.6	570	362	52	5.2	2,210	7.8
May 11-20	8.58	--	--	179	57	302	--	255	0	--	--	--	--	--	1,850	2.52	42.7	681	472	49	5.0	2,420	7.8
May 21-31	2.67	--	--	177	56	290	--	241	0	--	--	--	--	--	1,860	2.53	13.4	672	474	48	4.9	2,410	7.9
June 1-10.....	.89	--	--	302	82	181	--	277	0	--	--	--	--	--	2,230	3.03	5.36	1,090	863	27	2.4	2,480	7.7
June 11-13, 17-20.	2.07	--	--	258	69	204	--	263	0	--	--	--	--	--	2,050	2.79	11.5	927	712	32	2.9	2,330	7.7
June 14.....	81.0	---	--	65	19	80	--	352	0	--	--	--	--	--	568	.77	124	240	0	42	2.2	784	7.1
June 15-16.....	16.4	--	--	165	39	130	--	209	0	--	--	--	--	--	1,270	1.73	56.2	572	400	33	2.4	1,520	7.6
June 21-30	1.32	--	--	357	95	143	--	276	0	--	--	--	--	--	2,270	3.09	8.09	1,280	1,060	20	1.7	2,470	7.7
July 1-10	2.40	41	.03	421	109	94	5.7	257	0	1,330	80	.4	.8	.08	2,340	3.18	15.2	1,500	1,290	12	1.1	2,540	7.5
July 11-14, 16, 18.	50.3	--	--	335	90	175	--	278	0	--	--	--	--	--	2,100	2.86	285	1,210	978	24	2.2	2,510	7.8
July 15	124	--	--	159	57	585	--	238	0	--	--	--	--	--	2,360	3.21	790	631	436	67	10	3,860	7.4
July 17, 19-23	722	--	--	115	31	118	--	588	0	--	--	--	--	--	722	.98	1,410	414	0	38	2.5	1,220	7.7
July 24-31	1,336	--	--	71	16	58	--	310	0	--	--	--	--	--	423	.58	1,530	243	0	34	1.6	669	7.9
Aug. 1-10	1,806	--	--	70	17	69	--	292	0	--	--	--	--	--	468	.64	2,280	244	5	38	1.9	715	7.9
Aug. 11-20	1,164	--	--	90	18	65	--	256	0	--	--	--	--	--	550	.75	1,730	298	88	32	1.6	806	7.9
Aug. 21-31	1,710	--	--	73	16	70	--	270	0	--	--	--	--	--	484	.66	2,230	248	27	38	1.9	732	8.0
Sept. 1-7	277	--	--	74	15	97	--	238	0	--	--	--	--	--	558	.76	417	246	51	46	2.7	873	8.0
Sept. 8-20	396	--	--	50	10	77	--	191	0	--	--	--	--	--	409	.56	437	166	10	50	2.6	648	8.1
Sept. 21-30	298	--	--	56	11	86	--	190	0	--	--	--	--	--	450	.61	362	184	29	50	2.8	720	8.0
Weighted average	317	--	--	80	19	109	--	283	0	0	--	--	--	--	624	0.85	534	278	45	46	2.8	972	--

GILA RIVER BASIN--Continued

GILA RIVER AT KELVIN, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally in the afternoon/

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	69	59	50	61	56	67	a 59	--	86	85	82
2	a 71	67	60	46	58	--	66	71	a 64	84	81	84
3	83	66	59	54	52	63	63	a 67	66	72	81	--
4	82	65	63	52	49	64	62	a 70	68	a 69	80	86
5	82	66	56	52	53	56	61	a 60	75	88	85	--
6	84	65	58	51	52	64	63	a 73	83	a 85	84	87
7	80	64	58	50	53	68	68	81	a 85	81	81	86
8	85	67	56	50	56	a 57	67	82	a 87	88	80	86
9	82	66	57	54	57	a 58	68	78	a 86	74	82	85
10	80	64	57	55	a 47	a 61	a 56	85	a 80	77	--	84
11	77	69	58	53	57	66	66	84	a 82	a 67	85	87
12	78	68	a 52	56	56	60	65	71	a 74	88	85	88
13	74	69	58	55	a 44	69	70	a 67	a 79	81	79	88
14	78	66	57	50	59	66	70	81	71	81	a 78	83
15	77	64	52	51	63	67	71	82	a 77	87	86	84
16	87	65	57	54	61	71	72	83	a 82	87	87	83
17	79	62	a 47	50	56	61	69	77	a 84	a 80	86	82
18	78	63	52	51	54	63	63	81	a 81	89	84	80
19	77	61	a 48	47	51	66	69	82	a 79	89	82	80
20	77	59	57	51	52	55	70	86	a 88	·81	a 73	79
21	75	60	56	52	52	57	63	75	a 86	87	74	79
22	77	62	55	--	54	60	62	74	a 85	85	85	78
23	71	63	56	52	a 41	62	71	a 82	a 67	a 79	82	78
24	68	61	--	54	56	--	76	a 79	a 67	73	79	78
25	67	60	--	a 41	58	65	a 59	a 74	a 65	a 71	81	79
26	67	61	52	61	59	60	74	--	a 66	81	84	79
27	67	61	47	53	59	a 48	78	a 68	a 68	81	84	80
28	68	60	48	a 45	62	61	a 70	a 84	a 66	84	84	79
29	69	59	48	60	--	65	74	a 84	76	a 81	86	80
30	67	62	46	58	--	67	80	a 77	80	78	86	81
31	70	--	47	59	--	66	--	a 68	--	82	83	--
Average	76	64	54	52	55	62	68	76	76	81	82	82

a Measurement made in morning.

SALT RIVER AT STEWART MOUNTAIN DAM, ARIZ.

LOCATION.--Just below dam, 3½ miles above 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 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 785 ppm July 21-31; minimum, 539 ppm Jan. 21-26.
Hardness: Maximum, 232 ppm Aug. 21-31; minimum, 156 ppm Feb. 21-28.
Specific conductance: Maximum daily, 1,410 micromhos Sept. 27-28, 30; minimum daily, 992 micromhos Feb. 20, 23.
Water temperatures: Maximum, 74°F July 29, 31, Aug. 1-2; minimum, 51°F Feb. 5-8.
EXTREMES, 1950-55.--Dissolved solids: Maximum 1,300 ppm Aug. 21-28, 1951; minimum, 361 ppm Mar. 21-31, 1953.
Hardness: Maximum, 256 ppm Aug. 21-28, 1951; 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.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for gaging station below Stewart Mountain Dam for water year October 1954 to September 1955 given in WSP 1393. No inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	534	18	0.01	46	12	138	5.0	158	42	216	0.3	2.2	0.14	552	0.75	796	164	35	64	4.7	1,010	7.5
Oct. 11-20.....	363	--	--	49	13	139	--	--	--	--	--	--	--	540	.73	529	176	--	63	4.6	1,010	--
Oct. 21-31.....	308	--	--	48	14	140	--	--	--	--	--	--	--	543	.74	452	178	--	63	4.6	1,020	--
Nov. 1-10	377	--	--	48	14	142	--	--	--	--	--	--	--	547	.74	557	178	--	63	4.6	1,020	--
Nov. 11-20	269	--	--	48	14	139	--	--	--	--	--	--	--	546	.74	397	178	--	63	4.5	1,010	--
Nov. 21-30	236	--	--	45	14	146	--	--	--	--	--	--	--	573	.78	365	170	--	65	4.9	1,020	--
Dec. 1-10	198	--	--	47	15	138	--	156	--	--	--	--	--	556	.76	297	179	51	63	4.5	1,010	7.4
Dec. 11-20	587	--	--	45	14	140	--	157	--	--	--	--	--	549	.75	870	170	42	64	4.7	1,010	7.4
Dec. 21-31	991	--	--	47	13	137	--	157	--	--	--	--	--	545	.74	1,460	171	42	64	4.6	1,010	7.4
Jan. 1-10, 1955...	13.3	13	.00	51	13	138	5.1	169	43	216	.3	2.1	.13	553	.75	19.9	180	42	62	4.5	1,020	7.7
Jan. 11-20	1.41	--	--	50	14	141	--	163	--	206	--	--	--	552	.75	2.10	182	49	63	4.5	1,020	7.8
Jan. 21-26 [a]	.37	--	--	50	13	139	--	166	--	212	--	--	--	539	.73	.54	178	42	63	4.5	1,020	7.8
Feb. 17-20	654	--	--	42	13	155	--	b158	--	212	--	--	--	577	.78	1,020	158	29	68	5.4	1,010	8.5
Feb. 21-28	448	--	--	41	13	156	--	157	--	216	--	--	--	577	.78	698	156	28	68	5.4	1,030	8.2
Mar. 1-10	886	--	--	48	15	152	--	168	--	--	--	--	--	652	.89	1,560	182	44	65	4.9	1,110	7.4
Mar. 11-20	965	--	--	47	15	164	--	170	--	--	--	--	--	663	.90	1,730	179	40	67	5.3	1,160	7.6
Mar. 21-31	878	--	--	50	15	175	--	171	--	--	--	--	--	705	.96	1,670	186	48	67	5.6	1,220	7.6
Apr. 1-10	1,383	14	.01	54	15	180	5.5	170	52	280	.3	2.4	.18	687	.93	2,570	196	56	66	5.6	1,250	7.7
Apr. 11-20	1,237	--	--	49	16	180	--	169	--	--	--	--	--	721	.98	2,410	188	50	68	5.7	1,260	7.6
Apr. 21-30	888	--	--	49	16	181	--	171	--	--	--	--	--	716	.97	1,720	188	48	68	5.7	1,260	7.5

a No flow Jan. 27 to Feb. 16.
b Includes equivalent of 7 parts per million of carbonate (CO_3).

GILA RIVER BASIN--Continued

SALT RIVER AT STEWART MOUNTAIN DAM, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-10, 1955	787	--	--	52	17	166	--	171	--	--	--	--	--	705	0.96	1,500	200	60	64	5.1	1,270	7.7
May 11-20	975	--	--	52	17	170	--	173	--	--	--	--	--	711	.97	1,870	200	58	65	5.2	1,290	7.5
May 21-31	1,031	--	--	54	16	173	--	173	--	--	--	--	--	734	1.00	2,040	200	58	65	5.3	1,300	7.5
June 1-10	1,184	--	--	52	18	175	--	175	--	--	--	--	--	744	1.01	2,380	204	60	65	5.3	1,330	7.5
June 11-20	1,139	--	--	53	17	177	--	174	--	--	--	--	--	758	1.03	2,330	202	60	66	5.4	1,330	7.5
June 21-30	1,632	--	--	53	18	180	--	174	--	--	--	--	--	756	1.03	3,330	206	64	66	5.5	1,350	7.4
July 1-10	1,622	14	0.05	54	17	196	6.0	176	54	308	0.3	0.8	0.08	746	1.01	3,270	204	60	67	6.0	1,350	7.6
July 11-20	1,650	--	--	51	22	207	--	179	--	--	--	--	--	774	1.05	3,450	218	71	67	6.1	1,370	7.5
July 21-31	497	--	--	53	22	210	--	177	--	--	--	--	--	785	1.07	1,050	222	78	67	6.2	1,380	7.5
Aug. 1-10	534	--	--	56	18	208	--	180	--	--	--	--	--	778	1.06	1,120	214	66	68	6.2	1,380	7.5
Aug. 11-20	754	--	--	53	21	202	--	176	--	--	--	--	--	762	1.04	1,550	218	74	67	5.9	1,360	7.5
Aug. 21-31	1,735	--	--	52	25	202	--	173	--	--	--	--	--	751	1.02	3,520	232	90	65	5.8	1,340	7.3
Sept. 1-10	1,827	--	--	52	20	201	--	174	--	--	--	--	--	761	1.03	3,750	212	69	67	6.0	1,360	7.5
Sept. 11-20	1,515	--	--	52	19	202	--	168	--	--	--	--	--	763	1.04	3,120	208	70	68	6.1	1,360	7.6
Sept. 21-30	1,171	--	--	52	23	214	--	178	--	--	--	--	--	781	1.06	2,470	224	78	68	6.2	1,400	7.5
Weighted average[c]	853	--	--	51	18	180	--	172	--	--	--	--	--	709	0.96	1,630	201	61	66	5.5	1,270	--

c Average for 344 days of flow.

GILA RIVER BASIN--Continued

SALT RIVER AT STEWART MOUNTAIN DAM, ARIZ.--Continued

Temperature (° F) of water, water year October 1954 to September 1955
(Once-daily measurement, generally between 6 a.m. and 9 a.m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	--	63	56	54	53	53	58	61	65	74	70
2	68	66	63	55	52	53	54	58	61	65	74	--
3	68	66	63	55	52	53	54	58	60	66	73	70
4	68	66	63	55	52	53	54	58	60	66	69	70
5	68	66	62	55	51	55	54	58	60	66	69	70
6	68	66	62	54	51	52	54	58	60	66	69	70
7	69	66	63	54	51	52	54	57	60	66	68	70
8	69	66	63	54	51	53	54	58	60	67	68	70
9	68	65	63	54	53	53	54	56	60	65	68	70
10	68	66	63	54	54	53	54	56	61	65	68	70
11	68	66	63	54	54	53	55	56	61	66	68	70
12	68	66	63	54	54	53	54	56	62	66	69	70
13	68	66	63	56	54	53	55	57	62	66	68	71
14	68	66	63	56	55	54	54	58	61	67	69	71
15	68	66	60	a56	55	53	54	58	61	68	69	71
16	68	65	60	56	56	54	55	57	61	68	69	72
17	68	65	60	55	--	53	55	57	61	68	69	72
18	68	65	60	55	--	54	55	58	61	69	68	73
19	68	65	60	54	53	53	55	58	61	69	69	73
20	68	65	60	55	53	53	55	58	61	70	69	73
21	68	65	60	54	53	53	55	57	61	70	69	73
22	68	65	60	54	53	53	55	57	61	70	69	73
23	68	64	62	a52	53	53	55	57	62	69	69	73
24	68	65	60	52	52	53	55	57	61	68	70	70
25	67	64	57	52	54	53	55	57	65	69	70	70
26	67	65	57	53	54	53	56	57	65	69	70	70
27	68	63	56	52	52	53	56	57	65	70	70	70
28	66	64	--	52	53	55	56	59	65	70	70	70
29	66	63	56	52	--	54	57	60	65	74	70	70
30	--	63	56	54	--	53	57	60	65	73	70	70
31	--	--	56	54	--	53	--	61	--	74	70	--
Average	68	65	61	54	53	53	55	58	62	68	69	71

a Measurement made between 9 a.m. and 11 a.m.

OAK CREEK NEAR CORNVILLE, ARIZ.

LOCATION.--Temperature recorder at gaging station on county highway bridge, 0.2 mile 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 86°F July 27, Aug. 5; minimum, 37°F Feb. 21.
EXTREMES, June 1954 to September 1955.--Water temperatures: Maximum, 90°F July 28, 1954; minimum, 37°F Feb. 21, 1955.
REMARKS.--Recorder equipped with thermograph June 28, 1954. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Temperature (°F) of water, water year October 1954 to September 1955
Continuous-recording thermograph

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

VERDE RIVER BELOW BARTLETT DAM, ARIZ.

LOCATION.--At gaging station 2¼ miles downstream from Bartlett Dam, Maricopa County, and 3½ miles upstream from Camp Creek.
DRAINAGE AREA.--6,188 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 404 ppm Nov. 21-30; minimum, 281 ppm Sept. 11-20.
Hardness: Maximum, 283 ppm Nov. 21-30; minimum, 179 ppm Sept. 11-20.
Specific conductance: Maximum daily, 676 micromhos Nov. 16; minimum daily, 401 micromhos Sept. 18.
Water temperatures: Maximum, 81°F on several days during September; minimum, 46°F on several days during January.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 450 ppm July 11-20, 1951; minimum, 158 ppm Jan. 11-20, 1952.
Hardness: Maximum, 285 ppm Mar. 11-20, 1953; minimum, 108 ppm Jan. 11-20, 1952.
Specific conductance: Maximum daily, 725 micromhos June 28, 1951; 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.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	62.9	24	0.00	47	30	37	4.0	268	70	24	0.4	1.0	0.22	355	0.48	60.3	241	22	25	1.0	597	7.8
Oct. 11-20.....	60.4	--	--	49	35	38	--	--	--	--	--	--	--	374	.51	61.0	266	--	24	1.0	623	--
Oct. 21-31.....	60.1	--	--	46	36	40	--	--	--	--	--	--	--	372	.51	60.4	263	--	25	1.1	621	--
Nov. 1-10.....	59.4	--	--	48	37	42	--	--	--	--	--	--	--	394	.54	63.2	272	--	25	1.1	642	--
Nov. 11-20.....	60.1	--	--	48	39	42	--	--	--	--	--	--	--	402	.55	65.2	280	--	25	1.1	655	--
Nov. 21-30	59.3	--	--	49	39	43	--	--	--	--	--	--	--	404	.55	64.7	283	--	25	1.1	657	--
Dec. 1-10.....	60.0	--	--	45	38	45	--	291	--	--	--	--	--	396	.54	64.2	268	30	27	1.2	652	8.1
Dec. 11-20.....	61.0	--	--	46	38	43	--	295	--	--	--	--	--	402	.55	66.2	271	30	26	1.1	657	8.0
Dec. 21-31.....	59.5	--	--	45	39	42	--	295	--	--	--	--	--	396	.54	63.6	273	32	25	1.1	654	8.0
Jan. 1-10, 1955 ..	63.7	22	.04	48	36	40	3.4	306	72	20	.2	.1	.23	386	.52	66.4	268	18	24	1.1	648	7.4
Jan. 11-20	44.2	--	--	48	38	42	--	291	--	--	--	--	--	396	.54	47.3	276	38	25	1.1	649	8.1
Jan. 22-31.....	107	--	--	44	38	41	--	283	--	--	--	--	--	385	.52	111	266	34	25	1.1	638	8.1
Feb. 1-10.....	43.1	--	--	46	38	41	--	282	--	--	--	--	--	383	.52	44.6	271	40	25	1.1	630	8.2
Feb. 11-20.....	121	--	--	44	36	41	--	281	--	--	--	--	--	380	.52	124	258	28	26	1.1	629	8.1
Feb. 21-28	27.5	--	--	46	36	41	--	285	--	--	--	--	--	375	.51	27.8	263	30	25	1.1	632	8.0
Mar. 1-10.....	27.8	--	--	42	36	40	--	292	--	--	--	--	--	381	.52	28.6	253	14	26	1.1	636	7.8
Mar. 11-20.....	468	--	--	41	37	41	--	290	--	--	--	--	--	377	.51	476	254	17	26	1.1	632	7.8
Mar. 21-31.....	1,021	--	---	41	36	41	--	290	--	--	--	--	--	379	.52	1,040	250	13	26	1.1	630	8.0

GILA RIVER BASIN--Continued

VERDE RIVER BELOW BARTLETT DAM, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955..	285	21	0.00	48	34	40	3.2	294	67	26	0.3	0.4	0.27	387	0.53	298	260	19	25	1.1	630	8.1
Apr. 11-20.....	212	--	--	44	34	39	--	292	--	--	--	--	--	373	.51	214	250	10	25	1.1	620	8.0
Apr. 21-30	145	--	--	44	35	38	--	286	--	--	--	--	--	364	.50	143	254	18	24	1.0	611	8.0
May 1-10	148	--	--	45	36	36	--	289	--	--	--	--	--	368	.50	147	260	24	23	1.0	610	8.2
May 11-20	146	--	--	46	35	36	--	284	--	--	--	--	--	363	.49	143	259	26	23	1.0	601	8.2
May 21-31	147	--	--	46	34	36	--	286	--	--	--	--	--	364	.50	144	255	20	24	1.0	602	8.2
June 1-10.....	267	--	--	46	35	35	--	283	--	--	--	--	--	362	.49	261	259	27	23	.9	600	8.2
June 11-20.....	294	--	--	44	36	37	--	287	--	--	--	--	--	372	.51	295	258	23	24	1.0	608	8.1
June 21-30.....	1,011	--	--	44	36	39	--	284	--	--	--	--	--	378	.51	1,030	258	26	25	1.1	621	8.1
July 1-10	677	29	.01	46	34	34	4.1	268	68	25	.4	.7	.26	367	.50	671	255	36	22	.9	598	8.1
July 11-20	644	--	--	42	34	40	--	260	--	--	--	--	--	366	.50	636	245	32	26	1.1	593	7.9
July 21-31.....	149	--	--	42	35	41	--	262	--	--	--	--	--	380	.52	153	249	34	26	1.1	607	7.9
Aug. 1-10	172	--	--	42	34	43	--	259	--	--	--	--	--	377	.51	175	245	32	28	1.2	607	7.8
Aug. 11-20	218	--	--	39	34	43	--	248	--	--	--	--	--	368	.50	217	238	34	28	1.2	589	7.8
Aug. 21-31.....	143	--	--	45	32	41	--	268	--	--	--	--	--	367	.50	142	244	24	24	1.1	592	7.7
Sept. 1-10	386	--	--	54	21	39	--	242	--	--	--	--	--	346	.47	361	221	22	28	1.1	554	7.7
Sept. 11-20	178	--	--	37	21	26	--	194	--	--	--	--	--	281	.38	135	179	20	24	.8	430	7.7
Sept. 21-30	95.5	--	--	35	31	35	--	210	--	--	--	--	--	310	.42	79.9	215	43	26	1.0	490	7.7
Weighted average	215	--	--	44	34	39	--	275	--	--	--	---	--	370	0.50	215	250	24	25	1.1	607	--

GILA RIVER BASIN--Continued

VERDE RIVER BELOW BARTLETT DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, generally between 7 a. m. and 9 a. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	62	56	47	49	51	55	57	62	70	77	79
2	75	62	56	47	49	51	55	57	63	70	77	80
3	75	61	55	46	48	51	54	57	63	70	77	78
4	74	61	55	48	48	51	53	57	62	70	78	79
5	74	60	55	47	49	52	53	58	62	70	78	79
6	73	60	55	47	48	52	--	59	62	71	78	80
7	72	60	55	47	48	52	54	59	62	72	79	--
8	72	60	55	46	47	52	55	58	63	72	79	79
9	71	60	55	46	47	52	55	58	63	73	79	81
10	71	60	55	46	47	53	55	58	64	73	80	81
11	71	60	54	46	48	53	56	58	64	74	80	81
12	71	60	54	46	49	53	56	59	64	74	80	81
13	70	60	54	46	49	54	56	59	64	75	80	81
14	70	60	53	47	49	54	56	59	64	76	80	81
15	70	59	53	46	48	54	56	59	64	76	80	81
16	70	59	54	--	49	53	56	59	64	75	80	81
17	69	58	52	50	50	54	55	59	64	76	80	81
18	69	58	52	48	50	54	55	59	64	77	80	81
19	68	58	52	48	50	54	55	59	65	77	80	81
20	68	58	52	49	49	54	55	60	65	77	80	80
21	67	58	52	49	50	55	57	60	66	77	80	80
22	67	58	52	48	49	55	56	60	66	77	78	79
23	66	58	51	48	49	55	56	60	67	77	78	78
24	66	57	51	49	48	55	57	60	67	78	76	78
25	65	57	50	49	49	54	57	60	67	78	78	77
26	65	57	50	49	50	55	57	60	68	78	80	76
27	64	57	49	49	50	55	57	60	69	80	80	76
28	63	56	49	48	50	54	56	61	68	78	80	75
29	63	56	48	48	--	55	57	61	69	77	80	76
30	62	56	48	48	--	55	57	62	70	77	80	76
31	62	--	47	49	--	55	--	62	--	78	79	--
Average	69	59	53	48	49	53	56	59	65	75	79	77

GILA RIVER BASIN--Continued

AGUA FRIA RIVER BELOW LAKE PLEASANT DAM, ARIZ.

LOCATION.--At water stage recorder on canal 1¼ miles downstream from Lake Pleasant Dam on Agua Fria River, 19 miles north of Marinette, Maricopa County, and 23 miles upstream from New River.
DRAINAGE AREA.--1,459 square miles above Lake Pleasant Dam.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 321 ppm June 11-20; minimum, 214 ppm Sept. 21-30.
Hardness: Maximum, 206 ppm June 11-20; minimum, 138 ppm Sept. 21-30.
Specific conductance: Maximum daily, 579 micromhos June 15; minimum daily, 350 micromhos Sept. 21.
Water temperatures: Maximum, 85°F Aug. 12, 15-16.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 321 ppm June 11-20, 1955; minimum, 168 ppm Jan. 29-Feb. 10, 1952.
Hardness: Maximum, 206 ppm June 11-20, 1955; minimum, 108 ppm June 21-30, 1952.
Specific conductance: Maximum daily, 600 micromhos Sept. 26, 1954; minimum daily, 241 micromhos Jan. 29, 1952.
Water temperatures: Maximum, 85°F Aug. 12, 15-16, 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. 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 1954 to September 1955 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 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-2, 1954	a 8.5	38	0.02	42	17	33	5.5	212	40	25	0.2	1.3	0.47	297	0.42	6.82	175	2	28	1.1	469	8.1
June 11-20, 1955	72.3	--	--	48	21	38	--	246	--	--	--	--	--	321	.44	62.7	206	5	29	1.2	549	7.8
June 21-30	101	--	--	40	20	33	--	213	--	--	--	--	--	285	.39	77.7	182	8	28	1.1	492	7.6
July 1-10	110	14	.00	40	20	31	5.8	210	42	28	.4	3.3	.12	287	.39	85.2	182	10	26	1.0	472	7.5
July 11-20	108	--	--	35	20	32	--	201	--	--	--	--	--	268	.36	78.1	170	5	29	1.1	468	7.3
July 21-25, 28-31	a 58.9	--	--	34	18	30	--	210	--	--	--	--	--	250	.34	39.8	159	0	29	1.0	455	7.3
Aug. 1-3, 6, 9-10	a 24.5	--	--	33	15	25	--	191	--	--	--	--	--	225	.31	14.9	144	0	27	.9	401	7.3
Aug. 11-20	19.9	--	--	32	15	25	--	178	--	--	--	--	--	232	.32	12.5	142	0	28	.9	387	7.4
Aug. 21-31	52.2	--	--	33	15	24	--	180	--	--	--	--	--	222	.30	31.3	144	0	27	.9	384	7.2
Sept. 1-10	68.4	--	--	37	14	22	--	180	--	--	--	--	--	230	.31	42.5	150	2	24	.8	386	7.3
Sept. 11-20	71.2	--	--	35	14	22	--	174	--	--	--	--	--	226	.31	43.4	145	2	25	.8	379	7.4
Sept. 21-30	83.0	--	--	32	14	22	--	158	--	--	--	---	--	214	.29	48.0	138	8	26	.8	355	7.4
Weighted average	b 70.4	--	--	37	18	29	--	197	--	--	--	---	--	258	0.35	49.0	166	5	27	1.0	441	--

a No flow Oct. 3 to June 10, July 26-27, Aug. 4-5, 7-8.
b Average for 108 days of flow.

GILA RIVER BASIN--Continued

AGUA FRIA RIVER BELOW LAKE PLEASANT DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally at 7:30 a.m. No flow on many days/

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71								--	71	81	80
2	71								--	72	82	79
3	--								--	72	82	78
4	--								--	72	--	79
5	--								--	72	--	79
6	--								--	72	--	78
7	--								--	73	--	78
8	--								--	73	--	79
9	--								--	72	--	78
10	--								--	73	83	78
11	--								75	73	84	79
12	--								68	75	85	79
13	--								68	76	83	79
14	--								68	76	84	79
15	--								70	76	85	79
16	--								70	75	85	79
17	--								71	76	84	79
18	--								71	76	83	78
19	--								71	77	84	77
20	--								71	77	83	77
21	--								71	77	83	75
22	--								72	79	82	74
23	--								73	78	82	75
24	--								72	77	81	75
25	--								71	--	81	75
26	--								71	--	81	75
27	--								71	--	81	75
28	--								72	81	81	74
29	--								71	81	80	73
30	--								71	81	80	73
31	--								--	81	81	--
Average	--								--	76	82	77

GILA RIVER BASIN--Continued

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: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 6,510 ppm Sept. 21-30; minimum, 227 ppm Aug. 2.
Hardness: Maximum, 1,770 ppm Sept. 21-30; minimum, 95 ppm Aug. 2.
Specific conductance: Maximum, 9,670 micromhos Dec. 1; minimum, 370 micromhos Aug. 2.
Water temperatures: Maximum, 90°F Aug. 22, 25; minimum, 40°F Dec. 27.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 6,510 ppm Sept. 21-30, 1955; minimum, 227 ppm Aug. 2, 1955.
Hardness: Maximum, 1,940 ppm Oct. 11-20, 1951; minimum, 95 ppm Aug. 2, 1955.
Specific conductance: Maximum, 10,200 micromhos Oct. 3, 1951; minimum, 370 micromhos Aug. 2, 1955.
Water temperatures: Maximum, 95°F July 19, 1951; minimum, 35°F Jan. 1, 1951.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

Date of collection	Mean discharge (cfs) a	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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	28.0	35	0.00	389	164	1,470	13	373	1,270	2,260	2.6	41	3.2	5,830	7.93	441	1,640	1,340	66	16	8,780	7.5
Oct. 11-20.....	24.2	32	.01	385	159	1,480	12	349	1,280	2,290	2.8	42	3.3	5,850	7.96	382	1,610	1,330	66	16	8,780	7.6
Oct. 21-31.....	24.9	34	.01	381	154	1,500	12	345	1,300	2,290	2.8	44	3.3	5,890	8.01	396	1,580	1,300	67	16	8,800	7.6
Nov. 1-10	24.0	31	.01	381	164	1,550	12	369	1,340	2,320	2.9	44	3.5	6,010	8.17	389	1,620	1,340	67	17	9,000	7.5
Nov. 11-20.....	23.8	34	.02	385	164	1,550	12	369	1,350	2,350	2.6	43	3.5	6,070	8.26	390	1,640	1,330	67	17	9,050	7.7
Nov. 21-30	25.6	33	.00	373	169	1,540	12	369	1,340	2,320	2.7	41	3.5	6,010	8.17	415	1,630	1,320	67	17	8,980	7.7
Dec. 1-10.....	25.3	31	.03	393	159	1,530	12	384	1,340	2,330	2.7	45	3.5	6,030	8.20	412	1,630	1,320	67	16	8,980	7.8
Dec. 11-20	26.6	36	.00	389	164	1,520	12	388	1,330	2,310	2.6	50	3.6	6,000	8.16	431	1,640	1,330	67	16	8,910	7.8
Dec. 21-31	28.0	32	.01	389	164	1,490	12	405	1,310	2,290	2.8	49	3.5	5,940	8.08	449	1,640	1,310	66	16	8,860	7.9
Jan. 1-10, 1955 ..	32.7	30	.01	373	157	1,440	11	397	1,250	2,210	2.8	44	3.5	5,710	7.77	504	1,580	1,250	66	16	8,540	7.9
Jan. 11-20.....	46.2	34	.02	335	158	1,340	12	350	1,180	2,050	2.4	40	4.0	5,320	7.24	664	1,490	1,200	66	15	8,210	7.8
Jan. 21-31.....	43.0	36	.01	369	176	1,430	12	383	1,300	2,200	2.3	46	4.4	5,760	7.89	669	1,640	1,330	65	15	8,730	7.8
Feb. 1-10	36.2	32	.01	353	176	1,480	12	382	1,300	2,230	2.8	45	4.4	5,820	7.92	569	1,600	1,290	67	16	8,790	7.7
Feb. 11-20	35.7	32	.01	353	164	1,460	12	380	1,310	2,180	2.8	42	4.3	5,750	7.82	554	1,560	1,240	67	16	8,700	7.8
Feb. 21-28	34.9	33	.01	365	165	1,460	12	382	1,310	2,170	2.6	40	4.6	5,750	7.82	542	1,590	1,280	66	16	8,770	7.8
Mar. 1-10	35.8	30	.01	373	164	1,450	11	363	1,290	2,250	2.6	39	3.2	5,790	7.87	560	1,600	1,310	66	16	8,780	7.8
Mar. 11-20	38.5	31	.01	353	143	1,350	11	348	1,190	2,050	2.8	41	3.0	5,340	7.26	555	1,470	1,180	66	15	8,100	7.8
Mar. 21-31	34.5	30	.01	365	157	1,420	12	340	1,250	2,190	2.6	42	2.9	5,640	7.67	525	1,560	1,280	66	16	8,540	7.9

a Combined discharge in cfs of Gila River below Gillespie Dam and of Gila Bend and Enterprise Canals at Gillespie Dam, Ariz.

Apr. 1-10, 1955..	27.6	28	.01	353	159	1,400	11	334	1,220	2,190	2.6	34	2.8	5,560	7.56	414	1,530	1,260	66	16	8,470	7.9
Apr. 11-20	29.4	33	.02	357	157	1,360	12	340	1,200	2,140	2.6	41	3.1	5,470	7.44	434	1,540	1,260	66	15	8,300	7.8
Apr. 21-30	26.8	37	.02	349	157	1,400	12	314	1,230	2,190	2.6	36	3.0	5,570	7.58	403	1,520	1,260	67	16	8,480	7.9
May 1-10	27.0	34	.01	349	150	1,330	12	359	1,170	2,040	2.8	38	2.8	5,300	7.21	386	1,490	1,190	66	15	8,070	7.8
May 11-20	21.4	30	.01	361	154	1,400	12	357	1,220	2,140	2.6	31	3.0	5,530	7.52	320	1,530	1,240	66	16	8,400	7.8
May 21-31	18.5	26	.01	361	150	1,400	12	336	1,230	2,140	2.8	31	3.3	5,520	7.51	276	1,520	1,240	67	16	8,360	7.8
June 1-10	14.9	23	.01	353	159	1,420	12	319	1,260	2,180	2.6	32	3.1	5,600	7.62	225	1,530	1,270	67	16	8,500	7.9
June 11-15, 17-20	16.3	30	.00	345	147	1,300	11	336	1,160	1,970	2.8	27	2.6	5,160	7.02	227	1,470	1,190	66	15	7,840	7.7
June 16	22.0	30	.02	202	69	562	11	270	497	880	1.6	18	1.3	2,400	3.26	143	788	566	60	8.7	3,880	7.2
June 21-30.....	14.9	26	.01	333	164	1,370	12	275	1,230	2,070	2.5	31	3.2	5,370	7.30	216	1,510	1,280	66	15	8,200	7.9
July 1-10	14.1	27	.01	337	164	1,380	12	273	1,250	2,090	2.7	30	3.3	5,430	7.38	207	1,520	1,290	66	15	8,260	7.8
July 11-18	16.8	23	.01	345	164	1,400	12	311	1,260	2,100	2.7	29	3.3	5,490	7.47	249	1,540	1,280	66	16	8,280	7.6
July 19-21, 24-31..	685	27	.22	52	10	77	6.7	215	71	64	.8	3.8	.47	419	.57	775	170	0	48	2.6	679	7.8
July 22	24.0	20	.02	163	50	480	11	223	426	715	1.5	12	1.4	1,990	2.71	129	612	430	63	8.5	3,230	7.4
July 23	118	15	.06	77	16	144	8.3	157	111	230	.8	7.0	.55	686	.93	219	258	130	54	3.9	1,190	7.7
Aug. 1, 18-23....	491	28	.15	98	19	116	6.7	251	181	127	.7	4.6	.84	704	.96	933	322	117	43	2.8	1,110	7.8
Aug. 2	1,374	13	--	32	3.7	41	8.3	152	26	26	--	1.9	.70	227	.31	842	95	0	46	1.8	370	7.4
Aug. 3-9	1,450	25	.02	62	9.5	62	6.5	230	76	41	.7	5.4	.66	401	.55	1,570	194	5	40	1.9	638	7.9
Aug. 10-17	1,829	27	.03	103	24	260	7.9	216	285	312	.9	17	1.4	1,140	1.55	5,630	360	184	60	6.0	1,840	7.9
Aug. 24-29	2,289	25	.04	67	9.5	68	6.5	215	111	42	.7	7.7	.70	443	.60	2,740	206	30	41	2.1	683	7.9
Aug. 30-31.....	386	28	.01	214	64	573	10	291	560	855	1.3	17	1.9	2,470	3.36	2,570	797	558	61	8.8	3,900	7.8
Sept. 1-5	112	36	.01	199	68	625	12	266	644	910	1.3	17	1.4	2,640	3.59	798	776	558	63	9.8	4,080	7.6
Sept. 6-10	60.0	41	.01	361	178	1,470	14	364	1,310	2,220	2.4	34	2.9	5,810	7.90	941	1,630	1,330	66	16	8,640	7.6
Sept. 11-20	59.3	40	.01	397	185	1,600	13	382	1,420	2,430	2.4	36	3.4	6,310	8.58	1,010	1,750	1,440	66	17	9,380	7.7
Sept. 21-30	51.6	34	.01	457	154	1,650	13	378	1,490	2,490	2.3	36	3.3	6,510	8.85	907	1,770	1,460	67	17	9,540	7.6
Weighted average	169	27	0.01	124	38	329	7.9	242	333	464	1.1	14	1.3	1,470	2.00	671	466	268	61	6.8	2,260	--

a Combined discharge in cfs of Gila River below Gillespie Dam and of Gila Bend and Enterprise Canals at Gillespie Dam, Ariz.

GILA RIVER BASIN--Continued

GILA RIVER BELOW GILLESPIE DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally between 6 a.m. and 1 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	66	55	50	52	57	68	63	62	76	84	83
2	72	63	59	54	55	59	63	60	62	75	83	82
3	69	57	54	54	46	57	61	60	65	77	84	80
4	68	56	64	56	45	55	62	60	65	75	85	81
5	70	62	59	59	49	58	61	65	67	76	83	79
6	69	60	57	49	49	59	65	65	72	75	85	66
7	79	61	58	52	49	62	70	68	72	85	84	84
8	74	52	57	54	48	60	67	68	76	78	86	85
9	78	54	57	55	53	62	65	63	72	79	85	75
10	69	60	57	50	50	63	55	65	76	82	84	74
11	67	56	56	56	52	68	60	67	73	78	a 87	73
12	73	55	49	53	50	62	59	70	73	84	88	76
13	73	57	55	52	51	58	62	70	75	79	86	75
14	66	57	51	--	52	63	63	69	66	78	84	84
15	65	58	53	57	54	61	75	70	69	78	85	76
16	72	55	56	57	61	69	63	64	71	78	87	80
17	75	54	49	54	50	61	62	70	65	72	86	78
18	73	58	48	56	46	59	65	66	70	74	79	77
19	68	57	54	53	49	58	59	70	71	72	80	72
20	66	60	50	50	46	57	60	73	70	70	78	67
21	64	55	56	53	48	56	62	72	73	74	77	65
22	61	57	51	49	50	57	64	67	78	76	90	68
23	62	58	55	48	49	62	59	70	75	78	83	77
24	63	56	49	48	49	60	64	68	76	78	81	68
25	54	58	49	50	60	60	62	64	72	79	a 90	70
26	57	57	49	56	57	65	64	70	69	79	85	70
27	55	57	40	53	55	59	62	68	73	80	87	70
28	61	58	41	50	60	59	60	69	75	83	86	71
29	61	54	52	50	--	61	63	70	74	82	80	69
30	60	55	46	52	--	70	71	73	74	83	81	69
31	59	--	47	53	--	60	--	62	--	82	82	--
Average	67	57	53	53	51	60	63	67	71	78	84	75

a Measurement made in evening.

COLORADO RIVER AT YUMA, ARIZ.

528172 O - 59 - 14

LOCATION.--At gaging station, 500 feet upstream from lower highway bridge, 1,800 feet downstream from upper highway bridge at Yuma, Yuma County, half a mile upstream from Yuma Main Canal wasteway, 5 miles downstream from Gila River, 7 miles upstream from boundary between California and Mexico, and 19 miles downstream from Imperial Dam.
DRAINAGE AREA.--242,900 square miles, approximately, including all closed basins entirely within the drainage boundary.
RECORDS AVAILABLE.--Chemical analyses: September 1926 to September 1928, October 1942 to February 1943, June 1947 to July 1952, November 1952 to September 1955.
Water temperatures: February 1954 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 96°F July 14, Aug. 15; minimum, 44°F Dec. 28-30.
EXTREMES, February 1954 to September 1955.--Water temperatures: Maximum, 96°F July 14, Aug. 15, 1955; minimum, 44°F Dec. 28-30, 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 8, 1954	2,300			87	35	118		174	314	104		0.8		745	1.01	4,630	361	218	41	2.7	1,170	7.8
Nov. 8	3,660			86	36	109		169	311	98		.9		724	.98	7,150	362	224	40	2.5	1,140	7.8
Dec. 5	3,560			87	35	115		171	315	101		1.0		738	1.00	7,090	361	221	41	2.6	1,160	7.9
Jan. 7, 1955	7,790			87	34	106		167	318	85		.9		713	.97	15,000	357	220	39	2.5	1,120	8.2
Feb. 7	4,140			91	33	106		172	311	90		1.4		717	.98	8,010	362	222	39	2.4	1,140	7.8
Mar. 7	2,730			72	33	125		140	319	100		.0		718	.98	5,290	315	200	46	3.1	1,110	8.1
Apr. 6	2,890			94	33	121		183	327	100		.9		766	1.04	5,980	370	220	41	2.7	1,190	7.3
May 6	1,870			88	36	130		160	345	114		.5		792	1.08	4,000	368	236	44	2.9	1,230	7.6
June 6	1,140			103	39	148		196	371	136		1.2		894	1.22	2,750	418	257	44	3.1	1,380	7.5
July 8	4,950			84	36	135		130	365	117		.0		801	1.09	10,710	358	251	45	3.1	1,230	7.7
Aug. 8	3,820			72	36	138		96	363	121		.0		777	1.06	8,010	328	249	48	3.3	1,210	8.1
Sept. 9	3,100			83	32	137		133	350	116		.0		783	1.06	6,550	338	230	47	3.2	1,210	7.9

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT YUMA, ARIZ.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Temperatures obtained from continuous-recording thermograph/

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	81	74	67	63	58	57	51	46	55	51	60	53	70	61	71	64	78	66	85	75	95	84	99	83
2	78	75	68	62	58	57	50	48	54	51	61	54	68	62	71	63	80	69	84	75	94	85	92	83
3	80	76	68	62	60	57	53	49	55	49	62	54	66	60	73	63	81	71	87	76	89	85	92	83
4	82	74	68	62	61	57	53	51	51	48	62	55	67	59	75	67	83	73	86	76	91	83	92	83
5	82	75	68	63	60	57	55	50	51	47	62	56	66	59	74	67	84	74	89	77	94	84	92	83
6	82	75	67	62	59	57	53	50	51	47	60	56	68	59	76	67	84	76	89	77	92	84	92	84
7	83	75	66	62	61	57	52	50	52	46	62	54	69	60	76	66	88	77	90	77	88	83	91	84
8	84	76	67	62	60	57	52	50	52	47	63	55	70	61	74	65	91	80	90	78	92	83	90	83
9	83	76	66	62	58	57	53	49	54	48	64	58	72	62	77	66	90	80	89	78	92	83	90	82
10	82	74	64	62	57	55	52	48	54	49	64	58	72	63	78	68	88	79	90	78	92	84	92	82
11	81	73	69	63	56	53	52	49	53	47	65	59	69	63	80	71	86	77	89	78	94	83	91	82
12	78	73	68	63	56	54	52	48	55	49	67	59	69	61	81	71	83	75	89	79	95	85	92	83
13	80	73	66	62	56	54	49	49	56	50	68	59	73	62	82	72	80	74	91	81	93	83	92	84
14	78	73	67	62	56	53	51	48	57	51	68	60	71	64	78	71	84	72	96	84	94	85	91	84
15	76	72	66	62	56	54	52	49	58	53	67	60	73	64	77	67	84	75	95	84	96	86	89	82
16	77	71	66	62	56	54	52	60	60	55	64	59	71	65	78	67	83	74	94	84	93	86	88	82
17	78	72	64	61	54	52	53	49	59	57	64	57	74	66	77	68	87	72	91	84	90	84	84	78
18	78	72	64	60	56	52	53	49	59	51	63	56	70	64	77	68	88	77	91	84	90	83	82	76
19	78	72	64	60	56	52	53	50	54	50	64	56	70	61	81	69	89	77	93	83	92	83	79	74
20	77	72	63	59	56	53	52	48	52	48	59	55	72	62	81	71	89	77	93	83	93	84	80	73
21	78	72	63	59	55	53	53	48	50	47	61	52	70	63	80	71	90	78	93	84	93	85	81	73
22	77	71	63	59	56	51	50	47	53	49	62	54	67	64	81	70	90	79	94	84	94	86	81	74
23	75	71	63	59	54	50	51	47	54	47	65	56	73	62	81	71	90	80	93	84	89	86	82	75
24	69	67	64	59	54	51	52	47	53	48	66	57	74	64	80	72	90	78	90	83	89	83	81	75
25	68	64	64	59	53	50	51	48	56	50	68	59	74	65	76	67	87	78	91	83	92	84	81	75
26	68	63	64	59	52	50	53	49	58	51	67	61	70	64	79	68	86	76	89	81	93	84	82	74
27	66	62	64	59	49	46	53	49	58	52	66	60	70	63	81	70	87	75	92	82	94	84	82	74
28	67	62	64	59	49	44	54	49	60	54	68	61	73	63	83	72	87	76	93	83	95	84	83	75
29	69	63	62	59	48	44	54	50	--	--	58	60	71	65	84	74	85	75	91	84	94	85	83	76
30	70	63	61	57	49	44	53	50	--	--	69	61	72	64	83	75	86	75	90	84	93	84	82	74
31	69	64	--	--	49	45	55	50	--	--	62	61	--	--	79	72	--	--	93	84	91	84	--	--
Average	77	71	65	61	55	52	52	49	55	50	64	52	70	62	78	69	86	76	91	81	92	84	87	79

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, 3¼ miles downstream from siphon-drop power plant, and a quarter of a mile downstream from upper highway bridge over Colorado River at Yuma, Yuma County.
RECORDS AVAILABLE.--Chemical analyses: September 1926 to September 1928, October 1942 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 894 ppm July 1-10; minimum, 734 ppm Jan. 11-20.
Hardness: Maximum, 400 ppm June 11-20; minimum, 340 ppm Oct. 1-10, 21-31, Dec. 11-20.
Specific conductance: Maximum daily, 1,300 micromhos Sept. 20; minimum daily, 1,090 micromhos Jan. 20.
EXTREMES, 1943-55.--Dissolved solids: Maximum, 894 ppm July 1-10, 1955; minimum, 532 ppm Jan. 1-10, 1953.
Hardness: Maximum, 400 ppm June 11-20, 1955; minimum, 260 ppm Jan. 1-10, 1953.
Specific conductance: Maximum daily, 1,300 micromhos Sept. 20, 1955; minimum daily, 795 micromhos Jan. 5, 1953.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Samples collected prior to February 1943 were from the gaging station on the Colorado River at Yuma. Records of discharge for water year October 1954 to September 1955 given in WSP 1393.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	574	14	0.01	87	30	113	4.8	173	305	98	0.4	1.2	0.16	754	1.03	1,170	340	198	41	2.7	1,120	7.7
Oct. 11-20.....	466	14	.00	88	30	112	4.8	171	300	97	.4	1.3	.17	755	1.03	950	343	203	41	2.6	1,120	7.8
Oct. 21-31.....	400	14	.00	87	30	112	4.7	170	305	98	.4	1.2	.17	754	1.03	814	340	201	41	2.6	1,120	7.7
Nov. 1-10	409	12	.01	89	30	112	4.8	171	304	98	.4	1.2	.17	752	1.02	830	346	206	41	2.6	1,120	7.9
Nov. 11-20	423	12	.00	89	30	112	4.8	169	305	97	.4	1.2	.17	753	1.02	860	346	207	41	2.6	1,120	7.9
Nov. 21-30	360	13	.01	89	30	112	4.7	169	306	96	.4	1.1	.17	753	1.02	732	346	207	41	2.6	1,110	8.0
Dec. 1-10	225	13	.00	89	30	113	4.8	171	306	96	.4	1.1	.17	760	1.03	462	346	206	41	2.6	1,120	8.0
Dec. 11-20	249	12	.01	87	30	111	4.7	169	307	96	.4	1.1	.16	757	1.03	509	340	202	41	2.6	1,110	8.0
Dec. 21-31.....	234	14	.01	90	32	109	4.6	165	309	95	.4	1.1	.18	745	1.01	471	356	221	40	2.5	1,130	8.0
Jan. 1-10, 1955 ..	95.0	14	.00	90	31	107	4.6	165	305	93	.4	1.2	.20	741	1.01	190	352	217	39	2.5	1,110	8.0
Jan. 11-20	113	13	.00	89	31	106	4.6	166	304	92	.4	1.3	.17	734	1.00	224	350	214	39	2.5	1,110	8.0
Jan. 21-31.....	293	15	.00	91	30	105	4.7	166	302	91	.4	1.7	.20	739	1.01	585	350	214	39	2.4	1,100	8.0
Feb. 1-10.....	378	13	.01	91	30	107	4.6	170	303	93	.4	1.5	.20	740	1.01	755	350	211	39	2.5	1,110	8.1
Feb. 11-20	466	13	.00	91	31	108	4.7	171	303	93	.4	1.7	.20	751	1.02	945	354	214	39	2.5	1,120	8.1
Feb. 21-28	398	16	.01	94	31	108	4.8	174	312	95	.4	1.7	.29	777	1.06	835	362	220	39	2.5	1,140	7.8
Mar. 1-10	497	18	.01	98	30	108	4.7	176	311	97	.4	1.7	.24	785	1.07	1,050	368	224	39	2.4	1,150	7.8
Mar. 11-20	614	16	.01	96	31	110	4.8	172	316	97	.3	1.4	.30	782	1.06	1,300	367	226	39	2.5	1,150	7.9
Mar. 21-31	462	14	.01	96	30	110	4.9	171	315	97	.3	1.4	.29	783	1.06	977	363	223	39	2.5	1,150	7.7
Apr. 1-10	447	16	.01	96	31	111	4.9	172	320	100	.3	1.4	.31	797	1.08	962	367	226	39	2.5	1,160	7.9
Apr. 11-20.....	509	20	.01	96	33	112	4.9	173	325	102	.3	1.4	.29	808	1.10	1,110	378	236	39	2.5	1,180	7.8
Apr. 21-30	566	14	.02	92	34	121	5.0	173	328	103	.4	1.5	.18	806	1.10	1,230	370	228	41	2.7	1,200	8.0
May 1-10	490	16	.00	96	31	124	5.2	172	342	107	.0	1.5	.18	817	1.11	1,080	367	226	42	2.8	1,220	7.9
May 11-20	506	17	.01	95	32	126	5.2	173	345	108	.0	1.5	.17	832	1.13	1,140	368	226	42	2.8	1,230	8.0
May 21-31	594	16	.00	96	33	128	5.4	173	352	111	.0	1.6	.19	850	1.16	1,360	375	233	42	2.9	1,250	8.0

DIVERSIONS AND RETURN FFOWS AT AND BELOW IMPERIAL DAM--Continued

YUMA MAIN CANAL BELOW COLORADO RIVER SIPHON, AT YUMA, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 1-10, 1955 ..	551	18	0.01	100	35	129	5.4	174	354	114	0.4	1.5	0.26	875	1.19	1,300	394	251	41	2.8	1,270	7.9
June 11-20.....	669	21	.01	101	36	129	5.6	175	354	113	.4	2.0	.24	889	1.21	1,610	400	256	41	2.8	1,270	8.0
June 21-30.....	580	17	.01	102	35	129	5.5	172	358	114	.4	1.6	.26	884	1.20	1,380	398	258	41	2.8	1,270	7.9
July 1-10	489	15	.01	102	35	129	5.6	173	357	114	.3	1.6	.26	894	1.22	1,180	398	256	41	2.8	1,270	8.0
July 11-20	514	14	.02	101	34	130	5.6	170	356	114	.3	1.8	.24	891	1.21	1,240	392	252	41	2.9	1,270	7.9
July 21-31	544	14	.01	101	35	130	5.6	172	354	115	.3	1.7	.25	880	1.20	1,290	396	255	41	2.8	1,280	7.9
Aug. 1-10	537	14	.02	100	35	131	5.7	170	357	116	.3	1.7	.25	887	1.21	1,290	394	254	42	2.9	1,280	8.0
Aug. 11-20.....	480	17	.00	92	38	132	5.7	165	374	113	.4	1.5	.18	857	1.16	1,110	386	250	42	2.9	1,260	8.0
Aug. 21-31.....	364	14	.00	91	38	133	5.8	160	380	113	.4	1.5	.17	849	1.16	834	383	252	43	2.9	1,240	7.9
Sept. 1-10	634	18	.01	93	34	128	5.6	158	347	114	.3	1.2	.21	839	1.14	1,440	372	242	42	2.9	1,240	8.0
Sept. 11-20	683	20	.00	94	39	135	5.9	168	379	118	.4	1.9	.20	872	1.19	1,610	395	258	42	3.0	1,280	8.0
Sept. 21-30.....	762	17	.02	98	35	133	5.5	164	361	118	.3	1.5	.20	876	1.19	1,800	388	254	42	2.9	1,280	7.9
Weighted average	460	16	0.01	95	33	121	5.2	170	333	106	0.3	1.5	0.22	818	1.11	1,020	372	233	41	2.7	1,200	--

SEVIER LAKE BASIN

SEVIER RIVER NEAR LYNNDYL, UTAH

LOCATION.--At bridge on State Highway 125, 1½ miles upstream from gaging station, which is 3½ miles southwest of Lynndyl, Millard County.
DRAINAGE AREA.--6,270 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 4,650 ppm Jan. 16-22; minimum, 512 ppm Mar. 9-12.
Hardness: Maximum, 1,710 ppm Jan. 16-22; minimum, 248 ppm Mar. 9-12.
Specific conductance: Maximum daily, 7,040 micromhos Jan. 21; minimum daily, 855 micromhos Mar. 11.
Water temperatures: Maximum, 84°F Aug. 5, 10; minimum, 34°F on several days during December and January.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 4,650 ppm Jan. 16-22, 1955; minimum, 512 ppm Mar. 9-12, 1955.
Hardness: Maximum, 1,710 ppm Jan. 16-22, 1955; minimum, 248 ppm Mar. 9-12, 1955.
Specific conductance: Maximum daily, 7,040 micromhos Jan. 21, 1955; minimum daily, 855 micromhos Mar. 11, 1955.
Water temperatures: Maximum, 84°F Aug. 5, 10, 1955; minimum, 33°F on many days during December to February 1952.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1394.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 1954	49.2	16		83	95	293	6.0	303	373	430		2.3	0.38	1,450	1.97	193	598	349	51	5.2	2,350	7.9
Oct. 7-10.....	25.2	17		112	144	567	9.0	313	715	785		1.9	.61	2,510	3.41	171	872	615	58	8.4	3,870	8.0
Oct. 11-15.....	16.4	19		140	166	662	9.3	350	835	920		1.0	.68	2,920	3.97	129	1,030	745	58	9.0	4,420	7.9
Oct. 16-20.....	25.2	16		93	101	341	6.2	297	436	495		2.1	.40	1,640	2.23	112	648	404	53	5.8	2,620	8.0
Oct. 21-31.....	58.5	15		89	92	261	5.5	293	355	398		2.5	.30	1,360	1.85	215	600	360	48	4.6	2,230	7.9
Nov. 1-10.....	72.4	17		84	94	263	5.9	284	367	402		3.4	.26	1,380	1.88	270	596	364	49	4.7	2,230	8.0
Nov. 11-17.....	151	21		87	111	405	7.8	316	508	565		7.7	.45	1,870	2.54	762	674	414	56	6.8	2,930	8.2
Nov. 18-24, 27-30.	28.0	22		143	152	578	8.0	354	728	840		2.6	.52	2,650	3.60	200	982	692	56	8.0	4,040	8.1
Nov. 25-26.....	36.0	19		102	105	312	5.8	292	411	475		4.6	--	1,580	2.15	154	686	446	49	5.2	2,530	8.0
Dec. 1-10.....	19.0	22		146	152	591	8.2	345	751	840		2.9	.51	2,680	3.64	137	990	707	56	8.2	4,140	8.1
Dec. 11-20.....	16.7	22		165	156	628	9.0	398	801	900		2.6	.52	2,880	3.92	130	1,050	727	56	8.4	4,410	8.0
Dec. 21-31.....	17.4	26		154	155	627	7.8	380	795	860		3.3	--	2,820	3.84	132	1,020	710	57	8.5	4,390	8.0
Jan. 1-10, 1955 ...	17.2	27		166	148	595	7.5	388	772	850		4.0	--	2,760	3.75	128	1,020	704	56	8.1	4,230	8.0
Jan. 11-15.....	17.0	27		150	146	593	7.5	346	761	835		2.9	.63	2,690	3.66	123	974	691	57	8.3	4,230	8.0
Jan. 16-22.....	17.0	33		229	278	1,020	12	484	1,320	1,520		2.5	.86	4,650	6.32	213	1,710	1,320	56	11	6,870	7.8
Jan. 23-31.....	17.0	30		189	183	739	8.5	450	946	1,040		4.3	--	3,360	4.57	154	1,220	856	57	9.2	5,140	7.8
Feb. 1-10	18.0	26		176	157	618	7.1	434	787	880		2.2	--	2,870	3.90	139	1,080	729	55	8.2	4,400	7.9
Feb. 11-19.....	18.9	26		158	150	580	8.4	371	757	870		5.9	.56	2,740	3.73	140	1,010	707	55	7.9	4,230	7.9

SEVIER LAKE BASIN--Continued

SEVIER RIVER NEAR LYNNDYL, UTAH--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 20-28, Mar. 1-2, 1955	22.6	22		150	143	563	8.4	351	719	835		6.4	0.52	2,620	3.56	160	962	675	56	7.9	4,040	8.0
Mar. 3-8	51.7	16		78	69	200	6.2	246	292	298		3.3	.25	1,080	1.47	151	478	276	47	4.0	1,790	7.8
Mar. 9-12	196	12		52	29	80	8.3	159	134	115		3.2	.13	512	.70	271	248	118	40	2.2	874	7.7
Mar. 13[a]	157	--		--	--	--	--	174	257	--		3.9	--	--	--	--	--	--	--	--	1,480	7.7
Mar. 16-20	19.8	24		173	162	647	14	376	847	965		2.8	.61	3,020	4.11	161	1,100	790	56	8.5	4,650	8.0
Mar. 21-22	17.0	27		175	171	700	13	359	919	1,030		2.0	.66	3,210	4.37	147	1,140	846	57	9.0	4,780	7.8
Mar. 25-26	24.5	27		153	123	440	10	334	575	702		2.6	.48	2,200	2.99	146	888	614	52	6.4	3,420	7.7
Mar. 27-31	55.0	17		92	88	234	6.3	282	323	378		3.0	.28	1,280	1.74	190	592	360	46	4.2	2,120	7.7
Apr. 1-10	55.8	14		84	99	267	6.5	282	375	428		2.3	.25	1,410	1.92	212	616	386	48	4.7	2,330	7.8
Apr. 11-20	41.4	16		94	101	286	6.9	291	388	450		2.3	.32	1,490	2.03	167	650	412	49	4.9	2,410	7.8
Apr. 21-26, 28-30	100	20		90	90	279	6.4	298	352	418		4.5	.36	1,410	1.92	381	594	350	50	5.0	2,320	7.7
Apr. 27[a]	159	--		--	--	--	--	292	182	230		4.6	--	--	--	--	452	213	--	--	1,480	7.5
May 1-10	655	28		90	88	362	7.6	320	428	470		13	.48	1,640	2.23	2,900	586	324	57	6.5	2,630	7.8
May 11-20	599	27		88	90	371	7.1	317	433	475		12	.44	1,660	2.26	2,680	590	330	57	6.6	2,660	7.8
May 21-31	376	26		90	90	371	7.1	310	434	480		10	.47	1,660	2.26	1,690	594	340	57	6.6	2,660	7.8
June 1-10	275	26		87	94	354	7.8	298	442	482		9.9	.48	1,650	2.24	1,230	604	360	56	6.3	2,650	7.8
June 11-20	255	24		86	98	366	7.8	289	463	508		7.4	.44	1,700	2.31	1,170	618	380	56	6.4	2,750	7.8
June 21-30	195	28		85	97	344	6.8	282	423	480		7.0	.48	1,610	2.19	848	611	380	55	6.1	2,620	8.0
July 1-10	571	30		88	97	374	7.7	303	454	510		9.9	.52	1,720	2.34	2,650	618	370	56	6.5	2,780	7.9
July 11-20	615	28		89	99	391	7.7	303	465	518		9.1	.51	1,760	2.39	2,920	629	380	57	6.8	2,840	7.8
July 21-31	212	27		86	101	388	8.5	300	462	525		7.0	.49	1,750	2.38	1,000	630	384	57	6.7	2,830	7.6
Aug. 1-10	182	23		77	98	367	7.5	285	436	500		8.1	.46	1,660	2.26	816	595	362	57	6.5	2,700	8.0
Aug. 11-20	216	26		68	93	359	12	266	411	478		7.3	.47	1,590	2.16	927	552	334	58	6.7	2,560	8.1
Aug. 21-31	319	30		75	100	412	8.6	284	460	538		9.4	.50	1,770	2.41	1,520	598	366	60	7.3	2,860	8.1
Sept. 1-10	218	28		74	104	428	8.6	287	477	568		7.3	.52	1,840	2.50	1,080	612	377	60	7.5	2,960	8.0
Sept. 11-20	167	23		66	108	436	7.9	268	474	582		6.0	.51	1,840	2.50	830	608	389	61	7.7	2,960	8.1
Sept. 21-30	77.0	18		76	95	320	6.3	277	382	458		5.4	.38	1,500	2.04	312	580	353	54	5.8	2,450	7.9
Weighted average	b164	26		87	97	376	7.8	300	450	507		8.7	0.47	1,710	2.33	757	616	370	57	6.6	2,740	--

a Not included for computation of weighted average.

b Represents 99 percent of runoff for water year October 1954 to September 1955.

SEVIER LAKE BASIN--Continued

SEVIER RIVER NEAR LYNNDYL, UTAH--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	53	40	35	36	37	50	52	56	70	82	75
2	62	53	41	35	36	37	46	52	--	70	82	75
3	62	53	41	35	35	42	48	58	59	70	80	73
4	64	51	45	35	35	42	48	58	66	70	78	74
5	64	51	45	35	35	42	52	61	67	71	84	74
6	66	51	47	--	35	42	55	62	72	72	81	72
7	66	51	45	34	35	42	55	58	75	72	81	72
8	66	51	39	34	35	42	54	58	75	72	81	72
9	66	50	39	34	35	48	54	62	75	72	80	72
10	63	51	42	34	35	48	52	62	70	70	84	71
11	63	50	42	35	35	52	52	63	70	70	78	71
12	63	50	43	35	35	52	58	63	70	70	78	71
13	59	48	43	35	35	52	64	56	70	76	78	71
14	59	48	43	35	35	--	64	56	70	76	80	71
15	59	48	43	35	35	--	64	56	70	76	80	71
16	59	48	37	35	--	52	56	56	70	74	76	70
17	59	48	37	35	35	52	56	58	74	74	76	70
18	59	48	36	35	35	52	54	62	80	76	76	65
19	--	46	36	35	35	52	54	64	80	78	76	65
20	59	46	36	35	35	55	54	62	80	78	76	68
21	59	49	36	35	35	55	54	58	80	78	74	64
22	61	51	36	35	35	55	52	58	80	78	74	64
23	52	51	37	35	35	--	64	58	79	78	75	64
24	45	50	37	35	37	--	50	58	78	75	75	63
25	45	48	37	35	37	52	50	58	78	75	75	73
26	48	48	37	35	37	52	46	60	78	75	75	63
27	52	46	34	35	37	52	54	62	74	78	75	63
28	52	46	35	35	37	52	57	62	72	78	75	67
29	52	37	35	34	--	52	62	68	68	80	77	67
30	53	39	35	34	--	50	52	60	68	81	77	66
31	53	--	35	36	--	56	--	60	--	81	75	--
Average	59	49	39	35	35	49	54	59	70	75	78	69

HUMBOLDT RIVER BASIN

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 1955.
Water temperatures: December 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,660 ppm May 25-31; minimum, 1,050 ppm July 21-28.
Hardness: Maximum, 356 ppm May 25-31; minimum, 276 ppm July 21-28.
Specific conductance: Maximum daily, 2,940 micromhos May 26; minimum daily, 1,650 micromhos July 28.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 2,190 ppm Sept. 1-5, 1954; minimum, 512 ppm Dec. 21-31, 1951.
Hardness: Maximum, 482 ppm Sept. 1-5, 1954; minimum, 171 ppm May 1-10, 1953.
Specific conductance: Maximum daily, 4,010 micromhos Sept. 2, 1954; minimum daily, 784 micromhos Dec. 31, 1951, Sept. 10, 1952.
Water temperatures: 1951-54: Maximum, 76°F July 31, Aug. 1, 1952; minimum, 35°F Dec. 24, 1952.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1394. No appreciable inflow between gaging station and sampling point except during periods of local rains.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 22-31, 1955...	318	41		77	40	445	42	334	183	665		3.0	1.8	1,660	2.26	1,430	356	83	70	10	2,870	7.7
June 1-10.....	289	42		72	36	401	40	343	169	548		3.0	1.4	1,480	2.01	1,150	328	46	70	9.6	2,530	7.7
June 11.....	102	--		76	33	--	--	364	160	505		--	--	--	--	--	326	28	--	--	2,440	8.1
July 11-20.....	93.2	51		70	32	325	36	356	147	432		2.4	1.5	1,270	1.73	320	306	14	67	8.1	2,150	7.6
July 21-31, Aug. 1-3	187	56		61	30	256	31	340	122	322		3.6	1.3	1,050	1.43	530	276	0	64	6.7	1,760	7.7
Weighted average.	a 213	46		71	35	368	38	341	159	513		3.1	1.5	1,400	1.90	805	321	42	68	8.9	2,390	--

a Represents 92 percent of runoff for water year October 1954 to September 1955.

Temperature (°F) of water, May to July 1955
/No flow on many days/

Day	May	June	July	Day	May	June	July	Day	May	June	July	Day	May	June	July	Day	May	June	July
1	--	60	--	8	--	70	--	15	--	--	68	22	--	--	71	29	61	--	--
2	--	61	--	9	--	70	--	16	--	--	68	23	--	--	73	30	60	--	--
3	--	62	--	10	--	71	--	17	--	--	70	24	--	--	74	31	58	--	--
4	--	65	--	11	--	70	66	18	--	--	71	25	59	--	74				
5	--	67	--	12	--	--	67	19	--	--	71	26	59	--	73				
6	--	66	--	13	--	--	68	20	--	--	72	27	60	--	73				
7	--	66	--	14	--	--	68	21	--	--	71	28	62	--	73				
Average																	--	--	--

MISCELLANEOUS ANALYSES OF STREAMS AND LAKES IN PYRAMID AND WINNEMUCCA LAKES BASIN IN CALIFORNIA

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
LAKE TAHOE (SOUTH END) BIJOU (SEC. 35, T. 13 N., R. 18 E.)																						
Oct. 11, 1954		14	--	9.7	2.4	6.4	1.7	56	2.5	1.0	0.0	0.0	0.04	66	0.09		34	0	28	0.5	97.8	7.9
Nov. 8		--	--	9.5	2.5	6.0	1.8	54	--	1.8	--	--	.02	--	--		34	0	26	.4	94.5	7.7
May 9, 1955		13	0.00	9.3	2.4	5.9	1.8	54	2.1	1.0	.0	.2	.00	63	.09		33	0	27	.4	99.2	7.7
June 13		--	--	9.2	1.6	6.1	1.7	50	--	1.0	--	--	.00	--	--		30	0	29	.5	92.2	7.3
July 11		--	--	9.8	1.8	6.7	2.1	56	--	2.0	--	--	.05	--	--		32	0	30	.5	108	7.3
Aug. 15		--	--	9.6	3.2	6.2	1.9	56	--	3.2	--	--	.00	--	--		37	0	25	.4	97.0	7.3
Sept. 12		14	.00	9.7	1.7	6.0	1.7	55	.0	1.5	.0	.2	.00	62	.08		31	0	28	.5	93.0	7.9
LAKE TAHOE (NORTH END) TAHOE VISTA (SEC. 14, T. 16 N., R. 17 E.)																						
Oct. 11, 1954		--	--	10	2.1	6.4	1.7	55	--	2.3	--	--	0.02	--	--		34	0	28	0.5	97.0	7.6
Nov. 8		--	--	10	2.2	5.7	1.7	55	--	1.8	--	--	.01	--	--		34	0	26	.4	94.4	7.7
May 9, 1955		13	0.00	8.9	2.9	5.9	1.8	58	1.8	1.2	0.1	0.2	.07	65	0.09		34	0	26	.4	95.9	7.7
June 13		--	--	9.2	2.6	6.3	1.8	55	--	2.0	--	--	.00	--	--		34	0	28	.5	95.1	7.6
July 11		--	--	9.3	2.4	6.1	1.9	54	--	2.2	--	--	.04	--	--		33	0	27	.5	93.6	7.7
Aug. 15		--	--	9.2	3.4	5.9	1.8	57	--	2.2	--	--	.05	--	--		37	0	25	.4	94.0	7.5
Sept. 12		13	.00	9.2	2.2	6.0	1.6	54	2.0	1.8	.0	.2	.06	63	.09		32	0	28	.5	92.8	7.9
LAKE TAHOE (WEST SIDE) TAHOE CITY (SEC. 7, T. 15 N., R. 17 E.)																						
Oct. 11, 1954		--	--	9.6	2.2	6.4	1.8	54	--	2.0	--	--	0.28	--	--		33	0	28	0.5	96.9	7.9
Nov. 8		--	--	9.3	2.6	5.6	1.7	54	--	2.5	--	--	.02	--	--		34	0	25	.4	94.2	7.7
May 9, 1955		11	0.00	11	1.6	5.9	1.8	54	4.1	1.2	0.1	0.5	.06	64	0.09		34	0	26	.4	95.3	7.1
June 13		--	--	9.6	2.1	6.0	1.8	56	--	2.0	--	--	.00	--	--		33	0	27	.5	94.7	7.6
July 11		--	--	9.8	2.1	5.6	1.8	55	--	1.0	--	--	.07	--	--		33	0	26	.4	93.6	7.8
Aug. 15		--	--	9.2	2.7	6.1	1.8	55	--	2.5	--	--	.00	--	--		34	0	27	.5	94.2	7.6
Sept. 12		14	.00	9.4	2.1	6.0	1.7	54	.0	1.5	.0	.2	.00	62	.08		32	0	28	.5	92.8	8.1

PYRAMID AND WINNEMUCCA LAKES BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS AND LAKES IN PYRAMID AND WINNEMUCCA LAKES BASIN IN CALIFORNIA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
TRUCKEE RIVER NEAR TRUCKEE (SEC. 28, T. 17 N., R. 16 E.)																						
Oct. 11, 1954	311	--	--	11	1.5	6.4	1.8	55	--	2.0	--	--	0.08	--	--		34	0	28	0.5	98.7	7.6
Nov. 8	239	--	--	10	2.2	5.8	1.8	55	--	1.5	--	--	.01	--	--		34	0	26	.4	96.4	7.7
May 9, 1955	259	17	0.00	7.4	1.8	2.8	.8	32	4.9	.5	0.1	0.6	.07	52	0.07		26	0	18	.2	63.7	7.1
June 13	224	--	--	5.9	1.0	2.4	.6	26	--	.0	--	--	.00	--	--		19	0	21	.2	47.2	7.2
July 11	437	--	--	9.5	2.5	5.9	1.5	55	--	2.2	--	--	.02	--	--		34	0	26	.4	91.9	7.7
Aug. 15	449	--	--	9.2	3.7	5.9	1.7	56	--	2.2	--	--	.00	--	--		38	0	24	.4	97.1	7.5
Sept. 12	455	13	.00	9.0	2.6	5.7	1.6	55	1.0	1.5	.0	.1	.00	62	.08		33	0	26	.4	95.2	7.7
TRUCKEE RIVER AT FARAD (SEC. 29, T. 18 N., R. 18 E.)																						
Oct. 12, 1954	--	--	--	12	2.2	6.6	1.6	60	--	1.3	--	--	0.04	--	--		39	0	26	0.5	107	7.7
Nov. 9	409	--	--	9.5	2.3	5.3	1.3	52	--	1.8	--	--	.00	--	--		33	0	25	.4	91.4	7.5
May 9, 1955	708	17	0.01	7.2	1.7	3.2	.8	36	3.0	1.0	0.2	0.3	.00	52	0.07		25	0	21	.3	65.2	7.2
June 14	928	--	--	5.3	1.4	2.9	1.0	28	--	.3	--	--	.00	--	--		19	0	24	.3	49.2	7.1
July 12	507	--	--	8.9	3.4	5.7	1.8	56	--	2.0	--	--	.02	--	--		36	0	24	.4	94.1	7.8
Aug. 16	507	--	--	9.6	3.2	5.9	1.8	57	--	2.2	--	--	.06	--	--		37	0	25	.4	94.2	7.3
Sept. 13	493	15	.00	9.4	2.7	5.9	1.9	57	2.0	1.8	.0	.1	.00	67	.09		34	0	26	.4	99.7	7.7

HONEY LAKE BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN HONEY LAKE BASIN IN CALIFORNIA

SUSAN RIVER NEAR SUSANVILLE (SEC. 31, T. 30 N., R. 12 E.)

Oct. 12, 1954	5.1	--	--	20	7.0	6.5	2.2	113	--	0.7	--	--	0.04	--	--		79	0	15	0.3	178	7.9
Nov. 9	7.0	--	--	16	9.3	6.0	2.7	106	--	.2	--	--	.00	--	--		78	0	14	.3	167	8.0
May 10, 1955	108	23	0.2	11	3.1	3.8	1.1	58	1.6	.8	0.2	0.4	.00	74	0.10		40	0	17	.3	94.4	7.4
June 14	24	--	--	13	4.9	4.6	1.4	78	--	.1	--	--	.01	--	--		52	0	16	.3	126	7.9
July 12	5.6	--	--	15	8.9	6.0	2.0	105	--	.0	--	--	.00	--	--		74	0	15	.3	163	7.8
Aug. 16	2.6	--	--	10	16	6.8	2.5	132	--	.5	--	--	.00	--	--		90	0	14	.3	198	7.9
Sept. 13	3.1	41	.10	18	10	5.8	2.7	126	.0	.0	.0	.2	.00	140	.19		86	0	12	.3	192	8.0

CARMEL RIVER BASIN

CARMEL RIVER NEAR CARMEL, CALIF.

LOCATION.--At 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, December 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Dec. 16, 1954.....		--	--	31	9.6	19	2.5	115	--	18	--	--	0.01	--	--		117	23	26	0.8	319	7.9
Jan 18, 1955.....		--	--	27	7.5	17	2.7	97	--	19	--	--	.00	--	--		98	18	27	.7	283	7.7
Feb. 17.....		--	--	30	9.0	19	2.3	109	--	17	--	--	.02	--	--		112	23	26	.7	314	8.0
Mar. 22.....		--	--	28	10	17	2.6	111	--	16	--	--	.09	--	--		111	20	24	.7	289	8.1
Apr. 26.....		--	--	20	11	13	2.1	105	--	9.5	--	--	.04	--	--		95	9	22	.6	239	8.0
May 19.....		22	0.00	39	5.3	20	2.8	123	36	16	0.4	0.2	.00	203	0.28		119	18	26	.8	319	8.0
June 23.....		--	--	45	12	31	3.1	149	--	34	--	--	.04	--	--		161	39	29	1.1	460	8.0
July 21.....		--	--	41	23	39	3.4	172	--	46	--	--	.04	--	--		197	56	30	1.2	563	7.9
Aug. 24.....		--	--	63	19	47	3.2	206	--	58	--	--	.09	--	--		236	67	30	1.3	667	7.8
Sept. 22.....		24	.02	64	20	45	4.4	202	99	56	.5	.0	.05	413	.56		242	76	28	1.3	675	7.4

PAJARO RIVER BASIN

UVAS CREEK NEAR MORGAN HILL, CALIF.

LOCATION.--At 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.
DRAINAGE AREA.--30.2 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954	0.2	24	--	52	18	14	0.9	232	--	7.0	--	--	0.08	--	--		205	15	13	0.4	431	8 2
Nov. 17	6.6	19	--	43	17	13	.9	183	--	9.0	--	--	.12	--	--		178	28	14	.4	389	8.0
Dec. 15	17	--	--	40	17	12	.6	182	--	7.5	--	--	.07	--	--		170	21	13	.4	363	8.1
Jan. 17, 1955	22	--	--	39	18	12	.6	186	--	8.0	--	--	.12	--	--		170	17	13	.4	366	8 1
Feb. 17	14	--	--	43	20	13	.8	202	--	6.0	--	--	.15	--	--		188	22	13	.4	392	8.2
Mar. 21	12	--	--	37	23	13	.8	206	--	7.0	--	--	.04	--	--		187	18	13	.4	388	8.0
Apr. 25	21	--	--	33	19	12	.6	185	--	4.7	--	--	.05	--	--		160	8	14	.4	331	8 1
May 18	8.0	19	0.00	51	14	14	1.3	213	32	5.5	0.2	0.3	.09	242	0.33		184	9	14	.4	388	8.0
June 22	2.6	--	--	47	16	14	.9	218	--	6.0	--	--	.01	--	--		185	6	14	.4	392	8.1
July 20	.5	--	--	39	25	15	1.2	238	--	6.5	--	--	.15	--	--		199	4	14	.5	432	7.7
Aug. 24	.3	--	--	47	22	14	.8	238	--	8.5	--	--	.15	--	--		207	12	13	.4	429	7.5
Sept. 21	.2	26	.00	13	42	15	1.0	235	35	7.5	.1	.4	.15	256	.35		206	13	14	.5	441	7.6

PAJARO RIVER AT CHITTENDED, CALIF.
(Formerly published as Pajaro River near Chittenden)

LOCATION-(revised).--At gaging station on State highway bridge 0.6 mile downstream from Pescadero Creek, 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954	1.1	--	--	78	77	241	5.0	534	12	--	210	--	--	0.92	--	--		512	54	50	4.6	1,870	8.4
Nov. 17	2.1	23	--	107	79	273	6.4	554	16	--	348	--	--	2.0	--	--		592	111	50	4.9	2,220	8.4
Dec. 15	5.0	--	--	62	45	138	3.4	364	--	--	149	--	--	.86	--	--		340	42	47	3.3	1,240	8.1
Jan. 17, 1955	26	--	--	54	41	85	2.6	271	--	--	72	--	--	.51	--	--		302	80	38	2.1	917	8.2
Feb. 17	8.6	--	--	76	64	144	3.8	404	--	--	133	--	--	1.0	--	--		452	121	41	3.0	1,400	8.2
Mar. 21	7.8	--	--	72	52	107	3.0	357	--	--	105	--	--	.81	--	--		392	99	37	2.4	1,130	8.0
Apr. 25	18	--	--	51	43	83	2.5	287	--	--	65	--	--	.57	--	--		305	70	37	2.1	899	8.2
May 18	4.0	16	0.00	86	65	146	5.0	448	6	244	147	0.3	0.3	1.2	938	1.28		482	105	36	2.9	1,500	8.3
June 22	2.8	--	--	149	51	235	4.0	536	--	--	217	--	--	1.2	--	--		583	143	46	4.2	1,980	8.2
July 20	.9	--	--	91	9.1	224	5.0	537	9	--	210	--	--	1.1	--	--		600	143	45	4.0	1,920	8.3
Aug. 24	1.6	--	--	89	94	200	3.8	577	--	--	190	--	--	.92	--	--		609	136	41	3.5	1,850	8.2
Sept. 21	--	21	.00	84	87	217	3.8	586	--	296	191	.6	2.5	.98	1,190	1.62		568	87	45	4.1	1,890	8.1

SOQUEL CREEK BASIN

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.
DRAINAGE AREA.--40.4 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 21, 1954	3.0	40	--	81	21	50	4.5	230	12	--	72	--	--	0.13	--	--		290	82	27	1.3	758	8.4
Nov. 18	19	30	--	78	22	54	4.7	216	--	--	70	--	--	.13	--	--		284	107	29	1.4	784	8.0
Dec. 16	32	--	--	64	19	39	2.9	196	--	--	36	--	--	.05	--	--		238	77	26	1.1	621	8.2
Feb. 18, 1955	21	--	--	69	20	40	3.4	206	3	--	35	--	--	.09	--	--		255	81	25	1.1	642	8.3
Mar. 22	19	--	--	63	25	41	3.4	210	6	--	38	--	--	.20	--	--		259	77	25	1.1	652	8.3
Apr. 26	49	--	--	48	16	27	2.6	166	--	--	19	--	--	.05	--	--		184	48	24	.9	470	8.0
May 19	15	28	0.00	75	16	41	3.9	219	5	105	36	0.3	0.5	.11	419	0.57		253	65	26	1.1	646	8.4
June 23	7.4	--	--	78	20	47	4.6	239	5	--	55	--	--	.13	--	--		276	72	27	1.2	728	8.3
July 21	3.9	--	--	78	23	47	5.5	259	--	--	60	--	--	.10	--	--		289	77	26	1.2	750	8.2
Aug. 25	2.6	--	--	75	24	48	4.7	262	--	--	65	--	--	.23	--	--		286	71	26	1.2	748	8.0
Sept. 22	3.3	40	.03	74	24	47	4.9	253	--	87	59	.5	.4	.05	462	.63		283	76	26	1.2	727	7.8

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 above gaging station and 4 miles north of Santa Cruz.
DRAINAGE AREA.--110 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 21, 1954	16	27	--	40	6.1	22	1.9	136	29	25	0.2	0.2	0.06	218	0.30		125	13	27	0.9	347	8.0
Nov. 18	40	25	--	40	8.3	22	2.1	122	--	23	--	--	.11	--	--		134	34	26	.8	369	7.9
Dec. 16	a96	--	--	38	8.8	20	1.5	118	--	17	--	--	.03	--	--		131	34	25	.8	345	7.9
Jan. 18, 1955	1,090	--	--	22	1.0	10	2.2	52	--	6.5	--	--	.00	--	--		59	16	26	.6	168	7.6
Feb. 18	71	--	--	40	11	21	1.7	126	--	18	--	--	.07	--	--		145	42	24	.7	365	8.0
Mar. 22	57	--	--	41	8.9	22	1.7	130	--	20	--	--	.00	--	--		139	32	25	.8	369	8.1
Apr. 26	187	--	--	22	12	17	1.6	95	--	14	--	--	.10	--	--		103	25	26	.7	283	7.7
May 19	53	23	0.00	41	9.7	21	2.2	136	51	18	.1	.5	.08	234	.32		142	30	24	.8	365	8.0
June 23	28	--	--	43	6.5	23	1.9	140	--	21	--	--	.08	--	--		134	19	27	.9	370	7.9
July 21	--	--	--	39	8.2	21	1.9	142	--	21	--	--	.13	--	--		131	15	25	.8	354	8.0
Aug. 25	15	--	--	36	7.6	20	1.6	134	--	22	--	--	.06	--	--		121	11	26	.8	333	7.7
Sept. 22	15	28	.05	37	6.4	21	1.8	130	28	24	.2	.4	.02	211	.29		119	12	27	.8	338	8.1

a Daily mean discharge.

GUADALUPE RIVER BASIN

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 21, 1954	4.4	14	--	40	13	18	1.7	162	45	12	0.2	0.9	0.08	225	0.31		154	21	20	0.6	368	8.2
Nov. 19	2.9	15	--	42	14	12	1.9	154	--	9.0	--	--	.10	--	--		163	37	14	.4	371	7.8
Dec. 17	29	--	--	35	13	12	1.7	122	--	8.5	--	--	.19	--	--		139	39	16	.4	327	7.8
Jan. 19, 1955	5.6	--	--	33	13	10	1.3	142	--	7.0	--	--	.00	--	--		134	18	14	.4	298	8.2
Feb. 18	45	--	--	41	16	15	1.5	142	--	7.5	--	--	.08	--	--		168	52	16	.5	378	8.1
Mar. 25	3.9	--	--	40	19	15	1.5	a161	--	8.5	--	--	.06	--	--		176	44	15	.5	369	8.3
Apr. 26	1.2	--	--	38	26	15	1.3	197	--	7.9	--	--	.12	--	--		200	38	14	.5	436	8.0
May 20	55	14	0.00	35	27	17	1.8	178	74	9.5	.1	.9	.02	267	.36		200	54	15	.5	445	8.0
June 24	1.2	--	--	84	29	28	2.5	311	--	18	--	--	.13	--	--		330	75	15	.7	693	8.2
July 22	.4	--	--	84	35	29	2.5	347	--	19	--	--	.25	--	--		355	70	15	.7	730	8.2
Aug. 25	.2	--	--	82	39	27	2.2	362	--	20	--	--	.18	--	--		363	66	14	.6	746	8.0
Sept. 22	.6	18	.00	81	34	29	2.5	332	103	20	.4	.1	.15	452	.61		343	71	15	.7	724	8.0

a Includes equivalent of 4 parts per million of carbonate (CO_3).

COYOTE CREEK NEAR MADRONE, CALIF.

528172 O - 59 - 15

LOCATION.--At gaging station near southeast corner of Laguna Seca Grant, 1.2 miles downstream from Anderson Dam at mouth of canyon and 1.8 miles northeast of Madrone, Santa Clara County.
DRAINAGE AREA.--194 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954	50	8.5	--	42	17	17	2.6	201	--	11	--	--	0.08	--	--		174	9	17	0.6	397	8.2
Nov. 17	a 16	9.0	--	41	18	17	2.5	206	--	12	--	--	.14	--	--		178	9	17	.6	407	8.1
Dec. 15	6.0	--	--	44	21	19	2.5	221	--	12	--	--	.09	--	--		196	15	17	.6	442	8.1
Jan. 17, 1955	30	--	--	45	16	20	2.3	218	--	14	--	--	.11	--	--		180	1	19	.6	450	8.2
Feb. 17	17	--	--	48	21	20	2.3	b 223	--	14	--	--	.09	--	--		205	22	17	.6	453	8.4
Mar. 21	27	--	--	43	22	20	2.7	218	--	13	--	--	.04	--	--		199	20	18	.6	456	8.2
Apr. 25	54	--	--	42	23	20	2.7	224	--	13	--	--	.11	--	--		200	16	18	.6	444	8.0
May 18	50	9.2	0.00	47	20	20	3.1	c 229	44	14	0.3	1.0	.15	272	0.37		201	13	18	.6	448	8.4
June 22	85	--	--	51	19	20	2.3	233	--	13	--	--	.09	--	--		206	15	17	.6	463	8.1
July 20	33	--	--	38	26	20	2.7	229	--	13	--	--	.07	--	--		201	13	18	.6	459	8.2
Aug. 24	74	--	--	43	22	20	2.3	227	--	14	--	--	.13	--	--		199	13	18	.6	450	7.8
Sept. 21	74	12	.01	44	23	19	2.5	222	45	14	.5	1.1	.16	270	.37		204	22	17	.6	462	7.7

a Daily mean discharge.
b Includes equivalent of 10 parts per million of carbonate (CO_3).
c Includes equivalent of 5 parts per million of carbonate (CO_3).

ALAMEDA CREEK BASIN

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: September 1952 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954	1.4	20		74	48	93	5.7	384		107			1.0				380	65	34	2.1	1,080	8.1
Nov. 17	4.4	21		95	48	89	9.4	460		108			.92				436	59	30	1.9	1,150	8.2
Dec. 15	4.8	--		70	38	83	16	320		105			.84				329	67	34	2.0	994	7.8
Jan. 17, 1955	20	--		69	41	81	7.1	334		98			.52				339	65	34	1.9	979	8.1
Feb. 17	6.5	--		75	45	87	7.3	380		94			.73				372	60	33	2.0	1,040	8.2
Mar. 21	6.2	--		--	--	75	5.0	366		72			.59				337	37	32	1.8	916	8.1
Apr. 25	6.2	--		64	54	88	6.8	429		91			.98				384	32	33	2.0	1,060	7.9
May 20	3.5	15	0.00	--	--	90	6.5	a 449	90	93	0.3	0.3	.87	625	0.85		391	23	33	2.0	1,070	8.3
June 22	1.3	--		94	40	95	5.9	b 461		96			1.1				398	38	34	2.1	1,090	8.4
July 20	.3	--		--	--	89	6.1	459		98			1.2				402	26	32	1.9	1,100	8.2
Aug. 24	.2	--		80	56	107	6.6	479		132			1.4				429	36	35	2.3	1,240	8.1

a Includes equivalent of 6 parts per million of carbonate (CO_3).
b Includes equivalent of 10 parts per million of carbonate (CO_3).

KERN RIVER NEAR BAKERSFIELD, CALIF.

LOCATION.--At gaging station at diversion weir at mouth of lower canyon, 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	246	12		22	3.7	24	3.1	106	--	12	--	--	0.19	--	--		70	0	41	1.2	248	8.0
Nov. 11	287	--		19	3.6	22	2.5	93	--	12	--	--	.19	--	--		62	0	42	1.2	227	8.1
Dec. 9	277	--		19	3.3	20	2.2	92	--	12	--	--	.30	--	--		61	0	41	1.1	222	7.9
Jan. 11, 1955	306	--		19	2.6	20	1.8	86	--	11	--	--	.29	--	--		58	0	42	1.1	205	7.8
Feb. 10	321	--		20	3.4	23	2.1	100	--	12	--	--	.15	--	--		64	0	43	1.3	227	8.1
Mar. 9	418	--		19	2.3	19	1.7	88	--	9.5	--	--	.13	--	--		57	0	41	1.1	201	7.8
Apr. 13	641	--		9.7	7.9	18	2.1	91	--	8.2	--	--	.16	--	--		57	0	40	1.0	199	7.4
May 11	557	26		8.8	3.4	12	1.4	58	8.7	3.6	0.3	0.1	.06	93	0.13		36	0	41	.9	125	7.4
June 15	1,255	--		7.8	1.1	6.0	.8	35	--	2.0	--	--	.07	--	--		24	0	34	.5	71.5	7.5
July 14	774	--		8.9	1.7	9.0	1.2	46	--	4.5	--	--	.07	--	--		29	0	39	.7	100	7.5
Aug. 17	478	--		11	2.3	13	1.6	63	--	6.5	--	--	.04	--	--		37	0	42	.9	139	7.6
Sept. 14	274	11	0.02	18	2.7	17	2.1	84	13	11	.4	.2	.18	117	.16		56	0	39	1.0	200	7.8

TULARE LAKE BASIN

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 (revised).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to August 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, October 1954 to August 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 13, 1954	5.1	35		49	8.7	25	3.3	223	5	--	12	--	--	0.10	--	--		158	0	25	0.9	397	8.3
Nov. 10	20	--		54	9.8	25	3.7	237	7	--	14	--	--	.14	--	--		175	0	23	.8	423	8.4
Dec. 9	48	--		55	9.9	23	3.1	238	2	--	14	--	--	.19	--	--		178	0	22	.7	416	8 3
Jan. 11, 1955	88	--		44	7.3	22	4.2	198	0	--	14	--	--	.22	--	--		140	0	25	.8	359	8.1
Feb. 10	71	--		44	6.9	18	2.3	194	0	--	10	--	--	.09	--	--		138	0	22	.7	332	8.2
Mar. 9	123	--		31	4.8	14	2.2	138	0	--	5.8	--	--	.08	--	--		97	0	23	.6	241	8.0
Apr. 13	80	--		34	3.2	12	2.1	144	0	--	6.2	--	--	.09	--	--		98	0	21	.5	239	7.9
May 11	232	23		21	2.6	8.1	1.4	94	0	2.0	3.8	0.2	0.4	.05	109	0.15		63	0	21	.4	158	8.0
June 15	66	--		33	3.3	11	1.8	137	0	--	4.8	--	--	.19	--	--		96	0	20	.5	221	8.2
July 14	6.4	--		49	7.5	20	3.9	202	9	--	9.5	--	--	.13	--	--		153	0	22	.7	366	8.4
Aug. 17	.5	--		54	8.1	21	3.0	243	0	--	12	--	--	.19	--	--		168	0	21	.7	399	8.1

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.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 13, 1954	27	19	--	19	2.1	9.5	1.9	76	--	11	--	--	0.00	--	--		56	0	26	0.6	161	8.0
Nov. 10	32	--	--	20	2.5	9.3	1.6	78	--	10	--	--	.02	--	--		60	0	25	.5	164	8.0
Dec. 8	114	--	--	15	1.5	5.9	1.3	58	--	4.5	--	--	.02	--	---		44	0	22	.4	114	7.9
Jan. 11, 1955	151	--	--	17	1.7	7.2	1.1	68	--	5.8	--	--	.13	--	--		50	0	24	.4	134	7.8
Feb. 10	182	--	--	15	1.5	6.4	1.1	60	--	4.0	--	--	.01	--	--		44	0	24	.4	116	7.8
Mar. 9	387	--	--	11	1.6	5.0	1.2	48	--	2.0	--	--	.06	--	--		34	0	23	.4	96.4	7.5
Apr. 12	516	--	--	3.8	2.7	3.3	.8	32	--	1.6	--	--	.00	--	--		20	0	25	.3	58.3	7.4
May 11	1,370	13	--	4.2	1.3	2.4	.7	24	1.2	.3	0.3	0.1	.01	36	0.05		16	0	24	.3	41.0	7.1
June 14	989	--	--	4.7	.8	1.8	.4	22	--	.5	--	--	.00	--	--		15	0	20	.2	35.8	7.4
July 13	213	--	--	8.9	1.2	5.5	2.2	36	--	3.8	--	--	.00	--	--		27	0	29	.5	85.2	6.6
Aug. 17	50	--	--	13	1.8	5.7	1.4	55	--	5.5	--	--	.06	--	--		40	0	23	.4	109	7.4
Sept. 13	26	16	0.02	16	1.5	7.7	1.7	63	3.0	8.5	.1	.2	.02	86	.12		46	0	26	.5	134	8.1

TULARE LAKE BASIN--Continued

KINGS RIVER ABOVE NORTH FORK, CALIF.

LOCATION.--About 0.75 mile below gaging station on downstream side of bridge, 0.15 mile upstream from North Fork, Fresno County, and 10 miles southeast of Trimmer.
DRAINAGE AREA.--956 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 13, 1954	113			7.6	1.0	4.2	1.0	30		3.2			0.05				23	0	27	0.4	69.4	7.4
Nov. 10	113			7.9	.6	4.2	1.1	30		3.0			.02				22	0	28	.4	68.9	7.4
Dec. 8	259			7.6	.6	3.9	.9	28		2.2			.03				22	0	27	.4	67.8	7.5
Jan. 11, 1955	256			7.7	.3	4.2	.6	27		3.0			.22				20	0	30	.4	62.3	7.1
Feb. 9	296			7.3	.4	4.3	.6	27		2.5			.01				20	0	31	.4	62.0	7.4
Mar. 8	538			7.2	1.0	3.9	.8	25		1.5			.00				22	2	27	.4	57.8	7.2
Apr. 12	1,100			1.8	1.4	2.9	.6	16		1.5			.00				10	0	37	.4	36.1	7.1
May 10	2,160	9.9		3.6	.2	2.2	.5	16	1.7	1.0	0.2	0.2	.03	28	0.04		10	0	31	.3	30.6	7.2
June 14	3,730			3.4	.1	1.2	.4	10		.8			.02				9	1	21	.2	20.4	7.0
July 13	1,370			3.4	.2	3.1	1.1	11		1.8			.00				10	1	38	.4	39.6	7.0
Aug. 16	372			5.1	.2	2.4	.7	19		1.5			.14				14	0	27	.3	40.9	7.0

KINGS RIVER AT PIEDRA, CALIF.

LOCATION.--About 0.5 mile above gaging station, at highway bridge at Piedra, Fresno County, 1.5 miles downstream from Mill Creek and about 12 miles northeast of Sangor.
DRAINAGE AREA.--1,694 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to August 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, October 1954 to August 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 13, 1954	52	10		7.2	1.7	3.3	1.1	34	--	1.8	--	--	0.00	--	--		25	0	21	0.3	70.1	7.6
Nov. 10	50	--		7.5	1.3	3.8	1.3	32	--	2.2	--	--	.04	--	--		24	0	24	.3	65.0	7.4
Dec. 8	32	--		7.6	1.5	3.8	1.1	33	--	2.8	--	--	.01	--	--		25	0	24	.3	72.0	7.5
Feb. 9, 1955	226	--		8.9	2.1	5.3	1.0	40	--	3.5	--	--	.00	--	--		31	0	26	.4	87.6	7.7
Mar. 8	605	--		8.4	2.0	4.2	1.1	36	--	3.0	--	--	.06	--	--		29	0	23	.3	88.2	7.2
Apr. 12	1,640	--		4.2	2.3	3.7	1.0	28	--	2.0	--	--	.04	--	--		20	0	27	.4	59.3	7.0
May 10	722	14		2.5	2.2	3.2	.8	24	2.3	.8	0.1	0.2	.01	38	0.05		15	0	30	.4	46.9	7.2
June 14	5,190	--		2.5	1.0	1.4	.4	13	--	.8	--	--	.05	--	--		10	0	22	.2	27.6	7.1
July 13	3,830	--		2.8	.4	3.4	1.4	9	--	1.2	--	--	.02	--	--		8	1	42	.5	35.6	6.8
Aug. 16	2,410	--		6.0	.7	3.2	.8	26	--	1.0	--	--	.07	--	--		18	0	27	.3	51.8	7.0

TULARE LAKE BASIN--Continued

KINGS RIVER AT PEOPLES WEIR, NEAR KINGSBURG, CALIF.

LOCATION.--About 0.25 mile below gaging station located on diversion weir, about 12 miles northeast of Hanford and 2 miles south of Kingsburg, Kings County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by the Kings River Water Association. Records of discharge for water year October 1954 to September 1955 furnished by the State of California Division of Water Resources.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 14, 1954	3.0	15	--	13	3.3	8.0	1.6	69	--	3.5	--	--	0.02	--	--		46	0	27	0.5	133	7.9	
Nov. 11	50	--	--	24	4.4	18	2.8	128	--	10	--	--	.08	--	--		78	0	32	.9	260	8.1	
Dec. 9	76	--	--	20	6.1	13	2.1	106	--	6.5	--	--	.02	--	--		75	0	27	.7	204	8.0	
Jan. 10, 1955	61	--	--	22	5.6	14	2.1	109	--	7.0	--	--	.17	--	--		78	0	27	.7	212	7.9	
Feb. 10	81	--	--	19	8.7	13	2.0	108	--	5.5	--	--	.06	--	--		83	0	25	.6	207	8.0	
Mar. 9	237	--	--	9.6	3.4	5.9	1.4	50	--	3.5	--	--	.04	--	--		38	0	24	.4	103	7.4	
Apr. 13	103	--	--	11	7.4	10	1.9	86	--	4.8	--	--	.05	--	--		58	0	26	.6	159	7.1	
May 10	149	16	--	11	3.3	7.2	1.5	59	5.1	3.8	0.1	1.1	.04	78	0.11		41	0	27	.5	116	7.6	
June 15	1,077	--	--	4.0	1.2	2.5	1.0	20	--	.5	--	--	.02	--	--		15	0	25	.3	35.8	7.2	
July 14	685	--	--	4.0	.9	3.3	1.1	18	--	1.8	--	--	.00	--	--		14	0	32	.4	48.7	6.9	
Aug. 17	1,110	--	--	4.2	1.0	2.2	.8	21	--	.5	--	--	.11	--	--		14	0	24	.3	40.7	6.9	
Sept. 14	380	7.8	0.13	4.7	1.1	2.5	.7	23	2.6	.5	.2	.3	.01	32	.04		16	0	24	.3	43.9	7.2	

SAN JOAQUIN RIVER BELOW FRIANT, CALIF.

LOCATION.--At gaging station 0.5 mile west of Friant. Fresno County, 1.5 mile downstream from Cottonwood Creek, 2 miles downstream from Friant Dam, and at mile 268.1.
DRAINAGE AREA.--1,675 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954	135	--	--	3.1	0.8	3.3	0.7	19	--	2.0	--	--	0.03	--	--		11	0	38	0.4	41.8	7.2
Nov. 9	119	--	--	3.9	.4	3.2	.8	18	--	2.2	--	--	.01	--	--		12	0	36	.4	38.6	7.3
Dec. 8	510	--	--	4.7	.1	3.5	.7	20	--	2.2	--	--	.03	--	--		12	0	37	.4	42.9	7.4
Jan. 8, 1955	108	--	--	6.9	.6	6.0	1.0	26	--	6.0	--	--	.12	--	--		20	0	39	.6	70.1	7.2
Feb. 11	55	--	--	6.2	.9	6.3	.8	29	--	5.8	--	--	.04	--	--		19	0	41	.6	70.9	7.3
Mar. 8	74	--	--	5.9	.8	6.1	1.1	28	--	4.5	--	--	.06	--	--		18	0	41	.6	70.0	7.3
Apr. 12	128	--	--	1.9	2.1	4.6	.8	22	--	4.4	--	--	.02	--	--		13	0	41	.6	49.6	7.1
May 10	78	15	0.03	2.5	2.4	5.8	.7	28	1.2	3.4	0.2	0.0	.02	45	0.06		16	0	42	.6	59.9	7.1
June 14	166	--	--	4.7	.7	4.7	.8	22	--	3.8	--	--	.07	--	--		14	0	40	.5	50.9	7.3
July 13	188	--	--	4.2	1.0	6.7	1.2	24	--	5.2	--	--	.02	--	--		14	0	48	.8	67.5	6.8
Aug. 18	195	--	--	3.8	1.3	4.8	.6	22	--	3.5	--	--	.02	--	--		15	0	40	.5	52.1	6.8
Sept. 15	164	11	.03	4.6	.5	4.5	.6	22	2.0	2.6	.2	.2	.07	37	.05		14	0	41	.5	50.5	7.1

SAN JOAQUIN RIVER BASIN--Continued

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 (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: November 1952 to September 1955.
Water temperatures: November 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 96 ppm Jan. 21-31; minimum, 41 ppm Nov. 26-30.
Hardness: Maximum, 42 ppm Feb. 21-28; minimum, 12 ppm Nov. 26-30.
Specific conductance: Maximum daily, 147 micromhos Feb. 23; minimum daily, 44.7 micromhos Nov. 28.
Water temperatures: Maximum, 94°F June 8; minimum, 40°F Dec. 28.
EXTREMES, 1952-55.--Dissolved solids: Maximum 117 ppm Jan. 3-10, 1953; minimum, 34 ppm Oct. 11-20, 1953.
Hardness: Maximum, 53 ppm Jan. 11-13, 1953; minimum, 10 ppm Nov. 1-5, 7-10, 1952.
Specific conductance: Maximum daily, 170 micromhos Jan. 3, 1953; minimum daily, 36.1 micromhos Oct. 12, 1953.
Water temperatures: Maximum, 94°F June 8, 1955; minimum, 36°F Feb. 23-24, 28, Mar. 1, 2, 1953.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395. No appreciable inflow between sampling point and gaging station except during periods of heavy runoff.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	86.4	11	0.03	5.8	1.2	7.3	1.5	36	1.8	4.0	0.4	0.6	0.03	54	0.07	13	20	0	43	0.7	75.7	6.9
Oct. 11-20.....	113	11	.03	5.6	1.2	6.5	1.5	29	6.0	3.5	.4	.5	.03	53	.07	16	19	0	40	.6	72.9	6.7
Oct. 14 a	105	--	--	--	--	6.8	--	35	--	4.5	--	--	--	--	--	--	--	--	--	--	67.9	7.7
Oct. 21-31.....	101	11	.04	5.6	1.3	6.6	1.2	34	2.0	3.8	.3	1.0	.04	52	.07	14	20	0	41	.7	71.9	6.8
Nov. 1-10.....	109	11	.04	5.6	1.2	6.6	1.1	35	1.9	3.8	.3	1.0	.03	52	.07	15	19	0	41	.7	72.0	6.8
Nov. 11-20.....	114	12	.04	6.0	1.1	6.6	1.3	34	1.9	3.2	.3	1.0	.05	53	.07	16	20	0	40	.7	72.6	6.9
Nov. 21-25	172	--	--	6.2	1.3	6.8	1.3	36	2.3	3.5	--	1.2	--	57	.08	26	21	0	40	.6	76.3	6.9
Nov. 26-30.....	671	--	--	4.2	.5	4.2	1.0	21	1.3	2.5	--	.9	--	41	.06	74	12	0	40	.5	47.0	6.8
Dec. 1-10	559	12	.04	4.7	.5	4.3	.9	24	1.4	2.5	.3	.7	.06	42	.06	63	14	0	38	.5	49.9	7.1
Dec. 11-20	154	12	.06	6.2	1.1	6.6	1.2	34	2.1	3.5	.3	1.3	.03	54	.07	22	20	0	40	.6	72.2	7.3
Dec. 21-31	114	13	.08	6.7	1.3	7.1	1.5	36	2.3	4.0	.4	1.2	.00	58	.08	18	22	0	39	.7	80.6	7.0
Jan. 1-10, 1955 ..	113	11	.07	6.5	1.7	7.1	1.5	37	3.0	4.8	.3	1.2	.03	58	.08	18	23	0	38	.6	80.4	7.0
Jan. 18 a	124	--	--	7.3	1.9	8.1	--	--	--	--	--	--	--	68	--	--	--	--	--	--	90.2	--
Jan. 11-20.....	105	11	.07	7.1	2.0	8.2	1.4	42	3.9	5.2	.3	.8	.02	64	.09	18	26	0	39	.7	91.8	7.1
Jan. 21-31.....	84.1	15	.12	10	3.7	13	2.5	59	6.5	7.8	.5	2.7	.04	96	.13	22	40	0	40	.9	137	7.3
Feb. 1-10.....	67.9	14	.07	10	2.7	13	2.0	57	5.7	7.5	.5	1.4	.06	84	.11	15	36	0	42	.9	130	7.4
Feb. 11-20	72.8	12	.05	9.2	2.7	11	1.9	55	4.8	7.5	.2	1.3	.05	78	.11	15	34	0	40	.8	124	7.2
Feb. 21-28	68.5	13	.04	11	3.5	12	2.0	62	6.0	8.0	.3	1.2	.05	89	.12	16	42	0	37	.8	137	7.5
Mar. 1-10	70.4	13	.00	11	2.8	12	1.8	62	5.6	8.8	.1	.8	.04	86	.12	16	39	0	39	.8	136	7.4
Mar. 11-20	64.2	12	.01	9.9	3.2	12	1.8	61	5.0	7.8	.1	.7	.04	82	.11	14	38	0	39	.8	133	7.4
Mar. 21-31	46.9	12	.07	9.9	2.7	13	2.0	60	4.9	8.0	.1	1.0	.1[illegible]	82	.11	10	36	0	42	.9	133	7.5

Apr. 1-10, 1955..	95.3	13	.07	7.0	2.1	8.9	1.6	43	3.2	6.8	.1	.8	.09	61	.08	16	26	0	41	.8	108	7.1
Apr. 6 a.....	105	--	--	6.6	1.8	8.0	--	39	--	--	--	--	--	64	.09	--	24	0	--	--	93.4	7.0
Apr. 11-20.....	88.2	10	.03	7.6	.7	7.9	1.7	38	2.9	5.8	.1	.8	.07	57	.08	14	22	0	42	.7	86.8	7.1
Apr. 21-30	85.7	9.5	.02	7.8	1.1	8.8	1.9	41	3.2	6.0	.2	.9	.03	59	.03	14	24	0	42	.8	98.1	7.0
May 1-10	93.5	8.9	.03	6.8	1.7	8.7	1.9	41	2.2	6.8	.2	.6	.06	59	.08	15	24	0	42	.8	85.7	7.0
May 11-20	88.9	12	.03	7.2	2.2	9.2	1.7	43	4.5	6.8	.0	.8	.06	66	.09	16	27	0	41	.8	97.0	7.3
May 21-31	102	10	.00	7.9	.8	8.2	1.3	37	3.0	5.8	.0	.7	.04	60	.08	17	23	0	42	.7	84.9	7.1
June 1-10.....	92.8	12	.03	6.3	1.5	8.0	1.4	37	2.3	5.8	.0	.7	.05	60	.08	15	22	0	42	.7	82.3	7.1
June 11-20	101	13	.01	5.6	1.7	7.7	1.2	36	2.6	5.0	.0	.5	.02	62	.08	17	21	0	43	.7	78.5	7.0
June 21-30.....	114	9.5	.07	5.3	1.9	7.1	1.6	35	3.3	4.2	.2	.8	.05	54	.07	17	20	0	41	.7	81.3	6.9
July 1-10	120	7.9	.06	5.8	1.3	6.9	1.6	35	3.0	3.9	.2	.8	.05	50	.07	16	20	0	40	.7	80.2	6.8
July 11-20	112	10	.08	5.7	1.4	7.2	1.9	34	2.1	5.8	.2	.8	.03	60	.08	18	20	0	41	.7	81.2	7.1
July 21-31	96.5	9.3	.03	5.7	1.4	7.2	1.8	34	2.2	5.5	.2	1.0	.09	56	.08	15	20	0	41	.7	78.4	7.0
July 27 a	86	10	--	6.6	2.1	7.4	1.1	39	2.7	5.0	.2	.3	.03	54	.07	--	25	0	38	--	86.9	7.6
Aug. 1-10.....	118	12	.05	6.0	1.0	7.6	1.7	34	2.0	5.5	.2	1.1	.04	57	.08	18	19	0	44	.8	78.3	6.9
Aug. 11-20	118	12	.02	5.6	1.1	7.4	1.4	34	2.0	5.5	.1	.8	.03	54	.07	17	18	0	44	.7	79.1	6.9
Aug. 21-31.....	108	12	.04	6.0	1.0	7.8	1.6	34	2.0	6.2	.1	.9	.09	56	.08	16	19	0	45	.8	81.7	6.9
Sept. 1-10	94.7	12	.03	6.0	1.0	7.4	1.7	34	2.0	6.0	.1	.8	.02	56	.08	14	20	0	43	.7	81.5	7.1
Sept. 11-20	102	11	.06	6.4	1.1	7.7	1.6	37	3.0	5.2	.2	.4	.09	56	.08	15	20	0	43	.7	83.6	6.9
Sept. 21-30	86.8	12	.04	6.2	1.5	8.0	1.3	39	3.0	4.8	.1	.2	.01	58	.08	14	22	0	43	.8	85.0	7.1
Weighted average b	119	c11	c0.04	6.3	1.4	7.3	1.4	36	2.7	4.8	c0.2	0.9	c0.05	57	0.08	18	22	0	41	0.7	80.4	--

a Not included in weighted average computations.
b Represents 100 percent of runoff for water year October 1954 to September 1955.
c Represents 90 percent of runoff for water year October 1954 to September 1955.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR BIOLA, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, approximately between 3 p. m. and 5 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	63	--	50	55	60	68	--	80	67	83	84
2	73	60	--	51	51	60	61	70	82	75	--	78
3	72	50	--	47	48	63	61	75	87	80	87	91
4	73	60	58	45	51	62	62	--	87	82	87	89
5	74	61	58	--	50	62	67	76	--	82	75	87
6	72	62	56	46	51	65	72	75	92	80	86	85
7	70	62	56	48	54	68	72	65	89	83	83	85
8	70	56	55	--	56	68	--	72	94	85	84	91
9	--	63	50	44	57	68	--	76	86	78	83	85
10	67	57	50	48	56	64	67	85	85	86	84	--
11	71	68	52	50	57	69	65	83	85	88	85	--
12	73	62	51	47	60	68	68	85	85	91	--	75
13	73	60	54	46	60	67	67	75	--	81	--	--
14	74	59	49	45	58	64	68	71	82	91	87	--
15	76	56	50	45	63	60	55	76	82	90	86	--
16	72	59	--	50	--	64	68	75	--	--	82	77
17	74	56	51	45	58	66	61	78	86	83	87	78
18	71	57	48	--	55	66	61	84	--	86	--	75
19	74	55	48	49	56	65	66	88	81	83	86	78
20	72	--	46	49	55	61	65	87	--	88	84	78
21	74	56	45	50	57	66	59	86	86	86	85	78
22	74	53	44	46	59	68	70	81	82	86	84	78
23	66	53	--	51	58	65	66	80	76	--	84	78
24	65	53	45	--	60	67	71	--	82	86	81	74
25	63	50	47	48	59	70	58	80	84	83	78	76
26	66	50	47	50	53	--	68	82	80	78	78	62
27	64	52	46	48	54	67	70	80	85	--	82	67
28	63	52	40	46	54	68	71	88	76	84	82	72
29	64	51	45	44	--	65	70	90	80	90	78	72
30	65	50	45	49	--	62	60	80	81	91	--	75
31	61	--	49	55	--	71	--	--	--	--	85	--
Average	70	57	49	48	56	65	66	79	84	84	83	79

SAN JOAQUIN RIVER NEAR MENDOTA, CALIF.

LOCATION.--At site of former gaging station 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available. Gaging station discontinued.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954		21		40	20	92	3.4	152	--	134	--	--	0.23	--	--		182	57	52	3.0	808	8.2
Nov. 11		--		40	18	88	4.0	140	--	125	--	--	.28	--	--		175	60	52	2.9	786	8.2
Dec. 9		--		4.7	1.0	4.6	.9	26	--	3.5	--	--	.02	--	--		16	0	37	.5	55.7	7.4
Jan. 12, 1955		--		7.7	1.3	8.3	.9	39	--	5.2	--	--	.17	--	--		24	0	41	.7	83.0	7.4
Feb. 9		--		13	4.3	18	1.6	68	--	17	--	--	.02	--	--		50	0	43	1.1	184	7.5
Mar. 10		--		35	17	77	2.8	100	--	104	--	--	.38	--	--		156	74	51	2.7	692	7.7
Apr. 11		--		30	1.5	54	2.7	100	--	76	--	--	.17	--	--		136	54	46	2.0	517	7.5
May 9		31		27	17	59	3.2	114	52	81	0.3	1.0	.18	328	0.45		138	45	48	2.2	537	7.5
June 13		--		23	9.0	42	2.5	82	--	60	--	--	.17	--	--		94	27	48	1.9	401	7.6
July 14		--		19	8.7	31	3.0	76	--	31	--	--	.16	--	--		83	21	44	1.5	303	7.5
Aug. 16		--		21	12	48	2.9	95	--	73	--	--	.09	--	--		102	24	50	2.1	466	7.4
Sept. 12		19	0.15	22	15	70	3.4	102	40	106	.2	.9	.18	327	.44		117	33	55	2.8	595	7.8

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR DOS PALOS, CALIF.

LOCATION.--At site of former gaging station 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 September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available. Gaging station discontinued.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954		20		37	16	82	3.4	140	--	114	--	--	0.20	--	--		160	45	52	2.8	706	8.2
Nov. 11		--		38	18	84	3.9	136	--	20	--	--	.28	--	--		169	57	51	2.8	744	8.0
Dec. 9		--		6.7	2.1	8.9	1.1	35	--	9.0	--	--	.00	--	--		26	0	42	.8	98.6	7.5
Jan. 12, 1955		--		12	2.8	18	1.1	53	--	19	--	--	.16	--	--		42	0	48	1.2	169	7.5
Feb. 9		--		17	6.2	31	1.9	79	--	35	--	--	.04	--	--		68	3	49	1.6	283	7.8
Mar. 10		--		32	14	71	2.8	96	--	94	--	--	.34	--	--		138	59	52	2.6	630	7.9
Apr. 11		--		29	1.7	57	2.9	100	--	80	--	--	.16	--	--		142	60	46	2.1	569	7.4
May 9		19		33	13	58	3.0	115	55	80	0.4	1.2	.21	320	0.44		134	40	48	2.2	558	7.6
June 13		--		26	10	45	2.5	92	--	65	--	--	.13	--	--		108	33	47	1.9	442	7.9
July 14		--		26	10	38	2.8	94	--	47	--	--	.16	--	--		107	30	43	1.6	392	7.5
July 27		17		19	10	32	2.1	93	31	40	.2	.7	.09	198	.27		90	14	43	1.5	333	7.4
Aug. 16		--		22	12	54	2.9	101	--	73	--	--	.10	--	--		103	20	52	2.3	482	7.6
Sept. 12		17	0.01	25	15	73	3.3	106	43	110	.1	.6	.18	339	.46		125	38	55	2.8	610	7.3

BEAR CREEK NEAR STEVINSON, CALIF.

LOCATION.--At site of old gaging station, 1 mile above confluence with San Joaquin River and 4.5 miles southeast of Stevinson, Merced County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available. Gaging station discontinued.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954		28	--	36	18	158	2.4	a 318	--	135	--	--	0.08	--	--		164	0	67	5.4	994	8.4
Nov. 12		--	--	24	9.8	37	4.8	b 158	--	27	--	--	.05	--	--		100	0	43	1.6	365	8.3
Dec. 7		--	--	36	16	131	4.2	262	--	114	--	--	.16	--	--		154	0	64	4.6	879	8.2
Jan. 12, 1955		--	--	23	9.4	45	3.9	162	--	25	--	--	.21	--	--		96	0	49	2.0	379	7.8
Feb. 8		--	--	32	12	55	3.4	184	--	46	--	--	.05	--	--		130	0	47	2.1	498	7.8
Mar. 10		--	--	42	16	78	3.9	173	--	89	--	--	.27	--	--		172	30	49	2.6	695	8.0
Apr. 14		--	--	52	18	120	4.6	181	--	171	--	--	.19	--	--		205	57	55	3.6	970	7.8
May 18		20	0.00	51	19	106	4.4	204	89	130	0.4	1.1	.29	521	0.71		204	37	52	3.2	898	7.5
June 16		--	--	48	17	98	4.2	214	--	122	--	--	.38	--	--		191	16	52	3.1	826	7.6
July 12		--	--	38	25	146	5.4	207	--	195	--	--	.18	--	--		197	27	61	4.5	1,060	8.0
July 28		28	--	32	17	185	4.0	271	59	186	.4	2.3	.17	647	.88		149	0	72	6.6	1,070	7.4
Aug. 15		--	--	35	18	196	3.2	241	--	228	--	--	.11	--	--		163	0	72	6.7	1,240	8.1
Sept. 15		31	.07	44	18	223	4.0	253	76	276	.6	1.1	.23	799	1.09		184	0	72	7.2	1,420	7.5

a Includes equivalent of 8 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.

LOCATION.--At gaging station at Fremont Ford highway bridge, Merced County, in Orestimba Grant, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevinson, and 6.7 miles upstream from Merced River.
DRAINAGE AREA.--8,090 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: July to September 1955.
Water temperatures: July to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Daily samples for chemical analyses composited by discharge. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, July to September 1955

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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
July 1-10, 1955	148	28	0.07	57	27	146	5.4	184	117	204	0.4	3.8	0.24	700	0.95	280	251	100	55	4.0	1,160	7.7
July 11-20	132	28	.09	58	27	144	4.6	184	116	206	.4	4.2	.34	706	.96	252	254	103	55	3.9	1,170	7.7
July 21-24	125	30	.05	56	26	135	3.8	182	111	196	.4	6.1	.34	665	.90	224	248	99	54	3.7	1,150	7.5
July 25-31	112	30	.01	59	28	146	3.8	185	118	218	.3	5.2	.38	722	.98	218	261	109	54	3.9	1,220	7.8
July 28	114	24	--	59	27	148	4.0	186	119	215	.4	1.0	.29	a690	.94	212	259	106	55	4.0	1,200	7.3
Aug. 1-10	112	29	.01	55	26	136	4.4	182	107	197	.3	5.8	.41	668	.91	202	243	94	54	3.8	1,130	7.4
Aug. 11-20	122	27	.03	55	26	138	5.0	180	107	203	.3	3.9	.33	674	.92	222	244	96	54	3.8	1,150	7.3
Aug. 21-31	125	27	.01	53	25	135	4.4	174	102	199	.3	4.9	.25	654	.89	221	234	91	55	3.8	1,120	7.8
Sept. 1-10	144	30	.01	52	24	130	5.0	b174	96	196	.3	5.5	.39	638	.87	248	228	85	55	3.7	1,070	8.3
Sept. 11-20	131	30	.01	56	27	152	5.0	c187	106	229	.3	4.2	.32	724	.98	256	250	97	56	4.2	1,220	8.3
Sept. 21-30	81.2	29	.01	72	35	214	5.2	197	155	324	.3	5.0	.40	972	1.32	213	325	163	58	5.2	1,600	8.2

a Sum of determined constituents.
b Includes equivalent of 2 parts per million of carbonate (CO_3).
c Includes equivalent of 3 parts per million of carbonate (CO_3).

Temperature (°F) of water, July to September 1955
/Once-daily measurement at approximately 10 p.m./

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	71	75	73	7	70	77	72	13	77	75	73	19	73	72	65	25	74	70	65
2	72	76	74	8	71	78	71	14	79	73	70	20	74	73	66	26	72	69	65
3	73	78	76	9	72	77	72	15	79	73	69	21	75	74	67	27	72	69	66
4	70	78	76	10	70	75	71	16	75	71	--	22	75	73	68	28	73	69	66
5	70	75	75	11	74	75	72	17	71	71	63	23	75	73	67	29	75	70	65
6	69	74	74	12	75	74	73	18	70	72	65	24	75	73	66	30	76	70	65
																31	76	72	--
Average																	73	73	69

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954	80	--		20	3.1	3.7	1.3	74	--	3.8	--	--	0.24	--	--		62	1	11	0.2	140	7.7
Nov. 9	58	--		21	4.5	4.0	1.5	83	--	5.2	--	--	.04	--	--		71	3	11	.2	162	7.9
Dec. 10	49	--		17	3.3	4.1	1.6	60	--	3.5	--	--	.00	--	--		56	7	13	.2	130	7.5
Jan. 13, 1955	50	--		15	3.9	4.6	1.5	58	--	4.8	--	--	.00	--	--		54	6	15	.3	130	7.3
Feb. 11	52	--		16	4.5	5.6	1.0	63	--	5.0	--	--	.01	--	--		58	6	17	.3	136	7.7
Mar. 11	49	--		16	4.2	4.3	1.1	60	--	4.0	--	--	.00	--	--		57	8	14	.2	132	7.8
Apr. 14	1,500	--		5.4	3.2	3.2	.7	34	--	2.8	--	--	.01	--	--		27	0	20	.3	70.1	7.4
May 12	514	16		3.9	2.7	2.6	.5	28	2.8	.8	0.1	0.1	.02	44	0.06		21	0	21	.2	53.7	7.0
June 16	1,750	--		4.5	.1	2.1	.6	18	--	1.2	--	--	.02	--	--		12	0	27	.3	33.3	7.3
July 12	1,740	--		3.4	.6	2.9	.9	9	--	.8	--	--	.03	--	--		11	4	34	.4	38.8	6.8
Aug. 18	1,630	--		3.4	.4	2.5	.5	15	--	.0	--	--	.00	--	--		10	0	34	.3	28.3	6.8
Sept. 15	59	10	0.05	17	3.3	3.4	1.1	66	5.8	1.8	.2	.9	.04	77	.10		56	2	11	.2	122	7.3

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SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct 15, 1954	128	34	--	20	5.9	32	2.2	128	--	22	--	--	0.00	--	--		74	0	48	1.6	292	8.2
Nov. 12	114	--	--	22	6.1	33	2.6	136	--	20	--	--	.03	--	--		80	0	46	1.6	304	8.2
Dec. 7	146	--	--	20	6.8	30	2.6	127	--	18	--	--	.04	--	--		78	0	45	1.5	284	8.2
Jan. 12, 1955	246	--	--	17	6.0	19	2.7	104	--	9.0	--	--	.15	--	--		67	0	37	1.4	218	7.7
Feb. 8	174	--	--	21	7.0	29	2.3	127	--	16	--	--	.00	--	--		81	0	43	1.4	279	7.8
Mar. 10	157	--	--	20	6.8	28	2.5	124	--	16	--	--	.15	--	--		78	0	43	1.4	276	8.2
Apr. 6	a148	--	--	17	5.3	17	--	101	--	--	--	--	--	144	0.20		64	0	--	.9	209	7.5
Apr. 14	149	--	--	14	8.0	24	1.9	110	--	17	--	--	.12	--	--		68	0	43	1.3	234	7.8
May 18	116	31	0.00	20	6.3	30	2.2	132	6.5	22	0.0	2.8	.04	186	.25		76	0	45	1.5	285	7.5
June 16	103	--	--	19	7.4	29	1.9	112	--	22	--	--	.03	--	--		78	0	44	1.4	261	7.8
July 12	92	--	--	17	6.2	36	1.7	100	--	38	--	--	.11	--	--		68	0	53	1.9	300	7.7
Aug. 15	130	--	--	16	4.9	26	1.8	106	--	18	--	--	.05	--	--		60	0	48	1.5	241	7.5
Sept. 15	150	26	.08	15	5.0	21	1.7	96	8.2	14	.4	1.9	.04	140	.19		58	0	43	1.2	213	7.6

a Daily mean discharge.

T. I. D. DRAINAGE DITCH NEAR TURLOCK, CALIF.

LOCATION.--At old bridge 0.5 mile below gaging station and junction of Turlock Irrigation District laterals 6 and 7, 0.6 mile west of Central Road and about 9 miles southwest of Turlock, Stanislaus County.
RECORDS AVAILABLE.--Chemical analyses: June to September 1955.
Water temperatures: July to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Daily samples for chemical analyses composited by discharge. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Gaging station maintained and operated by Turlock Irrigation District. Discharge records furnished by Turlock Irrigation District.

Chemical analyses, in parts per million, June to September 1955

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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 27, 1955	--	--	--	--	--	78	--	136	--	84	--	--	--	--	--	--	87	0	--	3.6	510	7.7
July 1-5	24	33	0.13	27	7.4	102	4.6	222	11	97	0.3	1.2	0.10	399	0.54	26	98	0	68	4.5	682	7.5
July 6-20	22	32	.11	25	6.0	84	4.8	184	10	78	.2	1.2	.14	336	.46	20	87	0	66	3.9	564	7.6
July 21	15	35	.09	33	9.1	152	6.2	a304	--	129	--	1.0	.22	534	.73	22	120	0	72	6.0	897	8.4
July 22-27	28	29	.11	22	6.1	76	4.4	168	10	70	.2	1.5	.19	300	.41	23	80	0	66	3.7	512	7.6
July 28-31	17	34	.08	30	8.0	119	3.8	244	13	105	--	1.7	.17	435	.59	20	108	0	70	5.0	737	7.8
Aug. 1-6	23	28	.14	23	6.2	80	5.2	175	9.0	74	.3	1.5	.15	321	.44	20	83	0	66	3.8	528	7.5
Aug. 7-8	45	24	--	16	4.6	45	4.3	113	4.0	46	.4	1.7	.28	214	.29	26	59	0	60	2.5	346	7.8
Aug. 9-12	22	30	.05	27	7.7	114	3.4	248	12	98	.4	1.5	.35	426	.58	25	99	0	71	5.0	718	7.8
Aug. 13-31	27	28	.09	22	5.9	73	4.1	167	10	70	.3	2.1	.14	308	.42	22	79	0	65	3.6	512	7.8
Sept. 1-3	24	33	.12	28	7.8	104	3.6	206	13	105	.4	.8	.20	430	.58	28	102	0	68	4.5	682	7.5
Sept. 4-6	27	26	.15	19	5.0	64	3.9	138	9.0	62	.4	.5	.25	275	.37	20	68	0	65	3.4	435	7.5
Sept. 7-13	30	32	.09	24	6.6	89	4.2	200	7.0	77	.3	1.7	.23	359	.49	29	87	0	68	4.1	573	8.0
Sept. 14-30	30	36	.03	28	7.5	104	4.0	b214	13	95	.3	2.5	.12	410	.56	33	101	0	68	4.5	659	8.4

a Includes equivalent of 5 parts per million of carbonate (CO_3).
b Includes equivalent of 4 parts per million of carbonate (CO_3).

Temperature (°F) of water, July to September 1955
(Once-daily measurement approximately between 1 p. m. and 3 p. m.)

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	72	80	74	7	71	80	78	13	75	79	79	19	77	71	71	25	74	73	71
2	74	78	81	8	76	80	75	14	76	77	75	20	76	75	73	26	75	71	73
3	73	80	78	9	74	78	78	15	80	75	76	21	77	75	73	27	78	76	70
4	70	77	84	10	72	76	74	16	78	75	73	22	77	73	74	28	76	72	69
5	76	73	78	11	74	78	--	17	78	77	75	23	79	76	73	29	78	71	71
6	68	76	75	12	77	70	84	18	78	75	71	24	75	76	74	30	78	74	71
																31	77	77	--
Average																	75	76	75

SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Division of Water Resources, Modesto Irrigation District, and Turlock Irrigation District. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955 as San Joaquin River at Grayson (Laird Slough). Flow is San Joaquin River Diversion into Laird Slough which returns to San Joaquin River main channel 2.1 miles downstream.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	310	--	--	60	26	168	3.6	201	--	216	--	--	0.29	--	--		256	91	58	4.6	1,270	8.2
Nov. 12	300	--	--	57	33	162	3.4	a200	--	212	--	--	.37	--	--		276	112	56	4.2	1,290	8.4
Dec. 7	330	--	--	55	32	154	3.6	184	--	207	--	--	.35	--	--		270	119	55	4.1	1,250	8.2
Jan. 13, 1955	780	--	--	39	17	104	4.6	175	--	116	--	--	.31	--	--		166	22	57	3.5	825	8.0
Feb. 8	680	--	--	53	28	154	3.6	200	--	174	--	--	.45	--	--		246	82	57	4.3	1,180	8.1
Mar. 7	510	--	--	56	35	176	4.0	194	--	218	--	--	.40	--	--		283	124	57	4.6	1,390	8.1
Apr. 11	500	--	--	47	23	133	4.4	178	--	177	--	--	.32	--	--		212	66	57	4.0	1,060	7.9
May 9	760	21	--	39	18	95	3.4	158	82	114	0.4	2.8	.22	454	0.62		170	40	54	3.2	782	7.5
June 13	600	--	--	52	25	135	4.2	190	--	176	--	--	.38	--	--		234	78	55	3.8	1,060	7.8
July 15	240	--	--	56	32	148	4.2	201	--	191	--	--	.38	--	--		270	105	54	3.9	1,200	7.6
July 27	--	18	--	58	23	146	4.0	189	129	182	.2	1.4	.42	655	.89		240	85	56	4.1	1,120	7.9
Aug. 15	260	--	--	41	28	124	3.2	191	--	159	--	--	.41	--	--		217	60	55	3.7	1,020	7.5
Aug. 2-16	--	23	--	51	36	142	3.6	197	135	198	.3	4.9	.33	691	.94		277	115	52	3.7	1,200	8.1
Aug. 17-31	--	21	--	61	24	130	3.4	197	123	179	.2	3.8	.25	643	.87		250	88	53	3.6	1,020	8.1
Sept. 1-15	--	25	--	49	26	133	3.2	186	112	172	.4	3.6	.38	617	.84		230	77	55	3.8	1,060	7.9
Sept. 16	295	24	0.07	53	27	144	3.4	199	121	184	.4	1.2	.36	656	.89		241	78	56	4.0	1,130	7.8
Sept. 16-30	--	27	--	58	26	140	3.8	199	123	193	.4	1.8	.26	671	.91		250	87	54	3.9	1,180	8.2

a Includes equivalent of 6 parts per million of carbonate (CO_3).

TUOLUMNE RIVER AT LA GRANGE, CALIF.

LOCATION.--At gaging station on upstream side of bridge in town of La Grange, Stanislaus County, and about 1.5 miles downstream from La Grange Dam.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954	a149	7.7		5.0	1.6	1.9	0.7	26	--	0.8	--	--	0.00	--	--		19	0	17	0.2	48.6	7.6
Nov. 9	406	--		4.5	.2	1.4	.7	18	--	.8	--	--	.02	--	--		12	0	19	.2	32.6	7.4
Dec. 10	566	--		4.9	.8	1.8	.6	21	--	1.5	--	--	.15	--	--		16	0	19	.2	41.0	7.2
Jan. 13, 1955	582	--		5.7	1.8	2.3	.5	27	--	1.2	--	--	.00	--	--		22	0	18	.2	55.1	7.3
Feb. 11	1,690	--		5.3	2.1	2.4	.5	29	--	1.5	--	--	.00	--	--		22	0	19	.2	56.6	7.6
Mar. 11	582	--		5.5	2.0	2.4	.7	25	--	1.0	--	--	.03	--	--		22	2	19	.2	51.8	7.4
Apr. 14	44	--		2.6	3.2	2.4	.6	27	--	1.0	--	--	.02	--	--		20	0	20	.2	53.0	7.7
May 12	39	19		1.6	3.4	2.6	.7	26	3.0	.5	0.1	0.2	.00	44	0.06		18	0	23	.3	48.1	7.1
June 16	22	--		5.3	1.9	2.2	.5	27	--	.5	--	--	.00	--	--		21	0	18	.2	48.4	7.3
July 12	8.6	--		4.0	1.5	2.8	.7	23	--	1.2	--	--	.04	--	--		16	0	27	.3	45.5	7.1
Aug. 18	23	--		3.8	1.3	1.7	.3	21	--	.5	--	--	.00	--	--		15	0	19	.2	40.3	6.9
Sept. 15	20	7.0	0.01	4.5	.9	1.4	.5	21	.6	.0	.1	.0	.00	25	.03		15	0	16	.2	38.3	7.2

a Daily mean discharge (cfs).

SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955 as Tuolumne River at Hickman Bridge.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954	108	50	--	32	9.5	57	5.3	106	--	112	--	--	0.06	--	--		119	32	50	2.3	546	8.2
Nov. 9	590	--	--	8.4	2.2	8.7	1.4	34	--	16	--	--	.00	--	--		30	2	37	.7	111	7.5
Dec. 10	622	--	--	8.7	2.6	9.5	1.4	34	--	18	--	--	.01	--	--		32	4	38	.7	123	7.5
Jan. 13, 1955	665	--	--	11	2.8	11	1.3	32	--	20	--	--	.00	--	--		39	13	37	.8	136	7.2
Feb. 11	2,860	--	--	7.8	2.8	5.8	.9	37	--	7.8	--	--	.00	--	--		31	1	28	.5	93.1	7.4
Mar. 10	494	--	--	8.8	3.9	9.4	1.3	39	--	15	--	--	.02	--	--		38	6	34	.7	120	7.8
Apr. 14	110	--	--	27	12	52	4.9	104	--	106	--	--	.06	--	--		116	31	48	2.1	528	8.0
May 12	a125	40	--	29	9.6	51	4.9	104	3.0	100	0.2	0.6	.10	289	0.39		112	27	48	2.1	501	8.1
June 16	86	--	--	30	11	53	5.2	106	--	104	--	--	.12	--	--		119	32	48	2.1	509	8.2
July 12	81	--	--	32	12	65	6.8	110	--	132	--	--	.16	--	--		129	39	51	2.5	613	7.9
Aug. 18	88	--	--	30	11	59	5.8	110	--	115	--	--	.07	--	--		120	30	50	2.3	570	7.7
Sept. 15	90	55	0.04	32	11	57	5.9	107	3.6	118	.1	.7	.13	336	.46		123	35	49	2.2	567	8.2

a Daily mean discharge (cfs).

TUOLUMNE RIVER AT TUOLUMNE CITY, CALIF.

LOCATION.--At gaging station at downstream side of bridge at Tuolumne City, Stanislaus County, and 3.4 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	a464	--	--	45	11	74	6.8	145	--	141	--	--	0.06	--	--		158	39	49	2.6	690	7.9
Nov. 12	a692	--	--	24	6.8	38	4.0	73	--	78	--	--	.08	--	--		88	28	47	1.8	397	7.8
Dec. 7	a660	--	--	32	8.8	52	5.3	94	--	105	--	--	.08	--	--		116	39	48	2.1	518	7.9
Jan. 13, 1955	a998	--	--	21	6.0	32	3.1	64	--	63	--	--	.19	--	--		77	25	46	1.6	334	7.3
Feb. 8	1,160	--	--	20	6.8	32	2.3	66	--	62	--	--	.03	--	--		78	24	46	1.6	331	7.7
Mar. 11	731	--	--	22	6.3	36	2.9	67	--	72	--	--	.07	--	--		81	26	48	1.7	359	7.8
Apr. 14	a307	--	--	49	17	95	7.4	152	--	195	--	--	.10	--	--		192	67	51	3.0	889	7.5
May 12	238	57	0.03	47	16	95	7.8	142	8.1	186	0.3	2.5	.12	490	0.67		182	66	52	3.1	863	7.5
June 17	262	--	--	42	15	80	6.6	155	--	151	--	--	.15	--	--		167	40	50	2.7	757	7.4
July 15	218	--	--	45	14	80	6.3	157	--	150	--	--	.12	--	--		172	43	49	2.7	758	8.0
July 28	a250	39	--	46	14	85	6.0	166	8.7	154	.3	4.9	.12	440	.60		174	38	50	2.8	772	7.8
Aug. 15	233	--	--	44	14	72	5.4	159	--	146	--	--	.12	--	--		167	37	47	2.4	742	7.5
Sept. 16	233	44	.03	45	15	85	5.8	173	9.0	151	.2	1.0	.12	441	.60		174	32	50	2.8	786	7.4

a Daily mean discharge.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE, NEAR MODESTO, CALIF.

LOCATION.--At downstream side of Maze Road Bridge, 0.2 mile below 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Division of Water Resources. Discharge records for gaging station at Hetch Hetchy Crossing for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	--	--	--	--	--	135	--	189	--	228	--	--	--	--	--		--	--	--	--	1,130	7.4
Oct. 15	770	--	--	56	19	120	5.0	178	--	192	--	--	0.25	--	--		219	73	54	3.6	1,050	8.2
Nov. 17	1,030	--	--	35	15	79	3.6	115	--	126	--	--	.15	--	--		151	57	53	2.8	706	8.1
Dec. 7	1,010	--	--	41	19	93	5.1	128	--	130	--	--	.20	--	--		182	77	52	3.0	835	7.9
Jan. 13, 1955	1,840	--	--	28	11	64	3.5	110	--	81	--	--	.07	--	--		116	26	54	2.6	548	8.0
Feb. 11	2,160	--	--	26	13	64	2.2	94	--	86	--	--	.17	--	--		120	43	53	2.5	562	7.8
Mar. 7	1,340	--	--	33	16	79	3.2	108	--	112	--	--	.28	--	--		148	59	53	2.8	692	7.8
Apr. 14	--	--	--	54	25	124	6.0	188	--	213	--	--	.29	--	--		238	84	52	3.5	1,060	7.7
May 17	520	26	0.01	59	24	130	6.2	178	75	216	0.3	4.5	.27	629	0.86		244	98	53	3.6	1,120	7.6
June 17	450	--	--	53	21	107	6.6	169	--	199	--	--	.31	--	--		220	81	50	3.1	985	7.7
July 15	300	--	--	54	22	114	6.8	189	--	198	--	--	.30	--	--		224	69	52	3.3	1,010	7.9
Aug. 19	420	--	--	52	24	114	5.0	187	--	191	--	--	.38	--	--		227	74	52	3.3	1,020	7.5
Sept. 16	490	33	.03	58	21	116	5.8	194	48	187	.4	2.8	.28	567	.77		230	71	52	3.3	1,040	7.6

STANISLAUS RIVER NEAR MOUTH, NEAR VERNALIS, CALIF.

LOCATION.--At gaging station 2.9 miles above mouth, Stanislaus County, and about 6 miles northeast of Vernalis.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	103	--	--	26	8.9	15	2.3	142	--	9.5	--	--	0.00	--	--		102	0	24	0.6	260	8.2
Nov. 12	215	--	--	23	8.7	13	2.6	125	--	7.0	--	--	.01	--	--		93	0	23	.6	238	8.2
Dec. 7	445	--	--	17	6.7	8.1	3.4	83	--	6.0	--	--	.04	--	--		70	2	19	.4	179	7.9
Jan. 13, 1955	a686	--	--	17	6.6	6.6	1.7	75	--	4.2	--	--	.02	--	--		70	8	17	.3	170	7.9
Feb. 21	850	--	--	12	4.6	4.6	1.1	59	--	2.0	--	--	.05	--	--		49	1	17	.3	118	7.7
Mar. 15	968	--	--	11	4.0	4.4	1.1	54	--	2.0	--	--	.00	--	--		44	0	17	.3	112	7.6
Apr. 15	82	--	--	22	11	15	2.5	144	--	8.1	--	--	.04	--	--		102	0	24	.6	262	8.1
May 18	83	31	0.00	25	8.9	14	2.5	133	9.2	9.5	0.0	1.6	.00	168	0.23		99	0	23	.6	217	7.7
June 17	593	--	--	9.3	3.8	4.2	1.1	54	--	1.5	--	--	.06	--	--		39	0	18	.3	94.6	7.8
July 15	43	--	--	26	10	17	2.8	144	--	9.2	--	--	.01	--	--		106	0	25	.7	271	7.9
July 28	66	24	--	24	11	17	2.5	146	7.5	9.8	.0	.2	.00	168	.23		104	0	26	.7	264	7.7
Aug. 19	28	--	--	26	10	16	2.3	153	--	7.5	--	--	.00	--	--		106	0	24	.7	281	7.5
Sept. 16	41	36	.03	25	10	16	2.3	149	9.0	8.2	.1	1.6	.03	181	.25		104	0	25	.7	272	7.8

a Daily mean discharge.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.

LOCATION.--At gaging station in El Pescadero Grant, 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 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 590 ppm May 21-25; minimum, 141 ppm June 1-2, 8-13.
Hardness: Maximum, 222 ppm May 21-25; minimum, 51 ppm June 1-2, 8-13.
Specific conductance: Maximum daily, 1,120 micromhos Aug. 5; minimum daily, 157 micromhos June 12.
Water temperatures: Maximum, 75°F on several days during July to September; minimum, 42°F Jan. 8.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 633 ppm July 21-31, 1954; minimum, 54 ppm June 1-10, 1952.
Hardness: Maximum, 244 ppm Aug. 1-10, 1954; minimum, 23 ppm June 1-10, 1952.
Specific conductance: Maximum daily, 1,120 micromhos Aug. 5, 1955; minimum daily, 60.0 micromhos June 21, 1953.
Water temperatures: Maximum, 78°F July 19, 1951, June 22, July 29, 1954; minimum, 39°F Jan. 10, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	844	35	0.00	49	20	103	4.3	173	61	150	0.2	4.0	0.26	532	0.72	1,210	205	63	52	3.1	895	7.3
Oct. 11-16.....	904	35	.01	47	22	100	5.0	171	64	158	.2	1.5	.23	535	.73	1,310	210	70	50	3.0	910	7.4
Oct. 15[a].....	892	--	--	53	20	110	5.2	180	--	178	--	--	.56	--	--	--	214	66	52	--	991	8.2
Oct. 17-20	1,188	27	.01	35	14	71	4.3	130	46	103	.2	1.2	.24	380	.52	1,220	144	37	51	2.6	645	7.4
Oct. 21-31	1,246	29	.00	36	15	76	3.9	125	48	114	.1	1.7	.29	391	.53	1,320	152	50	51	2.7	675	7.3
Nov. 1-10	1,245	29	.00	38	15	81	3.8	126	51	121	.1	2.0	.33	412	.56	1,390	158	55	52	2.8	706	7.9
Nov. 11-20	1,430	28	.01	36	15	74	4.0	125	47	110	.1	2.1	.21	386	.52	1,490	150	48	51	2.6	664	7.2
Nov. 12[a].....	1,390	--	--	34	15	69	3.6	123	--	109	--	--	.15	--	--	--	147	46	50	--	647	8.2
Nov. 21-30	1,482	27	.00	36	15	73	3.7	121	48	112	.1	2.7	.24	390	.53	1,560	152	53	50	2.6	672	7.3
Dec. 1-10	1,647	25	.00	32	14	64	3.8	109	43	97	.1	2.7	.20	348	.47	1,550	136	47	50	2.4	597	7.3
Dec. 7[a].....	1,540	24	.01	34	13	65	4.5	112	47	104	.3	2.8	.14	350	.48	--	140	48	49	--	617	8.0
Dec. 11-20	2,160	22	.02	26	11	50	3.6	96	34	74	.3	3.0	.17	279	.38	1,630	112	33	48	2.1	481	7.2
Dec. 21-31	1,651	26	.01	34	13	66	3.7	114	42	101	.2	3.0	.20	355	.48	1,580	138	45	50	2.4	611	7.3
Jan. 1-2, 1955.....	2,075	--	--	34	13	68	--	--	--	--	--	--	--	364	.50	2,040	--	--	--	2.5	622	--
Jan. 3.....	4,020	--	--	15	6.0	23	--	--	--	--	--	--	--	172	.23	1,870	--	--	--	1.3	251	--
Jan. 4-10.....	2,686	20	.03	22	9.5	38	3.1	89	27	56	.1	2.6	.15	234	.32	1,700	94	21	46	1.7	395	7.3
Jan. 11, 13-18.....	2,793	22	.10	25	11	50	3.6	106	34	66	.3	3.4	.10	294	.40	2,220	106	19	50	2.1	467	7.6
Jan. 13[a].....	2,670	22	.10	24	10	45	3.2	103	32	60	.4	3.5	.01	251	.34	--	102	18	48	--	435	7.7
Jan. 12, 19-20.....	4,047	--	--	18	8.0	33	--	--	--	--	--	--	--	218	.30	2,380	--	--	--	1.6	329	--
Jan. 18[a].....	4,180	--	--	19	7.9	36	--	--	--	--	--	--	--	220	--	--	--	--	--	--	342	--
Jan. 21-24.....	3,895	--	--	20	9.3	38	3.3	86	30	46	--	2.9	.14	233	.32	2,450	88	17	47	1.8	360	7.1
Jan. 25-31	2,526	23	.08	29	13	66	3.8	121	49	79	.3	2.8	.21	337	.46	2,300	124	25	53	2.6	562	7.4

a Not included for computation of weighted analyses.

Feb. 1-10, 1955....	2,208	24	.03	32	14	68	3.2	121	56	91	.3	3.0	.21	359	.49	2,140	138	39	51	2.5	608	7.4
Feb. 11-20	2,549	20	.00	27	12	59	2.5	96	57	78	.2	1.9	.23	314	.43	2,160	118	39	52	2.4	531	7.5
Feb. 11 [a].....	2,540	17	.02	26	13	59	2.5	97	51	78	.1	2.0	.16	297	.40	--	120	40	51	--	521	7.8
Feb. 21-28	2,632	20	.02	24	13	52	2.2	87	49	70	.1	.9	.20	285	.39	2,030	112	41	50	2.1	485	7.7
Mar. 1-10.....	2,155	20	.03	28	13	57	2.9	104	49	80	.1	1.1	.18	312	.42	1,820	122	37	50	2.2	536	7.6
Mar. 11-20.....	1,904	21	.00	30	12	59	3.2	99	46	90	.1	1.4	.17	320	.44	1,650	126	45	50	2.3	554	7.2
Mar. 15 [a].....	1,980	20	.03	28	13	58	2.3	95	47	87	.2	1.4	.17	304	.41	--	122	44	50	--	540	7.8
Mar. 21-31.....	709	30	.00	50	20	96	5.8	151	55	170	.1	3.7	.22	543	.74	1,040	208	84	49	2.9	902	7.5
Apr. 1-10	548	31	.05	49	21	99	5.9	155	48	180	.1	3.8	.21	568	.77	841	210	83	50	3.0	922	7.5
Apr. 6 [a].....	600	--	--	52	23	110	--	160	--	--	--	--	--	610	.83	--	225	94	--	--	1,000	7.4
Apr. 11-20	780	28	.06	46	20	91	5.7	160	51	156	.1	3.5	.22	513	.70	1,080	198	67	49	2.8	861	7.5
Apr. 15 [a].....	620	28	.03	49	24	99	5.6	166	54	168	.2	3.9	.25	514	.70	--	220	84	49	--	912	7.6
Apr. 21-30	1,422	27	.08	37	13	68	4.6	134	42	103	.3	2.5	.21	370	.50	1,420	148	38	49	2.4	631	7.3
May 1-10.....	1,233	29	.01	39	16	80	4.2	139	50	120	.2	22	.20	420	.57	1,400	163	49	51	2.7	711	7.3
May 11-20.....	745	28	.02	51	19	106	5.8	163	59	166	.2	1.3	.27	548	.75	1,100	207	73	52	3.2	911	7.3
May 17 [a]	625	24	.00	52	21	104	4.6	168	60	178	.3	3.9	.21	531	.72	--	216	78	50	--	960	7.6
May 21-25.....	664	31	.01	53	22	114	8.4	172	56	198	.4	2.9	.34	590	.80	1,060	222	81	52	3.3	985	7.2
May 26-31.....	2,093	19	.00	17	6.7	31	2.5	63	16	50	.2	1.1	.17	179	.24	1,010	70	18	48	1.6	307	7.0
June 1-2, 8-13.....	2,808	17	.00	12	5.1	24	1.7	51	9.9	37	.2	.8	.12	141	.19	1,070	51	9	50	1.5	208	7.0
June 3-7	1,656	22	.00	24	9.3	45	3.0	89	26	70	.2	1.2	.17	252	.34	1,130	98	25	49	2.0	423	7.1
June 14-19.....	1,197	29	.00	25	11	45	3.2	96	23	74	.2	1.3	.20	260	.35	840	109	30	46	1.9	437	7.3
June 17 [a].....	1,010	22	.03	25	11	42	2.9	94	23	73	.1	1.3	.08	246	.33	--	108	31	45	--	491	7.5
June 20-30.....	632	29	.00	45	17	86	5.2	156	44	140	.1	1.6	.28	466	.63	795	183	55	50	2.8	783	7.6
July 1-10.....	498	33	.13	51	20	96	5.2	170	51	164	.3	2.9	.28	546	.74	734	208	69	49	2.9	896	7.5
July 11-20.....	411	35	.23	50	21	96	5.2	173	49	165	.3	2.5	.26	553	.75	614	210	68	49	2.9	901	7.6
July 15 [a].....	340	28	.05	53	21	99	5.0	178	52	164	.4	.8	.27	512	.70	--	218	72	49	--	907	7.2
July 21-31.....	347	40	.00	53	21	101	5.2	174	44	183	.3	5.5	.25	582	.79	545	220	77	49	3.0	954	8.2
July 28 [a].....	360	30	--	57	22	120	6.4	180	61	195	.4	4.5	.29	586	.80	--	231	83	52	--	1,040	7.2

a Not included for computation of weighted analyses.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Aug. 1-10, 1955...	372	37	0.00	52	22	101	5.2	172	45	182	0.3	4.9	0.28	572	0.78	575	218	77	49	3.0	946	8.0
Aug. 11-20.....	405	33	.05	50	21	101	5.2	174	51	170	.3	3.4	.22	563	.77	616	211	68	50	3.0	928	7.5
Aug. 19 [a].....	463	29	.00	51	23	106	4.0	184	61	174	.2	3.3	.32	543	.74	--	220	69	51	--	970	7.4
Aug. 21-31.....	508	33	.02	48	20	95	5.2	177	51	157	.3	4.4	.26	529	.72	726	203	58	50	2.9	889	7.5
Sept. 1-10.....	514	35	.03	50	20	102	5.4	180	55	160	.2	2.6	.19	540	.73	750	206	58	51	3.1	932	7.6
Sept. 11-20.....	629	38	.01	48	20	101	5.0	183	56	153	.2	5.0	.24	533	.72	905	202	52	51	3.1	906	8.2
Sept. 16 [a].....	570	32	.01	49	22	104	5.0	185	61	162	.2	4.2	.24	531	.72	--	212	60	51	--	930	7.5
Sept. 21-30.....	685	37	.01	51	21	106	5.0	186	63	163	.2	4.8	.26	564	.77	1,040	213	60	51	3.1	945	8.2
Weighted average [b]	1,347	c25	c0.02	32	14	65	d3.7	d117	d44	d99	c0.2	d2.4	d0.20	353	0.48	1,280	138	42	50	2.4	593	--

a Not included for computation of weighted analyses.
b Represents 100 percent of runoff for water year October 1954 to September 1955.
c Represents 93 percent of runoff for water year October 1954 to September 1955.
d Represents 96 percent of runoff for water year October 1954 to September 1955.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement at 7:30 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	56	49	50	50	48	58	60	60	63	72	73
2	63	57	51	48	46	48	54	58	62	68	74	74
3	63	57	53	45	45	50	58	60	65	65	75	75
4	63	57	54	45	45	52	55	62	69	65	74	75
5	62	56	54	46	45	50	54	64	72	68	73	75
6	63	56	54	45	48	50	58	65	72	66	72	73
7	64	58	54	44	48	52	60	64	70	67	74	70
8	65	58	52	42	48	54	62	64	68	70	75	68
9	64	58	52	45	46	55	62	64	68	68	74	70
10	64	58	50	45	48	55	62	66	65	68	71	69
11	65	58	49	45	48	58	60	70	65	70	72	70
12	63	56	48	45	46	56	60	70	65	72	70	71
13	65	56	49	45	50	55	60	68	65	72	71	70
14	64	56	49	45	53	54	58	62	65	75	70	68
15	64	56	50	45	50	50	58	62	65	74	70	66
16	65	55	49	45	54	50	60	62	64	68	70	64
17	65	55	49	45	55	50	60	65	65	70	69	64
18	64	55	49	45	48	52	55	68	68	68	70	63
19	63	55	49	45	45	54	55	70	68	70	70	65
20	63	54	48	45	45	50	60	74	68	70	71	65
21	62	54	48	45	45	51	58	73	68	70	71	68
22	62	53	48	45	--	55	58	70	68	71	70	67
23	62	53	48	46	48	55	60	68	63	70	72	66
24	--	50	47	48	46	55	62	69	65	70	69	65
25	55	52	57	46	50	60	62	65	65	70	69	65
26	65	52	46	48	50	60	58	60	66	68	65	65
27	55	50	44	48	50	62	56	60	67	70	68	65
28	56	53	45	48	48	62	60	64	64	68	69	64
29	67	50	--	46	--	60	60	68	65	72	69	64
30	67	47	45	46	--	55	60	65	67	74	69	63
31	57	--	46	48	--	58	--	63	--	75	70	--
Average	63	55	50	46	48	54	59	65	66	70	71	68

SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Tidal gaging station maintained and operated by State of California Division 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 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		--	--	37	13	74	3.6	125	--	110	--	--	0.20	--	--		144	42	52	2.7	638	7.9
Nov. 18		--	--	31	15	64	3.7	123	--	99	--	--	.13	--	--		140	39	49	2.4	604	8.1
Dec. 10		--	--	30	13	57	3.1	102	--	89	--	--	.22	--	--		127	43	49	2.2	551	7.9
Jan. 19, 1955		--	--	22	7.7	40	4.2	89	--	50	--	--	.28	--	--		86	13	49	1.9	377	7.5
Feb. 21		--	--	28	12	54	2.2	91	--	71	--	--	.19	--	--		118	43	49	2.2	501	7.8
Mar. 15		--	--	22	21	70	2.5	104	--	106	--	--	.10	--	--		141	56	51	2.6	629	7.7
Apr. 15		--	--	53	21	109	5.8	176	--	180	--	--	.22	--	--		219	75	51	3.2	954	7.7
May 17		24	0.00	54	20	107	5.6	170	60	178	0.2	0.6	.22	534	0.73		218	79	51	3.2	960	7.9
June 21		--	--	38	17	72	3.6	139	--	121	--	--	.15	--	--		164	50	48	2.4	692	7.9
July 18		--	--	22	44	106	6.0	178	--	196	--	--	.37	--	--		236	90	49	3.0	1,000	7.5
Aug. 22		--	--	51	23	104	5.0	190	--	175	--	--	.35	--	--		221	65	50	3.1	959	7.6
Sept. 21		28	.01	56	16	102	4.2	181	59	159	.3	1.1	.26	515	.70		205	57	51	3.1	912	8.0

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: September 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Tidal gaging station maintained and operated by United States 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 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		--	--	51	19	109	4.6	178	--	166	--	--	0.24	--	--		206	60	53	3.3	743	7.9
Nov. 18		--	--	34	17	76	4.9	131	--	112	--	--	.14	--	--		153	46	51	2.7	652	8.1
Dec. 10		--	--	28	12	45	5.5	108	--	68	--	--	.11	--	--		119	30	44	1.8	473	7.7
Jan. 19, 1955		--	--	15	5.4	23	4.7	66	--	26	--	--	.07	--	--		60	6	43	1.3	234	7.2
Feb. 15		--	--	28	13	58	2.5	102	--	78	--	--	.17	--	--		122	38	50	2.3	529	7.8
Mar. 15		--	--	24	16	59	2.7	101	--	86	--	--	.14	--	--		124	41	50	2.3	546	7.8
Apr. 21		--	--	34	15	65	5.6	159	--	90	--	--	.22	--	--		146	16	48	2.3	611	7.4
May 19		21	0.01	42	20	82	4.8	174	42	125	0.2	3.8	.22	427	0.58		187	44	48	2.6	763	7.4
June 23		--	--	25	12	47	3.1	106	--	70	--	--	.21	--	--		110	23	47	1.9	442	7.4
July 18		--	--	18	21	63	5.1	131	--	85	--	--	.16	--	--		133	26	50	2.4	575	7.4
Aug. 25		--	--	31	14	60	4.9	182	--	90	--	--	.14	--	--		136	0	48	2.2	612	7.5
Sept. 21		7.4	.02	46	12	84	5.9	166	23	132	.5	4.3	.27	397	.54		162	26	52	2.9	745	7.4

SAN JOAQUIN RIVER BASIN--Continued

CALAVERAS RIVER AT JENNY LIND, CALIF.

LOCATION.--At gaging station at bridge on Milton Road, 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 August 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, November 1954 to August 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Nov. 17, 1954	59			35	11	8.4	2.3	142		12			0.12				133	17	12	0.3	306	8.2
Dec. 6	169			19	6.0	5.4	1.9	69		5.8			.10				72	15	14	.3	164	7.6
Jan. 18, 1955	2,960			14	5.6	5.1	1.1	62		3.0			.10				58	7	16	.3	138	7.5
Feb. 15	93			25	9.6	7.6	1.2	110		6.0			.03				102	12	14	.3	230	8.0
Mar. 15	25			22	20	11	1.4	148		10			.04				136	15	15	.4	311	8.0
Apr. 19	106			15	12	6.4	1.2	98		4.8			.05				87	7	14	.3	198	7.5
May 20	111	17	0.01	23	5.5	7.6	2.9	102	9.6	3.5	0.1	0.4	.00	120	0.16		80	0	16	.4	185	7.9
June 24	162			23	7.2	6.2	1.4	109		4.2			.04				87	0	13	.3	197	7.9
July 18	171			23	8.9	8.3	2.5	108		5.0			.20				94	5	16	.4	222	7.9
Aug. 22	0			27	12	7.4	1.9	141		5.8			.12				116	0	12	.3	254	7.6

STOCKTON SHIP CHANNEL NEAR RINDGE PUMP ON RINDGE 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Tidal gaging station maintained and operated by State of California Division 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 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		7.5	--	36	17	75	4.5	148	--	119	--	--	0.15	--	--		158	37	50	2.6	693	8.2
Nov. 17		--	--	38	20	86	4.8	139	--	136	--	--	.22	--	--		176	62	51	2.8	766	8.0
Dec. 13		18	0.16	30	12	42	3.4	87	43	68	0.4	10	.04	270	0.37		126	55	41	1.6	458	7.6
Jan. 19, 1955		20	.37	20	9.0	27	3.1	77	26	38	.4	4.8	.00	186	.25		87	24	39	1.3	316	7.6
Feb. 15		21	.02	34	15	66	3.1	124	53	90	.2	3.4	.17	347	.47		146	44	49	2.4	609	7.8
Mar. 17		19	.04	33	15	66	3.0	106	61	97	.2	3.1	.27	349	.47		144	57	49	2.4	619	7.4
Apr. 21		11	.42	31	14	57	3.1	112	43	85	.2	1.9	.20	302	.41		136	44	47	2.1	553	7.3
May 19		6.8	.01	30	13	53	3.5	122	34	80	.3	.7	.19	281	.38		129	29	46	2.0	515	7.6
June 23		8.0	.05	22	11	38	2.5	96	24	58	.2	.9	.11	212	.29		99	20	45	1.7	386	7.5
Aug. 25		17	.18	20	11	38	2.2	101	21	55	.2	1.2	.16	216	.29		96	13	45	1.7	383	7.5
Sept. 21		17	.10	23	13	45	2.8	110	25	68	.3	1.0	.15	249	.34		109	19	46	1.9	449	7.5

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SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		--	--	57	21	112	4.6	185	--	176	--	--	0.23	--	--		227	75	51	3.2	991	8.1
Nov. 18		--	--	38	20	82	5.4	147	--	28	--	--	.21	--	--		179	58	49	2.7	721	8.1
Dec. 10		--	--	35	15	68	4.2	120	--	102	--	--	.16	--	--		150	52	49	2.4	635	8.0
Jan. 20, 1955		--	--	23	9.0	45	3.9	93	--	53	--	--	.07	--	--		94	18	50	2.0	406	7.6
Feb. 21		--	--	33	16	71	3.0	107	--	95	--	--	.27	--	--		148	60	50	2.5	641	7.9
Mar. 15		--	--	22	19	64	1.7	95	--	92	--	--	.27	--	--		132	54	51	2.4	576	7.8
Apr. 15		--	--	58	25	116	5.0	172	--	209	--	--	.26	--	--		246	105	50	3.2	1,060	7.5
May 17		18	0.00	50	20	93	4.0	169	65	150	0.3	3.7	.21	487	0.66		208	69	49	2.8	875	7.7
June 21		--	--	25	12	42	2.6	94	--	76	--	--	.13	--	--		113	36	44	1.7	457	7.5
July 19		--	--	49	31	112	5.0	167	--	178	--	--	.63	--	--		248	111	49	3.1	1,040	7.7
Aug. 24		--	--	44	26	99	5.6	190	--	170	--	--	.08	--	--		218	62	49	2.9	945	7.3
Sept. 21		23	.03	56	22	106	5.4	199	61	174	.3	2.5	.30	549	75		228	65	50	3.1	985	7.7

DELTA-MENDOTA CANAL NEAR TRACY, CALIF.

LOCATION.--On left bank 1.1 miles above gaging station near Tracy, and 9.2 miles northwest of Tracy, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for gaging station near Tracy, for water year October 1954 to September 1955 given in WSP 1395. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 11, 1954	1,182	--		28	15	58	2.8	122	--	90	--	--	0.17	--	--		130	30	49	2.2	562	8.0
Feb. 21	392	--		33	16	74	2.8	107	--	98	--	--	.31	--	--		147	59	52	2.7	651	8.1
Mar. 7	1,144	--		29	17	72	2.3	105	--	104	--	--	.21	--	--		142	56	52	2.6	656	7.8
Apr. 11	2,451	--		22	13	36	2.3	90	--	51	--	--	.15	--	--		110	36	41	1.5	370	7.6
May 9	1,847	20		21	11	31	1.8	89	31	46	0.3	1.4	.14	208	0.28		98	25	40	1.4	360	7.5
June 13	3,328	--		14	7.3	20	1.5	54	--	29	--	--	.07	--	--		65	21	39	1.1	222	7.3
July 19	3,137	--		14	10	26	2.1	73	--	30	--	--	.18	--	--		77	17	42	1.3	298	7.1
Aug. 23	2,834	--		26	15	63	3.4	114	--	104	--	--	.00	--	--		128	35	51	2.4	583	7.3
Sept. 22	1,433	19	0.06	36	19	90	4.0	140	50	138	.5	2.8	.24	429	.58		168	53	53	3.0	765	7.7

SAN JOAQUIN RIVER BASIN--Continued

DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, CALIF.

LOCATION.--At outlet of siphon into canal, 1.0 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 to September 1955.
Water temperatures: July to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Daily samples for chemical analyses composited by discharge. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for Delta-Mendota Canal near Tracy for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, July to September 1955

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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
July 1-10, 1955....	2,914	20	0.10	15	8.4	21	1.5	76	21	27	0.3	1.0	0.11	157	0.21	1,240	72	10	38	1.9	255	7.6
July 11-20	3,088	21	.10	16	9.0	24	1.9	80	20	31	.4	1.1	.14	170	.23	1,420	77	11	40	1.2	276	7.4
July 21-31	3,301	22	.10	17	9.1	27	2.5	84	21	38	.4	1.1	.13	186	.25	1,660	80	11	41	1.3	309	7.2
Aug. 1-10	3,331	22	.08	18	10	38	2.6	87	24	58	.4	.9	.09	225	.31	2,020	88	17	47	1.8	385	7.3
Aug. 11-20	3,044	25	.07	19	12	57	2.9	90	28	82	.3	1.1	.11	284	.39	2,340	98	24	55	2.5	472	7.5
Aug. 21-31	2,650	19	.05	22	14	69	4.0	98	32	105	.3	1.2	.10	334	.45	2,390	114	34	56	2.8	572	7.3
Sept. 1-17	2,059	22	.06	24	14	68	4.1	103	33	109	.2	1.1	.19	338	.46	1,880	119	35	54	2.7	600	7.5
Sept. 18-26	1,484	26	.01	39	18	89	3.8	146	54	140	.2	1.0	.25	448	.61	1,800	172	52	52	3.0	780	7.9
Sept. 27-30	1,568	23	.05	22	13	60	3.2	105	28	89	.2	.7	.18	291	.40	1,230	108	22	54	2.5	519	7.8

Temperature (°F) of water, July to September 1955
(Once-daily measurement approximately between 11 a. m. and 1 p. m.)

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	70	76	75	7	72	78	75	13	74	76	74	19	74	76	70	25	74	--	70
2	72	77	75	8	72	78	75	14	74	76	74	20	75	75	70	26	72	72	70
3	70	77	76	9	72	78	75	15	74	76	74	21	75	75	70	27	73	74	70
4	70	78	77	10	70	77	75	16	73	75	72	22	75	75	70	28	74	75	69
5	70	78	77	11	71	77	75	17	73	76	70	23	76	76	70	29	75	73	70
6	70	78	76	12	73	76	75	18	73	75	70	24	75	73	70	30	75	73	70
																31	76	74	--
Average																	73	76	73

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954		21	--	43	20	99	3.8	156	--	144	--	--	0.23	--	--		189	61	53	3.1	856	8.2
Nov. 11		--	--	46	20	104	4.0	151	--	146	--	--	.44	--	--		198	74	53	3.2	911	8.2
Dec. 9		--	--	46	22	117	3.6	138	--	135	--	--	.71	--	--		204	91	55	3.6	956	8.0
Jan. 12, 1955		--	--	45	21	116	3.2	136	--	132	--	--	.61	--	--		198	86	55	3.6	946	8.1
Feb. 9		--	--	58	27	162	3.2	141	--	145	--	--	.82	--	--		256	140	58	4.4	1,220	8.1
Mar. 7		--	--	30	14	64	2.5	95	--	88	--	--	.18	--	--		132	54	51	2.4	596	7.7
Apr. 11		--	--	25	15	42	2.5	95	--	60	--	--	.15	--	--		123	45	42	1.6	456	7.8
May 9		46	0.1	24	13	42	2.7	98	46	53	0.3	1.9	.17	277	0.38		115	35	44	1.7	425	7.5
June 13		--	--	20	8.3	28	2.1	79	--	36	--	--	.17	--	--		84	19	41	1.3	307	7.6
July 7		--	--	31	11	50	2.8	101	51	72	--	1.2	.19	269	--		121	38	47	2.0	484	8.0
July 14		--	--	26	13	45	3.1	95	--	65	--	--	.18	--	--		119	41	44	1.8	456	7.3
July 27		18	--	19	9.6	31	1.9	88	26	38	.2	1.1	.08	188	.26		87	15	43	1.4	318	7.9
Aug. 16		--	--	21	11	51	2.8	93	--	73	--	--	.04	--	--		97	21	52	2.3	455	7.6
Sept. 12		19	.16	22	14	73	3.6	98	42	108	.2	1.0	.18	331	.45		114	34	57	3.0	599	7.7

SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 11, 1954		25	--	44	18	92	3.5	156	--	140	--	--	0.19	--	--		182	54	52	3.0	814	8.1
Nov. 19		--	--	35	19	77	3.4	128	--	123	--	--	.24	--	--		164	59	50	2.6	721	8.0
Dec. 16		21	0.01	32	14	60	4.0	98	55	94	0.3	4.3	.09	333	0.45		136	56	48	2.2	586	8.0
Jan. 20, 1955		22	.21	22	9.5	43	3.8	85	37	56	.7	3.5	.07	240	.33		94	24	49	1.9	383	7.5
Feb. 21		17	.02	31	14	67	2.6	102	68	88	.1	2.0	.22	340	.46		136	52	51	2.5	602	7.9
Mar. 16		16	.03	31	14	66	2.5	97	60	96	.2	1.3	.28	335	.46		136	56	51	2.5	598	7.5
Apr. 20		19	.16	23	11	33	2.9	90	35	46	.3	1.6	.14	216	.29		102	28	40	1.4	370	7.4
May 18		18	.03	25	13	36	2.2	94	37	56	.2	1.2	.15	235	.32		115	38	40	1.5	398	7.5
June 21		14	.28	16	8.8	23	1.7	76	22	30	.2	.8	.11	154	.21		76	14	39	1.1	267	7.5
July 19		17	.25	16	8.8	25	2.1	78	26	30	.2	.7	.12	164	.22		76	12	41	1.2	289	7.3
Aug. 23		19	.15	20	14	62	3.3	92	32	100	.2	.9	.19	297	.40		106	31	55	2.6	596	7.3
Sept. 22		22	.08	28	14	67	3.6	118	35	110	.3	.5	.08	339	.46		128	31	52	2.6	616	7.7

SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 11, 1954		19	--	22	15	55	2.8	115	--	78	--	--	0.12	--	--		116	22	50	2.2	502	8.2
Nov. 18		--	--	37	22	87	4.5	123	--	135	--	--	.26	--	--		185	84	50	2.8	760	8.1
Dec. 16		--	--	35	14	65	4.0	96	--	102	--	--	.23	--	--		147	68	48	2.3	627	7.8
Jan. 20, 1955		--	--	42	16	69	4.4	75	--	103	--	--	.44	--	--		170	108	46	2.3	701	7.2
Feb. 21		--	--	34	17	77	2.9	106	--	104	--	--	.30	--	--		154	67	52	2.7	680	8.0
Mar. 16		--	--	32	15	69	2.7	96	--	106	--	--	.37	--	--		143	64	51	2.5	629	7.8
Apr. 20		--	--	25	12	33	2.0	84	--	46	--	--	.09	--	--		110	41	39	1.4	383	7.3
May 18		17	0.2	22	9.8	30	2.1	86	33	41	0.3	1.0	.10	198	0.27		95	24	40	1.3	338	7.3
June 21		--	--	16	8.0	22	1.7	76	--	27	--	--	.08	--	--		73	11	39	1.1	253	7.7
July 19		--	--	14	10	25	1.8	78	--	30	--	--	.15	--	--		76	12	41	1.2	275	7.5
Aug. 23		--	--	20	14	64	3.3	93	--	105	--	--	.28	--	--		108	32	55	2.7	556	7.3
Sept. 22		19	.16	22	12	60	3.2	98	29	95	.4	.6	.01	289	.39		106	26	54	2.5	526	7.9

SAN JOAQUIN RIVER BASIN--Continued

INDIAN SLOUGH NEAR BRENTWOOD, CALIF.

LOCATION.--At East Contra Costa Irrigation District pump number 1 on Bixler Road, 3 miles north of Byron and 4.1 miles southeast of Brentwood, Contra Costa County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		--	--	40	25	101	4.4	147	--	163	--	--	0.30	--	--		201	80	52	3.1	923	8.2
Nov. 16		--	--	43	35	140	3.4	209	--	177	--	--	1.3	--	--		251	80	54	3.9	1,070	8.2
Dec. 16		--	--	52	32	140	4.1	186	--	201	--	--	1.4	--	--		262	109	53	3.8	1,210	8.2
Jan. 20, 1955		--	--	69	34	131	3.6	259	--	176	--	--	1.7	--	--		313	101	47	3.2	1,180	7.9
Feb. 6		--	--	61	41	176	4.2	196	--	237	--	--	1.6	--	--		322	161	54	4.3	1,430	8.1
Mar. 16		--	--	9.7	72	114	2.6	292	--	150	--	--	1.5	--	--		321	82	43	2.8	1,110	8.2
Apr. 20		--	--	22	12	39	2.0	92	--	52	--	--	.24	--	--		104	29	44	1.7	396	7.4
May 18		16	0.01	21	13	39	2.3	101	38	50	0.3	0.9	.27	231	0.31		106	23	44	1.6	398	7.8
June 21		--	--	13	8.9	20	1.4	77	--	24	--	--	.11	--	--		69	6	38	1.0	240	7.9
July 19		--	--	6.4	16	30	2.5	81	--	36	--	--	.26	--	--		80	14	44	1.5	309	7.3
Aug. 23		--	--	23	17	86	3.8	104	--	140	--	--	.36	--	--		128	43	58	3.3	708	7.3
Sept. 22		18	.14	27	21	91	4.0	124	54	146	.4	3.7	.51	427	.58		153	51	56	3.2	783	7.8

SAN JOAQUIN RIVER BASIN--Continued

OLD RIVER AT OROWOOD BRIDGE, NEAR MIDDLE RIVER, CALIF.

LOCATION.--At right bank at Atchinson, 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 21, 1954		19	--	23	14	50	2.7	116	--	69	--	--	0.12	--	--		116	21	48	2.0	481	8.0
Nov. 16		--	--	36	18	73	3.4	120	--	112	--	--	.21	--	--		162	64	49	2.5	647	8.0
Dec. 16		23	0.01	42	19	79	4.0	110	85	124	0.2	5.8	.23	436	0.59		184	94	48	2.5	735	7.9
Jan. 20, 1955		26	.05	39	18	67	3.5	100	92	96	.3	7.7	.13	398	.54		173	91	45	2.2	682	7.5
Feb. 16		23	.05	41	19	83	3.3	125	84	117	.3	3.4	.28	436	.59		180	78	50	2.7	759	7.9
Mar. 16		18	.07	34	17	73	2.9	98	80	102	.3	2.4	.33	378	.51		154	74	50	2.6	663	7.8
Apr. 20		19	.13	19	10	27	2.1	88	27	34	.3	1.1	.13	183	.25		90	18	39	1.2	312	7.6
May 19		20	.00	19	8.9	22	1.8	80	22	30	.2	1.0	.10	164	.22		84	18	36	1.0	272	7.5
June 22		12	.28	17	9.1	23	1.7	78	19	32	.3	.7	.08	153	.21		80	16	38	1.1	269	7.8
July 19		16	.28	15	8.4	25	2.1	81	19	31	.2	.6	.14	158	.21		72	6	42	1.3	266	7.4
Aug. 24		18	.13	21	16	81	3.8	92	38	136	.2	.8	.13	360	.49		117	42	59	3.3	680	7.3
Sept. 22		19	.13	17	15	61	3.3	100	29	98	.3	.4	.03	292	.40		105	23	55	2.6	536	7.6

SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 21, 1954		20	--	22	13	45	2.6	120	--	58	--	--	0.12	--	--		109	11	47	1.9	437	8.2
Nov. 16		18	--	27	16	54	3.1	122	--	77	--	--	.19	--	--		134	34	46	2.0	539	8.0
Dec. 16		--	--	43	22	87	3.9	124	--	132	--	--	.35	--	--		198	96	48	2.7	820	8.0
Jan. 20, 1955		--	--	46	25	89	3.2	110	--	129	--	--	.35	--	--		216	126	47	2.6	861	7.6
Feb. 16		--	--	41	24	91	3.4	128	--	129	--	--	.46	--	--		202	97	49	2.8	846	8.0
Mar. 16		--	--	35	20	80	3.0	114	--	116	--	--	.39	--	--		169	76	50	2.7	746	8.0
Apr. 20		--	--	20	10	27	2.0	92	--	35	--	--	.16	--	---		92	17	38	1.2	320	7.3
May 19		17	0.00	20	7.8	24	2.5	84	24	28	0.3	0.7	.10	165	0.22		82	13	38	1.2	277	7.5
June 22		--	--	15	7.2	17	1.5	36	--	18	--	--	.09	--	--		67	37	35	.9	211	7.6
July 19		--	--	15	9.1	28	2.6	78	--	30	--	--	.09	--	--		75	11	44	1.4	273	7.6
Aug. 24		--	--	20	17	91	4.2	94	--	152	--	--	.30	--	--		121	44	61	3.6	723	7.1
Sept. 22		19	.07	20	15	68	3.7	101	29	109	.2	.3	.08	314	.43		110	27	56	2.8	579	7.7

OLD RIVER (NORTHWEST SIDE) 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, December 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Dec. 14, 1954		19	0.06	29	13	44	2.8	100	45	70	0.3	3.1	0.10	275	0.37		126	44	42	1.7	480	7.9
Jan. 19, 1955		23	.10	32	14	44	2.9	83	56	71	.5	8.0	.12	292	.40		138	70	40	1.6	495	7.6
Feb. 16		20	.13	31	15	45	2.7	98	61	66	.4	4.8	.10	294	.40		140	60	41	1.7	495	7.9
Mar. 17		20	.06	22	11	31	1.6	86	32	43	.2	1.9	.15	205	.28		100	29	40	1.3	353	7.5
Apr. 21		19	.14	16	8.0	20	1.7	82	17	23	.2	.9	.14	146	.20		73	6	37	1.0	241	7.3
May 19		17	.1	13	6.7	14	1.4	69	14	17	.3	.6	.06	118	.16		60	3	33	.8	190	7.4
June 22		15	.15	12	6.8	15	1.3	69	13	15	.2	.5	.03	113	.15		58	1	35	.9	183	7.5
July 19		18	.24	15	6.9	32	2.1	83	18	38	.0	.5	.07	172	.23		66	0	50	1.7	297	7.3
Aug. 24		19	.08	19	15	82	4.0	93	32	130	.2	.6	.22	348	.47		108	32	61	3.4	651	7.5
Sept. 21		21	.13	17	14	48	2.9	109	24	70	.3	.6	.13	252	.34		99	10	50	2.1	446	7.6

SAN JOAQUIN RIVER BASIN--Continued

MOKELUMNE RIVER AT LANCHA PLANA, CALIF.

LOCATION.--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.--584 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954	693	--	--	4.5	0.2	1.9	0.6	18	--	1.8	--	--	0.00	--	--		12	0	25	0.2	33.5	7.3
Nov. 17	693	--	--	3.7	.7	1.6	.6	17	--	2.0	--	--	.00	--	--		12	0	22	.2	32.1	7.3
Dec. 6	693	--	--	5.3	.1	2.1	.6	18	--	1.8	--	--	.08	--	--		14	0	24	.2	39.2	7.1
Jan. 18, 1955	812	--	--	6.1	2.4	3.4	.7	22	--	3.5	--	--	.00	--	--		25	7	22	.3	76.9	7.0
Feb. 15	660	--	--	5.1	1.3	2.8	.6	24	--	3.0	--	--	.01	--	--		18	0	25	.3	51.4	7.3
Mar. 15	63	--	--	6.3	2.3	3.4	.8	24	--	3.5	--	--	.00	--	--		25	5	22	.3	81.5	7.1
Apr. 19	698	--	--	3.2	2.6	3.1	.8	24	--	3.2	--	--	.02	--	--		19	0	26	.3	48.6	7.0
May 20	704	11	0.03	7.2	.3	4.0	1.7	25	2.6	3.5	0.2	0.2	.00	43	0.06		19	0	29	.4	53.4	7.3
June 24	649	--	--	5.7	2.1	3.1	.7	27	--	3.5	--	--	.05	--	--		23	1	22	.3	50.1	7.4
July 18	644	--	--	6.0	1.5	4.8	1.6	19	--	3.0	--	--	.10	--	--		21	5	31	.5	74.9	6.8
Aug. 22	654	--	--	2.8	2.9	3.1	.7	27	--	3.0	--	--	.00	--	--		19	0	25	.3	54.1	7.0
Sept. 20	654	12	.02	5.7	.3	2.2	.7	21	1.4	1.9	.1	.0	.14	34	.05		15	0	23	.2	45.3	7.3

MOKELUMNE RIVER AT WOODBRIDGE, CALIF.

LOCATION.--At dam of Woodbridge Irrigation District, San Joaquin County, 0.4 mile upstream from gaging station at Woodbridge.
DRAINAGE AREA.--644 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 68 ppm Apr. 21-30; minimum, 35 ppm Oct. 1-10, Dec. 21-31.
Hardness: Maximum, 31 ppm Apr. 21-30; minimum, 18 ppm Sept. 21-30.
Specific conductance: Maximum daily, 91.8 micromhos Apr. 30; minimum daily, 35.0 micromhos Nov. 7.
Water temperatures: Minimum, 42°F Dec. 27, Jan. 6.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 68 ppm Dec. 12, 15, 1952, Apr. 21-30, 1955; minimum, 30 ppm June 1-30, July 1-20, 1952.
Hardness: Maximum, 34 ppm Feb. 1, 3, 5, Mar. 3, 1953; minimum, 12 ppm June 1-10, 1952.
Specific conductance: Maximum daily, 202 micromhos Dec. 15, 1952; minimum daily, 29.4 micromhos July 9, 1952.
Water temperatures: Maximum, (1951-54), 83°F July 17, 1951; minimum, 35°F Jan. 29, 30, 1954.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	254			4.0	1.0	2.2		--						35	0.05	24	14	--		0.3	41.6	--
Oct. 11-20	289			4.0	1.0	1.8		--						38	.05	30	14	--		.2	38.9	--
Oct. 21-31	313			4.0	.7	1.8		--						37	.05	31	13	--		.2	39.8	--
Nov. 1-10	380			4.0	.7	1.8		--						39	.05	40	13	--		.2	38.9	--
Nov. 11-20	577			4.0	.7	1.8		--						36	.05	56	13	--		.2	38.2	--
Nov. 21-30	541			4.0	.7	1.8		--						36	.05	53	13	--		.2	37.6	--
Dec. 1-10	586			4.9	1.0	2.1		--						44	.06	70	16	--		.2	51.6	--
Dec. 11	699			6.7	2.3	3.2		--						--	--	--	26	--		.3	80.3	--
Dec. 12-20	550			4.9	1.2	2.2		--						45	.06	67	17	--		.2	50.1	--
Dec. 21-31	550			4.2	1.1	2.4		--						35	.05	52	15	--		.3	42.8	--
Jan. 1-10, 1955	607			4.9	1.3	2.7		--						45	.06	74	18	--		.3	53.4	--
Jan. 11-20	700			5.3	2.1	3.0		--						57	.08	108	22	--		.3	60.4	--
Jan. 21-31	595			5.3	1.7	3.1		--						50	.07	80	20	--		.3	60.9	--
Feb. 1-10	634			5.1	1.5	3.1		25						46	.06	79	19	--		.3	60.8	7.2
Feb. 11-20	566			5.3	1.7	3.1		25						46	.06	70	20	--		.3	57.0	7.4
Feb. 21-28	498			5.5	2.0	3.1		27						47	.06	63	22	0		.3	64.6	7.3
Mar. 1-10	262			6.1	2.1	3.7		28						53	.07	37	24	1		.3	69.4	7.3
Mar. 11-20	195			6.4	2.2	4.0		30						54	.07	28	25	0		.3	74.9	7.0
Mar. 21-31	23.9			6.4	2.2	3.6		29						52	.07	3.4	25	1		.3	70.7	7.1
Apr. 1-10	14.1			5.7	1.9	3.5		28						48	.07	1.8	22	0		.3	63.4	7.0
Apr. 11-20	11.8			6.2	2.8	3.8		30						54	.07	1.7	27	2		.3	77.8	6.9
Apr. 21-30	124			7.3	3.1	4.2		34						68	.09	23	31	3		.3	84.9	7.3

SAN JOAQUIN RIVER BASIN--Continued

MOKELUMNE RIVER AT WOODBRIDGE, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-10, 1955....	98.2			6.4	2.7	3.6		31						52	0.07	14	27	2		0.3	70.1	7.4
May 11-20.....	45.0			5.9	2.7	3.9		30						48	.07	5.8	26	1		.3	69.9	7.0
May 21-31.....	17.3			6.7	1.0	4.0		30						48	.07	2.2	21	0		.4	66.7	7.1
June 1-10	16.7			9.4	.1	3.8		30						48	.07	2.2	24	0		.3	64.8	6.9
June 11-20.....	11.8			6.1	1.9	3.8		29						48	.07	1.5	23	0		.3	64.9	6.8
June 21-30.....	12.2			7.1	1.0	3.8		28						52	.07	1.7	22	0		.4	63.0	6.8
July 1-10.....	19.3			6.0	1.6	3.8		28						52	.07	2.7	22	0		.4	66.9	7.1
July 21-31.....	16.2			6.2	1.3	3.6		28						50	.07	2.2	21	0		.3	68.4	6.7
Aug. 1-10	17.4			6.4	1.5	3.4		30						50	.07	2.3	22	0		.3	68.2	6.7
Aug. 18-31	16.9			5.8	1.3	3.4		28						48	.07	2.2	20	0		.3	60.7	7.0
Sept. 1-10.....	27.6			6.9	1.0	3.8		30						46	.06	3.4	21	0		.4	65.2	7.1
Sept. 11-20.....	105		0.04	6.2	1.0	3.2		27						44	.06	12	19	0		.3	57.6	7.0
Sept. 21-30.....	160			5.9	.9	3.1		26						41	.06	18	18	0		.3	53.9	7.0
Weighted average[a]	256		--	5.0	1.4	2.6		--						[b]44	[b]0.06	30	18	--		0.3	53.1	--

a Represents 99.7 percent of runoff for water year October 1954 to September 1955.
b Represents 99 percent of runoff for water year October 1954 to September 1955.

SAN JOAQUIN RIVER BASIN--Continued

MOKELUMNE RIVER AT WOODBRIDGE, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement at 6:30 a.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	56	52	51	45	45	54	59	66	--	69	72
2	59	58	53	50	45	46	55	48	67	75	69	67
3	59	54	54	46	44	46	50	49	66	--	72	68
4	60	54	54	45	43	47	51	49	66	--	72	72
5	59	54	54	43	44	48	50	59	66	75	71	70
6	59	55	53	42	50	49	54	59	66	--	70	67
7	63	55	53	45	50	57	55	60	67	76	69	68
8	60	56	50	45	51	52	55	60	68	--	--	68
9	61	59	53	45	45	45	54	61	68	--	69	68
10	62	58	53	45	44	52	55	62	69	--	68	67
11	62	59	49	44	52	52	55	65	68	--	--	68
12	63	57	49	45	52	54	54	63	68	--	--	68
13	63	59	49	46	47	52	54	63	69	--	--	68
14	62	57	52	47	48	57	55	62	69	--	--	68
15	63	57	51	45	50	57	55	63	70	--	--	63
16	62	58	50	43	50	46	55	63	70	--	--	61
17	61	58	50	43	48	45	54	64	72	--	--	62
18	62	58	48	46	47	49	54	62	73	--	65	63
19	60	54	48	48	44	53	54	61	72	--	--	64
20	59	52	49	48	45	49	55	62	71	--	--	63
21	60	53	48	50	45	49	55	63	72	77	65	65
22	62	51	48	53	46	52	56	62	74	79	67	67
23	69	53	49	45	47	53	56	60	73	76	69	64
24	67	51	48	--	46	55	55	63	74	78	--	68
25	51	53	49	45	45	45	57	62	75	69	65	65
26	55	52	47	46	46	56	58	67	74	62	64	63
27	56	53	42	45	46	56	58	66	75	63	64	61
28	58	53	45	45	47	53	58	64	74	--	69	62
29	58	51	45	45	--	56	58	65	75	68	69	65
30	55	52	45	46	--	56	59	66	75	69	69	63
31	66	--	50	45	--	55	--	66	--	68	69	--
Average	60	55	50	46	47	51	55	61	70	--	--	66

SAN JOAQUIN RIVER BASIN--Continued

COSUMNES RIVER AT MICHIGAN BAR, CALIF.

LOCATION.--At gaging station on highway bridge 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: January 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954	11	--	--	12	3.9	4.9	1.3	66	--	2.8	--	--	0.03	--	--		46	0	18	0.3	119	7.7
Nov. 17	159	--	--	7.3	3.4	3.4	1.4	40	--	3.2	--	--	.00	--	--		32	0	18	.3	83.9	7.1
Dec. 6	281	--	--	9.7	3.5	4.2	1.2	40	--	3.5	--	--	.10	--	--		38	5	19	.3	99.1	7.4
Jan. 18, 1955	1,828	--	--	10	4.4	4.7	.6	51	--	1.8	--	--	.00	--	--		43	1	19	.3	105	7.4
Feb. 15	223	--	--	11	6.1	4.6	.9	60	--	2.5	--	--	.02	--	--		52	3	16	.3	122	7.7
Mar. 15	420	--	--	8.0	3.9	3.6	.9	43	--	1.5	--	--	.03	--	--		36	1	17	.3	82.2	7.5
Apr. 19	587	--	--	8.2	7.2	4.2	.9	64	--	1.4	--	--	.00	--	--		50	0	15	.3	116	7.5
May 20	448	19	0.04	8.8	.5	3.6	1.7	36	2.7	.5	0.1	0.3	.00	55	0.07		24	0	23	.3	59.9	7.8
June 24	79	--	--	6.8	2.7	3.4	1.0	40	--	.8	--	--	.06	--	--		28	0	20	.3	66.8	7.8
July 18	26	--	--	8.1	4.3	5.6	1.7	46	--	2.5	--	--	.24	--	--		38	0	23	.4	111	7.4
Aug. 22	3.0	--	--	11	5.7	4.8	1.3	a71	--	2.5	--	--	.00	--	--		51	0	17	.3	120	8.4
Sept. 20	10	16	.06	13	6.1	5.3	1.3	77	2.0	2.5	.2	.0	.02	84	.11		58	0	16	.3	139	8.1

a Includes equivalent of 3 parts per million of carbonate (CO_3).

DELTA CROSS CHANNEL NEAR WALNUT GROVE, CALIF.

LOCATION.--At 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954		23	--	15	8.4	12	1.4	96	--	12	--	--	0.02	--	--		72	0	26	0.6	204	8.1
Nov. 16		--	--	14	6.8	13	1.9	76	--	11	--	--	.03	--	--		63	1	30	.7	191	7.9
Dec. 13		--	--	13	4.8	8.3	1.4	60	--	9.8	--	--	.12	--	--		52	3	25	.5	146	7.5
Jan. 21, 1955		--	--	12	5.6	9.2	1.0	63	--	7.0	--	--	.21	--	--		53	1	27	.5	145	7.5
Feb. 14		--	--	18	10	18	1.2	98	--	19	--	--	.06	--	--		87	7	31	.8	253	7.8
Mar. 14		--	--	13	7.4	9.2	1.1	74	--	7.0	--	--	.12	--	--		63	2	24	.5	157	7.9
Apr. 18		--	--	11	6.4	9.6	1.4	78	--	8.2	--	--	.16	--	--		54	0	27	.6	160	7.6
May 16		17	0.00	11	4.8	11	1.0	64	10	8.2	0.1	0.7	.06	96	0.13		47	0	33	.7	149	7.3
June 20		--	--	12	7.6	15	1.2	81	--	12	--	--	.06	--	--		61	0	34	.8	190	7.8
July 20		--	--	13	8.4	17	1.9	76	--	12	--	--	.14	--	--		67	5	35	.9	210	7.1
Aug. 26		--	--	15	7.9	17	1.3	99	--	12	--	--	.12	--	--		70	0	34	.9	220	7.3
Sept. 23		26	.01	18	11	17	1.8	118	14	14	.2	.6	.07	161	.22		89	0	29	.8	257	7.6

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SAN JOAQUIN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		18	--	16	9.0	15	1.5	84	--	29	--	--	0.04	--	--		77	8	29	0.7	245	7.9
Nov. 17		--	--	19	11	21	1.5	76	--	46	--	--	.01	--	--		94	32	32	.9	299	7.7
Dec. 10		15	0.15	12	5.4	9.3	1.4	53	8.4	15	0.5	1.8	.00	95	0.13		52	9	27	.6	153	7.6
Jan. 19, 1955		17	.20	16	7.3	13	1.6	56	13	28	.2	4.2	.05	128	.17		70	24	28	.7	214	7.8
Feb. 14		16	.10	21	12	19	1.5	78	19	38	.3	2.8	.02	168	.23		100	36	29	.8	295	7.8
Mar. 17		18	.07	17	8.7	15	1.3	78	11	26	.2	.9	.07	136	.18		78	14	29	.7	233	7 5
Apr. 18		21	.04	15	6.7	12	1.4	80	9.2	13	.1	.9	.10	118	.16		65	0	28	.6	186	7 5
May 16		19	.00	12	5.4	9.9	1.1	58	7.7	14	.1	.8	.08	99	.13		52	4	29	.6	156	7 4
June 23		19	.09	14	8.8	18	1.3	81	16	21	.2	.9	.07	139	.19		71	5	35	.9	231	7 8
July 18		22	.13	19	11	23	1.8	97	14	32	.0	.7	.10	172	.23		92	12	35	1.0	288	7 1
Aug. 25		22	.00	16	8.3	18	1.5	102	12	15	.1	.5	.14	144	.20		74	0	34	.9	236	7.5
Sept. 21		24	.03	19	12	24	1.8	127	15	22	.2	.6	.08	182	.25		96	0	35	1.1	303	7.7

SAN JOAQUIN RIVER AT ANTIOCH, CALIF.

LOCATION.--At tidal gage at Antioch, Contra Costa County, and 4.5 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Tidal gaging station maintained and operated by State of California Division 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 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Nov. 16, 1954		20	--	19	16	76	4.1	99	--	118	--	--	0.14	--	--		114	33	58	3.1	614	7.9
Dec. 16		18	0.16	18	9.4	24	2.0	80	23	36	0.3	2.0	.02	172	0.23		84	18	38	1.1	292	7.9
Jan. 21, 1955		23	.10	26	13	35	2.0	83	45	54	.3	5.3	.00	245	.33		118	50	39	1.4	418	7.5
Feb. 16		20	.11	24	13	36	2.5	88	42	50	.3	3.3	.11	234	.32		113	41	40	1.5	401	7.6
Mar. 16		21	.10	22	12	33	2.1	89	35	47	.2	2.3	.14	219	.30		104	31	40	1.4	381	7.7
Apr. 20		18	.08	22	23	126	6.2	88	48	218	.3	1.8	.17	506	.69		150	78	63	4.5	955	7.5
May 19		20	.03	13	7.2	15	1.5	69	14	16	.0	.6	.18	121	.16		62	5	34	.8	192	7.5
June 22		14	.04	18	28	184	8.0	69	59	314	.2	2.7	.31	662	.90		162	105	70	6.3	1,270	7.4
July 19		12	--	51	87	740	31	83	192	1,280	.4	1.8	.33	2,440	3.82		486	418	75	15	4,400	7.6
July 20		13	.16	31	52	398	17	79	195	625	.2	2.0	.30	1,370	1.86		292	227	73	10	2,550	7.1
Aug. 24		9.4	.09	61	138	1,040	42	94	294	1,950	.3	2.3	.53	3,580	4.87		720	643	75	17	6,530	7.5
Sept. 22		17	.09	33	54	405	17	104	114	720	.3	1.2	.24	1,410	1.92		303	218	73	10	2,630	7.7

SACRAMENTO RIVER BASIN

SACRAMENTO RIVER AT DELTA, CALIF.

LOCATION.--On right bank just above gaging station, 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, Shasta County, and 2.8 miles south of La Moine.
DRAINAGE AREA.--427 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1955.
Water temperatures: June to September 1951, October 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 73°F Aug. 8-11; minimum, 37°F Feb. 27.
EXTREMES, 1951, 1953-55.--Water temperatures: Maximum, 75°F Aug. 20, 1951; minimum, 37°F Feb. 27, 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct 12, 1954	248	29	--	9.1	6.9	9.3	1.1	75	--	7.0	--	--	0.11	--	--		51	0	28	0.6	146	7.9
Nov 17	1,190	19	--	6.1	6.5	3.6	.5	54	--	2.2	--	--	.10	--	--		42	0	16	.2	98.0	7.7
Jan. 19, 1955	512	--	--	8.0	6.3	6.4	.7	63	--	6.0	--	--	.08	--	--		46	0	23	.4	115	7.9
Feb. 10	629	--	--	5.7	8.0	5.7	.6	64	--	4.4	--	--	.06	--	--		47	0	21	.4	116	7.8
Mar. 10	646	--	--	6.1	7.5	5.7	.7	64	--	3.9	--	--	.04	--	--		46	0	21	.4	115	7.9
Mar. 28	985	--	--	2.3	9.1	4.2	.7	58	--	2.4	--	--	.07	--	--		43	0	17	.3	99.8	7.0
Apr. 14	781	--	--	5.7	7.0	4.1	.5	59	--	3.2	--	--	.10	--	--		43	0	17	.3	102	7.7
May 16	1,240	18	0.01	5.7	6.0	3.2	.4	53	2.5	2.0	0.1	0.1	.04	64	0.09		39	0	15	.2	87.2	7.9
June 22	358	--	--	7.2	7.8	6.9	.7	72	--	5.5	--	--	.12	--	--		50	0	23	.4	127	7.9
July 13	248	--	--	8.9	7.5	8.8	.9	77	--	6.5	--	--	.28	--	--		53	0	26	.5	141	7.8
July 18	a232	25	--	10	6.9	9.5	1.0	80	2.9	6.2	.0	.0	.19	101	.14		53	0	27	.6	146	8.2
Sept. 13	158	29	.02	11	6.4	15	1.5	84	5.0	8.9	.1	.1	.25	118	.16		54	0	37	.9	163	7.9

a Daily mean discharge.

SACRAMENTO RIVER AT DELTA, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

SACRAMENTO RIVER BASIN--Continued

PIT RIVER NEAR MONTGOMERY CREEK, CALIF.

LOCATION.--At gaging station, 1 mile upstream from Cow Canyon Creek and 3.5 miles west of the town of Montgomery Creek, Shasta County.
DRAINAGE AREA.--5,170 square miles, approximately, excluding Goose Lake basin.
RECORDS AVAILABLE.--Water temperatures: June to September 1951, October 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 68°F July 24-25, 30-31; minimum, 40°F Dec. 27.
EXTREMES, 1951, 1953-55.--Water temperatures: Maximum, 80°F July 22, 1951; minimum, 40°F Dec. 27, 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to July 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 11, 1954 ...	a2,990	33	--	11	6.5	10	2.2	90	--	3.0	--	--	0.04	--	--		54	0	28	0.6	157	7.6
Feb. 10, 1955 ...	4,040	--	--	9.7	7.3	10	1.9	90	--	3.5	--	--	.00	--	--		54	0	28	.6	148	8.0
May 12	4,680	29	0.08	12	4.9	9.2	2.2	80	3.5	3.0	0.2	0.4	.06	103	0.14		50	0	27	.6	138	7.7
June 21	4,040	--	--	10	7.1	11	2.3	91	--	4.0	--	--	.06	--	--		54	0	30	.7	153	7.9
July 14	2,560	--	--	12	6.3	11	2.2	92	--	4.0	--	--	.11	--	--		56	0	29	.6	153	7.8
July 18.....	a2,480	28	--	15	4.9	11	2.0	89	4.0	4.5	.0	.0	.16	114	.16		58	0	28	.6	159	7.7

a Daily mean discharge.

PIT RIVER NEAR MONTGOMERY CREEK, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

SACRAMENTO RIVER BASIN--Continued

McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.

LOCATION.--At gaging station just upstream from Shasta Lake, 0.2 mile downstream from Big Bollibokka Creek and 11.5 miles east of La Moine, Shasta County.
DRAINAGE AREA.--606 square miles.
RECORDS AVAILABLE.--Water temperatures: June to September 1951, October 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 56°F June 10-13; minimum, 38°F Jan. 18.
EXTREMES, 1951, 1953-55.--Water temperatures: Maximum, 56°F June 10-13, 1955; minimum, 38°F Jan. 18, 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 11, 1954 ...	1,100	36	--	8.6	3.8	4.6	1.4	58	--	0.8	--	--	0.00	--	--		37	0	20	0.3	95.2	7.6
May 16, 1955 ...	1,780	27	0.01	11	2.6	4.0	.9	57	2.3	1.0	0.0	0.2	.02	77	0.10		38	0	18	.3	92.7	7.9
June 22.....	1,150	--	--	10	3.2	4.8	1.2	59	--	1.0	--	--	.01	--	--		38	0	21	.3	97.4	7.8
July 13.....	1,000	--	--	9.3	3.8	5.1	1.4	61	--	1.2	--	--	.02	--	--		39	0	21	.4	97.4	7.8
July 18.....	a982	33	--	10	3.9	5.4	1.5	62	1.8	1.5	.0	.0	.01	88	.12		41	0	22	.4	98.7	8.1
Sept. 13.....	916	33	.00	11	2.1	4.6	1.5	57	1.6	.9	.0	.1	.00	83	.11		36	0	21	.3	96.5	7.7

a Daily mean discharge.

McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	48	48	46	45	42	42	42	42	44	43	46	45	47	46	48	45	51	48	53	51	54	52	52	51
2	48	47	46	46	43	42	42	40	43	42	46	46	46	44	48	45	52	49	53	51	55	53	53	52
3	47	47	46	46	44	43	40	40	42	42	46	46	44	43	48	47	53	50	52	50	55	53	54	53
4	48	47	46	46	43	43	40	40	43	42	46	45	44	43	48	46	54	51	53	50	54	52	54	52
5	48	48	46	45	45	43	41	40	43	43	45	45	46	44	49	46	54	52	53	51	54	52	54	53
6	49	48	46	45	45	44	41	40	44	44	46	45	46	45	50	47	54	52	53	51	54	52	54	53
7	49	49	46	46	45	44	40	40	44	44	46	46	47	46	50	47	54	52	52	50	54	53	54	52
8	49	49	47	46	44	43	41	41	45	44	46	45	47	46	50	48	54	52	52	51	54	53	53	52
9	49	48	47	47	42	40	42	41	45	45	46	46	47	47	50	47	55	52	53	52	54	52	53	52
10	48	48	47	47	41	41	43	42	45	44	47	46	47	47	51	48	56	54	53	51	55	53	52	52
11	48	48	48	47	41	40	43	42	45	44	47	46	47	45	51	49	56	54	53	51	55	53	52	52
12	48	48	48	47	41	40	42	42	45	45	47	47	47	45	51	49	56	54	53	51	55	53	52	52
13	48	48	47	46	41	41	43	42	45	45	47	46	48	47	50	48	56	53	54	52	54	52	52	52
14	48	48	46	46	42	41	43	42	45	45	46	45	48	46	49	48	54	51	54	52	54	52	53	52
15	48	48	47	46	42	42	42	41	45	45	45	44	46	45	48	46	53	51	55	53	54	52	52	51
16	48	48	47	47	41	41	42	41	45	45	45	44	46	45	48	46	53	51	55	53	53	51	52	51
17	49	48	47	47	41	41	42	41	45	45	45	44	46	45	50	48	54	51	54	51	53	51	52	51
18	48	47	47	46	41	41	41	38	45	43	45	45	45	43	51	48	54	51	53	51	53	51	51	50
19	49	48	46	46	41	41	42	41	43	43	45	45	45	43	52	50	54	52	54	52	53	51	51	50
20	49	48	46	46	41	41	42	42	43	43	45	44	43	43	54	51	55	53	54	52	54	53	51	50
21	48	48	46	46	41	41	43	42	44	43	45	44	44	43	54	51	55	53	54	52	54	53	51	50
22	48	48	46	46	41	41	44	44	45	34	46	45	46	44	53	50	55	52	54	52	54	53	50	49
23	48	47	46	46	42	41	44	45	45	45	47	46	47	45	52	50	54	52	54	52	54	53	50	49
24	47	46	46	45	42	42	43	43	46	45	47	46	47	44	52	51	53	51	54	53	54	53	50	49
25	46	45	45	45	42	41	43	43	46	46	47	47	47	43	52	49	54	52	54	52	54	52	50	49
26	45	45	45	45	41	40	43	43	46	44	47	46	45	43	52	49	54	52	54	52	53	52	50	49
27	46	45	45	45	40	39	43	43	45	44	47	47	45	43	52	49	54	52	54	52	53	52	49	49
28	46	45	45	44	40	39	43	43	45	45	47	47	45	45	52	49	54	52	54	52	53	52	49	49
29	46	45	44	43	41	40	44	43	--	--	47	46	45	45	52	50	52	50	53	52	53	52	49	48
30	46	45	43	42	41	41	44	44	--	--	46	44	47	45	52	51	53	51	54	52	53	51	49	48
31	45	44	--	--	41	41	44	44	--	--	47	44	--	--	52	49	--	--	54	52	52	51	--	--
Average	48	47	46	46	42	41	42	42	44	44	46	45	46	45	51	48	54	52	54	52	54	52	52	51

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT KESWICK, CALIF.

LOCATION.--At gaging station 0.6 mile downstream from Keswick Dam, Shasta County, 0.6 mile upstream from Middle Creek, 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954	6,140	21	--	9.5	4.0	4.6	1.1	58	--	1.5	--	--	0.03	--	---		40	0	19	0.3	104	7.8
Nov. 16	5,170	24	--	10	4.6	5.1	1.2	54	--	1.5	--	--	.02	--	---		44	0	20	.3	114	7.7
Dec. 29	6,320	--	--	8.7	5.5	6.2	1.2	64	--	3.0	--	--	.06	--	---		44	0	23	.4	118	7.2
Jan. 19, 1955	8,750	--	--	11	3.5	6.0	1.0	57	--	3.0	--	--	.02	--	---		42	0	23	.4	110	7.9
Feb. 10	4,280	--	--	9.7	6.2	7.9	1.8	73	--	2.8	--	--	.00	--	---		50	0	25	.5	133	7.8
Mar. 8	3,120	--	--	8.8	5.6	7.0	1.9	67	--	2.9	--	--	.00	--	---		45	0	24	.5	118	7.9
Apr. 14	7,530	--	--	11	4.8	7.3	1.5	71	--	3.5	--	--	.06	--	---		47	0	24	.5	127	7.5
May 12	6,370	25	0.05	11	4.8	7.3	1.5	67	8.0	3.0	0.1	0.2	.06	94	0.13		47	0	24	.5	127	7.4
June 20	9,090	--	--	11	4.8	6.9	1.3	70	--	2.8	--	--	.04	--	--		47	0	24	.4	124	7.9
July 18	11,300	--	--	11	5.0	7.3	1.4	71	--	3.0	--	--	.07	--	--		48	0	24	.5	125	7.4
Sept. 13	7,740	24	.00	12	3.7	5.6	1.3	66	3.0	1.8	.1	.1	.09	85	.12		45	0	21	.4	119	7.6

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 September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 10, 1954	5,910	21	--	10	3.7	4.6	0.9	58	--	1.5	--	--	0.03	--	--		40	0	20	0.3	104	7.6
Nov. 16	4,970	24	--	10	4.6	5.3	1.3	53	--	2.5	--	--	.02	--	--		44	1	20	.3	117	7.1
Dec. 29	6,420	--	--	8.3	6.0	6.3	1.4	64	--	2.8	--	--	.02	--	--		45	0	23	.4	121	7.4
Jan. 19, 1955	7,400	--	--	11	4.0	6.8	1.4	64	--	3.0	--	--	.00	--	--		44	0	24	.4	112	8.1
Feb. 9	4,360	--	--	11	5.3	8.2	1.6	72	--	3.2	--	--	.00	--	--		49	0	26	.5	123	7.8
Mar. 8	3,000	--	--	8.1	6.3	7.4	1.6	66	--	2.8	--	--	.00	--	--		46	0	25	.5	120	7.9
Apr. 13	6,050	--	--	11	4.8	7.1	1.4	71	--	3.2	--	--	.06	--	--		47	0	24	.5	128	7.8
May 11	5,540	25	0.06	11	4.8	7.4	1.4	66	8.5	3.2	0.1	0.2	.06	95	0.13		47	0	25	.5	135	7.4
June 20	8,920	--	--	10	5.1	7.1	1.3	69	--	2.8	--	--	.02	--	--		46	0	24	.5	125	7.6
July 14	11,200	--	--	10	5.1	7.1	1.4	70	--	2.8	--	--	.05	--	--		46	0	24	.5	121	8.0
Sept. 12	7,200	23	.03	13	3.0	6.0	1.3	66	3.0	2.0	.1	.4	.05	85	.12		45	0	20	.4	117	7.8

SACRAMENTO RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 13, 1954	130	--	--	18	8.5	8.3	1.3	100	--	7.2	--	--	0.05	--	--		80	0	18	0.4	190	7.8
Nov. 10	343	--	--	28	6.8	14	1.5	111	--	24	--	--	.09	--	--		98	7	23	.6	292	7.7
Dec. 6	3,510	--	--	8.1	5.1	5.6	1.5	47	--	6.8	--	--	.10	--	--		41	2	22	.4	112	7.5
Jan. 10, 1955	492	--	--	26	10	11	.9	122	--	13	--	--	.02	--	--		108	8	18	.5	263	8.0
Feb. 7	520	--	--	28	12	12	.8	138	--	9.5	--	--	.03	--	--		121	8	18	.5	278	7.9
Mar. 3	369	--	--	27	12	11	1.0	a131	--	11	--	--	.00	--	--		116	9	17	.4	263	8.3
Apr. 1	369	--	--	24	11	9.5	.8	126	--	9.4	--	--	.05	--	--		106	3	16	.4	232	8.0
May 11	804	23	0.02	13	7.4	7.0	2.7	77	9.8	2.8	0.2	1.2	.16	105	0.14		63	0	19	.4	150	7.1
June 15	239	--	--	21	8.4	9.3	1.7	112	--	6.2	--	--	.07	--	--		87	0	19	.4	203	8.1
July 13	88	--	--	17	12	8.7	1.2	117	--	6.5	--	--	.16	--	--		92	0	17	.4	214	8.1
July 19	b74	26	--	21	8.2	8.6	1.5	112	5.4	6.7	.0	.5	.00	133	.18		86	0	18	.4	206	7.8
Aug. 17	67	--	--	14	8.8	8.3	1.4	99	--	4.0	--	--	.08	--	--		71	0	20	.4	172	7.3
Sept. 14	85	27	.05	14	7.4	8.3	1.8	92	4.0	3.5	.3	.5	.02	112	.15		66	0	21	.4	165	7.2

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Daily mean discharge.

SACRAMENTO RIVER AT BEND, CALIF.

LOCATION.--At highway bridge at Bend 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, Tehama County.
DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin (above gaging station near Red Bluff).
RECORDS AVAILABLE.--Chemical analyses: May to September 1955.
Water temperatures: May to September 1955.
EXTREMES, 1955.--Water temperatures: Maximum, 60°F May 12.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Daily samples for chemical analyses composited by discharge. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Discharge records for gaging station near Red Bluff, Calif. for water year October 1954 to September 1955 given in WSP 1395. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, May to September 1955

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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-4, 1955	8,435	25	0.07	14	4.9	7.2	1.7	71	11	3.0	0.0	0.6	0.00	91	0.12	2,070	55	0	21	0.4	139	7.5
May 5-13	7,739	25	.04	13	4.8	6.9	1.4	71	9.3	2.0	.0	.3	.00	98	.13	2,050	52	0	22	.4	134	7.7
May 14-23	8,401	25	.01	13	4.3	8.0	1.6	71	8.0	3.5	.1	.5	.01	94	.13	2,130	50	0	25	.5	134	7.7
May 24-31	7,286	26	.00	12	5.1	7.0	1.4	71	8.2	2.0	.0	.3	.12	95	.13	1,870	51	0	22	.4	129	7.7
June 1-10	8,004	27	.01	11	5.2	8.1	1.8	72	4.9	3.8	.1	.5	.06	92	.13	1,990	49	0	26	.5	133	7.5
June 11-20	8,890	27	.03	12	4.9	7.4	2.1	72	5.6	3.5	.2	.5	.05	94	.13	2,260	50	0	23	.5	131	7.2
June 21-30	10,170	26	.05	11	5.2	7.9	2.2	71	5.1	3.8	.3	.9	.10	97	.13	2,660	49	0	25	.5	133	7.2
July 1-10	11,360	26	.05	11	5.5	7.9	2.5	71	5.1	3.2	.3	.8	.05	96	.13	2,940	50	0	24	.5	138	7.2
July 11-20	11,290	23	.05	11	5.1	6.9	2.1	71	5.7	2.4	.2	.8	.07	88	.12	2,680	48	0	23	.4	136	7.2
July 21-31	10,890	23	.04	11	5.2	6.9	2.1	71	5.0	2.6	.2	.8	.05	89	.12	2,620	49	0	22	.4	133	7.1
Aug. 1-10	11,210	25	.02	11	5.0	7.7	1.9	70	4.0	3.0	.1	.6	.08	94	.13	2,850	48	0	25	.5	130	7.7
Aug. 11-20	10,510	28	.03	11	5.0	7.6	2.1	70	4.0	3.0	.2	.7	.01	96	.13	2,720	48	0	25	.5	130	7.5
Aug. 21-31	8,859	27	.02	11	5.0	7.7	1.4	71	3.0	3.0	.1	.2	.06	98	.13	2,340	48	0	25	.5	128	7.8
Sept. 1-10	8,495	25	.01	11	5.0	6.9	1.4	69	3.0	3.0	.1	.4	.11	94	.13	2,160	48	0	23	.4	125	7.7
Sept. 11-20	7,392	26	.02	11	5.0	6.7	1.4	69	4.0	3.0	.1	.4	.07	93	.13	1,860	48	0	23	.4	126	7.6
Sept. 21-30	5,868	26	.01	12	4.4	6.8	1.4	69	4.0	3.2	.1	.5	.05	94	.13	1,490	48	0	23	.4	127	7.4

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT BEND, CALIF.--Continued

Temperature (°F) of water, May to September 1955
/Once-daily measurement at approximately 5 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								54	55	54	55	56
2								54	59	54	55	56
3								55	59	55	56	57
4								56	58	55	55	57
5								57	57	55	55	57
6								58	58	55	54	57
7								58	59	56	56	57
8								58	53	55	55	56
9								58	55	55	56	57
10								59	53	54	55	56
11								59	53	55	55	56
12								60	52	55	55	56
13								56	53	58	55	56
14								56	48	58	55	55
15								54	52	55	55	56
16								54	52	55	55	55
17								52	52	55	55	55
18								58	55	57	55	55
19								60	55	55	55	56
20								58	58	57	56	56
21								59	56	55	--	56
22								57	50	55	56	57
23								57	56	56	55	56
24								57	56	56	--	56
25								57	56	55	--	55
26								55	54	55	56	55
27								55	56	56	56	55
28								55	53	55	55	55
29								54	54	55	55	55
30								55	59	56	55	55
31								56	--	56	--	55
Average								56	55	55	55	56

MILL CREEK NEAR LOS MOLINOS, CALIF.

LOCATION.--At bridge on U. S. Highway 99, 4.5 miles below gaging station near Los Molinos, Tehama County.
DRAINAGE AREA.--134 square miles, above gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395. Records of discharge for gaging station near Los Molinos, Calif. Considerable diversion between gaging station and sampling point.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct 13, 1954	130	--	--	13	5.3	17	2.5	64	--	20	--	--	0.43	--	--		54	2	39	1.0	195	7.9
Nov. 10	151	--	--	13	6.2	18	2.7	63	--	24	--	--	.65	--	--		58	6	39	1.0	214	7.7
Dec. 7	375	--	--	8.1	4.6	10	1.7	47	--	13	--	--	.35	--	--		39	0	35	.7	131	7.2
Jan. 11, 1955	164	--	--	13	4.0	14	1.9	62	--	16	--	--	.37	--	--		49	0	37	.9	171	7.8
Feb. 7	161	--	--	13	5.7	16	2.2	66	--	17	--	--	.46	--	--		56	2	37	.9	186	7.8
Mar. 7	156	--	--	13	5.0	16	2.6	64	--	18	--	--	.25	--	--		53	1	38	1.0	186	8.1
Apr. 4	225	--	--	7.7	5.1	12	2.1	54	--	13	--	--	.39	--	--		40	0	38	.8	145	7.8
May 11	466	27	0.05	7.6	2.4	7.3	1.6	36	10	6.5	0.1	0.2	.19	81	0.11		29	0	34	.6	101	7.4
June 15	258	--	--	12	1.1	11	3.1	38	--	9.0	--	--	.06	--	--		35	4	38	.8	130	7.9
July 13	125	--	--	15	7.9	15	3.1	81	--	16	--	--	.52	--	--		70	4	31	.8	214	7.6
July 19	--	37	--	19	5.7	15	3.7	85	17	16	.0	.2	.41	156	.21		71	1	33	.8	223	7.6
Aug. 17	94	--	--	16	9.3	17	3.2	92	--	18	--	--	.49	--	--		78	3	31	.8	235	7.4
Sept. 14	94	40	.04	18	9.3	16	3.8	98	16	19	.0	.5	.46	171	.23		83	3	28	.8	252	7.3

SACRAMENTO RIVER BASIN--Continued

DEER CREEK AT VINA, CALIF.

LOCATION.--At gaging station downstream from U. S. Highway 99, 1 mile north of Vina, Tehama County and 2.6 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 11, 1954	20	--	--	13	6.1	11	2.0	92	--	6.5	--	--	0.19	--	--		58	0	28	0.6	162	7.9
Nov. 10	128	--	--	13	7.2	11	1.8	90	--	6.0	--	--	.12	--	--		62	0	27	.6	167	8.0
Dec. 7	643	--	--	7.8	5.1	5.6	1.2	60	--	3.0	--	--	.09	--	--		40	0	23	.4	90.6	7.4
Jan. 11, 1955	158	--	--	12	5.4	8.6	1.3	82	--	4.2	--	--	.03	--	--		52	0	26	.5	145	7.8
Feb. 7	144	--	--	12	6.5	9.0	1.6	83	--	4.0	--	--	.09	--	--		56	0	25	.5	146	7.8
Mar. 2	122	--	--	12	6.8	8.9	1.5	84	--	4.5	--	--	.10	--	--		58	0	24	.5	144	7.8
Apr. 4	127	--	--	7.7	7.0	7.0	1.3	76	--	2.5	--	--	.07	--	--		48	0	24	.4	121	7.8
May 11	114	27	0.00	8.5	3.8	4.8	1.3	52	1.1	1.2	0.2	0.3	.01	74	0.10		37	0	21	.3	88.0	7.5
June 15	6	--	--	13	9.9	10	2.1	a113	--	4.0	--	--	.13	--	--		73	0	22	.5	185	8.3
July 13	2	--	--	17	16	14	2.7	b164	--	5.0	--	--	.22	--	--		107	0	22	.6	256	8.4
July 19	--	37	--	33	5.8	14	2.8	159	3.8	5.4	.0	.1	.12	180	.24		106	0	22	.6	261	8.0
Aug. 17	.4	--	--	27	20	16	2.9	215	--	6.0	--	--	.18	--	--		149	0	19	.6	332	8.0
Sept. 14	1.5	46	.00	34	14	15	3.1	203	4.8	6.5	.1	.1	.12	224	.30		142	0	18	.5	326	8.0

a Includes equivalent of 3 parts per million of carbonate (CO_3).
b Includes equivalent of 6 parts per million of carbonate (CO_3).

SACRAMENTO RIVER NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station on bridge, 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	6,340	24	--	12	3.9	6.2	1.1	65	--	2.0	--	--	0.04	--	--		46	0	22	0.4	121	7.9
Nov. 11.....	7,420	--	--	12	4.6	7.9	2.1	58	--	7.0	--	--	.07	--	--		49	1	25	.5	135	7.4
Dec. 7.....	25,700	--	--	9.3	3.4	4.9	1.0	44	--	3.0	--	--	.04	--	--		37	1	22	.4	96.6	7.3
Jan. 11, 1955.....	11,200	--	--	11	4.9	6.8	1.0	66	--	4.8	--	--	.00	--	--		48	0	23	.4	130	7.8
Feb. 7.....	7,400	--	--	15	6.7	8.8	1.2	84	--	5.0	--	--	.06	--	--		65	0	22	.5	158	7.9
Mar. 7.....	5,320	--	--	14	6.8	9.5	1.5	84	--	5.0	--	--	.10	--	--		63	0	24	.5	161	7.9
Apr. 4.....	5,140	--	--	12	6.1	8.7	1.5	78	--	3.2	--	--	.06	--	--		55	0	25	.5	144	7.6
May 12.....	7,550	25	0.04	12	5.4	6.9	1.3	70	7.3	4.2	0.0	0.3	.04	96	0.13		52	0	22	.4	134	7.7
June 16	6,830	--	--	13	3.9	7.8	1.5	72	--	3.2	--	--	.08	--	--		48	0	25	.5	133	8.0
July 14.....	8,980	--	--	11	5.2	7.7	1.3	73	--	3.2	--	--	.10	--	--		49	0	25	.5	129	7.7
Aug. 18.....	7,870	--	--	12	5.1	7.4	1.6	74	--	3.2	--	--	.00	--	--		51	0	23	.5	133	7.4
Sept. 15.....	6,700	27	.03	11	5.3	6.0	1.3	70	5.2	2.0	.2	.2	.01	92	.13		49	0	20	.4	127	7.8

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SACRAMENTO RIVER BASIN--Continued

BIG CHICO CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station in Arroyo Chico Grant, 1 mile upstream from golf clubhouse in Municipal Park and 6 miles northeast of Chico, Butte County.
DRAINAGE AREA.--68.3 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954....	31	40	--	17	7.9	14	1.3	108	--	10	--	--	0.16	--	--		75	0	28	0.7	207	8.1
Nov. 11.....	39	--	--	15	7.4	13	1.2	91	--	12	--	--	.12	--	--		68	0	29	.7	191	7.9
Dec. 8	157	--	--	7.7	5.2	5.3	.6	56	--	5.3	--	--	.04	--	--		41	0	22	.4	104	7.2
Jan. 11, 1955 ...	67	--	--	13	6.1	10	.7	81	--	8.8	--	--	.13	--	--		58	0	27	.6	166	8.0
Feb. 7.....	84	--	--	12	5.1	7.9	1.0	71	--	5.0	--	--	.06	--	--		51	0	25	.5	132	8.0
Mar. 7.....	98	--	--	11	6.2	7.6	.8	71	--	5.0	--	--	.00	--	--		53	0	23	.5	130	7.8
Apr. 4.....	66	--	--	9.4	7.9	8.8	.9	82	--	5.8	--	--	.09	--	--		56	0	25	.5	142	7.9
May 12	102	34	0.00	11	6.0	6.9	.9	71	3.6	6.0	0.0	0.1	.02	104	0.14		52	0	22	.4	130	7.8
June 16.....	38	--	--	15	7.3	12	1.3	98	--	8.3	--	--	.10	--	--		67	0	27	.6	185	8.0
July 14.....	28	--	--	16	8.0	14	1.3	108	--	10	--	--	.24	--	--		73	0	29	.7	201	8.0
July 20.....	a 25	38	--	22	4.4	14	1.3	107	4.9	11	.0	.1	.16	149	.20		73	0	29	.7	205	7.8
Aug. 18.....	25	--	--	16	9.8	15	1.4	115	--	12	--	--	.24	--	--		80	0	28	.7	206	8.0
Sept. 15.....	37	42	.00	17	8.2	14	1.6	110	4.6	10	.2	.2	.00	152	.21		76	0	28	.7	210	8.2

a Daily mean discharge (cfs).

STONY CREEK NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station in Capay Grant, 2.3 miles southwest of Hamilton City, Glenn County, 6 miles upstream from mouth and 8 miles east of Orland.
DRAINAGE AREA.--764 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to July 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, October 1954 to July 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954 ...	19	10		40	16	17	1.1	197	--	17	--	--	0.21	--	--		164	2	18	0.6	379	8.2
Nov. 11.....	25	--		40	16	18	1.1	184	--	23	--	--	.18	--	--		166	15	19	.6	388	8.1
Dec. 7	256	--		31	12	17	1.2	128	--	26	--	--	.09	--	--		125	20	23	.7	328	7.7
Jan. 11, 1955....	106	--		38	15	17	.7	a168	--	26	--	--	.04	--	--		156	18	19	.6	381	8.3
Feb. 7.....	100	--		41	16	20	.6	b174	--	29	--	--	.09	--	--		168	25	20	.7	404	8.4
Feb. 23.....	65	11		39	9.4	16	.7	134	27	26	0.1	0.2	.02	195	0.27		136	26	20	.6	338	7.6
Mar. 2	56	--		42	16	18	.9	176	--	26	--	--	.00	--	--		169	25	19	.6	394	8.2
Apr. 4.....	0	--		39	18	18	.7	193	--	21	--	--	.10	--	--		170	12	19	.6	390	8.0
May 12	1.2	14	0.01	39	14	18	.9	174	21	25	.1	.6	.15	219	.30		156	13	20	.6	376	7.9
July 19	--	25		16	5.2	8.4	1.3	88	5.1	4.5	.0	.1	.06	109	.15		61	0	22	.5	159	8.2

a Includes equivalent of 4 parts per million of carbonate (CO_3).
b Includes equivalent of 7 parts per million of carbonate (CO_3).

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT BUTTE CITY, CALIF.

LOCATION.--At highway bridge just below gaging station, 0.5 mile south of Butte City, Glenn County.
RECORDS AVAILABLE.--Chemical analyses: May to September 1955.
Water temperatures: May to September 1955.
EXTREMES, 1955.--Water temperatures: Maximum, 74°F June 5, 7.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Daily samples for chemical analyses composited by discharge. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, May to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-10, 1955...	8,213	31	0.05	13	6.7	7.3	1.8	76	10	4.0	0.2	0.5	0.08	106	0.14	2,350	60	0	20	0.4	153	7.3
May 11-20.....	6,957	30	.02	13	6.0	7.3	1.6	76	8.2	3.5	.2	.6	.01	107	.15	2,010	57	0	21	.4	145	7.4
May 21-31.....	6,384	31	.00	13	5.5	8.0	1.5	78	6.6	3.8	.2	.4	.05	113	.15	1,950	55	0	23	.5	144	7.4
June 1-10	5,929	29	.02	13	5.5	8.3	1.8	78	5.9	4.0	.1	.8	.08	104	.14	1,660	55	0	24	.5	145	7.4
June 11-20	6,532	28	.02	12	5.8	8.1	2.0	77	5.4	3.8	.2	.6	.06	100	.14	1,760	54	0	24	.5	141	7.3
June 21-30	7,432	27	.02	12	5.1	8.3	2.3	76	5.2	3.2	.2	.7	.07	98	.13	1,970	51	0	25	.5	136	7.3
July 1-10.....	8,701	27	.02	12	4.9	8.1	2.2	75	5.1	3.2	.1	.6	.02	96	.13	2,260	50	0	25	.5	135	7.3
July 11-20.....	8,634	28	.03	12	5.1	8.0	1.6	76	4.9	3.0	.2	.4	.04	98	.13	2,280	51	0	25	.5	135	7.4
July 21-31.....	8,260	27	.02	12	5.6	7.8	1.8	75	4.9	3.0	.1	.4	.07	94	.13	2,100	53	0	23	.5	135	7.5
Aug. 1-10.....	8,332	27	.02	12	5.1	7.3	1.7	75	3.0	3.0	.1	.4	.16	100	.14	2,250	51	0	23	.4	134	7.3
Aug. 11-20.....	7,986	26	.03	12	4.9	7.0	2.0	73	3.0	3.0	.1	.8	.01	98	.13	2,110	50	0	22	.4	132	7.4
Aug. 21-31.....	6,645	27	.01	12	5.6	7.2	1.6	75	5.0	3.2	.1	.3	.11	98	.13	1,760	53	0	22	.4	136	7.3
Sept. 1-10.....	6,686	29	.00	12	5.6	7.2	1.4	75	3.0	3.0	.1	.3	.13	98	.13	1,770	53	0	22	.4	134	7.4
Sept. 11-20.....	6,463	27	.01	12	5.6	7.1	1.8	74	4.0	3.2	.1	.4	.11	109	.15	1,900	53	0	22	.4	137	7.3
Sept. 21-30	5,377	26	.03	12	5.8	7.3	1.9	77	3.0	3.5	.1	.5	.01	103	.14	1,500	54	0	22	.4	141	7.5

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT BUTTE CITY, CALIF.--Continued

Temperature (°F) of water, May to September 1955
/Once-daily measurement at approximately 4 p. m. to 6 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								55	64	63	65	66
2								57	67	64	66	65
3								59	66	63	67	66
4								61	68	64	65	66
5								64	71	63	65	66
6								64	74	64	64	66
7								62	64	64	65	66
8								64	74	64	65	65
9								65	61	64	65	65
10								67	67	65	66	65
11								67	67	66	66	65
12								68	67	66	65	64
13								64	66	66	66	64
14								61	63	66	65	63
15								61	62	66	65	63
16								62	64	65	64	63
17								63	66	65	64	63
18								--	66	65	65	62
19								67	67	65	64	63
20								68	66	65	65	63
21								68	67	66	65	63
22								65	65	66	--	63
23								66	66	66	64	64
24								65	64	66	64	64
25								65	65	65	65	63
26								65	53	65	64	63
27								66	68	65	65	63
28								68	63	67	66	63
29								67	62	66	65	62
30								67	62	65	65	62
31								60	--	66	65	--
Average								64	66	65	65	64

SACRAMENTO RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	92	23	--	13	4.0	3.9	0.9	70	--	0.5	--	--	0.00	--	--		49	0	14	0.2	116	8.0
Nov. 11	174	--	--	12	4.6	3.7	1.0	64	--	1.0	--	--	.05	--	--		49	0	14	.2	106	7.7
Dec. 8	393	--	--	8.1	4.3	2.8	.8	51	--	1.6	--	--	.03	--	--		38	0	14	.2	84.0	7.2
Jan. 11, 1955	270	--	--	11	4.5	3.3	.6	61	--	1.5	--	--	.10	--	--		46	0	13	.2	102	7.8
Feb. 7	242	--	--	12	4.0	3.8	.7	63	--	.8	--	--	.00	--	--		46	0	15	.2	105	7.9
Mar. 7	242	--	--	11	4.5	3.8	.8	61	--	1.0	--	--	.00	--	--		46	0	15	.2	103	7.7
Apr. 4	a330	--	--	5.2	5.2	3.4	.8	52	--	.8	--	--	.01	--	--		34	0	17	.3	80.2	7.8
May 12	577	20	0.00	6.8	3.4	2.5	.7	41	1.3	.5	0.0	0.3	.06	56	0.08		31	0	15	.2	67.6	7.4
June 16	227	--	--	9.8	3.4	3.3	.8	56	--	.4	--	--	.00	--	--		38	0	15	.2	93.6	7.8
July 14	160	--	--	16	1.2	3.7	.9	65	--	.5	--	--	.08	--	--		45	0	15	.2	101	7.8
July 20	a160	17	--	14	2.3	3.8	.9	64	2.8	.0	.0	.1	.01	74	.10		44	0	15	.2	105	7.8
Aug. 18	129	--	--	11	5.0	4.1	1.0	68	--	.8	--	--	.04	--	--		48	0	15	.3	108	7.6
Sept. 15	160	23	.00	12	4.2	3.3	.9	66	1.2	.0	.1	.1	.00	78	.11		47	0	13	.2	108	7.7

a Daily mean discharge (cfs).

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by State of California Division of Water Resources. Records of discharge for water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955. This water is the drainage from Colusa basin passing down the Back Barrow Pit and enters the Sacramento River just above Knights Landing gaging station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chlorids (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	347	--	--	36	24	78	2.6	224	--	50	--	--	0.31	--	--		189	5	47	2.5	680	8.1
Nov. 12	1,090	--	--	33	26	100	5.3	200	--	63	--	--	.24	--	--		190	26	52	3.2	804	7.7
Dec. 10	969	--	--	38	34	148	3.9	243	--	101	--	--	.34	--	--		235	36	57	4.2	1,070	8.2
Jan. 12, 1955	470	--	--	49	39	160	2.6	281	--	107	--	--	.21	--	--		282	52	55	4.2	1,220	8.0
Feb. 9	147	--	--	70	59	224	1.2	a352	--	164	--	--	.37	--	--		418	129	54	4.8	1,670	8.4
Mar. 8	92	--	--	51	55	185	2.2	b339	--	126	--	--	.15	--	--		353	75	53	4.3	1,420	8.4
Apr. 5	298	--	--	21	18	42	2.3	158	--	24	--	--	.16	--	--		128	0	41	1.6	432	8.0
May 13	1,000	17	0.10	23	16	51	2.6	174	57	26	0.2	1.1	.20	280	0.38		122	0	47	2.0	453	7.5
June 17	607	--	--	26	16	56	1.5	194	--	28	--	--	.02	--	--		131	0	45	2.1	493	7.8
July 15	699	--	--	23	20	51	1.7	209	--	22	--	--	.22	--	--		138	0	44	1.9	469	7.8
Aug. 19	827	--	--	26	19	48	1.6	205	--	23	--	--	.25	--	--		142	0	42	1.8	453	7.5
Sept. 19	583	18	.05	27	21	51	2.2	207	57	29	.5	1.2	.20	309	.42		153	0	42	1.8	525	7.8

a Includes equivalent of 12 parts per million of carbonate (CO_3).
b Includes equivalent of 10 parts per million of carbonate (CO_3).

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 September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 243 ppm May 28-30; minimum, 83 ppm Apr. 21.
Hardness: Maximum, 115 ppm Aug. 26-28; minimum, 42 ppm Nov. 14, 16-19.
Specific conductance: Maximum daily, 406 micromhos May 29; minimum daily, 106 micromhos Nov. 16.
Water temperatures: Maximum, 70°F on several days during June to September; minimum, 43°F on several days during December and January.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 244 ppm May 12, 19, 1953; minimum, 83 ppm Apr. 21, 1955.
Hardness: Maximum, 115 ppm Aug. 26-28, 1955; minimum, 42 ppm Nov. 14, 16-19, 1954.
Specific conductance: Maximum daily, 447 micromhos Sept. 9, 1952; minimum daily, 99.1 micromhos Mar. 17, 1952.
Water temperatures: Maximum, 78°F July 23, 1952; minimum, 42°F Jan. 3, 9-11, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395. Considerable inflow during irrigation season of return water from drainage canal about 0.3 mile above sampling site. Mixing not complete at sampling site.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	7,438	26	0.02	15	9.1	16	0.8	103	14	9.5	0.1	0.5	0.10	148	0.20	2,970	75	0	31	0.8	220	7.9
Oct. 11-20.....	7,149	26	.01	14	7.6	11	1.6	88	9.4	7.0	.1	.4	.09	124	.17	2,390	66	0	26	.6	182	7.4
Oct. 21-31.....	6,407	25	.04	13	7.3	11	1.4	83	11	7.5	.1	.9	.12	121	.16	2,090	62	0	27	.6	182	7.3
Nov. 1-10.....	6,452	27	.01	14	7.1	10	1.5	87	9.1	7.0	.1	.3	.11	119	.16	2,070	64	0	25	.5	178	7.5
Nov. 11-13, 15, 20	10,880	24	.06	14	6.7	11	1.6	81	11	7.2	.1	.9	.10	120	.16	3,530	62	0	27	.6	180	7.9
Nov. 14, 16-19	17,700	20	.17	9.5	4.5	4.9	1.3	47	6.4	4.5	.2	4.0	.09	90	.12	4,300	42	3	20	.3	114	7.5
Nov. 21-30	9,002	27	.03	16	7.9	14	1.4	95	15	10	.2	.6	.16	140	.19	3,400	72	0	29	.7	215	7.6
Dec. 1	7,050	--	--	16	7.8	14	--	--	--	--	--	--	--	146	.20	2,780	--	--	--	.7	210	--
Dec. 2-10	18,210	21	.14	11	4.6	6.0	1.3	56	7.9	5.0	.2	1.3	.08	99	.13	4,870	46	0	21	.4	129	7.3
Dec. 11, 13, 15-16.	17,180	21	.17	11	5.4	6.3	1.6	61	7.9	5.5	.2	.9	.12	99	.13	4,590	50	0	21	.4	135	7.6
Dec. 12, 14, 17-20	14,120	27	.05	15	9.3	15	1.8	92	19	11	.2	.8	.13	147	.20	5,600	76	1	30	.8	225	7.4
Dec. 21-24, 27-28.	10,570	27	.04	16	9.0	16	1.4	97	17	11	.2	.5	.12	152	.21	4,340	77	0	31	.8	228	7.8
Dec. 25-26, 29-31.	9,924	24	.09	13	6.9	11	1.0	76	11	7.2	.2	.5	.09	120	.16	3,220	61	0	28	.6	169	7.9
Jan. 1-10, 1955...	11,810	26	.07	14	7.6	11	1.2	84	12	8.0	.2	.5	.13	126	.17	4,020	66	0	26	.6	186	7.7
Jan. 11-20	12,660	24	.07	14	7.6	13	1.2	82	15	9.8	.2	.7	.12	129	.18	4,410	66	0	29	.7	189	7.7
Jan.21-22, 25, 29-30	15,160	--	--	14	6.3	11	1.4	77	12	7.2	--	.6	.07	116	.16	4,750	61	0	28	.6	165	7.9
Jan. 23-24, 26-28,31	13,250	--	--	16	8.3	16	1.4	92	17	12	--	.9	.07	142	.19	5,080	74	0	31	.8	214	7.8
Feb. 1-10	9,772	28	.07	17	8.7	17	1.3	96	18	12	.1	.8	.10	145	.20	3,830	78	0	32	.8	223	8.0
Feb. 11-20	8,457	28	.03	16	9.0	15	1.5	98	16	11	.0	.4	.10	139	.19	3,170	77	0	29	.7	217	7.7
Feb. 21-28	8,548	28	.03	15	7.9	13	1.3	93	11	8.5	.0	.2	.12	129	.18	2,980	70	0	28	.7	193	7.8

Mar. 1-10, 1955 ..	7,547	28	.00	16	9.0	14	1.6	99	14	10	.0	.4	.12	137	.19	2,790	77	0	28	.7	216	7.5
Mar. 11-20.....	6,875	29	.00	16	8.0	12	1.5	96	12	8.8	.0	.3	.10	131	.18	2,430	73	0	26	.6	201	7.8
Mar. 21-31.....	5,560	27	.00	15	8.4	14	1.7	96	12	8.8	.0	.1	.10	131	.18	1,970	72	0	29	.7	201	7.7
Apr. 1-10	5,285	29	.06	14	7.8	11	1.6	91	9.1	7.5	.1	.4	.11	122	.17	1,740	67	0	26	.6	131	7.7
Apr. 11-20	4,460	27	.05	14	8.3	13	1.6	93	11	8.5	.1	.4	.10	126	.17	1,520	69	0	28	.7	193	7.8
Apr. 21	6,350	--	--	11	5.7	7.1	--	68	--	--	--	--	--	83	.11	1,420	51	0	--	.4	136	7.0
Apr. 22-30	10,740	24	.10	14	7.3	15	1.8	82	20	9.5	.3	1.0	.12	132	.18	3,830	65	0	33	.8	200	7.5
May 1.....	8,820	--	--	13	6.9	12	--	78	--	--	--	--	--	126	.17	3,000	61	0	--	.7	179	7.9
May 2-10.....	8,297	25	.06	16	8.8	19	1.8	97	19	12	.1	.6	.23	153	.21	3,430	76	0	35	.9	243	7.6
May 11-20.....	7,403	25	.02	17	8.4	20	1.6	103	21	12	.1	.4	.16	155	.21	3,100	77	0	35	1.0	244	7.6
May 21-27, 31	7,072	25	.00	17	9.6	22	1.8	108	22	13	.1	.7	.08	158	.21	3,020	82	0	36	1.1	254	7.6
May 28-30.....	5,557	25	.01	21	14	40	2.1	150	43	25	..2	2.2	.17	243	.33	3,650	110	0	44	1.7	401	7.5
June 1-6	5,283	26	.00	16	10	21	2.2	110	22	12	.1	.5	.05	157	.21	2,240	81	0	35	1.0	249	7.6
June 7-12.....	5,092	28	.00	15	7.4	15	1.6	95	15	7.5	.1	.4	.10	132	.18	1,810	68	0	32	.8	202	7.5
June 13-20	5,648	29	.01	16	9.3	23	1.6	111	23	13	.2	.6	.16	164	.22	2,500	78	0	38	1.1	261	7.4
June 21-30.....	6,127	28	.02	15	7.9	18	1.7	100	17	9.8	.2	.5	.13	142	.19	2,350	70	0	35	.9	220	7.4
July 1-10.....	7,273	28	.02	16	9.3	24	1.7	115	23	13	.2	.5	.17	164	.22	3,220	78	0	39	1.2	271	7.5
July 11-20.....	7,143	28	.01	14	7.6	17	1.5	99	15	8.2	.2	.4	.10	132	.18	2,550	66	0	35	.9	207	7.5
July 21-31.....	7,124	27	.03	14	8.3	18	1.8	102	15	9.0	.2	.5	.11	138	.19	2,650	69	0	35	.9	217	7.5
Aug. 1-10,.....	7,196	29	.02	14	8.5	18	1.9	100	15	9.0	.2	.5	.06	144	.20	2,800	70	0	35	.9	212	7.6
Aug. 11-20.....	7,159	29	.02	15	8.4	18	1.8	105	15	9.0	.2	.6	.14	145	.20	2,800	72	0	35	.9	223	7.6
Aug. 21-25	6,338	28	.02	16	8.3	19	1.7	108	16	9.5	.2	.6	.11	151	.21	2,580	74	0	35	1.0	231	7.5
Aug. 26-28	6,110	26	.04	24	13	40	1.9	166	33	20	.3	.8	.23	242	.33	3,990	115	0	43	1.6	387	8.2
Aug. 29-31	6,293	28	.02	18	11	28	1.6	130	22	13	.2	.5	.23	188	.26	3,190	90	0	40	1.3	291	7.6
Sept. 1-10.....	7,369	29	.01	17	9.6	22	1.7	120	17	11	.2	.4	.06	166	.23	3,300	82	0	36	1.1	260	8.2
Sept. 11-20.....	8,158	32	.02	17	9.1	19	1.7	117	15	10	.2	.4	.16	160	.22	3,520	80	0	33	.9	244	8.2
Sept. 21-30.....	6,430	31	.01	15	7.9	14	1.5	99	10	7.2	.1	.4	.17	134	.18	2,330	70	0	30	.7	200	7.8
Weighted average [a]	8,388	b26	b0.05	15	7.9	15	c1.5	92	c15	c9.3	b0.1	c0.7	c0.12	136	0.18	3,080	70	0	31	0.8	205	--

a Represents 100 percent of runoff for water year October 1954 to September 1955.
b Represents 94 percent of runoff for water year October 1954 to September 1955.
c Represents 99 percent of runoff for water year October 1954 to September 1955.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement at approximately 10 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	53	50	43	46	47	56	56	67	69	70	69
2	62	53	50	43	46	48	55	56	68	69	70	70
3	62	54	50	43	46	48	55	56	68	67	70	70
4	62	54	50	43	46	49	55	57	68	67	69	68
5	62	55	49	43	46	50	54	57	68	67	68	69
6	62	55	49	43	46	51	54	58	68	66	67	70
7	62	55	49	43	47	52	57	60	68	67	67	70
8	62	55	49	44	47	53	57	62	70	67	67	69
9	60	55	49	44	48	53	57	64	70	67	67	68
10	60	55	48	44	48	54	57	65	68	67	68	68
11	60	55	46	44	48	54	57	66	68	68	68	68
12	60	55	45	43	49	54	57	67	68	69	68	68
13	62	54	45	43	49	54	57	62	68	69	69	68
14	62	53	45	43	48	54	57	63	68	70	69	68
15	61	52	45	43	48	53	57	64	68	70	69	67
16	60	52	45	43	51	52	57	65	68	70	68	65
17	60	52	45	44	48	51	56	65	68	70	68	65
18	60	51	45	44	47	51	55	67	68	70	68	64
19	60	51	45	44	47	51	54	68	68	70	68	64
20	60	51	45	44	47	51	53	68	68	70	68	64
21	58	51	45	44	47	51	52	69	69	70	68	63
22	60	51	45	44	47	52	53	69	69	69	68	64
23	58	50	45	44	47	52	53	66	69	70	68	64
24	55	50	45	44	47	53	53	65	69	69	68	64
25	55	50	44	44	47	55	53	66	69	69	68	64
26	54	50	44	45	47	56	54	66	69	69	68	64
27	55	50	44	45	47	56	54	66	69	70	68	63
28	55	50	44	45	47	56	54	66	69	70	68	63
29	55	50	44	45	--	56	54	66	69	70	68	63
30	54	50	43	45	--	56	55	68	69	70	68	63
31	53	--	43	46	--	56	--	68	--	70	69	--
Average	59	52	46	44	47	53	55	64	68	69	68	66

SACRAMENTO SLOUGH NEAR KNIGHTS LANDING, CALIF.

LOCATION.--At gaging station on levee near Reclamation District 1,500 pumping plant 5.4 miles southeast of Knights Landing, Sutter County, and 1 mile above mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Gaging station maintained and operated by the State of California Division of Water Resources. Records of discharge for Water year October 1954 to September 1955 given in Report of Sacramento-San Joaquin Water Supervision for 1954 and Report of Sacramento-San Joaquin Water Supervision for 1955. This water is the entire outflow of the Sutter by-pass area and Reclamation District 1,500.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	497	--	--	35	22	29	2.3	a 262	--	28	--	--	0.01	--	--		177	0	26	0.9	447	8.3
Nov. 15	729	28	--	30	20	25	3.2	210	--	24	--	--	.07	--	--		156	0	25	.9	408	8.2
Dec. 10	1,260	--	--	21	15	23	2.4	154	--	23	--	--	.06	--	--		116	0	30	.9	318	7.5
Jan. 12, 1955.....	802	--	--	27	19	24	1.9	198	--	18	--	--	.18	--	--		146	0	26	.9	366	8.2
Feb. 9	431	--	--	34	25	32	1.7	236	--	32	--	--	.04	--	--		186	0	27	1.0	477	8.0
Mar. 8	0	--	--	35	25	32	2.1	239	--	36	--	--	.00	--	--		190	0	27	1.0	479	8.2
Apr. 5	320	--	--	22	20	21	1.8	177	--	22	--	--	.06	--	--		136	0	25	.8	351	7.8
May 16	0	28	0.00	27	20	29	2.1	192	14	35	0.2	0.9	.07	251	0.34		149	0	29	1.0	414	7.6
June 20	611	--	--	34	17	32	1.3	199	--	38	--	--	.03	--	--		154	0	31	1.1	435	8.0
July 18	396	--	--	36	30	50	1.3	259	--	68	--	--	.11	--	--		214	2	33	1.5	621	7.8
July 20	--	33	--	53	21	67	1.4	246	18	102	.2	.9	.13	418	.57		217	15	40	2.0	712	--
Aug. 22.....	548	--	--	35	27	44	1.6	272	--	44	--	--	.02	--	--		200	0	30	1.4	539	7.8
Sept. 19	823	32	.02	30	21	31	2.3	222	7.0	24	.3	.5	.08	257	.35		162	0	29	1.1	422	7.7

a Includes equivalent of 4 parts per million of carbonate (CO_3).

SACRAMENTO RIVER BASIN--Continued

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 1955.
Water temperatures: October 1953 to September 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	2,630	15	--	11	4.3	5.0	1.2	65	--	1.0	--	--	0.03	--	--		45	0	19	0.3	111	7.8
Nov. 11	2,860	--	--	11	4.3	4.4	1.3	64	--	1.0	--	--	.03	--	--		45	0	17	.3	108	7.5
Dec. 8	5,300	--	--	8.1	4.2	3.4	.7	51	--	2.2	--	--	.05	--	--		37	0	16	.2	83.3	7.5
Jan. 11, 1955	2,040	--	--	11	3.4	3.8	.7	56	--	2.0	--	--	.15	--	--		42	0	16	.3	100	7.7
Feb. 8	1,490	--	--	12	4.4	4.9	.9	64	--	1.8	--	--	.00	--	--		48	0	18	.3	114	7.7
Mar. 7	2,380	--	--	13	4.0	5.3	1.1	62	--	2.0	--	--	.00	--	--		49	0	19	.3	112	7.8
Apr. 4	3,730	--	--	6.1	5.0	3.8	.7	51	--	.6	--	--	.16	--	--		36	0	18	.3	87.9	7.3
May 12	9,790	14	0.00	6.8	2.2	2.3	.5	36	1.7	.5	0.0	0.5	.12	47	0.06		26	0	16	.2	59.1	7.3
June 16	2,860	--	--	9.7	3.9	4.2	.9	58	--	1.3	--	--	.00	--	--		40	0	18	.3	101	7.9
July 14	1,980	--	--	12	4.1	4.6	1.2	67	--	1.0	--	--	.01	--	--		47	0	17	.3	112	7.7
Aug. 18	1,840	--	--	11	6.2	5.0	1.4	69	--	1.8	--	--	.15	--	--		53	0	17	.3	115	7.5
Sept. 15	3,070	21	.00	14	4.4	5.1	1.4	74	5.2	.7	.2	.5	.00	89	.12		53	0	17	.3	129	7.9

YUBA RIVER NEAR SMARTSVILLE, CALIF.

LOCATION.--About 0.5 mile downstream from State Highway 20 bridge, 5 miles below Englebright Dam, 4 miles below Deer Creek and 2.3 miles northwest of Smartsville, Yuba County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395. Discharge records for gaging station at Englebright Dam and Deer Creek near Smartsville are combined to give the flow at this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	219	16	--	16	3.9	5.7	0.7	67	--	2.0	--	--	0.00	--	--		56	1	18	0.3	130	8.0
Nov. 11	397	--	--	17	3.1	3.5	.8	66	--	2.0	--	--	.01	--	--		55	1	12	.2	125	7.8
Dec. 8	716	--	--	12	3.7	2.9	.7	50	--	1.8	--	--	.03	--	--		45	4	12	.2	101	7.6
Jan. 11, 1955	962	--	--	12	2.6	2.4	.4	48	--	1.5	--	--	.16	--	--		40	1	11	.2	91.9	7.7
Feb. 8	937	--	--	11	3.5	3.0	.5	48	--	1.5	--	--	.02	--	--		42	3	13	.2	93.0	7.7
Mar. 8	1,050	--	--	12	3.4	3.2	.6	49	--	1.5	--	--	.00	--	--		44	4	13	.2	96.4	7.6
Apr. 5	1,590	--	--	7.0	4.9	2.6	.6	46	--	.6	--	--	.00	--	--		37	0	13	.2	83.8	7.5
May 12	5,470	12	0.04	7.2	2.2	2.8	.5	35	3.0	1.0	0.2	0.2	.04	46	0.06		27	0	18	.2	61.5	7.1
June 16	1,440	--	--	7.2	2.7	2.2	.5	32	--	.0	--	--	.00	--	--		29	3	14	.2	59.6	7.5
July 14	708	--	--	8.7	2.7	2.4	.5	42	--	.5	--	--	.01	--	--		33	0	13	.2	74.6	7.7
Aug. 18	629	--	--	13	3.5	3.0	.8	62	--	1.8	--	--	.00	--	--		47	0	12	.2	101	7.6
Sept. 15	164	17	.00	18	2.6	3.5	.9	66	8.2	1.5	.1	.1	.00	85	.12		55	1	12	.2	126	7.9

SACRAMENTO RIVER BASIN--Continued

YUBA RIVER AT MARYSVILLE, CALIF.

LOCATION.--At gaging station on Simpson Lane Bridge in Marysville, Yuba County, and about 2 miles upstream from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 14, 1954	64	--	--	16	6.0	4.2	0.8	72	--	3.6	--	--	0.01	--	--		65	6	12	0.2	144	7.8
Nov. 12	227	--	--	15	5.1	3.7	.9	67	--	1.8	--	--	.02	--	--		58	3	12	.2	132	7.7
Dec. 9	916	--	--	11	4.6	3.3	.5	53	--	2.8	--	--	.01	--	--		46	3	13	.2	106	7.4
Jan. 12, 1955	1,080	--	--	12	3.7	2.7	.5	50	--	1.8	--	--	.11	--	--		45	4	11	.2	99.0	7.7
Feb. 8	1,010	--	--	12	3.4	3.2	.5	50	--	1.0	--	--	.00	--	--		44	3	13	.2	97.9	7.8
Mar. 8	1,130	--	--	12	4.1	3.3	.5	52	--	1.5	--	--	.00	--	--		47	4	13	.2	101	7.5
Apr. 5	1,560	--	--	7.9	4.5	2.7	.4	48	--	.6	--	--	.03	--	--		38	0	13	.2	89.1	7.0
May 13	5,120	12	0.01	8.5	1.9	1.8	.4	34	4.6	.8	0.1	0.2	.04	47	0.06		29	1	12	.1	61.7	7.2
June 17	970	--	--	9.8	1.1	2.2	.6	36	--	.3	--	--	.00	--	--		29	0	14	.2	65.5	7.1
July 15	202	--	--	11	3.8	3.1	.6	50	--	.5	--	--	.00	--	--		43	2	13	.2	99.0	7.6
Aug. 19	157	--	--	12	4.9	3.3	.8	62	--	1.5	--	--	.14	--	--		50	0	12	.2	116	7.4
Sept. 16	57	20	.06	18	5.4	3.7	.9	73	14	1.0	.1	.2	.14	99	.13		67	7	11	.2	150	7.6

BEAR RIVER NEAR WHEATLAND, CALIF.

LOCATION.--Near gaging station on downstream side of bridge on U. S. Highway 99E, 1 mile southwest 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	12	--	--	33	10	7.8	1.0	131	--	9.5	--	--	0.10	--	--		124	17	12	0.3	273	7.9
Nov. 12	54	--	--	26	9.5	7.3	1.8	103	--	10	--	--	.02	--	--		104	20	13	.3	238	7.7
Dec. 9	420	--	--	24	8.1	5.8	2.6	90	--	8.2	--	--	.06	--	--		93	19	12	.3	189	7.6
Jan. 12, 1955	704	--	--	10	3.4	2.7	.6	39	--	3.0	--	--	.11	--	--		39	7	13	.2	92.4	7.4
Feb. 9	145	--	--	21	9.1	5.6	.8	82	--	4.8	--	--	.00	--	--		90	23	12	.3	186	7.9
Mar. 8	188	--	--	21	6.7	4.7	1.2	70	--	3.5	--	--	.00	--	--		80	23	11	.2	169	8.0
Apr. 5	11	--	--	35	20	7.1	1.1	158	--	6.6	--	--	.01	--	--		170	40	8	.2	351	8.2
May 13	240	12	0.03	11	5.0	3.5	.7	51	8.6	3.8	0.0	0.0	.00	70	0.10		48	6	13	.2	106	7.0
June 17	22	--	--	30	12	5.8	1.2	127	--	5.5	--	--	.00	--	--		122	18	9	.2	262	8.2
July 15	8.9	--	--	32	16	6.9	1.2	a157	--	6.5	--	--	.08	--	--		147	18	9	.2	301	8.3
Aug. 18	6.4	--	--	31	13	6.6	1.2	149	--	7.5	--	--	.00	--	--		132	10	10	.2	280	7.8
Sept. 16	6.1	21	.01	37	13	7.1	.9	151	27	7.3	.2	.1	.00	188	.26		145	21	9	.3	305	8.2

a Includes equivalent of 2 parts per million of carbonate (CO_3).

SACRAMENTO RIVER BASIN--Continued

FEATHER RIVER AT NICOLAUS, CALIF.

LOCATION.--At highway bridge at Nicolaus, Sutter County, 0.4 mile upstream from gaging station and 1.2 miles downstream from Bear River.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 102 ppm Sept. 1-10, 11-20; minimum, 47 ppm May 21-31.
Hardness: Maximum, 66 ppm Sept. 1-10, 11-20; minimum, 29 ppm May 21-31.
Specific conductance: Maximum daily, 176 micromhos Sept. 13; minimum daily, 63.5 micromhos May 24.
Water temperatures: Maximum, 79°F July 14, Aug. 3; minimum, 39°F Dec. 27, 29, Jan. 8, 12.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 111 ppm Aug. 1-10, 1951; minimum, 45 ppm June 1-3, 8, 10, 1952.
Hardness: Maximum, 114 ppm June 21, 1954; minimum, 22 ppm June 1-3, 8, 10, 1952.
Specific conductance: Maximum daily, 245 micromhos June 21, 1954; minimum daily, 50.0 micromhos May 28, 1952.
Water temperatures: Maximum, 82°F July 28, 1954; minimum, 38°F Nov. 18, 1953.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ...	2,267	--	--	12	5.6	5.5	--	--	--	--	--	--	--	82	0.11	502	53	--	--	0.3	126	--
Oct. 11-20	2,546	--	--	12	4.8	5.1	--	--	--	--	--	--	--	80	.11	550	50	--	--	.3	121	--
Oct. 15[a]	2,420	--	--	17	1.6	5.8	1.3	71	--	1.9	--	--	0.01	--	.--	--	49	0	20	--	123	7.7
Oct. 21-31	2,623	--	--	12	4.9	4.9	--	--	--	--	--	--	--	81	.11	574	50	--	--	.3	127	--
Nov. 1-10	2,685	--	--	11	5.1	4.8	--	--	--	--	--	--	--	79	.11	573	48	--	--	.3	118	--
Nov. 11-20	4,978	--	--	11	4.4	4.6	--	--	--	--	--	--	--	77	.10	1,030	46	--	--	.3	113	--
Nov. 12[a]	3,340	--	--	12	4.4	4.8	1.4	66	--	1.8	--	--	.03	--	--	--	48	0	17	--	118	7.5
Nov. 21-30	3,947	--	--	12	4.4	4.7	--	--	--	--	--	--	--	80	.11	853	48	--	--	.3	120	--
Dec. 1-10	7,060	--	--	12	3.9	4.5	--	--	--	--	--	--	--	79	.11	1,510	46	--	--	.3	114	--
Dec. 9[a]	6,970	--	--	9.5	4.2	4.1	1.1	53	--	2.8	--	--	.00	--	--	--	41	0	17	--	97.7	7.5
Dec. 11-20	5,819	--	--	12	3.5	4.4	--	--	--	--	--	--	--	78	.11	1,230	44	--	--	.3	111	--
Dec. 21-31	3,924	--	--	11	4.9	4.5	--	--	--	--	--	--	--	79	.11	837	48	--	--	.3	115	--
Jan. 1-10, 1955....	6,181	--	--	11	4.3	4.2	--	--	--	--	--	--	--	81	.11	1,350	45	--	--	.3	109	--
Jan. 11-20	6,045	--	--	11	4.3	4.4	--	--	--	--	--	--	--	86	.12	1,400	45	--	--	.3	111	--
Jan. 12[a]	4,570	--	--	12	3.3	4.1	.8	53	--	3.0	--	--	.01	--	--	--	44	1	17	--	108	7.7
Jan. 21-31	4,055	--	--	12	4.6	4.8	--	--	--	--	--	--	--	92	.13	1,010	49	--	--	.3	121	--
Feb. 1-10.....	3,410	--	--	12	5.4	5.0	--	66	--	--	--	--	--	86	.12	792	52	0	--	.3	123	7.5
Feb. 9[a]	2,820	--	--	13	6.0	4.8	.7	65	--	4.0	--	--	.02	--	--	--	57	4	15	--	124	7.9
Feb. 11-20.....	3,320	--	--	13	4.8	5.0	64	--	--	--	--	--	--	85	.12	762	52	0	--	.3	124	7.4
Feb. 21-28.....	4,350	--	--	12	4.4	4.2	--	58	--	--	--	--	--	78	.11	916	48	0	--	.3	115	7.5
Mar. 1-10	3,700	--	--	12	4.9	4.5	--	62	--	--	--	--	--	84	.11	839	50	0	--	.3	123	7.6
Mar. 8[a]	3,110	--	--	13	5.2	4.8	.9	65	--	2.5	--	--	.00	--	--	--	54	1	16	--	122	7.9
Mar. 11-20	5,375	--	--	11	4.5	4.2	--	61	--	--	--	--	--	78	.11	1,130	46	0	--	.3	110	7.5
Mar. 21-31	4,954	--	--	11	4.3	4.3	--	59	--	--	--	--	--	76	.10	1,020	45	0	--	.3	108	7.1

a Not included for computation of weighted averages.

Apr. 1-10, 1955	4,992	--	--	9.6	4.1	3.5	--	51	--	--	--	--	--	71	0.10	957	41	0	--	.2	98.6	7.2
Apr. 5[a]	4,720	--	--	5.3	6.0	3.7	.7	52	--	.6	--	--	.00	--	--	--	38	0	17	--	91.4	7.5
Apr. 11-20	3,995	--	--	9.1	4.2	3.4	--	51	--	--	--	--	--	67	.09	723	40	0	--	.2	93.4	7.4
Apr. 21-30	7,754	--	--	9.5	4.5	3.4	--	50	--	--	--	--	--	70	.10	1,470	42	1	--	.2	99.8	7.4
May 1-10	9,220	--	--	9.5	3.7	3.2	--	50	--	--	--	--	--	64	.09	1,590	39	0	--	.2	89.8	7.4
May 11-20	10,200	--	--	7.2	3.4	2.7	--	37	--	--	--	--	--	51	.07	1,410	32	2	--	.2	71.5	7.1
May 13[a]	13,000	15	--	7.6	2.7	2.4	.8	39	3.0	.5	.1	.3	.10	b52	.07	--	30	0	14	--	69.9	7.5
May 21-31	7,879	--	--	7.6	2.4	2.6	--	38	--	--	--	--	--	47	.06	1,000	29	0	--	.2	70.5	7.1
June 1-10	4,528	--	--	8.7	2.3	3.1	--	42	--	--	--	--	--	54	.07	660	31	0	--	.2	85.0	7.3
June 11-20	2,257	--	--	9.4	3.5	3.7	--	52	--	--	--	--	--	62	.08	378	38	0	--	.3	97.4	7.1
June 17[a]	1,980	--	--	10	3.3	4.2	1.0	53	--	1.2	--	--	.00	--	--	--	39	0	19	--	95.0	7.2
June 21-30	641	--	--	12	6.8	5.4	--	67	--	--	--	--	--	80	.11	138	58	3	--	.3	128	7.0
July 1-10	488	--	--	12	5.1	5.3	--	67	--	--	--	--	--	82	.11	108	51	0	--	.3	130	7.0
July 11-20	407	--	--	12	4.9	4.7	--	66	--	--	--	--	--	82	.11	90	50	0	--	.3	127	7.2
July 15[a]	404	--	--	12	4.9	4.4	1.2	64	--	2.5	--	--	.07	--	--	--	50	0	16	--	125	7.3
July 21-31	387	--	--	13	5.2	4.7	--	68	--	--	--	--	--	84	.11	88	54	0	--	.3	134	7.2
Aug. 1-10	394	--	--	14	5.6	5.2	--	72	--	--	--	--	--	93	.13	99	58	0	--	.3	148	7.1
Aug. 11-20	348	--	--	14	5.8	5.4	--	75	--	--	--	--	--	94	.13	88	59	0	--	.3	144	7.3
Aug. 19[a]	365	--	--	14	5.6	5.1	1.4	75	--	3.5	--	--	.00	--	--	--	58	0	16	--	138	7.3
Aug. 21-31	372	--	--	14	6.1	5.9	--	77	--	--	--	--	--	95	.13	95	60	0	--	.3	147	7.4
Sept. 1-10	444	--	--	16	6.3	6.5	--	85	--	--	--	--	--	102	.14	122	66	0	--	.3	164	7.5
Sept. 11-20	802	20	.01	15	7.0	7.1	1.8	88	4.0	3.5	.1	.6	.07	102	.14	221	66	0	18	.4	159	7.7
Sept. 16[a]	1,000	18	.00	15	6.0	6.7	1.5	86	4.0	3.0	.1	.2	.04	b97	.13	--	62	0	19	--	151	7.6
Sept. 21-30	941	--	--	14	6.1	6.6	--	83	--	--	--	--	--	96	.13	244	60	0	--	.4	150	7.5
Weighted average[c]	3,694	--	--	11	4.2	4.0	--	--	--	--	--	--	--	73	0.10	728	45	--	--	0.3	105	--

a Not included for computation of weighted averages.
b Sum of determined constituents.
c Represents 100 percent of runoff for water year October 1954 to September 1955.

SACRAMENTO RIVER BASIN--Continued

FEATHER RIVER AT NICOLAUS, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
[Once-daily measurement at approximately 7 a.m.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	52	45	46	44	42	51	50	61	70	77	75
2	61	52	45	45	42	43	43	51	62	72	78	75
3	60	52	48	42	41	44	49	52	65	70	79	77
4	60	51	48	41	41	45	49	54	67	68	76	78
5	60	51	47	41	42	44	48	55	69	69	74	77
6	60	51	59	40	41	45	50	56	69	68	76	74
7	61	53	47	40	42	46	52	54	68	71	75	72
8	61	58	46	39	43	47	53	56	70	72	76	72
9	61	53	46	40	43	49	54	55	70	69	77	74
10	61	52	46	41	43	48	55	56	67	70	75	73
11	61	52	45	40	44	49	53	57	65	72	76	73
12	61	52	43	39	45	49	54	58	66	74	73	74
13	61	51	43	41	45	48	53	57	65	76	75	70
14	61	51	43	41	46	47	51	55	63	79	72	69
15	61	56	44	40	45	46	52	55	63	74	71	65
16	61	52	43	41	47	46	53	56	65	69	71	65
17	60	50	43	40	47	42	54	58	67	72	71	65
18	60	50	43	--	44	46	50	59	68	70	72	64
19	60	49	42	42	42	48	49	61	63	72	74	65
20	59	48	42	42	43	46	50	62	68	62	74	66
21	59	48	41	41	42	42	50	61	67	73	74	67
22	59	49	41	41	43	48	50	61	69	73	74	68
23	58	46	41	42	43	49	51	60	--	74	75	66
24	54	50	41	41	43	50	53	59	70	74	70	66
25	53	48	41	42	44	52	51	59	71	71	68	65
26	64	48	40	44	44	53	48	61	68	71	69	63
27	54	47	39	42	43	54	49	61	70	70	70	64
28	54	48	40	42	42	53	51	62	68	73	70	63
29	53	47	39	42	--	54	49	63	68	75	70	63
30	53	45	40	43	--	51	49	62	68	76	72	64
31	52	--	41	43	--	51	--	62	--	76	74	--
Average	59	50	44	41	43	48	51	58	67	72	73	69

AMERICAN RIVER AT FAIR OAKS, CALIF.

LOCATION (revised).--At old highway bridge just downstream from gaging station at Fair Oaks, Sacramento County, 2.6 miles downstream from Nimbus Dam, and 10 miles downstream from South Fork.
DRAINAGE AREA.--1,921 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to December 1906, March 1951 to September 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 70 ppm Dec. 3, 6-7, 10; minimum, 34 ppm May 21-31, June 11-20, 21-30.
Hardness: Maximum, 40 ppm Jan. 21-31; minimum, 16 ppm June 21-30, July 1-10, 11-20, 21-31.
Specific conductance: Maximum daily, 103 micromhos Jan. 22, 23; minimum daily, 38.1 micromhos June 13, 16.
Water temperatures: Maximum, 76°F Sept. 3; minimum, 38°F Oct. 30-31.
EXTREMES, 1951-55.--Dissolved solids: 83 ppm Aug. 11-20, 1954; minimum, 29 ppm June 1-10, 1952, June 21-30, 1953.
Hardness: Maximum, 41 ppm Aug. 1 to Sept. 10, 1951, Nov. 21-30, 1952, Aug. 11-20, 1954; minimum, 14 ppm June 21-30, 1953.
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, 38°F Oct. 30-31, 1954.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	393			7.8	2.1	3.2		--						55	0.07	58	28	--		0.3	72.4	--
Oct. 11-20	426			7.8	2.0	3.0		--						53	.07	61	28	--		.2	70.2	--
Oct. 21-31	473			8.9	1.9	3.0		--						56	.08	72	30	--		.2	80.8	--
Nov. 1-10.....	523			7.5	2.0	2.7		--						49	.07	69	27	--		.2	68.4	--
Nov. 11-20.....	1,087			8.9	2.3	3.1		--						58	.08	170	32	--		.2	82.3	--
Nov. 21-30.....	728			8.0	2.1	2.8		--						54	.07	106	28	--		.2	72.4	--
Dec. 3, 6-7, 10...	4,650			8.9	3.1	3.1		--						70	.10	879	35	--		.2	89.2	--
Dec. 1-2, 4-5, 8-9	3,112			7.8	2.4	2.7		--						57	.08	479	30	--		.2	75.2	--
Dec. 11-20.....	1,700			8.9	3.2	2.9		--						65	.09	298	36	--		.2	86.8	--
Dec. 21-31.....	1,123			8.6	3.1	3.1		--						62	.08	188	34	--		.2	85.9	--
Jan. 1-10, 1955...	3,562			7.8	3.2	3.2		--						63	.09	606	32	--		.2	80.1	--
Jan. 11-20	2,437			8.4	3.7	3.4		--						67	.09	441	36	--		.2	91.6	--
Jan. 21-31	2,067			9.6	3.9	4.0		--						64	.09	357	40	--		.3	96.6	--
Feb. 1-10.....	1,849			9.1	3.5	3.8		--						60	.08	300	37	--		.3	91.8	--
Feb. 11-20.....	1,968			8.5	3.4	3.5		43						62	.08	329	35	0		.3	91.9	7.3
Feb. 21-28.....	1,637			7.9	3.2	3.4		41						60	.08	265	33	0		.3	82.6	7.5
Mar. 1-10.....	2,048			8.8	3.9	3.6		45						67	.09	370	38	1		.3	93.8	7.4
Mar. 11-20.....	2,531			7.4	2.8	2.9		37						59	.08	403	30	0		.2	74.7	7.5
Mar. 21-31.....	497			8.1	3.1	3.3		40						66	.09	89	33	0		.2	80.8	7.1

SACRAMENTO RIVER BASIN--Continued

AMERICAN RIVER AT FAIR OAKS, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955..	273			8.1	2.6	3.3		38						59	0.08	43	31	0		0.2	80.3	7.1
Apr. 11-20.....	188			7.9	2.5	3.2		36						60	.08	30	30	0		.3	77.5	7.2
Apr. 21-30.....	2,868			8.1	1.7	2.8		31						46	.06	356	27	2		.3	62.0	7.3
May 1-10	4,513			6.6	1.8	2.4		31						44	.06	536	24	0		.2	61.5	7.2
May 11-20.....	2,940			5.1	3.0	2.6		30						43	.06	341	25	0		.2	59.1	7.1
May 21-31.....	5,163			5.1	2.0	2.2		25						34	.05	474	21	0		.2	50.9	7.1
June 1-10	5,832			5.0	1.8	2.1		24						37	.05	583	20	0		.2	43.8	6.8
June 11-20	3,402			4.4	1.7	2.1		24						34	.05	312	18	0		.2	40.2	6.9
June 21-30	2,068			4.4	1.2	1.8		24						34	.05	190	16	0		.2	40.4	6.8
July 1-10.....	1,339			5.0	.9	1.9		23						36	.05	130	16	0		.2	42.1	6.8
July 11-20.....	1,817			4.6	1.1	1.9		23						38	.05	186	16	0		.2	42.7	6.7
July 21-31.....	2,144			4.8	1.0	1.9		24						37	.05	214	16	0		.2	45.5	6.6
Aug. 1-10.....	2,127			4.6	1.6	2.1		25						38	.05	218	18	0		.2	50.5	7.0
Aug. 11-20.....	2,009			5.0	1.6	2.2		25						48	.07	260	19	0		.2	51.5	7.3
Aug. 21-31.....	2,321			5.4	1.6	2.2		28						46	.06	288	20	0		.2	53.6	6.9
Sept. 1-10.....	2,040			6.0	2.0	2.3		30						50	.07	275	23	0		.2	58.1	6.7
Sept. 11-20.....	597	12	0.02	7.0	1.8	2.3	1.2	32	2.0	2.2	0.2	0.4	0.05	52	.07	84	25	0	16	.2	63.7	6.7
Sept. 21-30.....	535			7.6	1.7	2.4		34						55	.07	79	26	0		.2	69.6	6.9
Weighted average [a]	1,973	--	--	6.6	2.3	2.6	--	[b] 29	--	--	--	--	--	49	0.07	261	26	[b] 2	--	0.2	64.8	--

a Represents 100 percent of runoff for water year October 1954 to September 1955.
b Represents 72 percent of runoff for water year October 1954 to September 1955.

SACRAMENTO RIVER BASIN--Continued

AMERICAN RIVER AT FAIR OAKS, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement approximately between 8 a. m. and 10 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	56	48	48	44	67	58	50	55	64	67	71
2	62	56	48	45	41	58	54	50	59	63	68	71
3	61	49	50	43	40	45	55	51	60	61	70	76
4	65	55	49	43	41	58	54	52	59	62	67	74
5	65	57	50	42	40	45	58	52	59	64	69	74
6	61	59	50	45	40	45	54	53	59	64	68	74
7	62	56	50	42	40	48	56	52	56	65	69	72
8	66	55	48	41	45	48	60	51	59	66	68	72
9	64	55	47	40	41	48	54	51	58	63	70	75
10	62	56	48	40	42	50	56	54	56	65	70	71
11	65	55	45	40	45	49	55	54	58	65	68	74
12	65	56	45	40	44	49	65	54	58	68	69	70
13	63	56	45	40	--	50	55	55	50	67	68	74
14	59	55	46	40	45	50	55	54	58	66	68	70
15	65	53	46	40	45	50	56	55	59	68	69	68
16	65	55	48	40	40	50	55	55	60	65	68	68
17	62	53	48	40	48	49	54	55	60	65	68	69
18	64	52	45	41	45	51	50	56	60	66	68	68
19	64	52	45	40	45	48	56	55	61	65	70	69
20	62	56	45	41	45	48	54	56	61	66	70	--
21	60	51	44	44	42	48	52	56	63	65	75	70
22	65	51	44	42	--	50	55	57	63	64	70	70
23	61	52	44	42	45	50	55	56	61	66	72	66
24	56	51	44	40	45	56	51	58	63	66	69	70
25	56	50	44	42	48	58	50	55	63	65	70	69
26	55	51	43	42	45	52	50	55	63	67	69	69
27	41	51	40	40	45	56	50	56	61	67	69	74
28	55	51	40	40	45	55	51	65	62	67	69	68
29	40	49	41	40	--	58	50	65	63	68	70	68
30	38	49	41	41	--	55	50	55	62	67	70	70
31	38	--	44	43	--	55	--	--	--	66	71	--
Average	59	53	46	42	44	52	54	55	60	65	69	71

SACRAMENTO RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954	438	11	--	7.7	2.1	3.0	0.7	35	--	3.0	--	--	0.00	--	--		28	0	18	0.2	71.5	7.8
Nov. 15	830	11	--	8.8	2.0	2.6	.8	36	--	2.5	--	--	.01	--	--		30	0	15	.2	78.0	7.6
Dec. 13	1,950	--	--	8.9	3.4	3.4	.6	41	--	3.5	--	--	.08	--	--		36	2	17	.2	90.7	7.6
Jan. 18, 1955	2,740	--	--	10	3.9	5.1	.5	50	--	4.0	--	--	.00	--	--		41	0	21	.3	103	7.4
Feb. 15	1,280	--	--	9.3	3.4	3.7	.5	46	--	3.8	--	--	.01	--	--		37	0	18	.3	92.1	7.6
Mar. 18	2,960	--	--	7.6	3.7	2.9	.7	36	--	2.5	--	--	.00	--	--		34	4	15	.2	70.9	7.5
Apr. 19	166	--	--	3.8	5.5	3.3	.8	38	--	3.2	--	--	.00	--	--		32	1	18	.3	83.4	7.1
May 16	3,040	12	0.00	5.9	2.3	2.3	.5	30	2.6	1.0	0.0	0.5	.06	42	0.06		24	0	17	.2	55.2	7.4
June 20	1,900	--	--	3.4	1.5	2.3	.6	23	--	.2	--	--	.05	--	--		15	0	24	3.2	37.7	7.3
July 18	1,910	--	--	4.3	2.2	3.2	1.0	17	--	1.0	--	--	.00	--	--		20	6	25	.3	57.2	6.9
Aug. 22	1,850	--	--	5.3	1.7	1.8	1.0	27	--	.5	--	--	.11	--	--		20	0	15	.2	49.8	6.8
Sept. 19	499	11	.06	7.0	2.1	2.2	1.0	34	1.8	1.1	.2	.2	.02	44	.06		26	0	15	.2	63.1	7.2

SACRAMENTO RIVER AT SACRAMENTO, CALIF.

LOCATION.--At Tower Bridge, 0.4 mile downstream from gaging station at Sacramento, Sacramento County, and approximately 1.3 miles downstream from confluence of the American River.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
Water temperatures: May to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 77°F July 31.
REMARKS.--Except where indicated, samples are composites of stations 1, 2 and 3. Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954	10,400	23	--	15	7.7	12	1.2	94	--	10	--	--	0.03	--	--	--	69	0	27	0.6	193	8.1
Nov. 19	25,800	--	--	12	5.2	8.4	2.2	62	--	7.2	--	--	.04	--	--	--	52	1	25	.5	136	7.7
Dec. 17	22,300	--	--	17	7.9	15	1.6	93	--	10	--	--	.00	--	--	--	75	0	30	.8	214	8.0
Jan. 17, 1955	23,800	--	--	15	7.2	15	1.1	80	--	12	--	--	.00	--	--	--	67	1	32	.8	195	7.6
Feb. 15	12,800	--	--	17	8.7	14	1.2	97	--	9.5	--	--	.07	--	--	--	78	0	28	.7	217	7.9
Mar. 18	14,300	--	--	14	7.1	9.9	2.3	83	--	8.0	--	--	.18	--	--	--	64	0	24	.5	176	7.9
Apr. 19	9,070	--	--	7.7	8.2	7.0	1.2	72	--	3.8	--	--	.03	--	--	--	53	0	22	.4	131	7.8
May 1-9, Sta. 1	21,700	22	0.03	13	6.5	12	1.3	72	13	9.2	0.0	0.6	.05	112	0.15	6,560	59	0	30	.7	168	7.7
May 1-9, Sta. 2	21,700	10	.02	13	5.2	10	1.2	68	11	7.0	.0	.5	.07	106	.14	6,210	54	0	28	.6	155	7.6
May 1-9, Sta. 3	21,700	18	.01	11	5.2	7.7	1.2	56	13	5.8	.0	.5	.00	86	.12	5,040	49	3	25	.5	127	7.3
May 10-14, Sta. 1	25,620	19	.01	11	5.5	9.9	1.1	64	11	7.0	.1	.5	.07	98	.13	6,780	50	0	29	.6	145	7.5
May 10-14, Sta. 2	25,620	19	.01	11	5.5	9.5	1.0	63	13	6.5	.1	.5	.03	91	.12	6,290	50	0	29	.6	143	7.4
May 10-14, Sta. 3	25,620	17	.01	9.8	5.2	7.8	.9	55	12	5.8	.1	.4	.05	81	.11	5,600	46	1	26	.5	121	7.4
May 15-17, Sta. 1	21,400	21	.40	12	7.8	13	1.1	75	13	9.0	.2	.5	.09	117	.16	6,760	62	0	31	.7	173	8.1
May 15-17, Sta. 2	21,400	19	.21	12	7.1	11	.9	70	12	8.0	.2	.6	.08	108	.15	6,240	59	2	28	.6	161	7.5
May 15-17, Sta. 3	21,400	17	.08	11	5.2	9.4	.8	62	10	6.5	.1	.5	.07	94	.13	5,430	49	0	29	.6	139	7.8
May 16	21,700	19	.00	13	6.0	12	1.0	73	13	9.2	.2	.5	.06	a 110	.15	--	57	0	31	.7	167	7.4
May 18-21, Sta. 1	18,720	22	.02	14	7.8	14	1.1	84	15	11	.2	.6	.12	130	.18	6,570	67	0	31	.7	191	8.0
May 18-21, Sta. 2	18,720	22	.05	14	6.8	14	1.0	81	15	10	.1	.5	.06	120	.16	6,070	63	0	32	.8	188	7.8
May 18-21, Sta. 3	18,720	24	.06	13	6.2	11	.9	69	12	8.0	.1	.5	.07	111	.15	5,610	58	1	29	.6	157	7.8
May 22-29, Sta. 1	20,710	22	.01	13	7.4	12	1.1	76	13	8.5	.1	.4	.12	118	.16	6,600	63	1	29	.7	168	7.9
May 22-29, Sta. 2	20,710	20	.01	11	5.5	12	1.0	70	11	7.5	.0	.4	.05	105	.14	5,870	50	0	34	.7	154	7.3
May 22-29, Sta. 3	20,710	19	.01	11	4.5	9.0	.9	60	9.9	6.0	.0	.3	.08	92	.13	5,140	46	0	29	.6	132	7.5
May 30-June 5, Sta. 1	17,190	22	.02	14	8.3	17	1.4	86	13	13	.2	1.0	.05	132	.18	6,130	69	0	34	.9	200	7.5
May 30-June 5, Sta. 2	17,190	21	.00	13	5.7	13	1.2	77	9.1	10	.2	.6	.09	117	.16	5,430	56	0	33	.8	172	7.4
May 30-June 5, Sta. 3	17,190	20	.00	10	6.1	10	1.0	63	8.4	8.2	.1	.5	.09	98	.13	4,550	50	0	30	.6	142	7.2

a Sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 6-13, Sta. 1 1955	15,580	20	0.00	9.4	6.5	11	1.1	68	7.7	8.2	0.1	0.6	0.05	104	0.14	4,370	50	0	32	0.7	149	7.5
June 6-13, Sta. 2	15,580	19	.01	14	3.2	9.6	1.1	63	8.1	7.8	.1	.6	.01	94	.13	3,950	48	0	30	.6	136	7.5
June 6-13, Sta. 3	15,580	21	.00	11	4.5	9.3	.9	62	8.1	7.2	.0	.5	.07	98	.13	4,120	46	0	30	.6	135	7.4
June 14-20	10,730	25	.00	13	7.7	15	1.3	87	11	12	.0	.5	.18	120	.16	3,480	64	0	33	.8	194	8.1
June 20	9,400	--	--	14	8.0	16	1.2	93	--	13	--	--	.08	--	--	--	68	0	33	.8	212	7.9
June 21-25	8,954	27	.00	14	8.8	17	1.3	98	14	13	.1	.5	.15	139	.19	3,360	71	0	34	.9	215	8.1
June 26-30	8,472	28	.00	14	9.0	17	1.3	98	13	13	.0	.5	.16	138	.19	3,160	72	0	33	.9	212	8.2
July 1-10	8,798	34	.00	14	8.8	17	1.3	96	12	13	.0	.5	.18	138	.19	3,280	71	0	34	.9	213	8.0
July 11-20	9,057	25	.01	13	8.9	16	1.6	94	12	12	.1	.6	.08	132	.08	3,230	69	0	33	.8	207	7.5
July 15	9,200	--	--	14	8.0	18	1.8	92	--	12	--	--	.29	--	--	--	68	0	36	.9	221	7.8
July 21-25	9,040	26	.01	13	8.6	16	1.3	94	12	12	.0	.5	.14	134	.18	3,270	68	0	33	.8	206	7.6
July 26-31	9,158	22	.01	13	8.2	16	1.2	92	12	12	.0	.4	.10	129	.18	3,190	66	0	34	.9	206	7.4
Aug. 1-10	9,195	26	.00	15	7.2	17	1.2	92	12	13	.1	.7	.28	138	.19	3,430	67	0	35	.9	207	8.0
Aug. 11-20	9,190	24	.00	15	8.2	18	1.5	99	12	14	.2	.8	.18	145	.20	3,600	71	0	35	.9	224	7.6
Aug. 21-31	8,754	23	.01	15	9.6	20	1.3	106	14	16	.2	.7	.18	154	.21	3,640	77	0	36	1.0	239	7.9
Aug. 22	8,780	--	--	17	11	22	1.4	121	--	16	--	--	.00	--	--	--	88	0	35	1.0	267	7.6
Sept. 1-10	10,030	23	.01	16	9.8	21	1.4	112	14	16	.2	.7	.17	158	.21	4,280	80	0	36	1.0	248	7.9
Sept. 11-22	10,600	25	.01	17	12	21	1.7	124	14	17	.2	.8	.20	175	.24	5,010	90	0	33	1.0	270	7.9
Sept. 19	11,200	25	.09	18	12	21	1.8	126	17	16	.2	.3	.19	174	.24	--	94	0	32	1.0	269	7.8
Sept. 23-27	8,746	26	.00	16	10	17	1.8	110	13	14	.1	.7	.19	154	.21	3,640	82	0	31	.8	240	7.7
Sept. 28-30	8,050	26	.01	15	9.4	15	1.6	101	10	12	.2	1.2	.13	137	.19	2,980	76	0	29	.7	213	7.7

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Temperature (°F) of water, May 1955 to September 1955
/Once-daily measurement at approximately 12:15 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								54	66	67	67	71
2								55	60	69	68	72
3								54	59	68	68	72
4								56	62	67	67	63
5								57	54	67	68	72
6								58	54	67	70	72
7								59	62	68	71	71
8								58	--	69	71	70
9								59	69	68	70	70
10								59	66	69	70	70
11								61	66	69	71	71
12								66	66	70	70	71
13								61	66	71	70	70
14								60	67	72	70	68
15								59	67	71	69	67
16								60	66	70	69	67
17								61	68	70	69	66
18								63	68	69	69	65
19								65	69	69	69	65
20								67	69	69	70	66
21								67	64	69	70	67
22								67	70	70	70	68
23								65	70	70	71	66
24								64	70	70	69	66
25								63	69	69	69	66
26								63	68	69	69	65
27								64	69	69	70	67
28								64	68	70	69	65
29								64	67	68	69	66
30								65	67	68	70	65
31								63	--	77	71	--
Average								61	66	69	69	68

SACRAMENTO RIVER BASIN--Continued

CLEAR LAKE (NORTH END) 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 September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954		6.6	--	27	15	12	2.1	166	--	6.0	--	--	0.81	--	--		130	0	16	0.5	292	8.2
Nov. 16		7.4	--	26	16	11	2.2	167	--	6.0	--	--	.81	--	--		132	0	15	.4	296	8.0
Dec. 14		--	--	26	16	11	1.9	163	--	6.8	--	--	.79	--	--		132	0	15	.4	291	8.0
Jan. 12, 1955		--	--	26	16	11	2.0	166	--	7.2	--	--	.88	--	--		132	0	15	.4	290	8.0
Feb. 9		--	--	26	17	12	2.0	166	--	8.8	--	--	.79	--	--		136	0	16	.4	294	7.7
Mar. 9		--	--	26	16	12	2.2	164	--	7.0	--	--	.64	--	--		131	0	16	.5	291	8.1
Mar. 25, 11:15 a.m.		--	0.00	--	--	--	--	--	11	--	--	--	.85	--	--		--	--	--	--	334	8.0
Mar. 25, 11:30 a.m.		--	.00	--	--	--	--	--	124	--	--	--	3.4	--	--		--	--	--	--	432	6.7
Mar. 25, 11:45 a.m.		--	.00	--	--	--	--	--	12	--	--	--	1.0	--	--		--	--	--	--	299	7.9
Mar. 25, 12:00 n...		--	.00	--	--	--	--	--	10	--	--	--	.92	--	--		--	--	--	--	317	7.5
Mar. 25, 12:30 p.m.		--	.00	--	--	--	--	--	12	--	--	--	.87	--	--		--	--	--	--	326	7.9
Mar. 25, 1:00 p.m.		--	.47	--	--	--	--	--	11	--	--	--	.82	--	--		--	--	--	--	332	7.8
Apr. 6		--	--	21	18	12	2.2	168	--	6.4	--	--	.82	--	--		128	0	17	.5	286	8.1
May 17		.9	.01	25	17	11	2.2	168	12	6.0	0.0	0.4	.87	158	0.21		131	0	15	.4	294	8.1
June 21		--	--	29	15	12	2.1	a174	--	6.5	--	--	.87	--	--		134	0	16	.5	299	8.4
June 24		--	.00	--	--	--	--	--	16	--	--	--	1.1	--	--		--	--	--	--	306	8.1
July 19		--	--	22	20	12	2.3	180	--	7.0	--	--	1.1	--	--		138	0	16	.4	308	8.0
Aug. 23		--	--	28	18	13	2.2	b186	--	7.0	--	--	1.2	--	--		142	0	16	.5	311	8.6
Sept. 20		4.8	.02	20	22	13	2.5	175	15	7.5	.2	3.7	1.4	176	.24		141	0	16	.5	321	7.9

a Includes equivalent of 5 parts per million of carbonate (CO_3).
b Includes equivalent of 11 parts per million of carbonate (CO_3).

CLEAR LAKE AT LAKEPORT, CALIF.

LOCATION.--At foot of 3rd Street near municipal wharf in Lakeport, Lake County.
DRAINAGE AREA.--528 square miles, including water surface of Lake (65 square miles).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of gage height for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954		--	--	28	14	12	2.2	165	--	5.5	--	--	0.89	--	--		129	0	16	0.5	294	8.0
Nov. 16.....		12	--	27	15	11	2.2	161	--	6.0	--	--	.77	--	--		127	0	16	.4	289	8.0
Dec. 14.....		--	--	24	15	10	1.8	150	--	6.8	--	--	.66	--	--		122	0	15	.4	272	8.0
Jan. 12, 1955.....		--	--	26	15	11	1.9	160	--	6.5	--	--	.65	--	--		124	0	16	.4	286	8.2
Feb. 5.....		--	--	25	16	11	1.9	159	--	6.5	--	--	.74	--	--		128	0	15	.4	281	8.2
Mar. 9		--	--	22	17	11	2.2	158	--	6.5	--	--	.36	--	--		125	0	16	.4	279	8.1
Apr. 6.....		--	--	22	17	11	2.0	164	--	6.0	--	--	.93	--	--		126	0	16	.4	287	8.1
May 17.....		1.9	0.00	24	17	11	2.1	166	10	6.0	0.0	0.5	.70	155	0.21		129	0	15	.4	288	8.1
June 21		--	--	30	14	12	2.2	174	--	6.3	--	--	.80	--	--		133	0	16	.5	302	8.2
July 19.....		--	--	24	19	12	2.6	179	--	7.0	--	--	.95	--	--		137	0	16	.4	308	8.2
Aug. 23.....		--	--	27	19	13	2.3	190	--	7.5	--	--	1.1	--	--		147	0	16	.5	323	7.9
Sept. 20.....		7.2	.02	28	19	12	2.5	195	11	7.2	.4	.1	1.1	184	.25		147	0	15	.4	337	7.8

SACRAMENTO RIVER BASIN--Continued

CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At gaging station, 500 feet downstream from Clear Lake Dam, 1.5 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954...	28	2.9	--	29	16	13	2.1	174	--	7.0	--	--	0.90	--	--		138	0	17	0.5	309	8.2
Nov. 16.....	.5	4.0	--	25	15	12	2.2	154	--	6.0	--	--	.70	--	--		125	0	17	.5	292	7.5
Dec. 14.....	.4	--	--	18	14	14	2.5	120	--	12	--	--	.67	--	--		102	4	23	.6	264	7.9
Jan. 13, 1955 ..	.4	--	--	21	12	11	1.9	123	--	5.2	--	--	.37	--	--		102	1	19	.5	247	8.0
Feb. 10.....	.4	--	--	24	13	13	1.7	130	--	5.5	--	--	.37	--	--		113	6	20	.5	268	8.0
Apr. 6.....	36	--	--	25	17	15	2.0	142	--	6.8	--	--	.32	--	--		133	17	19	.6	313	8.1
May 17	230	2.5	0.00	34	14	13	2.3	183	12	7.5	0.0	0.8	.96	177	0.24		144	0	16	.5	322	7.8
June 21	408	--		29	16	13	2.2	179	--	7.2	--	--	1.0	--	--		138	0	17	.5	311	8.1
July 19	452	--	--	27	18	13	2.5	184	--	7.0	--	--	.90	--	--		140	0	16	.5	311	8.2
Aug. 23.....	356	--	--	26	21	13	2.2	192	--	8.0	--	--	1.2	--	--		150	0	16	.5	324	8.0
Sept. 20	77	2.7	.01	27	20	13	2.9	200	11	7.5	.5	.1	1.2	185	.25		148	0	16	.5	349	7.3

NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At bridge on State Highway 20, 2.7 miles below gaging station, 4.3 miles northeast of Lower Lake, Lake County, and 0.3 miles above confluence with Cache Creek.
DRAINAGE AREA.--198 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395. Inflow between gaging station and sampling point during rainy season.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 19, 1954	3.0	19	--	38	27	40	1.8	204	12	--	69	--	--	4.6	--	--		207	20	29	1.2	574	8.5
Nov. 16	209	17	--	29	24	27	1.5	182	0	--	50	--	--	3.7	--	--		171	22	25	.9	465	8.0
Dec. 14	134	--	--	25	21	24	1.2	187	0	--	29	--	--	2.3	--	--		154	1	26	.8	395	8.2
Jan. 12, 1955	64	--	--	28	24	25	1.2	176	14	--	35	--	--	1.9	--	--		170	3	24	.8	426	8.5
Feb. 9	94	--	--	25	21	20	.9	168	7	--	24	--	--	1.5	--	--		149	0	22	.7	359	8.3
Mar. 9	97	--	--	25	22	23	1.2	185	0	--	24	--	--	1.7	--	--		151	0	25	.8	379	8.2
Apr. 6	50	--	--	24	25	26	1.3	212	0	--	28	--	--	2.1	--	--		164	0	25	.9	401	8.0
May 17	76	21	0.00	25	20	20	1.3	174	5	11	14	0.0	0.5	1.4	205	0.28		143	0	23	.7	352	8.3
June 21	14	--	--	33	23	30	1.5	193	15	--	38	--	--	2.7	--	--		176	0	27	1.0	458	8.6
July 19	4.9	--	--	33	27	36	2.1	211	10	--	52	--	--	3.7	--	--		192	0	29	1.1	518	8.4
Aug. 23	.9	--	--	36	32	40	2.0	254	0	--	68	--	--	4.9	--	--		222	14	28	1.2	601	8.2
Sept. 20	1.2	21	.01	21	46	44	2.0	257	0	13	87	.1	.3	4.5	366	.50		243	32	28	1.2	672	8.1

SACRAMENTO RIVER BASIN--Continued

CACHE CREEK NEAR CAPAY, CALIF.

LOCATION.--At gaging station, 1.8 miles upstream from Clear Lake Water Company'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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 15, 1954	25	--	--	41	26	45	2.9	242	6	--	57	--	--	1.6	--	--		208	0	32	1.4	586	8.4
Nov. 12	56	--	--	50	34	78	3.6	264	8	--	116	--	--	2.7	--	--		263	33	39	2.1	804	8.4
Dec. 10	820	--	--	26	27	37	1.8	192	0	--	44	--	--	1.5	--	--		177	20	31	1.2	502	8.1
Jan. 14, 1955	91	--	--	41	34	71	2.9	264	10	--	100	--	--	3.3	--	--		241	8	39	2.0	825	8.3
Feb. 25	83	--	--	39	36	61	2.7	260	10	--	80	--	--	2.0	--	--		244	14	35	1.7	725	8.4
Mar. 22	91	--	--	11	50	61	.8	276	0	--	78	--	--	1.6	--	--		233	7	36	1.7	729	7.9
Apr. 6	62	--	--	37	38	69	3.5	280	8	--	88	--	--	2.4	--	--		248	5	37	1.9	734	8.4
May 16	261	11	0.00	37	27	39	2.7	266	0	22	40	0.1	0.6	1.5	312	0.42		205	0	29	1.2	548	8.1
July 18	489	--	--	33	27	35	2.7	253	4	--	32	--	--	1.5	--	--		194	0	28	1.1	496	8.3
Sept. 19	110	7.7	.00	33	23	30	2.9	224	0	17	36	.3	2.4	1.6	264	.36		178	0	26	1.0	488	7.7

PUTAH CREEK NEAR WINTERS, CALIF.

LOCATION.--At gaging station, 6 miles west of Winters, Yolo County, and 8 miles downstream from Calpell Creek.
DRAINAGE AREA.--577 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954	1.8	--	--	36	58	45	5.6	384	10	--	33	--	--	1.3	--	--		330	0	23	1.1	753	8.3
Nov. 15	3,100	27	--	21	31	8.8	1.6	205	0	--	9.5	--	--	.30	--	--		180	12	10	.3	370	7.8
Dec. 10	1,470	--	--	13	28	12	1.2	165	0	--	11	--	--	.21	--	--		146	11	15	.4	287	7.5
Jan. 13, 1955	105	--	--	22	41	13	.9	240	10	--	12	--	--	.29	--	--		224	11	11	.4	449	8.4
Feb. 10	96	--	--	24	44	14	1.0	250	12	--	10	--	--	.36	--	--		240	15	11	.4	464	8.5
Mar. 9	180	--	--	23	40	14	1.0	239	9	--	10	--	--	.12	--	--		222	11	12	.4	440	8.4
Apr. 6	61	--	--	25	49	18	1.6	295	12	--	12	--	--	.52	--	--		262	0	13	.5	517	8.4
May 16	8.8	27	0.01	24	41	15	1.3	280	0	23	10	0.1	0.5	.38	280	0.38		230	0	12	.4	467	8.2
June 20	5.9	--	--	37	48	28	1.8	334	13	--	19	--	--	.85	--	--		289	0	17	.7	603	8.5
July 18	2.4	--	--	23	65	37	2.5	372	18	--	28	--	--	1.1	--	--		324	0	20	.9	682	8.5
Aug. 22	0	--	--	33	70	50	3.1	412	25	--	46	--	--	1.7	--	--		371	0	22	1.1	814	8.5
Sept. 19	3.9	21	.00	29	64	55	2.6	351	25	54	50	.4	.2	1.7	476	.65		334	4	26	1.3	789	8.6

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT SNODGRASS SLOUGH, NEAR COURTLAND, CALIF.

LOCATION.--At tidal gaging station 2.0 miles north of Courtland, Sacramento County, and approximately 1.5 miles south of Hood.
RECORDS AVAILABLE.--Chemical analyses; October 1952 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Tidal gaging station maintained and operated by State of California Division of Water Resources. No discharge records available for this station due to tidal effect from Suisun Bay.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954		22	--	15	7.4	11	1.2	91	--	11	--	--	0.03	--	--		68	0	26	0.6	196	8.0
Nov. 15		--	--	16	7.1	14	1.9	80	--	12	--	--	.00	--	--		69	3	30	.7	198	7.9
Dec. 13		19	0.20	11	5.7	7.1	1.5	60	7.1	6.8	0.5	1.6	.00	90	0.12		51	2	23	.4	133	7.8
Jan. 21, 1955		22	.22	11	6.2	10	1.1	63	9.1	11	.5	1.2	.00	103	.14		53	1	29	.6	157	7.7
Feb. 14		22	.02	17	9.1	15	1.1	96	17	12	.1	.6	.07	141	.19		80	1	29	.7	224	8.1
Mar. 14		20	.03	13	6.5	9.8	1.1	75	10	7.0	.1	.5	.10	105	.14		59	0	26	.6	162	7.5
Apr. 18		21	.05	13	6.2	8.8	1.3	78	6.0	7.2	.2	1.1	.08	103	.14		58	0	24	.5	155	7.5
May 16		18	.00	12	6.3	11	1.0	65	10	11	.1	.8	.09	102	.14		56	3	29	.6	156	7.4
June 20		19	.03	14	6.1	15	1.0	80	12	11	.0	.8	.08	118	.16		60	0	35	.8	206	7.8
July 20		22	.05	14	7.1	15	1.5	86	12	12	.3	.6	.13	127	.17		64	0	33	.8	200	7.2
Aug. 26		22	.00	15	7.9	17	1.3	98	12	12	.1	.6	.11	136	.18		70	0	34	.9	217	7.3
Sept. 23		26	.01	17	11	15	1.8	114	14	12	.1	1.0	.01	154	.21		87	0	27	.7	245	7.7

LINDSAY SLOUGH NEAR RIO VISTA, CALIF.

LOCATION.--Near tidal gaging station 6 miles north of Rio Vista, Solano County, and 1.1 miles upstream from confluence with Cache Slough.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station due to tidal effect from Suisun Bay.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954.....		21	--	18	12	25	1.7	120	--	22	--	--	0.15	--	--		95	0	36	1.1	298	8.2
Nov. 16.....		21	--	15	9.4	17	1.7	96	--	15	--	--	.11	--	--		76	0	32	.8	237	8.1
Dec. 15.....		--	--	18	15	30	2.2	117	--	26	--	--	.22	--	--		108	12	37	1.3	343	8.0
Jan. 21, 1955		--	--	19	15	25	1.8	119	--	27	--	--	.41	--	--		109	11	33	1.0	334	7.8
Feb. 14.....		--	--	20	16	27	1.5	124	--	25	--	--	.20	--	--		114	12	34	1.1	338	7.8
Mar. 14.....		--	--	18	15	24	2.9	118	--	24	--	--	.18	--	--		108	11	32	1.0	311	8.1
Apr. 18.....		--	--	14	8.8	13	1.5	89	--	12	--	--	.11	--	--		71	0	28	.7	202	7.5
May 16.....		20	0.05	13	8.6	12	1.3	78	15	12	0.1	0.7	.05	121	0.16		68	4	27	.6	187	7.5
June 20		--	--	11	7.7	13	1.2	76	--	11	--	--	.12	--	--		59	0	32	.7	175	8.0
June 22		--	--	12	7.6	13	1.3	78	11	11	--	.6	.06	--	--		61	0	31	.7	180	7.9
July 20		--	--	15	9.4	20	2.2	91	--	13	--	--	.12	--	--		76	1	36	1.0	230	7.7
Aug. 3.....		--	--	--	--	--	--	--	--	13	--	--	--	a136	.18		--	--	--	--	216	--
Aug. 25.....		--	--	15	9.1	18	1.6	101	--	14	--	--	.09	--	--		75	0	34	.9	230	7.6
Sept. 13.....		--	--	--	--	--	--	--	--	14	--	--	--	a161	.22		--	--	--	--	245	--
Sept. 23.....		24	.10	20	15	29	1.9	138	24	26	.3	.6	.25	209	.28		110	0	36	1.2	349	7.8

a Residue on evaporation at 180°C.

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SACRAMENTO RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station due to tidal effect from Suisun Bay.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 20, 1954 ..		22	--	16	9.8	17	1.4	102	--	14	--	--	0.08	--	--		80	0	31	0.8	238	8.1
Nov. 16.....		--	--	15	7.2	13	1.6	84	--	12	--	--	.05	--	--		67	0	29	.7	193	8.1
Dec. 15.....		--	--	14	7.3	13	1.6	76	--	12	--	--	.15	--	--		65	3	30	.7	191	7.7
Jan. 21, 1955 ..		--	--	12	7.1	10	1.3	71	--	9.5	--	--	.19	--	--		59	1	26	.6	164	7.6
Feb. 14.....		--	--	18	12	18	1.2	104	--	16	--	--	.11	--	--		94	9	29	.8	256	8.0
Mar. 14.....		--	--	17	9.1	14	1.1	91	--	13	--	--	.16	--	--		80	5	27	.7	222	7.8
Apr. 18.....		--	--	12	8.3	11	1.2	81	--	9.2	--	--	.04	--	--		64	0	27	.6	179	7.2
May 16		19	0.02	11	6.0	9.6	.9	66	3.1	11	0.1	0.6	.09	94	0.13		52	0	28	.6	149	7.5
June 20		--	--	10	7.1	11	1.1	70	--	10	--	--	.08	--	--		54	0	30	.7	161	7.7
July 20		--	--	13	9.6	18	1.9	76	--	14	--	--	.21	--	--		72	10	34	.9	229	7.1
Aug. 25.....		--	--	12	10	18	1.5	100	--	13	--	--	.11	--	--		72	0	35	.9	222	7.5
Sept. 23.....		24	.05	19	11	23	2.0	126	17	16	.3	.5	.01	175	.24		93	0	34	1.0	279	7.9

MISCELLANEOUS ANALYSES OF STREAMS IN SACRAMENTO RIVER BASIN IN CALIFORNIA

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
PIT RIVER NEAR CANBY (SEC. 10, T. 41 N., R. 9 E.)																							
Oct. 13, 1954	63	--	--	23	5.0	27	5.6	156		--	6.0	--	--	0.13	--	--		78	0	41	1.3	285	7.8
Nov. 10	44	--	--	20	8.5	32	5.5	152		--	10	--	--	.14	--	--		85	0	43	1.5	294	8.1
Mar. 2, 1955	97	--	--	19	6.7	25	5.0	135		--	7.0	--	--	.00	--	--		75	0	40	1.3	252	8.1
Apr. 1	202	--	--	11	9.9	18	3.5	106		--	6.4	--	--	.12	--	--		68	0	35	.9	201	7.7
May 11	234	34	0.05	15	5.0	15	3.7	97		7.1	3.0	0.4	1.3	.13	133	0.18		58	0	34	.9	177	7.1
June 15	41	--	--	26	8.5	29	5.7	182		--	3.7	--	--	.16	--	--		100	0	37	1.3	311	7.8
July 13	75	--	--	21	11	30	4.9	173		--	4.0	--	--	.19	--	--		96	0	39	1.3	303	7.8
Aug. 17	5.6	--	--	25	10	25	5.3	183		--	4.5	--	--	.10	--	--		105	0	33	1.1	302	8.1
Sept. 14	67	32	.06	22	10	21	5.1	160		5.0	4.0	.5	.6	.10	179	.24		96	0	31	.9	275	7.7
BURNEY CREEK NEAR BURNEY (SEC. 18, T. 35 N., R. 3 E.)																							
Oct. 13, 1954		--	--	12	5.5	4.8	1.0	71		--	1.0	--	--	0.00	--	--		53	0	16	0.3	110	7.8
Nov. 10		--	--	11	4.5	4.5	1.6	64		--	1.0	--	--	.03	--	--		46	0	17	.3	101	7.6
Mar. 2, 1955		--	--	11	4.0	4.1	1.3	59		--	.5	--	--	.00	--	--		44	0	16	.3	94.4	7.6
Apr. 1		--	--	3.5	4.5	3.2	.7	42		--	.0	--	--	.03	--	--		27	0	20	.3	65.4	7.4
May 11		18	0.05	5.1	1.8	2.4	.8	32		0.5	.8	0.2	0.1	.02	46	0.06		20	0	20	.2	49.5	7.1
June 15		--	--	10	3.4	3.7	1.2	58		--	.4	--	--	.00	--	--		39	0	17	.3	91.1	7.5
July 13		--	--	10	4.4	4.2	1.3	66		--	.5	--	--	.04	--	--		43	0	17	.3	102	7.6
Aug. 17		--	--	11	5.5	4.6	.9	71		--	.8	--	--	.00	--	--		50	0	16	.3	108	7.5
Sept. 14		29	.13	11	4.6	4.3	1.0	70		.0	.0	.0	.2	.00	84	.11		46	0	16	.3	108	7.4
INDIAN CREEK NEAR CRESCENT MILLS (SEC. 25, T. 26 N., R. 9 E.)																							
Oct. 12, 1954	25	--	--	25	6.3	12	1.8	122		--	4.7	--	--	0.08	--	--		88	0	22	0.6	219	7.7
Nov. 9	86	--	--	19	7.0	9.2	1.6	102		--	4.2	--	--	.05	--	--		76	0	20	.5	184	7.8
May 10, 1955	1,120	21	0.11	9.3	2.1	3.8	1.1	48		2.2	.5	0.2	0.4	.03	65	0.09		32	0	20	.3	81.3	7.5
June 14	214	--	--	16	3.7	5.8	1.6	79		--	.0	--	--	.00	--	--		55	0	18	.3	131	7.1
July 12	21	--	--	26	8.5	13	2.1	140		--	4.2	--	--	.06	--	--		100	0	22	.6	239	7.5
Aug. 16	5.3	--	--	33	8.4	17	1.8	174		--	6.8	--	--	.20	--	--		117	0	24	.7	291	7.1
Sept. 13	4.2	29	.01	36	12	21	1.6	201		10	12	.0	.3	.14	221	.30		139	0	24	.8	363	6.9

SACRAMENTO RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN SACRAMENTO RIVER BASIN IN CALIFORNIA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
SOUTH HONCUT CREEK NEAR BANGOR (SEC. 35, T. 18 N., R. 5 E.)																							
Nov. 11, 1954	6.2			14	6.8	17	0.5	82			8.5			0.06				63	0	37	0.9	195	7.8
Dec. 8	11			11	4.9	8.3	.2	58			5.5			.02				48	0	27	.5	132	7.5
Jan. 11, 1955	19			10	5.1	7.0	.5	60			4.8			.15				46	0	25	.4	123	7.7
Feb. 8	13			11	4.3	7.7	.4	61			3.8			.01				45	0	27	.5	121	7.9
Mar. 8	11			11	4.3	7.6	.4	63			4.0			.00				45	0	27	.5	120	7.8
Apr. 5	6.4			9.5	7.9	11	.3	77		7.9	4.8			.02				56	0	30	.6	153	7.9
May 12	8.7	27	0.02	12	5.8	9.8	.5	78			4.5	0.1	0.1	.03	106	0.14		54	0	28	.6	147	7.5
June 16	1.3			18	6.0	17	.4	99			5.9			.07				69	0	35	.9	206	8.0
July 14	.1			23	11	29	.4	134			19			.14				101	0	38	1.3	321	8.1

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 (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to July 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, October 1954 to July 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 18, 1954 ...	0.7	30		37	16	17	2.2	198		12			0.38				160	0	18	0.6	372	8.2
Nov. 16.....	92	35		11	5.2	15	3.1	54		16			.41				49	0	38	.9	180	7.4
Dec. 13.....	50	--		14	7.1	14	2.1	73		11			.23				64	4	31	.8	188	7.4
Jan. 13, 1955	103	--		14	7.8	8.9	2.1	80		7.8			.18				67	1	22	.5	179	7.5
Feb. 10.....	32	--		17	7.0	17		91		14			.31				71	0	33	.9	224	7.9
Mar. 4	34	--		18	8.8	18	3.0	100		15			.36				81	0	32	.9	237	7.8
Apr. 6.....	13	--		16	12	22	3.2	123		19			.58				90	0	34	1.0	282	7.9
May 17	11	41	0.02	19	9.1	22	2.9	118	14	19	0.5	2.4	.54	188	0.26		85	0	35	1.0	273	7.2
June 21	2.9	--		30	13	20	2.7	162		17			.44				126	0	25	.8	335	7.8
July 19.....	.5	11		27	18	21	3.7	195		12			.49				141	0	24	.8	359	7.7

RUSSIAN RIVER BASIN

EAST FORK RUSSIAN RIVER AT POTTER VALLEY POWERHOUSE, CALIF.

LOCATION.--At gaging station of Pacific Gas & Electric Co. powerhouse, 3 miles northwest of Potter Valley, Mendocino County, and 16 miles above mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for Potter Valley powerhouse tailrace near Potter Valley for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4, 1954	304	6.5	--	20	6.3	5.0	0.7	96	--	3.0	--	--	0.28	--	--		76	0	12	0.3	171	8.1
Nov. 7	11	--	--	24	7.3	6.4	.7	106	--	5.5	--	--	.53	--	--		90	3	13	.3	188	7.7
Dec. 6	258	--	--	13	3.9	4.2	1.6	59	--	1.8	--	--	.44	--	--		48	0	15	.3	112	7.6
Jan. 3, 1955	311	--	--	17	4.6	4.7	.9	75	--	3.2	--	--	.32	--	--		62	0	14	.3	141	7.7
Feb. 7	308	--	--	18	4.8	5.5	.6	78	--	3.5	--	--	.24	--	--		64	0	15	.3	147	7.7
Mar. 1	320	--	--	15	7.5	5.6	.8	84	--	3.8	--	--	.28	--	--		68	0	15	.3	155	7.5
Apr. 4	87	--	--	21	5.5	6.8	1.0	94	--	4.0	--	--	.49	--	--		75	0	16	.3	176	7.2
May 2	323	9.3	0.10	18	4.9	5.3	.8	79	8.4	4.2	0.1	0.2	.23	90	0.12		65	0	15	.3	148	6.9
June 23	229	--	.00	21	4.0	5.4	.5	86	--	3.2	--	--	.26	--	--		69	0	14	.3	156	7.7
July 11	217	--	--	19	5.3	5.4	.6	86	--	3.2	--	--	.33	--	--		69	0	14	.3	158	7.5
Sept. 12	233	7.7	.02	21	5.4	5.7	.7	96	7.0	3.4	.1	.3	.35	99	.13		75	0	14	.3	175	7.8

EAST FORK RUSSIAN RIVER NEAR CALPELLA, CALIF.

LOCATION.--Approximately 0.2 mile below gaging station, 1.6 miles downstream from Cold Creek, and 3 miles east of Calpella, Mendocino County.
DRAINAGE AREA.--94.0 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4, 1954	285	--	--	23	4.5	5.6	0.8	100	--	7.0	--	--	0.37	--	--		76	0	14	0.3	174	7.4
Nov. 7	19	--	--	25	9.1	8.8	.8	130	--	5.0	--	--	.65	--	--		100	0	16	.4	227	7.8
Dec. 6	860	--	--	13	6.1	4.6	1.8	66	--	2.5	--	--	.31	--	--		58	4	14	.3	130	7.7
Jan. 3, 1955	400	--	--	17	4.5	4.9	.8	76	--	3.0	--	--	.40	--	--		61	0	15	.3	141	7.5
Feb. 7	358	--	--	20	6.3	6.3	.7	90	--	3.5	--	--	.27	--	--		76	2	15	.3	169	7.5
Mar. 1	403	--	--	17	9.1	6.6	.8	96	--	3.0	--	--	.27	--	--		80	1	15	.3	183	7.7
Apr. 4	104	--	--	22	8.5	8.0	1.0	113	--	4.5	--	--	.46	--	--		90	0	16	.4	206	7.5
May 2	361	11	0.07	21	6.2	6.2	.7	93	10	4.0	0.1	0.1	.26	105	0.14		78	2	15	.3	171	7.4
June 23	190	--	.00	20	6.0	6.2	1.0	94	--	3.2	--	--	.20	--	--		74	0	15	.3	173	7.7
July 11	186	--	--	19	7.0	6.6	1.2	94	--	3.8	--	--	.33	--	--		76	0	16	.3	174	7.4
Aug. 1	195	--	--	20	6.3	5.9	.8	97	--	3.2	--	--	.38	--	--		76	0	14	.3	168	7.5
Sept. 12	202	8.5	.04	20	7.0	6.3	.9	99	8.4	3.5	.2	.3	.41	105	.14		79	0	15	.3	185	7.9

RUSSIAN RIVER BASIN--Continued

EAST FORK RUSSIAN RIVER NEAR UKIAH, CALIF.

LOCATION.--At gaging station at private road bridge, 1.3 miles upstream from mouth, and 3.7 miles northeast of Ukiah, Mendocino County.
DRAINAGE AREA.--104 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1952 to March 1955 (discontinued).
Water temperatures: December 1952 to March 1955 (discontinued).
Sediment records: December 1952 to March 1955 (discontinued).
EXTREMES, 1954-55.--Dissolved solids: Maximum, 118 ppm Mar. 1-31; minimum, 104 ppm Jan. 1-14, Feb. 1-28.
Hardness: Maximum, 88 ppm Mar. 1-31; minimum, 73 ppm Dec. 1-31.
Water temperatures: Maximum, 60°F on several days during October; minimum, 37°F Jan. 3.
Sediment concentrations: Maximum daily, 530 ppm Dec. 5; minimum daily, 5 ppm Oct. 12, Nov. 1-9.
Sediment loads: Maximum daily, 2,800 tons Dec. 5; minimum daily, 2 tons Nov. 1-9, Mar. 25-31.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 150 ppm Jan. 23-31, Feb. 1-10, 1953; minimum, 68 ppm Jan. 16, 23, 1954.
Hardness: Maximum, 113 ppm Jan. 23-31, Feb. 1-10, 1953; minimum, 34 ppm Jan. 16, 23, 1954.
Specific conductance: Maximum daily 279 micromhos Feb. 10, 1953; minimum daily 72.8 micromhos Jan. 16, 1954.
Water temperatures: Maximum, 75°F Aug. 9, Sept. 3, 10, 1953; minimum, 37°F Jan. 3, 1955.
Sediment concentrations: Maximum daily, 3,510 ppm Jan. 17, 1954; minimum daily 1 ppm Jan. 29, 1953.
Sediment loads: Maximum daily, 57,700 tons Jan. 17, 1954; minimum daily, less than 0.50 tons Oct. 27, 28, 1953.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, October 1954 to March 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1, 5, 8, 12, 15, 19, 22, 26, 29, 1954.....	307	9.5	0.02	21	7.7	6.5	0.7	102	7.2	5.2	0.1	0.5	0.39	108	0.15	90	84	0	14	0.3	194	7.4
Nov. 2, 5, 9, 11, 13-30.....	338	8.8	.02	21	7.7	8.0	.9	104	8.4	5.5	.1	.6	.55	116	.16	106	84	0	17	.4	195	7.8
Dec. 1-16.....	534	13	.09	16	8.0	6.7	1.1	86	8.6	4.0	.3	1.4	.35	108	.15	156	73	2	16	.3	167	7.7
Dec. 17-31.....	377	13	.06	18	6.8	6.8	.9	90	8.1	4.0	.1	.6	.47	106	.14	108	73	0	17	.4	174	7.7
Jan. 1-14, 1955 .	393	12	.06	18	7.6	6.5	1.1	94	9.2	3.8	.1	.8	.38	104	.14	110	76	0	15	.3	170	7.9
Jan. 15-18, 20-31	527	12	.06	18	7.3	6.5	.9	93	10	3.8	.2	.8	.35	108	.15	154	75	0	16	.3	173	7.8
Feb. 1-28.....	377	12	.07	19	6.7	6.3	.8	92	9.6	3.8	.1	.6	.38	104	.14	106	75	0	15	.3	177	7.6
Mar. 1-31	221	13	.01	21	8.7	7.4	.9	108	11	4.2	.1	.5	.47	118	.16	70	88	0	15	.3	199	8.0

RUSSIAN RIVER BASIN--Continued

EAST FORK RUSSIAN RIVER NEAR UKIAH, CALIF.--Continued

Temperature (°F) of water, October 1954 to March 1955
/Once-daily measurement at approximately 10 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	--	47	45	42	39						
2	--	58	49	40	40	42						
3	--	--	50	37	38	42						
4	--	--	50	40	40	43						
5	60	57	50	42	39	42						
6	--	--	50	42	42	44						
7	--	--	50	38	41	45						
8	60	--	45	38	41	49						
9	--	54	45	42	40	49						
10	--	--	43	42	40	40						
11	--	53	45	41	40	45						
12	60	53	44	42	40	50						
13	--	50	44	42	40	45						
14	--	52	45	38	42	42						
15	60	52	45	41	44	46						
16	--	52	43	39	40	45						
17	--	48	45	42	46	41						
18	--	49	45	43	41	49						
19	60	50	44	40	40	47						
20	--	50	43	40	39	47						
21	--	50	43	40	41	49						
22	60	50	44	41	42	49						
23	--	47	44	39	40	46						
24	--	48	42	40	40	47						
25	--	50	41	42	42	48						
26	57	50	41	40	42	49						
27	--	48	39	39	40	55						
28	--	48	45	39	39	52						
29	52	44	45	41	--	53						
30	--	45	45	45	--	46						
31	--	--	45	42	--	49						
Average	--	--	45	41	41	46						

RUSSIAN RIVER BASIN--Continued

EAST FORK RUSSIAN RIVER NEAR UKIAH, CALIF.--Continued

Suspended sediment, October 1954 to March 1955

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.....	286	9		366			470	50	63
2.....	302	--	7	350			910	490	s1,510
3.....	306	--		173			512	180	249
4.....	282	--		170			430	60	70
5.....	286	6	5	89	5	2	744	530	sa2,800
6.....	286	--		29			896	400	s1,160
7.....	306	--		18			535	80	116
8.....	306	9	7	24			390	41	43
9.....	302	--		26			910	367	s1,220
10.....	302	--		90	20	b 5	478	40	52
11.....	298	--		342	47	s 46	378	27	28
12.....	302	5	4	394	37	39	342	24	22
13.....	306	--		366	28	b 28	386	41	43
14.....	302	--		418	32	b 36	402	32	35
15.....	302	11	9	607	140	sb 270	390	24	25
16.....	306	--		438	100	b 120	378	21	21
17.....	294	--		354	69	66	374	28	28
18.....	306	--		342	90	83	366	23	23
19.....	314			338	80	73	362	26	25
20.....	314			346	50	47	362	23	22
21.....	310			342	38	35	362	23	22
22.....	314			342			358	22	21
23.....	318			342	28	26	354	23	22
24.....	318			338			354	17	16
25.....	322	10	9	342			354	21	20
26.....	318			342			354	12	11
27.....	334			342	12	11	350	16	15
28.....	338			342			350	14	13
29.....	338			342			350	11	10
30.....	346			338			362	115	15
31.....	354			--	--	--	645	190	s398
Total.	9,618	--	243	8,692	--	1,010	14,208	--	8,118

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.....	665	190	sa390	422	--	e 20	406		
2.....	482	45	59	398			402		
3.....	414	19	21	386			390		
4.....	390	14	15	382			378		
5.....	382	12	12	382	7	7	370	9	9
6.....	378	11	11	378			362		
7.....	378	--	e 12	374			362		
8.....	370	12	12	370			358		
9.....	398	--	e 15	370			366		
10.....	390	14	15	366			362		
11.....	318	16	14	362			346		
12.....	243	14	9	362	8	8	179	12	8
13.....	346	20	19	358			194		
14.....	342	14	13	358			191		
15.....	434	70	a 82	358			191		
16.....	548	86	127	330			176		
17.....	608	160	sa 550	362			173		
18.....	885	190	sa 530	358			123		
19.....	1,320	350	sa 1,300	354			119		
20.....	730	65	128	354	8	8	123	8	3
21.....	598	33	53	354			123		
22.....	562	35	53	354			119		
23.....	530	26	37	354			116		
24.....	504	22	30	354			114		
25.....	478	20	26	354	9	9	112		
26.....	462	15	19	414	25	28	114		
27.....	442	16	19	548	42	62	110	6	2
28.....	430	14	16	430	17	20	110		
29.....	422	15	17	--	--	--	114		
30.....	406	11	12	--	--	--	126		
31.....	398	14	15	--	--	--	121		
Total.	15,253	--	3,631	10,546	--	316	6,850	--	174

Total discharge for period (cfs-days)..... 65,167
Total load for period (tons)..... 13,492

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from partly estimated concentration graph.

RUSSIAN RIVER NEAR UKIAH, CALIF.

LOCATION.--On right bank below Talmadge Road bridge, 1 mile east of Ukiah, Mendocino County, and 0.1 mile below Middle Creek.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4, 1954.....		8.2	--	20	6.8	5.8	0.8	98	--	3.5	--	--	0.28	--	--		78	0	14	0.3	181	7.5
Nov. 7		--	--	23	9.4	8.2	1.0	119	--	5.5	--	--	.57	--	--		96	0	16	.4	207	8.0
Dec. 6.....		--	--	18	5.6	5.6	1.8	80	--	3.0	--	--	.10	--	--		68	2	15	.3	155	7.8
Feb. 7, 1955		--	--	28	8.8	8.9	1.0	126	--	4.8	--	--	.20	--	--		106	3	15	.4	234	8.0
Mar. 6		--	--	26	9.8	9.6	1.3	128	--	6.6	--	--	.16	--	--		105	0	16	.4	241	7.9
Apr. 4.....		--	--	23	8.9	9.8	1.1	121	--	6.0	--	--	.52	--	--		94	0	18	.4	222	7.5
May 2		17	--	31	8.2	8.0	1.1	138	10	5.8	0.1	0.1	.14	149	0.20		111	0	13	.3	240	7.2
June 23		--	0.00	27	2.2	6.5	.8	98	--	.6	--	--	.30	--	--		76	0	15	.3	177	7.4
July 11		--	--	21	6.5	6.7	1.1	101	--	3.8	--	--	.35	--	--		79	0	15	.3	179	7.2
Aug. 1		--	--	19	7.4	6.2	1.0	100	--	3.0	--	--	.41	--	--		78	0	15	.3	179	7.1
Sept. 12.....		10	.06	22	8.2	8.7	1.0	113	8.2	5.2	.2	.2	.38	120	.16		89	0	17	.4	206	7.7

RUSSIAN RIVER BASIN--Continued

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4, 1954	293	7.3	--	22	6.3	6.0	0.7	102	--	4.0	--	--	0.27	--	--		81	0	14	0.3	189	7.4
Nov. 7	75	--	--	26	9.5	8.1	.7	127	--	6.0	--	--	.44	--	--		104	0	14	.3	226	8.2
Dec. 6	3,040	--	--	12	6.3	5.1	2.0	62	--	3.0	--	--	.11	--	--		56	5	16	.3	127	7.4
Jan. 3, 1955	925	--	--	18	7.6	6.4	1.0	88	--	4.5	--	--	.34	--	--		76	4	15	.3	169	7.7
Feb. 7	586	--	--	20	8.3	7.8	.7	100	--	5.2	--	--	.25	--	--		84	2	17	.4	191	7.4
Mar. 1	719	--	--	16	10	7.6	1.1	98	--	4.8	--	--	.23	--	--		81	1	17	.4	179	7.4
Apr. 4	171	--	--	23	9.9	9.6	1.3	125	--	6.0	--	--	.39	--	--		98	0	17	.4	226	7.6
May 2	658	13	0.06	22	7.3	7.7	.8	103	10	5.5	0.0	0.9	.28	118	0.16		85	1	16	.4	191	7.4
June 23	220	--	.00	19	7.0	7.3	.8	104	--	4.5	--	--	.25	--	--		76	0	17	.4	189	7.6
July 11	186	--	--	19	7.9	7.8	.9	a100	--	4.2	--	--	.33	--	--		80	0	17	.4	182	8.8
Aug. 1	189	--	--	20	7.3	6.7	1.1	104	--	6.0	--	--	.35	--	--		80	0	15	.3	188	7.4
Sept. 12	180	9.3	.03	21	6.1	6.9	.5	b97	9.0	4.1	.2	.6	.40	106	.14		77	0	16	.3	178	9.1

a Includes equivalent of 9 parts per million of carbonate (CO_3).
b Includes equivalent of 13 parts per million of carbonate (CO_3).

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4, 1954	288	14	--	25	12	9.6	1.2	140	--	7.0	--	--	1.1	--	--		110	0	16	0.4	255	7.9
Nov. 7	180	--	--	28	13	14	1.2	158	--	10	--	--	2.5	--	--		124	0	20	.5	267	7.9
Dec. 6	8,330	--	--	14	6.5	4.2	3.2	70	--	2.5	--	--	.28	--	--		62	5	12	.2	133	7.5
Jan. 3, 1955	1,570	--	--	19	9.6	7.7	1.3	102	--	4.5	--	--	.39	--	--		87	3	16	.4	192	7.6
Feb. 7	926	--	--	25	12	12	.9	136	--	7.8	--	--	1.2	--	--		112	0	19	.5	257	8.2
Mar. 6	908	--	--	21	14	8.4	1.1	132	--	5.3	--	--	.34	--	--		109	1	14	.3	242	8.0
Apr. 4	318	--	--	27	16	11	1.0	168	--	7.1	--	--	.84	--	--		134	0	15	.4	293	8.1
May 2	1,380	5.6	--	25	11	8.7	.9	129	13	7.5	0.1	0.6	.16	137	0.19		106	0	15	.4	234	7.5
June 23	196	--	0.00	31	12	16	1.5	164	--	11	--	--	2.5	--	--		129	0	21	.6	306	7.5
July 11	177	--	--	27	15	17	1.2	171	--	12	--	---	3.1	--	--		127	0	22	.7	309	7.9
Aug. 1	141	--	--	27	15	16	1.2	173	--	12	--	--	3.3	--	--		128	0	21	.6	314	7.8
Sept. 12	168	12	.02	28	12	18	1.2	164	7.8	12	.1	.1	3.5	176	.24		118	0	25	.7	305	8.2

RUSSIAN RIVER BASIN--Continued

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.--1,349 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for gaging station near Guerneville for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 4, 1954	299	13	--	26	13	13	1.2	156		--	9.5	--	--	2.5	--	--		120	0	19	0.5	287	8.0
Nov. 7	225	--	--	28	14	14	1.4	159		--	12	--	--	2.3	--	--		127	0	19	.5	287	7.9
Dec. 6	11,300	--	--	13	6.3	5.3	2.5	68		--	9.0	--	--	.26	--	--		58	2	16	.3	138	7.4
Jan. 3, 1955	2,120	--	--	18	9.0	6.7	1.4	95		--	4.8	--	--	.24	--	--		82	4	15	.3	185	7.6
Feb. 7	1,320	--	--	24	13	10	1.1	132		--	7.0	--	--	.32	--	--		114	6	16	.4	251	7.9
Mar. 1	1,700	--	--	17	13	10	1.5	112		--	8.0	--	--	.57	--	--		94	2	18	.4	225	7.5
Apr. 4	418	--	--	29	15	15	1.3	170		--	10	--	--	1.4	--	--		134	0	19	.6	312	7.9
May 2	2,030	16	--	23	12	9.0	1.2	126		14	6.5	0.1	0.9	.28	145	0.20		107	4	15	.4	237	7.3
June 24	212	--	0.00	30	15	13	1.3	170		--	9.9	--	--	1.8	--	--		135	0	17	.5	305	8.1
July 11	186	--	--	28	16	15	1.3	174		--	11	--	--	2.4	--	--		135	0	19	.6	313	7.7
Aug. 1	138	--	--	27	16	15	1.4	181		--	12	--	--	2.6	--	--		135	0	19	.6	318	7.7
Sept. 12	148	15	.00	23	18	15	1.4	169		11	12	.0	1.2	2.6	182	.25		131	0	20	.6	312	7.7

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 of the South Fork.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5, 1954 ...		9.5	--	37	9.7	7.9	1.2	142	--	8.0	--	--	0.15	--	--		132	16	11	0.3	292	7.8
Dec. 7.....		--	--	14	3.2	3.0	2.0	54	--	1.2	--	--	.25	--	--		48	4	11	.2	104	7.6
Jan. 4, 1955....		--	--	17	4.4	3.6	.9	70	--	1.8	--	--	.19	--	--		60	3	11	.2	132	7.7
Feb. 8		--	--	21	5.7	4.9	.7	88	--	3.0	--	--	.06	--	--		76	4	12	.2	164	7.7
Mar. 6		--	--	17	7.4	5.0	1.0	84	--	3.2	--	--	.07	--	--		73	4	13	.3	153	7.5
Apr. 5.....		--	--	20	5.1	4.6	.8	83	--	2.5	--	--	.12	--	--		71	3	12	.2	157	7.6
May 4		10	--	19	4.8	4.5	.8	80	9.7	2.2	0.0	0.1	.02	90	0.12		67	1	13	.2	148	7.2
June 6		--	0.00	28	4.4	5.2	.9	99	--	3.4	--	--	.07	--	--		88	7	11	.2	187	7.9
July 12, 10:15 a. m.		--	--	31	8.9	6.6	1.1	135	--	5.0	--	--	.21	--	--		114	3	11	.3	249	7.7
July 12, 11:20 a. m.		--	--	37	9.4	8.9	3.2	173	--	6.5	--	--	.17	--	--		131	0	13	.3	310	7.5
Aug. 1.....		--	--	35	6.7	7.1	1.1	131	--	5.5	--	--	.21	--	--		115	8	12	.3	247	8.0
Sept. 13		12	.02	37	8.6	7.8	1.3	150	19	5.6	.1	.1	.13	166	.23		128	0	12	.3	283	8.1

EEL RIVER BASIN--Continued

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 (revised), of Miranda, Humboldt County, and 20 miles upstream from mouth.
DRAINAGE AREA.--537 square miles (revised).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5, 1954	59	--	--	30	8.1	9.0	1.1	136	--	3.5	--	--	0.13	--	--		108	0	15	0.4	250	7.9
Nov. 7	79	--	--	25	8.9	8.9	1.0	122	--	8.0	--	--	.16	--	--		99	0	16	.4	221	7.9
Dec. 7	7,040	--	--	9.8	3.3	4.5	1.4	47	--	2.2	--	--	.03	--	--		38	0	20	.3	92.3	7.4
Jan. 4, 1955	2,990	--	--	12	3.2	5.5	.8	58	--	2.0	--	--	.00	--	--		43	0	21	.4	107	7.8
Feb. 8	1,000	--	--	15	4.6	6.2	.7	72	--	4.0	--	--	.03	--	--		56	0	19	.4	137	7.5
Mar. 6	940	--	--	12	6.1	6.1	.8	70	--	4.4	--	--	.00	--	--		55	0	19	.4	131	7.7
Apr. 5	571	--	--	16	4.9	6.6	.8	78	--	4.5	--	--	.09	--	--		60	0	19	.4	146	7.4
May 3	1,790	38	--	11	6.0	6.1	1.0	70	6.3	3.1	0.3	0.3	.06	106	0.14		52	0	20	.4	125	7.5
June 6	300	--	0.00	11	4.2	2.6	.6	51	--	2.8	--	--	.00	--	--		45	3	11	.2	103	7.4
July 12	114	--	--	21	8.4	8.9	1.2	113	--	5.5	--	--	.09	--	--		87	0	18	.4	204	7.6
Aug. 1	77	--	--	22	9.3	9.0	1.3	126	--	5.5	--	--	.12	--	--		93	0	17	.4	220	7.7
Sept. 13	44	9.4	.02	25	10	9.3	1.1	135	4.0	7.0	.2	.2	.11	133	.18		104	0	16	.4	240	8.1

EEL RIVER AT SCOTIA, CALIF.

LOCATION.--On left bank near gaging station 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.--3,113 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5, 1954	184	9.5	--	38	12	11	1.3	174	--	9.0	--	--	0.12	--	--		143	0	14	0.4	319	8.0
Dec. 7	35,100	--	--	13	3.1	3.8	2.0	53	--	1.8	--	--	.06	--	--		45	2	15	.2	103	7.3
Jan. 4, 1955	12,500	--	--	16	4.3	4.8	1.0	68	--	4.0	--	--	.15	--	--		58	2	15	.3	135	7.5
Feb. 8	4,700	--	--	24	7.1	9.9	.7	101	--	10	--	--	.05	--	--		89	6	19	.5	213	7.7
Mar. 6	4,720	--	--	19	7.9	8.1	1.1	92	--	8.3	--	--	.01	--	--		80	5	18	.4	196	7.8
Apr. 5	3,280	--	--	26	14	8.4	1.3	143	--	3.3	--	--	.10	--	--		121	4	13	.3	265	7.5
May 13	4,800	10	0.10	24	4.2	6.8	.8	90	9.6	7.0	0.0	0.1	.09	107	0.15		77	3	16	.3	177	7.4
June 6	1,300	--	--	28	11	8.4	2.7	149	--	5.2	--	--	.16	--	--		117	0	13	.3	262	8.2
Aug. 1	205	--	--	28	10	8.6	1.3	a140	--	7.2	--	--	.15	--	--		113	0	14	.4	249	8.5
Sept. 13	106	9.3	.02	33	11	10	1.5	159	13	8.5	.1	.9	.10	165	.22		128	0	14	.4	293	8.0

a Includes equivalent of 6 parts per million of carbonate (CO_3).

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KLAMATH RIVER BASIN

KLAMATH RIVER BELOW FALL CREEK, NEAR COPCO, CALIF.

LOCATION.--At gaging station 500 feet downstream from Fall Creek, half a 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, November 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Nov. 10, 1954.....	3,200	40	--	9.1	4.7	11	2.2	66	--	1.5	--	--	0.07	--	--		42	0	35	0.7	134	7.6
Dec. 6	2,520	--	--	10	4.4	11	2.0	64	--	1.8	--	--	.04	--	--		43	0	34	.7	133	8.0
Jan. 4, 1955.....	2,020	--	--	9.7	4.3	12	1.7	64	--	2.5	--	--	.02	--	--		42	0	37	.8	132	7.5
Feb. 11	1,900	--	--	11	5.2	12	2.2	70	--	2.0	--	--	.02	--	--		49	0	34	.7	148	7.6
Mar. 16.....	1,370	--	--	19	10	21	3.6	95	--	4.0	--	--	.03	--	--		90	12	33	1.0	289	7.8
Apr. 12	998	--	--	25	13	26	4.0	106	--	5.5	--	--	.13	--	--		115	28	32	1.1	353	7.6
May 12.....	2,280	19	0.01	5.1	10	14	2.5	73	18	4.0	0.1	2.9	.14	112	0.15		55	0	34	.8	179	7.1
July 12	1,050	--	--	13	6.9	14	2.3	94	--	4.8	--	--	.16	--	--		61	0	32	.8	176	7.8
Aug. 7	297	--	--	11	5.0	11	2.3	76	--	1.5	--	--	.04	--	--		48	0	32	.7	149	7.4
Sept. 13.....	1,220	35	.02	13	7.2	15	2.5	92	13	3.2	.3	2.6	.06	137	.19		62	0	33	.8	191	7.3

KLAMATH RIVER AT SOMESBAR, CALIF.

LOCATION.--100 feet below 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 6, 1954....	3,530	33	--	15	8.4	17	2.3	104	--	5.0	--	--	0.03	--	--		72	0	33	0.9	220	8.0
Nov. 10.....	4,940	--	--	13	6.2	9.9	1.8	80	--	3.5	--	--	.10	--	--		58	0	26	.6	155	7.5
Dec. 8.....	6,380	--	--	12	6.6	6.6	1.2	74	--	2.8	--	--	.07	--	--		57	0	20	.4	142	7.6
Jan. 5, 1955....	6,570	--	--	13	6.3	5.3	.9	75	--	3.8	--	--	.08	--	--		58	0	16	.3	138	7.5
Feb. 9	5,580	--	--	16	8.3	9.0	1.2	95	--	4.8	--	--	.06	--	--		74	0	21	.5	176	7.5
Mar. 12	4,900	--	--	16	8.5	9.4	1.6	91	--	4.2	--	--	.07	--	--		75	0	21	.5	181	8.1
Apr. 6.....	5,320	--	--	11	9.9	7.2	1.1	82	--	3.3	--	--	.04	--	--		68	1	18	.4	162	7.4
May 9	10,300	5.3	0.10	11	3.1	3.6	.9	52	5.5	1.5	0.0	0.5	.09	57	0.08		40	0	16	.2	94.7	7.1
June 8	7,400	--	.00	11	2.6	4.1	.8	50	--	2.0	--	--	.04	--	--		38	0	19	.3	93.3	7.5
July 12	1,980	--	--	14	6.6	6.6	1.2	82	--	4.0	--	--	.15	--	--		62	0	18	.4	149	7.7
Aug. 2.....	1,490	--	--	14	6.3	8.4	1.8	86	--	3.0	--	--	.07	--	--		61	0	22	.5	162	7.5
Sept. 14.....	2,020	26	.04	15	7.9	12	2.1	99	11	5.7	.4	.9	.09	130	.18		70	0	26	.6	193	7.7

KLAMATH RIVER BASIN--Continued

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 1955.
Water temperatures: September 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 76°F Aug. 3, 7-12; minimum, 34°F Jan. 19, 20.
EXTREMES, 1951-55.--Water temperatures: Maximum, 76°F Aug. 3, 7-12, 1955; minimum, 33°F Jan. 10-26, 1952.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 12, 1954....	244	--	--	9.0	10	4.3	0.6	78	--	5.0	--	--	0.06	--	--		65	1	12	0.2	142	7.7
Nov. 16	3,220	15	--	5.9	7.2	2.2	.5	54	--	1.8	--	--	.02	--	--		44	0	10	.1	95.6	7.8
Jan. 20, 1955....	618	--	--	7.6	8.8	3.6	.3	68	--	4.0	--	--	.01	--	--		55	0	12	.2	119	7.9
Feb. 9	787	--	--	5.3	11	3.7	.3	72	--	3.5	--	--	.00	--	--		58	0	12	.2	112	8.0
Mar. 9	844	--	--	5.5	10	3.6	.5	71	--	4.9	--	--	.00	--	--		56	0	12	.2	115	7.9
Apr. 14	1,540	--	--	5.3	8.2	2.4	.4	61	--	2.0	--	--	.04	--	--		47	0	10	.2	99.9	7.8
May 12.....	4,530	14	0.10	4.6	6.4	1.6	.4	48	1.8	.8	0.2	0.2	.02	54	0.07		38	0	8	.1	76.8	7.4
June 20'.....	850	--	--	5.1	7.1	2.3	.5	54	--	2.0	--	--	.06	--	--		42	0	10	.2	90.3	7.7
July 18	407	--	--	8.1	8.9	3.5	.6	72	--	3.5	--	--	.04	--	--		57	0	12	.2	119	8.0
Sept. 12	114	18	.00	12	9.8	4.1	.7	85	2.0	6.2	.1	.1	.02	95	.13		70	0	11	.2	157	8.0

KLAMATH RIVER BASIN--Continued

TRINITY RIVER AT LEWISTON, CALIF.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

KLAMATH RIVER BASIN--Continued

TRINITY RIVER NEAR HOOPA, CALIF.

LOCATION (revised).--At gaging station in Hoopa Indian Reservation, 0.7 mile downstream from Campbell Creek and 1¾ miles southeast of Hoopa, Humboldt County.
DRAINAGE AREA.--2,846 square miles (revised).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5, 1954....	577	14	--	24	9.3	4.9	0.9	114	--	7.0	--	--	0.00	--	--		98	5	10	0.2	215	8.0
Nov. 10.....	3,960	--	--	15	7.2	4.1	.7	75	--	5.5	--	--	.09	--	--		67	5	12	.2	148	7.4
Dec. 7.....	13,200	--	--	13	6.2	2.9	.9	64	--	2.2	--	--	.02	--	--		58	6	10	.2	127	7.2
Jan. 5, 1955 ...	5,650	--	--	18	6.6	2.8	.5	83	--	4.2	--	--	.09	--	--		72	4	8	.1	148	7.7
Feb. 8.....	4,150	--	--	20	8.3	3.9	.4	96	--	3.5	--	--	.00	--	--		84	5	9	.2	170	7.7
Mar. 13	4,280	--	--	17	7.7	3.5	.5	90	--	3.5	--	--	.02	--	--		74	0	9	.2	155	7.7
Apr. 5	4,220	--	--	15	6.9	3.2	.5	81	--	3.2	--	--	.04	--	--		66	0	9	.2	141	7.3
May 9.....	11,100	21	0.10	7.0	8.3	2.5	.5	64	3.5	.4	0.2	0.3	.04	76	0.10		52	0	9	.2	97.8	7.2
June 7.....	4,720	--	.00	24	3.7	7.9	.9	97	--	5.2	--	--	.07	--	--		75	0	18	.4	178	7.8
July 12	1,170	--	--	18	7.8	4.1	.5	91	--	5.0	--	--	.02	--	--		77	2	10	.2	166	7.9
Aug. 2.....	609	--	--	21	8.7	4.8	.8	108	--	6.0	--	--	.04	--	--		88	0	11	.2	190	7.6
Sept. 13.....	328	17	.02	26	9.1	5.7	.6	117	10	9.4	.1	.1	.06	136	.18		102	6	11	.2	226	8.1

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.
DRAINAGE AREA.--12,100 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 6, 1954	4,550	26	--	17	8.2	13	1.9	103	--	5.0	--	--	0.04	--	--		76	0	26	0.6	210	7.5
Nov. 9.....	6,950	--	--	16	6.1	8.3	1.4	87	--	5.5	--	--	.06	--	--		65	0	21	.4	157	7.6
Dec. 8.....	19,100	--	--	13	6.1	3.8	.8	69	--	2.5	--	--	.03	--	--		58	1	12	.2	128	7.8
Jan. 5, 1955.....	18,100	--	--	13	5.5	3.4	.5	67	--	4.2	--	--	.15	--	--		55	0	12	.2	123	7.6
Feb. 9	12,800	--	--	16	7.6	5.4	.8	82	--	3.5	--	--	.02	--	--		71	4	14	.3	153	7.7
Mar. 13	13,000	--	--	12	7.9	5.2	.8	78	--	3.4	--	--	.04	--	--		62	0	15	.3	147	7.6
Apr. 6.....	12,700	--	--	13	6.2	3.9	.8	70	--	3.0	--	--	.05	--	--		58	1	13	.3	129	7.6
May 11	25,200	5.7	0.20	12	5.1	3.2	.7	59	4.8	1.8	0.1	0.2	.54	63	0.09		51	3	12	.2	105	7.2
June 7.....	13,400	--	.00	13	2.5	2.9	.6	51	--	1.8	--	--	.00	--	--		43	1	13	.2	93.4	7.5
July 13.....	4,130	--	--	16	6.3	5.6	.9	83	--	4.0	--	--	.06	--	--		66	0	15	.3	154	7.7
Aug. 2.....	3,060	--	--	15	7.2	6.9	1.2	91	--	--	--	--	.06	--	--		67	0	18	.4	166	7.3
Sept. 15.....	3,170	21	.00	17	7.4	8.8	1.5	94	11	5.0	.3	.7	.09	119	.16		73	0	20	.4	185	7.6

SMITH RIVER BASIN

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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1395.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 7, 1954....	5 430	--	--	8.1	11	2.5	0.4	76	--	3.2	--	--	0.04	--	--		64	2	8	0.1	134	7.4
Nov. 9	1,390	--	--	7.3	9.7	2.2	.2	69	--	3.0	--	--	.06	--	--		58	1	8	.1	107	7.9
Dec. 8	5,370	--	--	5.1	8.3	1.6	.2	56	--	1.8	--	--	.00	--	--		47	1	7	.1	96.2	7.6
Jan. 6, 1955 ...	5,000	--	--	5.3	7.1	1.6	.2	51	--	2.5	--	--	.06	--	--		42	0	8	.1	86.6	7.5
Feb. 10.....	4,190	--	--	5.3	8.2	1.8	.1	55	--	2.8	--	--	.00	--	--		47	2	8	.1	92.9	7.4
Mar. 13.....	5,290	--	--	3.1	8.0	1.9	.5	51	--	2.3	--	--	.00	--	--		41	0	9	.1	87.2	7.5
May 12	3,480	27	0.04	2.6	7.3	1.7	.3	48	1.5	.4	0.1	0.0	.01	65	0.09		36	0	9	.1	74.8	7.3
June 7	1,360	--	.00	--	--	2.0	.2	51	--	2.2	--	--	.00	--	--		41	0	9	.1	88.3	7.5
July 13	464	--	--	6.8	10	2.5	.3	71	--	2.5	--	--	.00	--	--		58	0	9	.1	121	7.9
Aug. 2	353	--	--	6.8	11	2.4	.4	78	--	3.0	--	--	.00	--	--		62	0	8	.1	128	7.4
Sept. 15	380	14	.02	8.1	10	2.7	.4	76	2.6	2.9	.1	.1	.03	78	.11		62	0	9	.1	134	7.9

PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER

WILLAPA RIVER BASIN

WILLAPA RIVER AT LEBAM, WASH.

LOCATION.--Temperature recorder at gaging station, half a mile west of Lebam, Pacific County, and 1 mile upstream from Walker Creek.
DRAINAGE AREA.--41.4 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 65°F June 9, 10; minimum, 42°F Jan. 6-12, 16-22, 28, 29, Feb. 19-22, 28, Mar. 5-7, 12, 13.
EXTREMES, 1952-55.--Water temperatures: Maximum, 67°F July 9-11, 14, 15, Aug. 4, 5, 1952; minimum, 34°F Nov. 28-30, Dec. 1, 1952, Jan. 21, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	50	49	48	46	46	45	45	45	45	44	43	43	46	45	51	47	50	50	56	54	59	58	60	59
2	50	48	48	47	45	45	45	44	44	44	43	43	46	44	50	47	51	50	55	53	59	58	61	60
3	50	49	49	48	45	45	44	44	44	43	43	43	46	44	51	47	54	51	56	55	59	59	61	60
4	50	50	49	49	45	45	44	43	44	44	43	43	47	45	55	49	57	54	56	56	60	59	62	61
5	50	50	50	49	46	45	43	43	44	44	43	42	47	45	54	49	57	55	56	55	61	60	63	62
6	51	50	50	50	46	46	43	42	44	44	43	42	48	46	54	47	59	54	55	55	62	61	63	63
7	53	51	51	50	46	46	42	42	45	44	43	42	48	47	54	49	61	56	55	54	63	62	63	60
8	53	52	50	50	46	46	42	42	45	45	43	43	48	48	52	49	64	60	56	55	62	60	61	60
9	52	51	50	48	46	46	42	42	45	43	43	43	48	48	54	47	65	63	56	56	60	58	61	60
10	52	51	50	49	46	46	42	42	44	43	43	43	48	47	54	51	65	59	56	56	59	59	61	60
11	52	51	50	49	46	46	42	42	43	43	43	43	47	46	53	52	59	57	59	56	59	58	60	57
12	51	50	49	49	46	46	43	42	44	43	43	42	47	46	52	49	58	57	61	59	60	59	57	55
13	50	47	49	49	46	46	43	43	45	44	43	42	46	45	51	48	57	55	63	61	59	58	57	56
14	51	48	50	49	46	46	43	43	45	45	43	43	47	44	53	49	56	55	63	62	59	58	57	56
15	51	50	50	50	46	46	43	43	45	45	43	43	46	44	55	50	55	54	62	62	60	58	56	55
16	52	51	50	50	46	46	43	42	46	45	43	43	47	45	54	51	55	54	62	59	60	58	55	53
17	52	52	50	50	46	45	42	42	45	44	44	43	47	44	54	53	55	54	59	58	58	56	55	53
18	52	51	50	50	45	45	42	42	44	43	44	44	47	44	57	53	55	55	59	58	60	58	54	53
19	52	52	50	50	45	45	42	42	43	42	44	44	46	44	57	55	56	53	59	58	61	60	54	54
20	52	50	50	50	45	45	42	42	42	42	44	43	47	45	56	51	59	56	60	59	61	61	54	53
21	51	49	50	50	46	45	43	42	42	42	44	43	47	45	54	52	61	59	60	59	61	59	53	50
22	49	48	50	50	45	45	44	42	43	42	44	44	48	46	54	50	61	59	61	60	60	58	51	50
23	49	46	50	50	45	45	44	44	44	43	44	44	48	45	53	51	59	58	61	60	59	58	54	51
24	47	45	50	48	45	45	44	44	44	44	44	44	47	44	54	49	58	58	60	59	58	56	54	53
25	46	44	49	48	45	45	44	44	44	44	44	44	47	43	54	52	58	58	59	58	56	55	54	52
26	45	43	49	49	45	44	44	43	44	44	45	44	47	45	52	51	58	58	58	58	56	55	53	52
27	45	44	49	49	44	44	43	43	44	43	46	45	46	43	52	49	58	57	58	56	56	55	54	53
28	46	44	49	47	44	44	43	42	43	42	46	46	48	44	53	50	57	56	57	56	58	56	54	53
29	47	46	47	47	44	44	43	42	--	--	46	46	49	47	53	52	57	56	57	57	59	58	53	53
30	47	45	47	46	45	44	43	43	--	--	46	45	51	45	52	50	56	56	58	57	60	59	53	51
31	48	47	--	--	45	45	44	43	--	--	46	45	--	--	51	49	--	--	58	57	60	60	--	--
Average	50	49	49	49	45	45	43	43	44	44	44	43	47	45	53	50	58	56	58	57	59	58	57	56

CHEHALIS RIVER BASIN

CHEHALIS RIVER NEAR GRAND MOUND, WASH.

LOCATION.--Temperature recorder at gaging station, highway bridge at Meadows, 1½ miles southwest of Grand Mound, Thurston County, and 6 miles downstream from Skookumchuck River.
DRAINAGE AREA.--895 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1955 (fragmentary).
EXTREMES, November 1954 to September 1955.--Water temperatures: Maximum, 68°F July 17, 18, Aug. 10-12, 14, 15, 18, 19, minimum, 36°F Feb. 28 to Mar.3.
EXTREMES, 1952-55.--Water temperatures: Maximum, 74°F July 11, 1953; minimum, 36°F Feb. 28 to Mar. 3, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, November 1954 to September 1955

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

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 7½ miles west of Potlatch, Mason County.
DRAINAGE AREA.--65.6 square miles.
RECORDS AVAILABLE.--Water temperatures: May to September 1955.
EXTREMES, May to September 1955.--Water temperatures: Maximum, 58°F July 21, 23, Aug. 6, 10, 18, 21, Sept. 2-5; minimum, 39°F May 12.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, May to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1															--	--	43	42	50	46	53	48	57	51
2															--	--	49	43	48	46	50	48	58	52
3															--	--	46	44	48	46	54	48	58	53
4															--	--	49	44	50	47	56	48	58	52
5															--	--	46	44	50	47	57	49	58	52
6															--	--	49	44	50	47	58	50	55	53
7															--	--	51	44	49	47	57	51	54	52
8															--	--	51	44	50	47	53	51	54	53
9															--	--	50	44	48	47	57	49	53	52
10															44	42	50	44	48	47	58	50	53	52
11															43	41	50	44	49	47	55	51	54	52
12															44	39	51	44	56	47	54	51	54	51
13															43	41	48	45	57	48	56	50	53	50
14															48	42	47	44	57	49	57	50	51	49
15															47	42	47	46	56	50	57	51	50	49
16															47	43	48	45	53	49	55	52	50	48
17															45	43	49	46	55	48	57	51	51	48
18															45	43	52	46	52	50	58	51	52	48
19															44	42	52	47	53	48	55	52	53	48
20															45	42	54	47	57	49	57	52	51	49
21															47	43	55	48	58	49	58	51	52	47
22															46	42	51	48	57	50	57	51	50	47
23															47	43	52	47	58	51	56	51	52	48
24															48	43	50	47	54	51	54	52	52	48
25															45	43	50	47	52	50	53	50	51	47
26															48	43	52	48	51	49	54	51	50	48
27															45	41	49	48	52	48	56	50	50	49
28															46	42	52	47	50	48	57	51	50	47
29															47	43	49	47	53	48	57	51	49	47
30															47	42	51	47	50	49	55	52	51	48
31															45	41	--	--	50	48	55	53	--	--
Average															--	--	50	46	52	48	56	51	53	50

SKOKOMISH RIVER BASIN--Continued

WEAVER CREEK NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder on right bank three-quarters of a mile upstream from mouth and 5 miles southwest of Potlatch, Mason County.
RECORDS AVAILABLE.--Water temperatures: April to September 1955.
EXTREMES, April to September 1955.--Water temperatures: Maximum, 53°F Apr. 30; minimum, 44°F May 4, 6-8, 13, 27, Sept. 25.
REMARKS.--No discharge records available for this station.

Temperature (°F) of water, April to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1													--	--	52	46	48	45	--	--	51	48	51	46
2													--	--	50	46	50	46	--	--	50	47	52	47
3													--	--	50	46	49	47	--	--	51	47	52	48
4													--	--	51	44	51	47	--	--	51	47	52	46
5													--	--	51	45	49	47	49	47	52	46	52	47
6													--	--	51	44	51	47	50	47	52	47	51	48
7													--	--	49	44	51	46	49	47	51	48	50	47
8													--	--	50	44	52	46	50	47	50	48	49	47
9													--	--	51	45	52	47	49	48	51	46	49	47
10													--	--	49	46	52	47	50	48	52	46	50	48
11													--	--	50	46	51	46	50	48	50	47	50	47
12													--	--	49	45	50	47	52	47	50	47	51	46
13													--	--	48	44	50	47	52	47	50	46	49	47
14													--	--	50	46	49	46	52	47	51	47	48	46
15													--	--	50	46	48	46	51	47	51	47	48	46
16													--	--	49	46	49	45	49	47	50	47	49	46
17													--	--	50	47	49	46	52	47	51	47	49	46
18													--	--	50	47	50	47	50	48	52	47	50	45
19													--	--	49	47	51	46	50	46	52	48	50	46
20													--	--	48	46	51	46	51	47	51	47	49	46
21													--	--	50	45	51	46	51	47	51	46	49	45
22													--	--	50	45	49	46	50	47	52	47	48	45
23													--	--	49	46	49	46	51	47	51	47	49	46
24													--	--	50	45	49	46	50	47	50	47	49	45
25													--	--	48	46	49	45	50	47	50	47	49	44
26													51	46	50	46	50	46	50	48	50	47	50	46
27													48	45	49	44	47	46	50	47	51	46	50	48
28													51	45	49	45	--	--	49	47	52	47	49	46
29													51	46	49	46	--	--	51	47	52	47	49	47
30													53	45	47	46	--	--	50	47	50	48	50	46
31													--	--	49	47	--	--	50	48	50	48	--	--
Average													--	--	50	46	50	46	50	47	51	47	50	46

SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder at gaging station, half a mile upstream from U. S. Highway 101, 2.8 miles downstream from confluence of North and South Forks, 4.7 miles southwest of Potlatch, Mason County, and 5.5 miles upstream from mouth.
DRAINAGE AREA.--230 square miles.
RECORDS AVAILABLE.--Water temperatures: May to September 1955.
EXTREMES, May to September 1955.--Water temperatures: Maximum, 61°F Aug. 6; minimum, 43°F May 13.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, May to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1															--	--	47	45	53	49	58	54	57	51
2															--	--	53	46	53	50	56	53	58	52
3															--	--	50	48	51	49	59	52	58	52
4															--	--	53	47	55	50	60	53	58	51
5															--	--	49	48	54	50	60	53	58	51
6															--	--	53	47	54	50	61	53	54	52
7															--	--	54	47	53	50	60	54	54	52
8															--	--	54	47	53	50	56	53	54	52
9															--	--	54	48	51	51	60	52	53	52
10															--	--	54	48	54	50	60	53	54	52
11															--	--	54	47	54	50	58	53	55	51
12															--	--	53	48	58	50	56	52	56	51
13															46	43	52	48	59	52	58	51	53	51
14															51	45	51	47	60	53	58	51	54	52
15															50	45	49	47	58	53	58	52	53	52
16															48	46	50	46	55	52	57	52	53	51
17															49	46	51	48	58	51	59	52	55	51
18															50	46	54	49	56	52	59	52	56	50
19															47	46	55	50	57	51	59	53	56	51
20															47	45	57	50	59	51	58	53	55	51
21															49	45	58	51	59	52	58	51	54	50
22															50	44	54	51	58	52	58	52	53	50
23															50	46	56	50	59	52	58	52	55	51
24															51	45	55	50	55	53	55	52	55	50
25															48	46	53	50	57	52	57	51	54	49
26															51	46	56	51	54	51	55	52	53	50
27															49	45	51	50	55	51	57	51	53	51
28															49	45	55	50	54	52	58	51	53	50
29															50	47	52	50	59	53	58	51	53	50
30															51	45	52	50	55	53	55	52	54	50
31															51	45	--	--	55	53	55	52	--	--
Average															--	--	53	48	56	51	58	52	55	51

SKOKOMISH RIVER BASIN

PURDY CREEK NEAR UNION, WASH.

LOCATION.--Temperature recorder at gaging station immediately downstream from county road bridge, 1 mile upstream from Weaver Creek and 5½ miles southwest of Union, Mason County.
DRAINAGE AREA.--1.43 square miles.
RECORDS AVAILABLE.--Water temperatures: May to September 1955.
EXTREMES, May to September 1955.--Water temperatures: Maximum, 53°F June 9, 10, July 14, 15, Aug. 5-8, Sept. 4; minimum, 48°F Sept. 30.
REMARKS.--Records of discharge for September 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, May to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1															--	--	50	49	50	50	52	52	51	51
2															--	--	50	49	50	50	52	52	51	51
3															--	--	50	50	50	50	52	52	52	51
4															--	--	51	50	50	50	52	52	53	51
5															--	--	51	50	50	50	53	52	52	52
6															--	--	51	50	51	50	53	52	52	52
7															--	--	52	50	51	50	53	53	52	52
8															--	--	52	51	51	50	53	52	52	52
9															--	--	53	52	51	50	52	51	52	52
10															--	--	53	52	51	50	52	51	52	52
11															--	--	52	51	51	50	52	51	52	52
12															--	--	52	51	52	51	51	51	52	51
13															49	49	51	50	52	52	51	50	51	51
14															50	49	50	50	53	52	51	51	51	51
15															51	50	50	50	53	52	51	51	51	51
16															50	49	50	49	52	51	51	51	51	51
17															51	50	50	50	51	50	51	51	51	51
18															51	50	51	50	51	51	52	51	51	50
19															51	51	51	50	51	50	52	52	50	50
20															51	49	51	50	51	51	52	52	50	50
21															50	49	52	51	52	51	52	50	50	49
22															50	49	52	52	52	51	51	51	50	49
23															50	50	52	51	52	51	51	51	50	50
24															50	49	51	51	52	51	51	50	50	49
25															50	50	51	51	51	51	51	50	50	49
26															50	49	51	51	51	51	51	50	50	49
27															50	49	51	51	52	51	50	50	50	50
28															50	49	51	51	52	52	51	50	50	49
29															50	50	51	51	52	52	51	50	49	49
30															50	49	51	50	52	52	51	51	49	48
31															50	49	--	--	52	52	51	51	--	--
Average															--	--	51	50	51	51	52	51	51	50

NISQUALLY RIVER NEAR NATIONAL, WASH.

LOCATION.--Temperature recorder at gaging station, 100 feet downstream from railroad bridge, 1 mile west of National, Pierce County, 2½ miles west of Ashford and 3 miles upstream from Mineral Creek.
DRAINAGE AREA.--133 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 57°F July 13, minimum, freezing point Feb. 28, Mar. 1, 3-7.
EXTREMES, 1951-55.--Water temperatures: Maximum, 61°F July 9, 1952; minimum, freezing point on Jan. 2-9, 12-23, 1952, Feb. 28, Mar. 1, 3-7, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

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

NISQUALLY RIVER BASIN--Continued

MINERAL CREEK NEAR MINERAL, WASH.

LOCATION.--Temperature recorder at gaging station, three-eighths of a mile downstream from railroad bridge, 1 mile upstream from mouth, and 2½ miles northeast of Mineral, Lewis County.
DRAINAGE AREA.--74.3 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 69°F Aug. 6, 7; minimum, 36°F Feb. 28, Mar. 4-6.
EXTREMES, 1951-55.--Water temperatures: Maximum, 70°F July 14, Aug. 3, 4, 9-13, 1952; minimum, 35°F Jan. 20, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

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

GREEN RIVER NEAR PALMER, WASH.

528172 O - 59 - 23

LOCATION.--At city of Tacoma Green River Pipe Line bridge about half a mile below the headworks dam and 2 miles below gaging station which is 2½ miles downstream from North Fork and 4 miles southeast of Palmer, King County.
DRAINAGE AREA.--230 square miles at gaging station.
RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1955.
Sediment records: August 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 53°F Sept. 7; minimum, 33°F Mar. 5.
Sediment concentrations: Maximum daily, 607 ppm Feb. 8; minimum daily, 0.3 ppm Oct. 1-10.
Sediment loads: Maximum daily, 19,700 tons Feb. 8; minimum daily, 0.2 ton Oct. 1-10.
EXTREMES, 1950-55.--Water temperatures: Maximum, 61°F Sept. 6, 1950; minimum, freezing point on several days during March 1951, January 1952, and January 1954.
Sediment concentrations: Maximum daily, 1,350 ppm Dec. 9, 1953; minimum daily, 0.3 ppm Oct. 1-10, 1954.
Sediment loads: Maximum daily, 49,000 tons Dec. 9, 1953; minimum daily, 0.2 ton Oct. 1 to Nov. 30, 1952, Sept. 1-27, 1953, Oct. 1-10, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, February to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 8, 1955.....	10,900	11	0.01	3.4	0.3	2.2	0.3	13	2.1	1.0	0.1	0.9	0.09	39	0.05	1,150	10	0	32	0.3	32.7	6.2
Sept. 2.....	243	12	.00	5.2	.7	3.1	.4	24	2.2	1.5	.1	.2	.02	40	.05	26	16	0	29	.3	48.7	6.9

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR PALMER, WASH.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement at approximately 8:30 a.m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	40	38	38	38	35	38	40	42	44	47	51
2	45	43	38	37	38	35	38	41	41	44	48	52
3	46	42	38	37	37	35	38	41	41	44	48	52
4	47	43	38	36	37	34	37	41	41	44	48	52
5	46	43	39	36	37	33	38	40	42	44	48	52
6	46	43	39	37	37	34	40	42	42	44	50	52
7	46	44	36	36	38	35	40	42	42	45	50	53
8	46	42	42	37	39	36	40	42	43	45	50	52
9	45	43	39	36	38	36	40	41	44	45	50	52
10	48	43	40	36	37	37	41	42	42	45	50	52
11	46	43	39	37	37	37	40	41	43	45	50	52
12	48	45	40	38	37	37	38	42	42	45	51	51
13	46	42	38	38	37	36	38	40	42	46	51	51
14	45	42	37	38	36	36	38	40	42	46	51	50
15	48	43	39	38	37	36	37	41	42	46	50	50
16	46	43	38	37	36	37	38	40	43	46	50	50
17	46	43	37	37	36	36	37	40	43	46	50	49
18	46	44	37	37	36	37	38	42	43	46	50	49
19	46	45	37	36	35	36	38	43	43	46	50	49
20	46	46	38	37	36	36	40	41	44	46	50	50
21	46	43	40	37	37	37	38	42	46	48	51	48
22	46	46	40	38	37	38	40	42	42	46	52	48
23	45	42	40	40	37	38	40	42	44	46	52	48
24	44	42	39	40	38	36	39	42	49	46	50	47
25	43	42	38	38	38	35	38	44	44	46	50	47
26	42	42	38	38	38	35	37	42	44	47	50	47
27	41	42	37	38	37	37	38	42	44	46	50	48
28	41	42	37	37	38	38	38	42	44	45	50	48
29	39	38	38	37	--	39	40	42	44	45	51	48
30	43	39	37	38	--	34	40	41	44	46	51	47
31	40	--	38	38	--	38	--	42	--	47	51	--
Average	45	43	38	37	37	36	39	41	43	45	50	50

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR PALMER, WASH.--Continued

Suspended sediment, water year October 1954 to September 1955

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	226			310			1,030		
2	221			297			900		
3	226			288			810		
4	217			280			745		
5	209	0.3	0.2	322	1.9	1.6	685	0.9	1.8
6	201			375			690		
7	197			322			650		
8	197			301			595		
9	197			310			566		
10	205			301			542		
11	322			284			508		
12	393			327			518		
13	349			371			542		
14	314			471	4.3	5.0	542		
15	288	3.1	2.6	480			625	.7	1.0
16	271			655			551		
17	271			895	--	a 19	518		
18	263			1,980	--	sa 250	494		
19	292			2,670	--	sa 220	471		
20	490			2,020	--	a 27	457		
21	750	10	16	1,470	--	a 16	499		
22	635			1,170	--	a 9.5	900		
23	590			971	--	a 5.2	890		
24	527			825	--	a 4.5	835		
25	480			1,160	--	a 22	760	1.1	2.2
26	438			1,950	--	a 53	680		
27	406	1.7	1.8	2,620	--	a 110	620		
28	375			1,970	--	a 27	605		
29	357			1,510	--	a 16	905		
30	340			1,230	--	a 10	2,390	--	sa 620
31	322			--	--	--	4,970	--	sa 2,340
Total	10,569	--	118.0	28,135	--	835.2	26,493	--	3,007.0

Day	January			February			March		
1	3,270	27	a 238	1,080			600		
2	2,240	9	a 54	932			579		
3	1,680	4	a 18	885			549	2.5	3.7
4	1,360	2	a 7.3	865	2.2	5.7	506		
5	1,170	2	a 6.3	850			485		
6	1,020			1,120			494		
7	910			5,950	387	s 8,250	485		
8	840	1.9	4.4	10,900	607	s 19,700	511	3.2	4.7
9	780			4,410	100	1,190	532		
10	725			2,730	22	a 162	683		
11	680			2,080	8.5	48	762		
12	655			1,690			701		
13	660	3.2	5.6	1,430	2.5	9.9	635	--	b 5.6
14	630			1,260			592		
15	605			1,160			553		
16	581			1,060	2.4	6.4	527		
17	561			988			511		
18	542	2.4	3.5	888			511		
19	518			838			506	2.0	2.8
20	523			793			490		
21	499	2.4	a 3.2	762	3.5	7.1	519		
22	532	2.3	a 3.3	749			1,600	3.3	14
23	1,430	12	sa 53	714			1,240		
24	2,180	9.2	a 54	723			983		
25	2,100			688			834	10	24
26	1,690	3.9	16	644	2.6	4.5	727		
27	1,390			613			674		
28	1,210			613			661		
29	1,080			--	--	--	829	2.3	5.5
30	982	3.0	8.2	--	--	--	919		
31	1,040			--	--	--	1,160		
Total	34,083	--	603.0	47,465	--	29,497.4	21,358	--	242.8

s Computed by subdividing day.
a Computed on basis of turbidity-concentration relation, and composite of daily samples.
b Estimated on basis of turbidity-concentration relation and daily turbidity readings.

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR PALMER, WASH.--Continued

Suspended sediment, water year October 1954 to September 1955--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	1,500			946			2,050		
2	1,330			937			1,890		
3	1,130	2.3	7.4	955	2.0	5.6	2,130	1.3	8.1
4	1,000			1,060			2,570		
5	974			1,300			2,860		
6	1,080			1,540			2,800	20	158
7	1,390	1.1	4.2	1,710			3,070		
8	1,770			2,010	3.7	18	3,840	80	829
9	3,040	50	s450	1,780			4,720	140	1,780
10	3,200	30	259	1,820			4,890	100	1,320
11	2,350			2,440	11	72	4,560	95	1,170
12	1,940			3,160	30	256	3,960		
13	1,720	6.9	33	2,600			3,240	11	88
14	1,510			2,080			2,590		
15	1,320			1,830			2,130		
					9.0	49			
16	1,200			1,720			1,790		
17	1,110			1,740			1,600		
18	1,050	2.7	7.8	2,180			1,590	3.7	17
19	992			3,440	45	418	1,620		
20	974			3,600	34	330	1,720		
21	1,000			2,860	14	108	2,190		
22	1,130			2,360			2,460		
23	1,300	--	b9.3	2,050	6.2	34	2,320	1.6	9.1
24	1,210			1,830			1,940		
25	1,080			1,860			1,620		
26	1,040			1,980			1,500		
27	932			2,000			1,520		
28	874	--	b4.9	1,860	7.8	47	1,580	1.6	7.1
29	856			2,150			1,760		
30	856			2,860			1,870		
31	--	--	--	2,480			--	--	--
Total	40,858	--	1,033.6	63,138	--	2,014.0	74,380	--	5,973.5

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	2,450			824			251		
2	2,140			740			243		
3	1,740	4.5	22	670	2.4	4.4	243	0.6	0.4
4	1,510			613			239		
5	1,360			574			235		
6	1,290			540			231		
7	1,240			515			235		
8	1,180	1.9	6.3	490	.7	.9	239	.5	.3
9	1,200			464			231		
10	1,200			439			224		
11	1,160			418			220		
12	1,160			406			216		
13	1,240	2.0	6.7	393	.8	.8	231	.8	.5
14	1,360			376			268		
15	1,320			359			251		
16	1,220			347			305		
17	1,040			338			288		
18	910	3.0	7.7	326	1.0	.9	259	.8	.6
19	824			317			239		
20	767			313			239		
21	718			305			235		
22	688			296			228		
23	666	1.7	3.0	292	.7	.6	224	.6	.4
24	639			292			220		
25	604			288			216		
26	617			284			212		
27	635			276			239		
28	609	--	b4.9	268	1.7	1.2	305	2.7	2.0
29	762			259			326		
30	865			255			280		
31	860			255			--	--	--
Total	33,974	--	257.9	12,532	--	45.2	7,372	--	21.0

Total discharge for year (cfs-days) 400,357
Total load for year (tons) 43,648.6

s Computed by subdividing day.
b Estimated on basis of turbidity-concentration relation, and daily turbidity readings.

GREEN RIVER NEAR PALMER, WASH.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
Nov. 18, 1954....	7:00 a.m.	1,400		57	266	29	38	48	58	70	86	89	95		96	100	SBWCM
Nov. 19	12:00 m.	2,800		32	249	41	45	50	61	75	85	92	97		98	100	SBWCM
Dec. 30	9:30 a.m.	1,850		35	253	32	39	45	56	70	79	87	96		99	100	SBWCM
Dec. 31	6:00 a.m.	5,200		172	1,390	14	19	26	35	44	56	65	78		99	100	VBWCM
Dec. 31	3:30 p.m.	5,100		96	781	15	20	26	32	40	55	64	76		100	--	VBWCM
Feb. 7, 1955.....	8:30 a.m.	a 5,950		93	430	12	14	19	29	36	47	61	82		100	--	VPWCM
Feb. 8	9:00 a.m.	a 10,900		784	3,730	10	14	21	28	37	46	58	74		88	100	VPWCM
Feb. 8	3:00 p.m.	a 10,900		403	2,390	15	20	28	36	46	59	72	87		97	100	VPWCM
Apr. 9	2:00 p.m.	a 3,040		12	--	--	--	--	--	--	--	54	82	91	100	--	S
Apr. 9	12:00 p.m.	a 3,040		16	--	--	--	--	--	--	--	40	53	76	89	100	S
Apr. 10	6:00 a.m.	a 3,200		10	--	--	--	--	--	--	--	58	83	93	98	100	S
June 8	8:00 a.m.	a 3,840		41	--	--	--	--	--	--	--	26	42	59	85	97	S
June 11.....	12:00 p.m.	a 4,560		31	--	--	--	--	--	--	--	29	47	63	88	100	S
June 12	8:00 a.m.	a 3,960		22	--	--	--	--	--	--	--	28	47	66	87	97	S

a Daily mean discharge.

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR AUBURN, WASH.

LOCATION.--Temperature recorder at gaging station, 1½ miles east of Auburn 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum recorded, 65°F Aug. 7; minimum, 34°F Mar. 5.
EXTREMES, 1952-55.--Water temperatures: Maximum recorded, 65°F Aug. 7, 1955; minimum, 34°F Mar. 5, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, February to August 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Feb 9, 1955	6,690	11	0.03	4.2	0.8	2.7	0.6	18	3.0	1.5	0.3	1.3	0.04	42	0.06	758	14	0	29	0.3	43.4	6 7	20
Aug. 31	305	15	.00	9.1	2.2	4.8	.4	44	4.6	2.2	.1	.6	.01	60	.08	49	32	0	24	.4	87.0	7.1	0

GREEN RIVER NEAR AUBURN, WASH.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR AUBURN, WASH.--Continued

Periodic determinations of suspended-sediment discharge, water year October 1954 to September 1955

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Oct. 28, 1954	465	5	6.3
Dec. 10	800	7	15
Jan. 24, 1955	2,550	77	530
Feb. 8	6,570	1,210	21,500
Mar. 15	902	16	39
Apr. 20	1,500	12	49
June 2	2,110	23	131
July 21	846	11	25
Aug. 31	305	19	16

CEDAR RIVER NEAR LANDSBURG, WASH.

LOCATION.--Temperature recorder at gaging station, 2 miles upstream from Landsburg and intake of Seattle water-supply system, 4¾ miles east of Maple Valley, 5 miles downstream from Taylor Creek, and 12 miles downstream from Cedar Lake.
DRAINAGE AREA.--125 square miles, excludes that of Rock Creek.
RECORDS AVAILABLE.--Water temperatures: August 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 56°F July 17, minimum, 37°F Mar. 2-5.
EXTREMES, 1953-55.--Water temperatures: Maximum, 64°F Aug. 19, 1953; minimum, 37°F Mar. 2-5, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	--	--	45	45	44	43	41	41	42	41	39	38	43	43	48	47	47	46	50	49			--	--
2	--	--	45	45	43	43	41	41	41	41	39	37	45	43	47	46	47	47	50	50			--	--
3	--	--	46	45	43	43	41	41	41	41	39	37	45	45	46	46	47	47	50	50			--	--
4	--	--	46	46	44	43	41	41	41	41	37	37	45	42	50	46	47	47	50	50			--	--
5	--	--	46	46	44	44	41	41	41	41	40	37	45	42	49	47	47	47	52	50			--	--
6	--	--	46	46	44	44	41	41	41	41	42	38	45	43	49	46	50	47	51	51			--	--
7	--	--	46	46	44	43	41	41	41	41	42	40	45	43	49	47	51	47	51	51			--	--
8	--	--	46	46	43	43	41	41	41	41	42	40	45	44	47	46	52	48	51	51			--	--
9	--	--	46	46	43	43	42	41	42	41	42	40	45	44	47	45	53	50	51	51			--	--
10	--	--	46	46	43	43	41	41	41	40	42	40	44	43	46	46	--	--	51	51			--	--
11	--	--	46	46	43	43	41	41	40	40	42	40	44	44	46	45	--	--	52	51			--	--
12	--	--	46	46	43	42	42	41	42	40	41	39	44	44	46	45	--	--	53	51			--	--
13	--	--	46	46	42	42	41	41	43	41	42	39	44	44	45	44	--	--	54	51			--	--
14	--	--	46	46	42	42	41	41	43	42	42	40	44	44	46	44	--	--	54	52			54	51
15	--	--	46	46	42	42	41	40	42	41	42	40	44	44	45	45	48	48	54	52			54	51
16	--	--	46	46	42	42	41	40	42	41	42	39	44	44	45	45	49	48	54	53			53	50
17	--	--	47	46	42	42	41	41	42	40	43	39	46	44	46	45	49	49	56	52			53	50
18	--	--	46	46	42	42	41	40	40	40	43	43	45	44	48	46	49	49	53	52			50	48
19	--	--	46	46	42	42	41	40	42	40	44	43	46	44	47	46	51	49	54	53			50	49
20	--	--	46	46	42	42	41	40	42	42	44	42	45	44	47	46	52	49	55	51			50	49
21	--	--	46	46	43	42	41	40	42	41	44	41	45	44	46	46	52	50	55	52			53	48
22	--	--	46	46	43	42	42	41	43	41	42	41	44	44	46	46	51	50	55	52			52	50
23	--	--	46	46	42	42	42	42	42	41	43	41	46	44	46	46	51	50	53	51			50	49
24	--	--	46	46	42	42	42	41	42	42	44	41	45	45	48	46	50	49	51	50			50	48
25	--	--	46	46	42	42	42	41	42	40	42	40	45	44	47	46	52	49	52	50			49	48
26	--	--	46	46	42	42	41	41	41	38	45	40	44	44	46	46	51	50	52	51			50	48
27	45	45	46	46	42	41	41	41	38	38	46	45	45	43	47	46	50	50	52	51			50	50
28	45	45	46	46	41	41	41	41	38	38	46	44	45	43	48	46	50	50	--	--			51	50
29	45	45	46	45	41	41	42	41	--	--	45	42	45	44	47	47	50	50	--	--			51	49
30	45	45	45	44	41	41	42	41	--	--	43	42	50	45	47	46	50	49	--	--			52	50
31	45	45	--	--	41	41	42	41	--	--	43	43	--	--	46	46	--	--	--	--			--	--
Average	--	--	46	46	42	42	41	41	41	41	42	40	45	44	47	46	50	49	52	51			--	--

STILLAGUAMISH RIVER BASIN

JIM CREEK NEAR ARLINGTON, WASH.

LOCATION.--Temperature recorder, at gaging station at abandoned bridge 1½ miles upstream from mouth and 3 miles southeast of Arlington, Snohomish County.
DRAINAGE AREA.--48.9 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 66°F July 21, Aug. 10; minimum, not determined.
EXTREMES, 1951-55.--Water temperatures: Maximum, 71°F July 10, 11, 1953; minimum, freezing point on many days during winter months.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

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

STILLAGUAMISH RIVER BASIN--Continued

NORTH FORK STILLAGUAMISH RIVER NEAR DARRINGTON, WASH.

LOCATION.--Temperature recorder at gaging station at highway bridge, 1 mile downstream from Squire Creek, and 5 miles northwest of Darrington, Snohomish County.
DRAINAGE AREA.--82.2 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 56°F Aug. 18-21, 28, 29, Sept. 4-6; minimum, 37°F Feb. 8-12, Mar. 3-6.
EXTREMES, 1952-55.--Water temperatures: Maximum, 63°F Aug. 10-12, 1952; minimum, 35°F Nov. 26-30, Dec. 1, 25, 26, 1952.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	49	49	46	46	42	40	41	41	40	39	38	38	40	39	45	44	44	43	46	46	50	50	54	53
2	49	49	46	45	40	40	41	41	39	39	38	38	41	39	45	43	44	44	46	46	50	50	55	54
3	49	49	45	45	40	40	41	41	40	39	38	37	42	41	46	44	46	44	46	45	51	49	55	54
4	49	49	45	45	41	40	41	40	40	39	37	37	43	40	46	43	46	45	47	46	52	50	56	54
5	49	49	45	45	42	41	40	40	40	39	37	37	44	40	46	43	46	45	47	47	53	51	56	55
6	49	49	45	45	42	42	41	40	39	38	39	37	44	41	46	42	46	44	47	47	54	53	56	55
7	49	48	45	45	42	42	41	41	38	38	39	38	43	41	45	43	47	44	47	47	54	53	55	55
8	49	49	45	45	42	42	41	41	38	37	39	39	42	40	44	42	47	45	47	46	54	53	55	54
9	49	49	45	45	42	42	41	40	38	37	39	39	40	40	43	42	47	45	47	47	54	54	54	53
10	49	49	45	45	42	42	41	40	37	37	40	38	41	41	43	43	47	45	47	47	54	53	53	53
11	49	48	45	45	42	41	40	40	37	37	39	39	42	41	43	42	48	45	47	46	54	54	53	53
12	48	47	45	45	41	41	41	40	38	37	39	39	41	41	42	41	48	45	50	47	54	54	53	53
13	48	48	45	44	42	41	41	41	39	38	39	39	42	41	43	42	47	46	51	48	54	52	53	52
14	48	48	44	44	42	42	41	41	39	39	42	39	43	41	46	42	46	46	52	49	54	53	52	52
15	49	48	44	44	42	41	41	40	39	39	41	40	42	42	45	43	46	45	51	49	54	53	52	50
16	49	49	45	44	41	41	40	39	39	39	41	41	42	41	44	43	47	46	51	49	55	54	50	50
17	50	49	45	45	41	40	39	39	39	38	42	40	44	42	44	43	47	46	50	48	55	54	50	50
18	49	49	45	45	40	40	39	39	38	38	42	41	44	42	44	43	46	46	49	48	56	54	51	49
19	49	48	45	45	40	40	39	38	38	38	42	40	44	43	44	42	47	45	50	47	56	55	51	50
20	48	48	45	45	42	40	39	38	39	38	41	40	44	43	43	41	49	46	50	48	56	55	50	50
21	48	47	46	45	42	42	39	39	39	38	41	40	44	43	43	42	49	46	50	49	56	53	50	48
22	47	47	47	46	42	42	39	39	40	39	40	39	44	43	44	42	49	47	51	49	55	54	49	48
23	47	46	47	46	42	42	39	39	40	40	41	39	44	42	44	43	48	47	51	49	55	53	49	48
24	46	46	46	46	42	41	39	39	40	39	42	40	43	41	46	43	47	46	51	49	55	54	49	48
25	46	44	46	46	41	40	39	39	39	38	42	40	44	41	46	44	47	47	50	49	54	54	49	48
26	44	43	46	45	40	40	39	39	38	38	42	40	44	42	44	44	47	47	49	49	55	53	49	49
27	45	43	45	44	40	40	39	39	38	38	44	42	44	41	44	43	47	47	49	49	55	53	49	49
28	45	44	44	44	40	40	39	39	38	38	44	42	45	42	45	43	47	47	49	49	56	53	49	48
29	45	44	44	43	41	40	39	39	--	--	42	41	45	43	45	43	47	47	49	49	56	54	49	47
30	45	44	43	42	41	40	40	39	--	--	41	40	45	42	43	42	47	46	49	49	55	54	47	47
31	46	45	--	--	41	40	40	40	--	--	41	40	--	--	43	42	--	--	50	49	54	54	--	--
Average	48	47	45	45	41	41	40	40	39	38	40	39	43	41	44	43	47	46	49	48	54	53	52	51

STILLAGUAMISH RIVER BASIN--Continued

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.--Water temperatures: March 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 66°F Sept. 5; minimum, 33°F Mar. 7.
EXTREMES, 1952-55.--Water temperatures: Maximum, 66°F Sept. 5, 1955; minimum, 33°F Mar. 7, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

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

SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WASH.

LOCATION.--Temperature recorder at gaging station, three-quarters of a mile upstream from Alma Creek and 7 miles north of Marblemount, Skagit County.
DRAINAGE AREA.--1,260 square miles, approximately, of which 400 square miles is in Canada.
RECORDS AVAILABLE.--Water temperatures: January 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 53°F Sept. 3, 5; minimum, 38°F Feb. 27 to Mar. 18, Mar. 24-27.
EXTREMES, 1953-55.--Water temperatures: Maximum, 53°F Sept. 3, 5, 1955; minimum, 37°F Feb. 17-20, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	49	49	46	45	43	42	40	40	41	41	39	38	39	39	42	41	45	44	46	46	49	48	52	50
2	49	49	46	45	42	42	40	39	41	41	39	38	39	39	41	41	45	45	47	46	49	49	52	50
3	49	49	45	45	42	42	39	39	41	41	39	38	40	39	42	41	45	45	47	47	49	49	53	50
4	49	49	45	45	42	42	39	39	41	41	38	38	39	39	43	42	46	45	47	47	49	49	51	50
5	49	49	45	44	42	42	40	40	41	41	38	38	39	39	42	42	45	45	47	47	50	49	53	50
6	50	49	44	44	42	42	40	40	41	40	38	38	39	39	43	42	46	45	47	47	50	49	52	50
7	50	50	44	43	42	42	41	40	40	40	38	38	40	39	43	42	47	45	47	47	50	49	51	51
8	50	50	44	44	42	42	41	40	40	40	38	38	40	40	42	42	47	45	48	47	50	50	51	51
9	50	50	44	44	42	42	41	40	40	40	38	38	40	40	42	42	47	45	47	47	51	49	51	51
10	50	50	44	44	42	42	41	40	40	40	38	38	40	40	42	42	47	45	47	47	51	50	51	51
11	50	48	44	43	42	42	41	40	40	40	38	38	40	40	42	42	47	45	47	47	50	49	51	51
12	48	48	43	43	42	42	41	40	40	40	38	38	40	40	42	42	47	45	49	47	50	49	51	51
13	48	48	43	43	42	42	41	40	40	40	38	38	41	40	43	42	47	45	50	48	51	49	51	51
14	48	47	43	43	42	42	41	40	40	40	38	38	41	41	43	42	47	46	51	48	51	49	51	50
15	48	47	43	43	42	42	41	40	40	40	38	38	41	41	43	43	46	46	50	49	51	49	50	50
16	48	48	43	43	42	42	41	40	40	40	38	38	41	41	43	43	48	46	49	48	51	50	50	50
17	48	47	43	43	42	41	41	40	40	40	38	38	42	41	43	43	47	47	49	48	51	50	51	49
18	47	47	43	42	41	41	41	40	40	40	39	38	42	41	43	43	47	46	48	48	51	50	51	49
19	47	47	43	43	41	41	41	40	40	40	39	39	42	41	43	42	47	45	49	48	51	50	51	49
20	47	46	44	43	41	41	41	40	40	40	39	39	41	41	43	42	48	46	50	48	50	50	49	49
21	46	46	44	44	41	41	42	41	40	40	39	39	42	41	43	43	48	46	50	49	51	50	50	49
22	46	46	44	44	41	41	42	41	40	40	39	39	42	41	44	43	48	47	50	49	51	50	49	49
23	46	46	44	44	41	41	42	41	40	40	39	39	42	42	44	43	47	46	49	49	51	50	50	49
24	46	46	44	44	41	41	42	41	40	40	39	38	42	42	45	43	46	46	49	49	51	50	50	49
25	46	45	44	44	41	41	42	41	40	40	38	38	42	42	45	45	47	46	49	49	50	50	50	49
26	45	45	44	44	41	40	42	41	40	39	38	38	42	42	45	45	47	46	49	49	50	50	49	49
27	45	45	44	44	40	40	41	41	39	38	39	38	42	42	45	45	47	47	49	48	51	49	49	49
28	45	45	44	44	40	40	41	41	39	38	39	39	42	41	46	45	47	46	48	48	52	50	49	49
29	45	45	44	44	40	40	41	41	--	--	39	39	42	41	46	44	47	46	48	48	51	50	49	49
30	45	45	44	43	40	40	41	41	--	--	39	39	42	41	44	43	46	46	48	48	51	50	49	49
31	45	45	--	--	40	40	41	41	--	--	39	39	--	--	44	43	--	--	48	48	51	50	--	--
Average	48	47	44	44	41	41	41	40	40	40	38	38	41	40	43	43	47	46	48	48	50	50	51	50

SKAGIT RIVER BASIN--Continued

CASCADE RIVER AT MARBLEMOUNT, WASH.

LOCATION.--Temperature recorder at gaging station, 1½ miles downstream from Boulder Creek, 2 miles east of Marblemount, Skagit County, and 2½ miles upstream from mouth.
DRAINAGE AREA.--171 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 53°F Aug. 16, 18, Sept. 2-6; minimum, 33°F Mar. 4, 5.
EXTREMES, 1952-55.--Water temperatures: Maximum, 57°F July 9, 11-14, 29-31, Aug. 2-5, 9-13, 1952; minimum, 33°F Mar. 4, 5, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	44	43	41	41	38	38	39	38	39	39	36	35	39	39	46	44	44	41			--	--	52	49
2	44	43	42	41	38	37	39	38	39	39	36	35	40	39	46	44	43	43			47	47	53	50
3	45	44	42	42	38	37	38	38	39	39	35	34	42	39	46	44	46	43			49	45	53	50
4	45	45	42	42	39	38	38	37	39	39	34	33	42	39	47	43	46	43			50	46	53	50
5	45	45	44	42	39	39	38	38	39	39	34	33	42	39	47	44	44	43			51	47	53	50
6	46	45	44	42	39	39	39	38	39	37	36	34	42	39	47	43	46	42			52	48	53	51
7	46	46	42	41	39	39	39	39	37	37	37	36	43	40	46	43	47	42			51	48	52	51
8	46	46	43	42	39	39	39	39	37	37	37	37	42	41	45	43	47	42			51	48	52	51
9	47	46	43	43	39	39	39	38	37	37	37	37	41	40	44	42	46	42			51	47	52	50
10	47	46	43	42	39	39	38	37	37	36	37	36	41	40	44	44	46	42			52	48	52	50
11	46	44	43	42	39	39	38	37	37	36	36	36	41	40	44	44	47	42			51	48	52	50
12	44	43	43	43	39	38	39	38	38	37	36	36	41	40	44	43	47	43			51	48	51	49
13	43	43	43	42	38	38	39	38	39	38	37	36	42	41	44	43	45	43			50	47	51	49
14	44	43	42	42	38	38	39	38	38	38	38	37	42	41	46	42	45	43			51	48	49	49
15	44	44	42	42	38	38	39	39	39	38	38	37	42	41	46	44	44	43			51	48	49	48
16	45	44	42	42	38	38	39	39	39	38	38	38	42	41	44	43	46	43			53	50	48	48
17	45	45	42	42	38	37	39	38	38	37	38	38	44	41	45	43	45	44			52	49	49	47
18	45	44	42	42	37	37	39	38	37	35	38	38	44	41	45	43	44	43			53	49	50	48
19	45	44	42	42	38	37	39	37	36	35	38	37	44	42	44	42	46	43			52	50	50	48
20	44	44	42	42	39	38	38	37	37	36	38	36	44	43	45	42	48	43			52	50	48	48
21	44	43	43	42	40	39	38	38	37	37	37	36	45	43	44	42	47	44			51	48	48	48
22	43	43	43	43	40	39	38	38	38	37	36	36	44	43	45	43	46	43			52	49	48	46
23	43	42	43	42	39	39	39	38	38	38	36	37	44	42	46	42	44	43			52	49	48	46
24	42	41	42	42	39	39	39	39	38	37	37	36	43	41	48	42	43	42			52	50	48	46
25	41	41	42	42	39	37	39	39	37	36	38	36	43	42	45	43	44	43			51	49	48	46
26	41	40	42	41	37	37	39	39	36	36	39	37	45	42	44	43	43	43			51	48	47	47
27	41	40	41	41	37	37	39	38	36	35	41	39	44	42	44	42	43	43			51	48	48	47
28	42	41	41	41	37	37	38	38	35	35	40	39	45	42	46	42	--	--			52	48	48	47
29	42	41	41	39	38	37	39	38	--	--	41	40	45	42	45	42	--	--			52	49	47	47
30	42	41	39	38	38	38	39	39	--	--	40	39	45	43	42	40	--	--			52	50	48	47
31	42	41	--	--	39	38	39	39	--	--	40	39	--	--	41	41	--	--			52	50	--	--
Average	44	43	42	42	38	38	39	38	38	37	37	37	43	41	45	43	45	43			51	48	50	48

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER IN WASHINGTON

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
NISQUALLY RIVER BASIN																							
NISQUALLY RIVER NEAR McKENNA																							
Feb. 9, 1955	3,390	14	0.11	4.8	1.2	3.0	0.7	22	2.5	1.5	0.2	1.2	0.05	48	0.07	439	17	0	27	0.3	49.2	7.2	30
Sept. 1	968	10	.02	4.8	1.0	2.8	.6	24	2.1	1.0	.1	.2	.05	47	.06	123	16	0	27	.3	47.9	7.1	0
CHAMBERS RIVER BASIN																							
CHAMBERS CREEK BELOW LEACH CREEK NEAR STEILACOOM																							
Feb. 18, 1955	148	15	0.01	9.9	3.6	5.0	1.2	44	6.9	4.0	0.1	4.7	0.10	76	0.10	30	40	4	21	0.3	109	6.9	10
Aug. 30	39	18	.00	10	5.2	5.7	1.0	51	7.4	5.0	.1	3.8	.04	84	.11	8.8	46	4	21	.4	124	7.1	0
PUYALLUP RIVER BASIN																							
KAPOWSIN CREEK NEAR KAPOWSIN																							
Feb. 8, 1955	246	16	0.08	3.4	1.1	3.0	0.9	18	1.5	1.0	0.3	1.6	0.08	51	0.07	34	13	0	31	0.4	42.7	6.6	40
Sept. 1	6.4	13	.03	4.8	1.4	3.4	.9	28	.7	2.0	.2	.7	.01	49	.07	.8	18	0	28	.4	53.0	6.7	25
PUYALLUP RIVER NEAR ORTING																							
Feb. 8, 1955	3,240	13	0.05	3.8	0.9	2.3	0.9	17	2.5	1.2	0.3	1.6	0.11	47	0.06	411	13	0	26	0.3	39.9	6.6	40
Aug. 31	499	9.7	.02	4.2	1.3	2.3	.6	16	7.4	1.0	.1	.2	.04	65	.09	88	16	3	23	.3	43.8	6.9	0
CARBON RIVER NEAR FAIRFAX																							
Feb. 8, 1955	1,760	8.9	0.00	3.2	0.5	1.7	0.6	12	1.5	0.2	0.2	1.6	0.05	30	0.04	143	10	0	26	0.2	29.8	6.6	10
Sept. 1	295	7.1	.01	2.4	.3	1.8	.5	13	1.4	.5	.1	.4	.08	33	.04	26	7	0	33	.3	28.4	6.9	0

PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER IN WASHINGTON--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
PUYALLUP RIVER BASIN--Continued																							
SOUTH PRAIRIE CREEK AT SOUTH PRAIRIE																							
Feb. 9, 1955	902	11	0.00	4.6	1.0	2.5	0.7	18	4.5	1.2	0.3	1.9	0.05	43	0.06	105	16	1	25	0.3	48.6	6.7	25
Sept. 1	54	14	.00	11	2.9	5.8	.6	51	7.7	2.2	.1	.3	.02	70	.10	10	39	0	24	.4	106	7.3	0
PUYALLUP RIVER AT ALDERTON																							
Feb. 9, 1955	4,190	12	0.05	4.8	1.0	2.6	0.8	20	3.0	1.0	0.2	1.6	0.14	46	0.06	520	16	0	25	0.3	47.3	6.8	25
Aug. 31	1,020	10	.03	5.6	1.6	3.0	.7	26	5.1	1.0	.1	.3	.01	57	.08	157	21	0	23	.3	58.7	7.2	0
WHITE RIVER AT GREENWATER																							
Feb. 8, 1955	3,040	13	0.00	4.4	0.8	2.3	0.6	17	4.4	0.5	0.3	0.9	0.12	44	0.06	361	14	0	25	0.3	42.5	6.9	25
Aug. 30	723	14	.02	5.6	.9	3.9	.8	18	10	1.2	.1	.3	.11	62	.08	121	18	3	31	.4	58.3	7.0	0
GREENWATER RIVER AT GREENWATER																							
Feb. 8, 1955	1,150	14	0.03	4.6	0.5	2.5	0.5	19	2.6	1.0	0.3	0.9	0.08	43	0.06	134	14	0	28	0.3	41.0	6.5	20
Aug. 30	73	16	.00	6.7	1.2	4.3	.3	33	3.3	1.2	.0	.1	.02	50	.07	9.8	22	0	30	.4	61.4	7.5	0
WHITE RIVER NEAR BUCKLEY																							
Feb. 8, 1955	3,390	9.5	0.07	3.2	0.5	1.9	0.7	12	3.8	1.0	0.3	1.1	0.12	42	0.06	384	10	0	27	0.3	33.7	6.6	30
Aug. 31	865	12	.03	5.4	.8	3.7	.8	20	8.8	1.5	.1	.4	.02	58	.08	135	17	1	31	.4	54.9	7.0	0

STUCK RIVER NEAR SUMNER

Feb. 9, 1955.....	2,340	13	0.07	4.4	1.0	2.5	0.9	18	4.2	1.0	0.3	1.8	0.16	48	0.07	303	15	0	25	0.3	46.7	6.6	20
Aug. 29	96	15	.02	9.3	2.0	4.5	1.0	38	9.1	1.8	.1	.5	.01	67	.09	17	31	0	23	.3	87.9	7.2	0

PUYALLUP RIVER AT PUYALLUP

Feb. 9, 1955.....	8,830	13	0.01	4.8	1.2	2.8	0.9	20	4.7	1.2	0.3	1.5	0.04	47	0.06	1,120	17	1	25	0.3	51.8	6.6	20
Aug. 30	1,920	13	.02	6.0	1.4	4.0	1.4	26	6.7	2.0	.1	1.1	.01	55	.07	285	21	0	28	.4	66.7	6.3	0

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PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER IN WASHINGTON--Continued

Periodic determinations of suspended-sediment discharge, water year October 1954 to September 1955

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
NISQUALLY RIVER BASIN			
NISQUALLY RIVER NEAR McKENNA			
Nov. 9, 1954	2,320	13	81
Dec. 14	1,400	7	26
Jan. 18, 1955	2,450	8	53
Feb. 9	3,360	27	245
Mar. 17	2,090	10	56
Apr. 25	2,700	7	51
May 31	2,680	7	51
July 25	2,060	196	1,090
Sept. 1	1,420	42	161
CHAMBERS CREEK BASIN			
CHAMBERS CREEK BELOW LEACH CREEK, NEAR STEILACOOM			
Oct. 27, 1954	51	5	0.7
Dec. 6	87	6	1.4
Jan. 19, 1955	131	10	3.5
Feb. 18	145	10	3.9
Mar. 14	136	7	2.6
Apr. 18	164	7	3.1
June 4	95	4	1.0
July 18	61	4	.7
Aug. 30	39	7	.7
PUYALLUP RIVER BASIN			
KAPOWSIN CREEK NEAR KAPOWSIN			
Nov. 3, 1954	22	3	0.18
Dec. 15	43	2	.23
Jan. 18, 1955	57	5	.77
Feb. 8	283	13	9.9
Mar. 16	54	5	.73
Apr. 25	92	3	.75
May 27	34	5	.46
July 19	15	6	.24
Sept. 1	6.1	5	.08
PUYALLUP RIVER NEAR ORTING			
Nov. 3, 1954	395	85	91
Dec. 16	444	7	8.4
Jan. 17, 1955	433	14	16
Feb. 8	2,750	581	4,310
Mar. 16	335	5	4.5
Apr. 22	640	84	145
May 27	688	8	15
July 19	971	223	585
Aug. 31	522	448	631
CARBON RIVER NEAR FAIRFAX			
Nov. 2, 1954	159	5	2.1
Dec. 13	215	6	3.5
Jan. 20, 1955	166	1	(t)
Feb. 8	1,500	283	1,150
Mar. 18	119	5	1.6
Apr. 28	199	3	1.6
June 1	519	7	9.8
July 20	604	275	448
Sept. 1	285	179	138

t Less than 0.50 ton.

PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER IN WASHINGTON--Continued

Periodic determinations of suspended-sediment discharge, water year October 1954 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
PUYALLUP RIVER BASIN--Continued			
SOUTH PRAIRIE CREEK AT SOUTH PRAIRE			
Nov. 2, 1954	85	3	0.7
Dec. 13	168	4	1.8
Jan. 17, 1955	159	4	1.7
Feb. 9	840	113	256
Mar. 16	146	3	1.2
Apr. 22	365	8	7.9
June 1	247	4	2.7
July 20	151	7	2.9
Sept. 1	52	10	1.4
PUYALLUP RIVER AT ALDERTON			
Oct. 29, 1954	987	10	27
Dec. 16	998	7	19
Jan. 19, 1955	910	11	27
Feb. 9	3,940	309	3,290
Mar. 16	820	9	20
Apr. 21	1,420	25	96
May 26	1,610	43	187
July 25	1,880	164	832
Aug. 31	1,040	296	831
WHITE RIVER AT GREENWATER			
Nov. 10, 1954	468	30	38
Dec. 9	478	16	21
Jan. 21, 1955	370	9	9.1
Feb. 8	3,030	751	6,140
Mar. 21	268	6	4.3
Apr. 27	439	13	15
June 8	4,230	1,190	13,600
July 22	1,430	654	2,530
Aug. 30	700	1,630	3,080
GREENWATER RIVER AT GREENWATER			
Nov. 10, 1954	66	3	0.5
Dec. 7	102	2	.6
Jan. 21, 1955	83	5	1.1
Feb. 8	1,300	79	277
Mar. 22	116	7	2.2
Apr. 27	134	17	6.2
June 8	1,120	64	194
July 22	228	15	9.2
Aug. 30	73	2	.4
WHITE RIVER NEAR BUCKLEY			
Oct. 28, 1954	750	10	20
Dec. 9	813	7	15
Jan. 21, 1955	660	9	16
Feb. 8	3,580	220	2,130
Mar. 18	606	8	13
Apr. 28	902	11	27
June 10	7,120	175	3,360
July 22	2,410	199	1,290
Aug. 31	875	1,270	3,000

PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER IN WASHINGTON--Continued

Periodic determinations of suspended-sediment discharge, water year October 1954 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
PUYALLUP RIVER BASIN--Continued			
STUCK RIVER NEAR SUMNER			
Nov. 4, 1955	78	4	0.8
Dec. 10	127	4	1.4
Jan. 20, 1955	127	5	1.7
Feb. 9	2,330	744	4,680
Mar. 15	136	4	1.5
Apr. 21	191	5	2.6
June 9	5,770	1,740	27,100
July 21	431	52	61
Aug. 29	96	25	6.5
PUYALLUP RIVER AT PUYALLUP			
Oct. 27, 1954	3,350	10	90
Dec. 6	3,770	20	204
Jan. 24, 1955	4,840	101	1,320
Feb. 9	8,770	290	6,870
Mar. 14	2,760	55	410
Apr. 19	3,650	13	128
May 31	5,320	148	2,130
July 18	5,880	284	4,510
Aug. 30	2,480	146	978

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER IN WASHINGTON--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment													Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
NISQUALLY RIVER BASIN																	
NISQUALLY RIVER NEAR McKENNA																	
July 25, 1955	12:45 p.m.	2,060	53	196	750	69	75	78	89	92	96	98	99		100		SPWC
PUYALLUP RIVER BASIN																	
PUYALLUP RIVER NEAR ORTING																	
July 19, 1955	11:15 a.m.	971	49	223	795	14	18	24	31	53	72	81	89		97	100	SPWC
CARBON RIVER NEAR FAIRFAX																	
July 20, 1955	10:25 a.m.	604	46	275	478	14	17	19	21	27	37	47	63		98	100	VPWC
PUYALLUP RIVER AT ALDERTON																	
May 26, 1955	1:30 p.m.	1,610	51	43							29	68	89		97	100	S
WHITE RIVER AT GREENWATER																	
June 8, 1955	1:50 p.m.	4,230	49	1,190	1,940	5	9	12	18	26	42	63	85		98	100	VPWC
WHITE RIVER NEAR BUCKLEY																	
June 10, 1955....	1:25 p.m.	7,120	50	175	712	28	47	70	77	80	84	85	87		90	94	SPWC
STUCK RIVER NEAR SUMNER																	
June 9, 1955.....	7:30 p.m.	5,770	59	1,740	2,580	5	8	11	13	18	30	53	86		99	100	VPWC
PUYALLUP RIVER AT PUYALLUP																	
May 31, 1955	4:35 p.m.	5,320	52	148							7	27	65		94	99	S

KOOTENAI RIVER BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN KOOTENAI RIVER BASIN IN IDAHO

Particle-size analyses of suspended sediment, June 1955
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual-accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
KOOTENAI RIVER AT LEONIA																
June 20, 1955	12:00 m.	52,000		159	1,340	21	31	39	52	60	82	93	99		100		VP
KOOTENAI RIVER NEAR BONNERS FERRY																
June 20, 1955	7:00 p.m.	56,300		127	1,330	10	34	47	59	70	89	92	100				VP

COLUMBIA RIVER AT INTERNATIONAL BOUNDARY

LOCATION.--At cableway 2.2 miles downstream from gaging station, which is 0.5 mile downstream from Pend Oreille River, and about 10 miles upstream from Northport, Stevens County, Washington.
DRAINAGE AREA.--59,700 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: February 1910 to January 1911, November 1951 to September 1955.
Water temperatures: November 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 108 ppm Mar. 1-10, 21-31; minimum, 76 ppm July 16-31.
Hardness: Maximum, 87 ppm Mar. 1-10, 21-31; minimum, 61 ppm Aug. 1-13.
Specific conductance: Maximum daily, 183 micromhos Mar. 3, 5, 28, 30; minimum daily, 129 micromhos July 28, Aug. 5, 8, 9.
Water temperatures: Maximum, 69°F Aug. 31; minimum, 35°F on many days during February and March.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 110 ppm Apr. 11-20, 1953; minimum, 73 ppm July 21-31, Aug. 1-10, 1954.
Hardness: Maximum, 92 ppm Mar. 1-10, 1953; minimum, 61 ppm Aug. 1-13, 1955.
Specific conductance: Maximum daily, 190 micromhos Mar. 10, 1953; minimum daily, 129 micromhos July 28, Aug. 5, 8, 9, 1955.
Water temperatures: Maximum, 69°F Aug. 31, 1955; minimum, freezing point Jan. 2, 11, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ...	62,310	4.4		21	5.1	1.4	0.9	73	14	1.2		0.9	--	80	0.11	13,460	73	14	4	0.1	146	7.0
Oct. 11-20	59,570	5.2		21	5.0	1.4	.9	74	13	.8		.6	0.03	80	.11	12,870	73	12	4	.1	146	7 2
Oct. 21-31	58,600	4.8		22	4.8	1.4	1.0	75	14	1.0		.8	--	84	.11	13,290	75	13	4	.1	152	7.2
Nov. 1-10	55,170	4.9		21	4.9	1.8	.9	78	14	1.4		1.0	--	89	.12	13,260	73	9	5	.1	158	7 3
Nov. 11-20	64,900	5.6		21	4.9	1.8	.9	79	13	.8		.7	.00	89	.12	15,600	73	8	5	.1	156	7 2
Nov. 21-30	65,760	6.4		21	4.7	1.9	.9	78	13	1.1		.9	--	88	.12	15,620	72	8	5	.1	154	7 3
Dec. 1-10	60,050	5.0		21	4.8	1.9	.9	77	14	1.4		1.1	--	89	.12	14,430	72	9	5	.1	157	7.4
Dec. 11-20	54,300	5.2		22	4.8	1.8	.9	79	14	1.1		.9	.00	90	.12	13,190	75	10	5	.1	158	7 5
Dec. 21-31	47,210	6.3		23	5.4	2.4	1.2	90	16	1.0		.8	--	98	.13	12,490	80	6	6	.1	169	7.6
Jan. 1-10, 1955 ...	42,420	6.8		24	5.3	2.3	1.2	88	17	1.0		.8	--	100	.14	11,450	82	10	6	.1	169	7.9
Jan. 11-20	42,970	7.4		24	5.5	2.3	1.2	90	17	1.0		.8	.00	103	.14	11,950	82	9	6	.1	173	7.9
Jan. 21-31	42,050	7.0		24	5.7	2.3	1.2	90	17	1.0		.7	--	104	.14	11,810	83	10	6	.1	178	7.7
Feb. 1-10	41,850	6.9		24	5.7	2.3	1.2	90	16	1.0		.6	--	102	.14	11,530	83	10	6	.1	173	8.0
Feb. 11-19	41,530	6.2		24	5.6	2.0	1.1	85	16	1.1		.4	--	98	.13	10,990	83	13	5	.1	175	7 5
Feb. 20-28	39,880	6.2		24	5.6	2.0	1.1	85	16	.9		.4	.00	100	.14	10,770	83	13	5	.1	175	7.5
Mar. 1-10	34,050	7.2		25	5.9	2.2	1.0	88	17	1.8		.7	--	108	.15	9,930	87	15	5	.1	181	7.5
Mar. 11-20	39,140	6.8		24	5.9	2.0	1.0	87	16	1.1		.5	.01	103	.14	10,880	84	13	5	.1	177	7.3
Mar. 21-31	42,630	7.0		25	6.0	2.2	1.0	90	16	1.8		1.0	--	108	.15	12,430	87	13	5	.1	183	7.3

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT INTERNATIONAL BOUNDARY--Continued

Chemical analyses, in part per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-11, 1955	58,270	7.4		25	4.5	3.3	1.0	89	15	0.5		1.1	--	104	0.14	16,360	81	8	8	0.2	175	7 7
Apr. 12-20	51,560	8.3		24	4.6	2.4	1.0	84	16	.8		1.2	0.04	101	.14	14,060	79	10	6	.1	171	7 3
Apr. 21-30	53,370	8.2		23	4.3	2.3	1.0	82	14	.5		.7	--	97	.13	13,980	75	8	6	.1	163	7 3
May 1-16	66,010	7.1		21	4.5	2.1	1.0	78	13	.5		.6	--	91	.12	16,220	71	7	6	.1	154	7.2
May 17-31	136,900	7.1		21	4.1	2.0	.9	78	12	.2		.8	.06	88	.12	32,530	69	5	6	.1	152	7 3
June 1-10	193,300	6 9		20	3.9	2.4	1.4	73	11	.8		.9	--	84	.11	43,840	66	6	7	.1	147	7.3
June 11-20	299,200	6.3		19	4.5	2.3	1.0	73	11	.2		.7	--	84	.11	67,860	66	6	7	.1	145	7.4
June 21-30	372,700	5.9		19	4.8	1.6	1.0	72	10	.2		.7	.02	82	.11	82,520	67	8	5	.1	140	7.2
July 1-15	325,200	6.4		19	3.6	1.6	1.0	68	9.3	.2		1.0	--	77	.10	67,610	62	6	5	.1	134	7 3
July 16-31	277,100	4.9		18	4.2	1.7	.8	68	9.3	.2		1.4	.04	76	.10	56,860	62	6	6	.1	134	7 2
Aug. 1-13	171,900	8.1		18	4.0	1.6	1.3	66	10	.5		1.1	.01	79	.11	36,670	61	7	5	.1	132	7.1
Aug. 14-31	102,800	6.7		19	3.8	1.6	1.5	66	11	.5		1.0	--	78	.11	21,650	63	9	5	.1	136	7.0
Sept. 1-30	71,330	5.8		20	4.2	1.7	1.5	70	12	.2		.8	.04	79	.11	15,210	67	10	5	.1	140	7 2
Weighted average	104,100	6.3		20	4.4	1.9	1.1	74	12	0.5		0.9	--	85	0.12	23,890	68	7	5	0.1	147	--

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT INTERNATIONAL BOUNDARY--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	48	44	40	38	35	39	--	48	--	55	62
2	55	48	44	39	38	35	39	--	49	52	--	--
3	55	48	43	41	37	35	40	44	--	--	58	--
4	54	48	43	40	38	35	--	45	49	54	58	62
5	54	48	44	40	--	35	--	45	49	--	56	--
6	54	49	44	39	--	35	40	45	50	54	60	--
7	--	--	44	38	37	35	40	45	51	54	60	--
8	54	--	44	38	37	35	41	--	52	54	58	63
9	54	48	44	38	37	35	42	45	52	53	--	62
10	--	48	43	38	37	35	42	46	52	55	60	62
11	--	48	43	--	37	35	--	46	53	55	60	63
12	54	49	43	38	36	--	42	46	53	52	--	62
13	53	48	43	37	--	35	42	46	52	54	60	--
14	53	48	42	37	36	35	42	--	52	54	--	63
15	52	48	--	37	--	35	41	46	52	54	61	63
16	52	48	41	--	36	35	41	46	52	54	--	63
17	52	48	42	37	36	36	43	--	52	52	--	--
18	52	48	42	36	36	36	43	47	--	53	60	65
19	52	48	--	37	36	37	43	47	--	54	60	--
20	--	47	41	37	36	--	42	47	52	55	--	--
21	52	--	41	--	36	37	42	47	52	--	58	--
22	52	47	40	37	36	35	42	47	52	--	62	51
23	51	--	41	36	36	37	42	--	52	--	63	63
24	50	47	40	36	--	36	--	47	53	54	63	--
25	50	47	--	37	35	37	42	48	--	55	--	--
26	49	--	--	37	35	37	43	48	53	55	--	62
27	49	--	39	37	35	37	43	47	53	54	60	--
28	50	45	39	38	35	38	43	47	53	55	--	63
29	50	45	--	38	--	38	43	--	54	55	--	--
30	49	44	38	38	--	38	44	48	52	--	67	--
31	49	--	40	38	--	38	--	--	--	54	69	--
Average	52	48	42	38	36	36	42	--	52	--	--	--

SPOKANE RIVER BASIN

COEUR D'ALENE RIVER AT CATALDO, IDAHO

LOCATION.--At wooden bridge, just upstream from bridge on U. S. Highway 10, at Cataldo, Shoshone County, 1½ miles downstream from gaging station, and 4½ miles downstream from South Fork.
DRAINAGE AREA.--1,220 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 90 ppm Sept. 1-2, 7-9, 11, 13-14, 27-28; minimum, 36 ppm May 21-31, June 1-2, 4-9, 11-13.
Hardness: Maximum, 51 ppm Sept. 1-2, 7-9, 11, 13-14, 27-28; minimum, 19 ppm May 21-31.
Specific conductance: Maximum daily, 159 micromhos Sept. 11; minimum daily, 44.2 micromhos May 22.
Water temperatures: Maximum, 72°F June 23; minimum, 33°F Feb. 28.
EXTREMES, 1953-55.--Dissolved solids: Maximum, 98 ppm Oct. 21-31, 1953; minimum, 36 ppm May 21-31, June 1-2, 4-9, 11-13, 1955.
Hardness: Maximum, 61 ppm Sept. 11-20, 1953; minimum, 18 ppm May 11-20, 1954.
Specific conductance: Maximum daily, 178 micromhos Oct. 29, 1953; minimum daily, 39.2 micromhos May 19, 1954.
Water temperatures: Maximum, 72°F July 13, 1953, June 23, 1955; minimum, freezing point on several days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for gaging station near Cataldo for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954..	468	9.9		12	4.9	4.0	1.5	36	31	1.5		1.1	--	81	0.11	102	50	21	14	0.2	134	6.8
Oct. 11-20	528	9.9		12	4.9	3.5	1.3	35	28	1.0		.9	0.06	78	.11	111	50	21	13	.2	125	6.9
Oct. 21-28	1,040	10		11	4.2	2.7	1.1	34	22	1.0		.8	--	69	.09	194	45	17	11	.2	110	7.1
Nov. 1-10.....	646	9.8		11	4.6	3.3	1.3	34	27	1.2		1.0	--	75	.10	131	46	18	13	.2	119	6.9
Nov. 11-20	1,674	9.4		9.9	3.9	2.1	1.3	32	19	1.2		1.0	.03	66	.09	298	41	15	10	.1	101	6.8
Nov. 21-30.....	2,004	11		8.0	3.0	2.2	.6	27	17	1.2		.5	--	55	.07	298	32	10	12	.2	84.1	7.1
Dec. 1-10.....	1,263	11		9.0	3.3	2.3	.7	30	20	1.4		.6	--	60	.08	205	36	11	11	.2	94.2	6.8
Dec. 11-20.....	832	11		10	3.9	2.7	1.1	29	25	1.4		.6	.02	69	.09	155	41	17	11	.2	110	6.9
Dec. 21-31.....	789	11		10	4.1	2.2	1.1	32	25	1.5		.7	--	71	.10	151	42	16	9	.1	112	6.8
Jan. 1-10, 1955..	969	10		9.8	4.3	1.9	.9	25	28	1.4		.9	--	70	.10	183	42	22	8	.1	111	6.7
Jan. 11-20.....	661	9.8		11	4.4	2.8	1.2	32	28	1.7		.6	.01	76	.10	136	46	19	10	.2	122	6.6
Jan. 21-31.....	545	9.7		11	4.3	2.3	1.1	33	26	1.6		.2	--	74	.10	109	45	18	9	.1	118	6.6
Feb. 1-8	878	10		12	4.1	2.8	1.1	32	28	1.0		.7	--	73	.10	173	47	21	11	.2	121	6.8
Feb. 9-18	2,244	10		8.1	3.2	2.2	1.0	25	18	1.0		.6	.01	56	.08	339	33	13	12	.2	92.0	6.6
Feb. 19-28.....	900	10		9.6	3.8	2.2	1.1	26	24	1.2		.9	--	65	.09	158	40	18	10	.2	106	6.7
Mar. 1-10	711	9.8		11	4.2	3.4	1.1	32	29	1.1		.6	--	74	.10	142	45	18	14	.2	124	6.7
Mar. 11-19	748	9.6		12	5.0	2.8	1.2	30	31	1.2		.9	.00	82	.11	166	50	26	10	.2	126	6.7
Mar. 20-29.....	796	10		11	4.7	2.7	1.5	31	28	1.1		1.6	.00	85	.12	183	47	21	11	.2	126	6.6

Apr. 8-12, 14-20 1955	4,598	11		8.2	2.4	2.3	1.4	26	16	.5		.7	.05	54	.07	670	31	10	13	.2	82.4	7.0
Apr. 13, 21-30 .	5,047	9.3		7.1	2.2	2.3	1.3	23	11	.5		.5	--	49	.07	668	27	8	15	.2	72.3	6.9
May 1-10	9,366	9.9		6.2	1.9	1.8	1.4	22	9.9	.5		.8	--	45	.06	1,140	23	5	13	.2	63.1	6.7
May 11-20	9,832	9.8		5.4	1.6	1.6	1.5	20	7.9	.5		.5	.02	38	.05	1,010	20	4	14	.2	54.5	6.5
May 21-31.....	9,895	9.7		5.2	1.4	1.7	1.2	19	7.2	.2		.5	--	36	.05	962	19	3	15	.2	50.5	6.7
June 1-2, 4-9, 11-13	6,962	9.1		4.8	1.9	1.7	1.4	20	7.2	.2		.4	--	36	.05	677	20	4	15	.2	52.6	6.6
June 3, 10, 14-19, 25.....	4,374	9.8		6.2	1.9	1.9	1.9	23	10	.5		.7	.04	44	.06	520	23	4	14	.2	64.4	6.5
June 20-24, 26-30	2,569	9.6		7.7	2.3	2.2	2.1	24	14	.8		.6	--	51	.07	354	29	9	13	.2	76.2	6.6
July 1-10	2,079	11		8.1	2.5	2.0	1.2	26	15	.5		.6	--	53	.07	298	30	9	12	.1	81.6	6.7
July 11-20	1,580	11		8.5	3.2	2.5	1.2	29	18	.8		.5	.05	60	.08	256	34	10	13	.2	92.6	6.8
July 21-31.....	1,076	10		9.7	3.7	2.7	1.4	30	23	1.0		.7	--	67	.09	195	39	14	12	.2	107	6.9
Aug. 1-10	817	12		11	4.1	3.3	1.9	32	26	1.0		.8	--	77	.10	170	44	18	13	.2	117	6.8
Aug. 11-20.....	649	13		12	4.5	3.6	2.0	35	30	1.2		.8	.00	84	.11	147	48	19	13	.2	132	6.9
Aug. 21-31.....	538	11		12	4.7	3.8	1.6	32	32	1.0		1.1	--	83	.11	121	49	23	14	.2	133	6.9
Sept. 1-2, 7-9, 11, 13-14, 27-28...	471	8.8		12	5.2	5.4	1.4	32	37	.8		.9	--	90	.12	114	51	25	18	.3	147	6.7
Sept. 3-4, 6, 10, 12, 16, 20-22, 24	516	9.5		11	5.3	4.0	1.4	31	33	1.0		.9	.08	83	.11	116	49	24	15	.2	134	6.7
Sept. 5, 15, 17-19, 23, 25-26, 29-30	576	9.7		11	5.3	2.8	1.3	32	28	.8		.8	--	75	.10	117	49	23	11	.2	122	7.2
Weighted average	a 2,299	10		7.3	2.5	2.1	1.4	24	14	0.6		0.6	--	50	0.07	310	28	8	13	0.2	75.9	--

a Represents 98 percent of runoff for water year October 1954 to September 1955.

SPOKANE RIVER BASIN--Continued

COEUR D'ALENE RIVER AT CATALDO, IDAHO--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	--	38	--	39	35	--	47	49	52	67	62
2	58	--	37	37	39	36	--	46	48	54	65	63
3	51	45	41	37	38	35	--	45	52	55	63	64
4	52	45	41	36	36	35	--	47	50	56	64	--
5	53	46	42	35	38	34	--	46	52	59	66	65
6	53	47	42	36	36	35	--	47	54	57	67	63
7	54	47	41	37	38	36	--	--	54	53	66	63
8	54	47	41	37	37	40	45	45	54	59	65	63
9	53	47	39	37	38	40	42	46	55	59	65	63
10	53	--	40	37	35	37	43	46	57	60	65	63
11	50	47	--	36	37	38	42	47	--	60	65	62
12	50	47	38	37	--	38	41	47	56	59	66	59
13	49	46	39	36	37	39	42	43	57	61	66	58
14	49	47	39	37	39	--	41	43	51	67	--	57
15	49	47	39	36	40	40	41	44	56	62	65	52
16	51	41	38	38	39	39	41	47	56	70	64	51
17	--	44	--	38	38	41	42	46	54	67	64	--
18	51	44	36	36	38	41	43	48	55	68	65	56
19	--	45	35	37	--	41	44	--	58	66	65	57
20	51	46	36	37	35	40	45	49	61	67	65	57
21	51	46	37	--	37	39	45	49	64	67	--	55
22	50	46	38	--	35	40	43	45	64	69	64	54
23	48	46	38	38	38	39	43	46	59	72	64	53
24	--	45	38	38	37	40	43	47	59	70	64	53
25	47	44	37	39	37	39	44	49	57	64	62	53
26	44	44	--	40	36	41	44	46	58	64	64	54
27	45	43	35	39	34	42	43	46	59	61	62	53
28	45	41	36	39	33	42	45	50	54	62	--	52
29	--	41	--	38	--	42	45	47	53	57	64	53
30	--	40	38	38	--	--	46	48	53	57	63	52
31	--	--	37	39	--	--	--	46	--	--	63	--
Average	--	45	38	37	37	39	--	46	55	62	65	58

COLUMBIA RIVER AT GRAND COULEE DAM, WASH.

LOCATION.--At Grand Coulee Dam, Grant-Okanogan County line, 2,500 feet upstream from gaging station, which is 14 miles upstream from Nespelem River.
DRAINAGE AREA.--74,100 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1955.
Water temperatures: November 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: *Maximum, 111 ppm Apr. 11-20, 21-30; minimum, 75 ppm Sept. 21-30.*
Specific conductance: Maximum daily, 193 micromhos Apr. 24, 25; minimum daily, 123 micromhos Sept. 16, 17.
Water temperatures: Maximum, 61°F on several days during October; minimum, 35°F Mar. 31, Apr. 1-4.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 111 ppm Apr. 11-20, 21-30, 1955; minimum, 75 ppm Sept. 21-30, 1955.
Specific conductance: Maximum daily, 193 micromhos Apr. 24, 25, 1955; minimum daily, 123 micromhos Sept. 16, 17, 1955.
Water temperatures: Maximum, 65°F Aug. 19, 1951; minimum, 35°F on several days during March and April.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Chlorids (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	67,690	--		--	--	--	--	--	--	--		--	--	84	0.11	15,350	--	--	--	--	138	--
Oct. 11-20	65,820	4.7		21	4.0	1.5	--	74	11	1.1		0.9	0.06	82	.11	14,570	68	7.3	5	0.1	136	7.4
Oct. 21-31.....	63,600	--		--	--	--	--	--	--	--		--	--	85	.12	14,600	--	--	--	--	137	--
Nov. 1-10	65,460	--		--	--	--	--	--	--	--		--	--	86	.12	15,200	--	--	--	--	138	--
Nov. 11-20	59,880	4.9		21	3.9	1.6	--	72	12	1.2		.9	.06	85	.12	13,740	69	10	5	.1	143	7.4
Nov. 21-30	69,980	--		--	--	--	--	--	--	--		--	--	90	.12	17,010	--	--	--	--	146	--
Dec. 1-10	67,560	--		--	--	--	--	--	--	--		--	--	87	.12	15,870	--	--	--	--	147	--
Dec. 11-20	63,180	4.5		23	2.8	1.7	--	74	14	1.1		1.1	.03	88	.12	15,010	70	9.3	5	.1	149	7.4
Dec. 21-31	62,350	--		--	--	--	--	--	--	--		--	--	94	.13	15,820	--	--	--	--	150	--
Jan. 1-10, 1955...	58,720	--		--	--	--	--	--	--	--		--	--	98	.13	15,540	--	--	--	--	152	--
Jan. 11-20	65,990	6.7		22	4.2	2.2	--	77	13	1.5		1.3	--	98	.13	17,460	73	10	6	.1	155	7.5
Jan. 21-31	65,040	--		--	--	--	--	--	--	--		--	--	97	.13	17,030	--	--	--	--	155	--
Feb. 1-10	69,290	--		--	--	--	--	--	--	--		--	--	94	.13	17,590	--	--	--	--	154	--
Feb. 11-20	68,920	7.5		22	4.2	2.1	--	76	13	1.8		.9	--	99	.13	18,420	73	11	6	.1	154	7.6
Feb. 21-28	78,210	--		--	--	--	--	--	--	--		--	--	100	.14	21,120	--	--	--	--	159	--
Mar. 1-10.....	80,720	8.8		24	4.6	2.1	--	81	16	2.0		1.0	--	99	.13	21,580	79	13	5	.1	167	7.5
Mar. 11-20	79,610	8.8		24	4.1	2.3	--	83	16	1.5		.9	.00	102	.14	21,920	78	10	6	.1	170	7.5
Mar. 21-31.....	77,450	--		26	4.4	3.6	--	86	--	--		--	--	101	.14	21,120	82	11	9	.2	180	7.2
Apr. 1-10	71,370	--		--	--	--	--	--	--	--		--	--	107	.15	20,620	--	--	--	--	180	--
Apr. 11-20	71,290	8.9		25	5.2	3.4	--	92	17	1.2		1.0	.08	111	.15	21,370	84	9	8	.2	186	7.7
Apr. 21-30	71,890	--		--	--	--	--	--	--	--		--	--	111	.15	21,550	--	--	--	--	187	--

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT GRAND COULEE DAM, WASH.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-10, 1955 ...	70,820	--		--	--	--	--	--	--	--		--	--	109	0.15	20,840	--	--	--	--	187	--
May 11-20	68,830	10		22	5.1	3.3	--	85	15	1.2		0.6	0.04	104	.14	19,330	76	6	8	0.2	173	7.5
May 21-31	85,310	--		--	--	--	--	--	--	--		--	--	95	.13	21,880	--	--	--	--	158	--
June 1-10	208,800	--		--	--	--	--	--	--	--		--	--	93	.13	52.430	--	--	--	--	151	--
June 11-20	289,300	11		19	3.8	2.6	--	72	11	.8		.6	.06	91	.12	71,080	63	4	8	.1	143	7.9
June 21-30	374,000	--		--	--	--	--	--	--	--		--	--	78	.11	78,760	--	--	--	--	133	--
July 1-10.....	332,900	--		--	--	--	--	--	--	--		--	--	77	.10	69,210	--	--	--	--	133	--
July 11-20	308,800	7.4		18	3.7	1.9	--	69	9.7	.2		.8	.02	81	.11	67,530	60	3	6	.1	136	7.5
July 21-31	262,800	--		--	--	--	--	--	--	--		--	--	79	.11	56,060	--	--	--	--	134	--
Aug. 1-10	184,900	--		--	--	--	--	--	--	--		--	--	81	.11	40,440	--	--	--	--	137	--
Aug. 11-20	124,400	8.7		18	3.8	1.8	1.3	70	9.2	.5		.8	--	80	.11	26,870	60	3	6	.1	135	7.3
Aug. 21-31	95,620	--		--	--	--	--	--	--	--		--	--	79	.11	20,400	--	--	--	--	133	--
Sept. 1-10	74,870	--		--	--	--	--	--	--	--		--	--	76	.10	15,360	--	--	--	--	132	--
Sept. 11-20	71,870	5.3		18	4.4	1.5	1.1	66	9.4	.2		.7	--	79	.11	15,330	63	9	5	.1	132	7.0
Sept. 21-30	70,680	--		--	--	--	--	--	--	--		--	--	75	.10	14,310	--	--	--	--	132	--
Weighted average	113,000	--		--	--	--	--	--	--	--		--	--	88	0.12	26,850	--	--	--	--	146	--

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT GRAND COULEE DAM, WASH.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement at approximately 10 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	57	54	48	42	38	35	40	46	53	56	59
2	60	57	54	48	42	38	35	40	47	53	56	59
3	60	57	54	48	42	38	35	42	47	53	56	59
4	61	57	54	47	42	38	35	43	47	53	56	59
5	61	57	54	47	42	38	36	44	47	53	56	59
6	61	57	54	47	42	38	37	44	48	53	56	58
7	61	58	54	47	42	38	37	44	48	53	56	58
8	61	58	53	47	42	38	36	44	48	53	56	58
9	61	57	53	46	42	--	36	44	48	53	56	58
10	61	57	52	46	41	38	36	44	49	53	56	58
11	61	57	51	45	40	39	36	44	49	53	57	58
12	60	57	51	45	40	39	36	44	49	53	57	59
13	60	57	50	45	40	39	36	45	49	53	58	59
14	60	57	50	45	39	39	37	45	49	53	58	59
15	60	56	50	45	39	39	37	44	49	53	58	59
16	60	56	50	45	39	39	37	45	49	53	58	59
17	60	56	50	46	39	39	38	46	49	53	59	59
18	60	56	49	46	39	39	38	46	49	53	59	59
19	60	56	49	46	39	38	38	46	50	52	59	59
20	60	56	48	45	39	39	39	46	50	53	59	59
21	60	56	48	45	39	39	39	46	50	53	59	59
22	60	56	48	45	39	39	39	46	50	54	59	59
23	60	55	48	45	39	37	39	46	51	54	59	59
24	60	54	48	44	39	37	39	46	51	54	59	59
25	60	54	48	44	39	37	39	46	51	54	59	59
26	59	54	47	44	39	37	39	46	52	54	59	59
27	59	54	47	43	38	37	39	46	52	58	59	59
28	58	54	47	44	38	37	39	46	53	58	59	59
29	58	54	47	43	--	36	39	47	53	58	58	59
30	57	54	47	43	--	36	39	46	53	57	58	59
31	57	--	48	42	--	35	--	47	--	57	59	--
Average	60	56	50	45	40	38	37	45	49	54	58	59

YAKIMA RIVER BASIN

YAKIMA RIVER AT CLE ELUM, WASH.

LOCATION.--At gaging station at Cle Elum, Kittitas County, just upstream from Roslyn Creek and 7 miles upstream from Teanaway River.
DRAINAGE AREA.--500 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: February 1910 to January 1911, December 1952 to September 1955.
Water temperatures: December 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 52 ppm Mar. 1-10; minimum, 27 ppm Aug. 11-20, 21-31.
Hardness: Maximum, 28 ppm Nov. 11-20, Mar. 1-10; minimum, 18 ppm Aug. 11-20.
Specific conductance: Maximum daily, 75.8 micromhos Mar. 5, 10; minimum daily, 43.6 micromhos Aug. 20.
Water temperatures: Maximum, 59°F July 23; minimum, freezing point Feb. 18, Mar. 2, 4, 5, 6.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 52 ppm Oct. 21-31, 1953, Apr. 1-10, 1954; Mar. 1-10, 1955; minimum, 27 ppm Aug. 11-20, 21-31, 1955.
Hardness: Maximum,35 ppm Nov. 11-21, 1953; minimum, 17 ppm Sept. 21-30, 1954.
Specific conductance: Maximum daily, 89.5 micromhos Nov. 12, 1953; minimum daily, 42.3 micromhos Oct. 21, 1953.
Water temperatures: Maximum, 61°F July 12, 18, 1953; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	1,886			5.2	1.4	1.7		26	1.1	1.0		0.4	--	31	0.04	158	19	0	15	0.2	47.1	7.0
Oct. 11-20	908			5.6	1.6	2.1		30	1.2	.5		.4	0.05	34	.05	83	21	0	17	.2	52.8	7.1
Oct. 21-31	1,331			5.4	1.4	2.1		28	1.2	.5		.3	--	32	.04	105	19	0	18	.2	48.6	7.3
Nov. 1-10	536			6.6	2.2	2.5		36	1.4	.5		.5	--	40	.05	58	26	0	17	.2	60.5	7.3
Nov. 11-20	284			7.9	1.9	2.7		38	1.4	1.0		.4	.01	44	.06	34	28	0	17	.2	65.9	7.2
Nov. 21-30	598			7.5	1.3	2.7		34	1.6	1.0		.4	--	43	.06	69	24	0	19	.2	63.0	7.2
Dec. 1-10	702			6.7	1.5	2.3		32	1.5	1.2		.3	--	37	.05	70	23	0	17	.2	56.9	7.4
Dec. 11-31	393			7.1	1.9	2.5		36	1.4	.8		.4	.05	42	.06	45	26	0	17	.2	63.5	7.3
Jan. 1-10, 1955...	468			7.1	1.9	2.2		35	1.9	.8		.3	--	37	.05	47	26	0	15	.2	64.2	6.6
Jan. 11-20	396			6.9	2.2	2.1		35	1.2	1.2		.3	.04	38	.05	41	26	0	14	.2	64.5	7.1
Jan. 21-31	479			6.9	1.8	2.8		36	1.6	1.8		.3	--	40	.05	52	25	0	18	.2	64.9	7.2
Feb. 1-10	826			6.9	1.7	2.5		33	1.4	1.0		.6	--	41	.06	91	24	0	18	.2	61.6	7.0
Feb. 11-20	746			6.9	1.8	2.6		34	1.6	1.0		.5	.01	45	.06	91	25	0	18	.2	64.7	7.1
Feb. 21-28	359			7.5	2.0	2.9		41	1.5	1.5		.4	--	46	.06	45	27	0	17	.2	68.3	7.1
Mar. 1-10	348			7.9	1.9	2.9		40	1.6	1.2		.4	--	52	.07	49	28	0	17	.2	73.9	6.8
Mar. 11-20	405			7.5	2.0	2.7		38	1.5	1.5		.4	.06	48	.07	52	27	0	17	.2	69.6	6.9
Mar. 21-31.....	992			6.7	1.8	2.4		33	1.6	1.0		.5	--	39	.05	104	24	0	17	.2	61.4	6.9

Apr. 1-10, 1955 ..	1,366		6.6	1.8	2.4		34	1.5	1.0		.5	--	43	.06	159	24	0	17	.2	61.7	6.9
Apr. 11-20	1,642		6.4	1.6	2.3		33	1.4	1.0		.4	.02	41	.06	182	23	0	17	.2	58.7	6.8
Apr. 21-30	2,243		5.8	1.5	2.1		28	1.4	1.0		.5	--	35	.05	212	21	0	17	.2	51.9	6.8
May 1-10.....	2,012		6.4	1.4	2.3		31	1.4	1.0		.7	--	38	.05	206	22	0	17	.2	54.6	6.7
May 11-20.....	1,345		7.3	1.5	2.9		36	1.6	1.0		.6	.04	46	.06	167	24	0	19	.3	64.2	6.8
May 21-31.....	1,229		6.9	1.7	2.9		35	1.4	1.0		.9	--	43	.06	143	24	0	20	.3	62.9	7.0
June 1-10	2,466		6.2	1.5	2.5		32	1.2	1.0		1.2	--	39	.05	260	22	0	18	.2	57.7	6.9
June 11-20	6,600		6.0	1.2	1.8		28	1.0	.8		1.0	.04	35	.05	624	20	0	15	.2	51.5	6.6
June 21-30	4,665		5.8	1.3	1.6		28	.9	.8		1.0	--	35	.05	441	20	0	14	.2	51.7	6.5
July 1-10.....	3,729		5.2	1.5	1.7		27	1.1	1.0		.5	--	29	.04	292	19	0	15	.2	50.3	6.7
July 11-20	2,959		5.2	1.8	1.7		27	1.0	1.0		.4	.01	29	.04	232	20	0	15	.2	50.2	6.6
July 21-31.....	2,770		5.2	1.6	1.6		28	.9	1.0		.8	--	30	.04	224	20	0	13	.2	50.5	6.6
Aug. 1-10.....	2,837		4.6	1.9	1.6		26	1.0	.8		.8	--	28	.04	214	19	0	14	.2	47.6	6.7
Aug. 11-20	3,060		4.6	1.6	1.5		25	.9	.8		.4	.00	27	.04	223	18	0	14	.2	45.5	6.8
Aug. 21-31	3,270		4.6	1.9	1.5		24	.5	.8		.5	--	27	.04	238	19	0	15	.1	46.2	7.2
Sept. 1-10	2,927		4.8	1.6	1.7		26	1.4	.5		.7	--	31	.04	245	19	0	15	.2	46.9	6.7
Sept, 11-20	2,419		5.0	1.8	1.8		26	1.4	.5		.6	.02	31	.04	202	20	0	16	.2	48.1	6.8
Sept. 21-30.....	1,947		5.0	1.8	1.7		27	1.2	.5		.6	--	31	.04	163	20	0	15	.2	48.2	7.1
Weighted average	1,709		5.7	1.6	1.9		29	1.2	0.9		0.6	--	34	0.05	157	21	0	16	0.2	52.8	--

YAKIMA RIVER BASIN--Continued

YAKIMA RIVER AT CLE ELUM, WASH.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	44	36	37	35	--	37	40	43	50	58	--
2	49	44	35	38	36	32	37	41	45	50	49	52
3	52	--	36	38	38	33	--	40	45	51	48	--
4	51	--	38	35	37	32	36	39	46	50	49	--
5	--	48	41	36	39	32	36	40	45	50	49	53
6	51	48	40	35	36	31	36	40	45	51	49	53
7	51	47	38	36	39	34	36	40	45	52	49	54
8	52	46	39	35	34	--	38	41	45	51	--	53
9	50	46	39	36	34	38	39	41	45	54	48	52
10	--	45	38	37	33	35	38	44	47	52	48	54
11	52	45	38	38	--	34	38	--	49	52	49	54
12	50	45	38	38	33	36	38	41	50	53	49	54
13	48	43	--	38	35	34	37	40	49	55	49	55
14	49	44	38	38	--	35	37	40	48	57	43	53
15	48	47	37	38	35	34	37	42	48	58	49	53
16	48	45	37	37	35	34	37	42	48	58	50	54
17	50	43	--	36	33	34	37	47	49	56	49	54
18	47	45	--	36	32	37	37	44	49	56	49	54
19	48	45	33	35	33	35	38	44	--	56	50	54
20	47	43	33	36	33	34	38	43	49	56	51	54
21	49	43	--	36	34	37	39	42	52	56	50	54
22	47	42	--	39	36	37	--	42	51	58	51	52
23	46	42	--	42	38	35	--	42	--	59	50	--
24	--	41	--	36	37	35	38	43	51	57	50	52
25	47	--	--	36	--	--	38	43	50	57	51	51
26	44	42	--	37	34	35	39	43	51	--	50	54
27	44	41	--	36	33	37	38	43	51	57	51	56
28	44	39	--	36	35	37	38	43	51	56	--	54
29	44	39	--	36	--	38	41	41	51	57	--	54
30	45	37	--	37	--	37	39	43	51	--	--	53
31	45	--	--	--	--	37	--	43	--	56	51	--
Average	48	44	--	37	35	35	38	42	48	55	50	53

YAKIMA RIVER AT KIONA, WASH.

LOCATION.--At highway bridge just downstream from gaging station at Kiona, Benton County, 3½ 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 1955.
Water temperatures: December 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 219 ppm Sept. 21-30; minimum, 85 ppm June 10-17, 24-26.
Hardness: Maximum, 125 ppm Sept. 21-30; minimum, 44 ppm June 10-17, 24-26.
Specific conductance: Maximum daily, 387 micromhos Sept. 29; minimum daily, 112 micromhos June 15.
Water temperatures: Maximum, 78°F July 23, 30; minimum, 35°F Dec. 20, 27.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 236 ppm Sept. 11-20, 1953; minimum, 85 ppm June 10-17, 24-26, 1955.
Hardness: Maximum, 145 ppm Sept. 11-20, 21-30, 1953; minimum, 44 ppm June 10-17, 24-26, 1955.
Specific conductance: Maximum daily, 387 micromhos Sept. 29, 1955; minimum daily, 112 micromhos June 15, 1955.
Water temperatures: Maximum, 78°F July 18, Aug. 15, 1953, Aug. 5, 1954, July 23, 30, 1955; minimum, freezing point on several days during January 1954.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1954 to September 1955 given in WSP 1396.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	2,933			27	8.8	19		149	17	6.0		1.7	--	187	0.25	1,480	104	0	29	0.8	280	7.9
Oct. 11-20	2,773			27	9.3	19		154	17	5.8		2.0	0.05	190	.26	1,420	106	0	28	.8	289	8.1
Oct. 21-31	3,898			22	8.2	16		127	14	5.5		1.8	--	161	.22	1,690	89	0	28	.7	243	8.0
Nov. 1-10.....	3,338			22	7.7	16		126	15	5.5		1.5	--	159	.22	1,430	87	0	29	.7	241	8.1
Nov. 11-20.....	2,932			24	8.4	17		136	16	5.8		1.9	.08	172	.23	1,360	94	0	28	.8	262	8.0
Nov. 21-30.....	3,680			20	7.0	14		111	12	4.5		1.8	--	144	.20	1,430	79	0	28	.7	215	8.1
Dec. 1-13.....	3,115			23	8.6	15		126	15	5.2		2.7	--	153	.21	1,290	93	0	26	.7	251	7.8
Dec. 14-31.....	2,284			23	8.8	16		108	16	5.5		2.5	.04	157	.21	968	94	5	27	.7	262	7.8
Jan. 1-10, 1955...	2,405			23	7.4	15		123	15	6.0		2.1	--	142	.19	922	88	0	26	.7	243	7.8
Jan. 11-20	2,171			25	7.6	16		130	16	6.0		2.3	.05	160	.22	938	94	0	26	.7	258	7.7
Jan. 21-31	2,109			24	8.4	16		131	16	6.2		2.5	--	157	.21	894	94	0	26	.7	259	7.7
Feb. 1-9, 19-28 ..	2,093			23	8.3	16		128	15	6.2		2.0	.02	161	.22	910	92	0	27	.7	251	7.8
Feb. 10-18.....	3,153			18	6.1	11		95	10	4.5		2.0	--	124	.17	1,060	70	0	25	.6	191	7.6
Mar. 1-10.....	1,788			24	9.4	17		135	16	6.5		2.3	--	172	.23	830	99	0	27	.7	268	7.7
Mar. 11-20.....	1,747			25	8.8	15		131	15	6.0		2.0	.08	162	.22	764	99	0	25	.7	258	7.9
Mar. 21-31.....	2,086			22	7.3	14		118	13	5.0		2.3	--	147	.20	828	85	0	26	.7	234	7.6
Apr. 1-10.....	2,314			19	6.9	12		108	12	4.8		1.9	--	135	.18	843	76	0	26	.6	211	7.8
Apr. 11-20.....	1,998			20	7.8	12		110	13	4.2		2.0	.02	138	.19	744	82	0	24	.6	218	7.9
Apr. 21-30.....	1,682			23	8.6	16		126	18	5.5		2.0	--	160	.22	727	93	0	27	.7	256	8.1
May 1-3, 17-19, 27-30.....	2,581			24	8.0	16		131	16	4.8		2.7	--	167	.23	1,160	93	0	26	.7	255	7.8

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YAKIMA RIVER BASIN--Continued

YAKIMA RIVER AT KIONA, WASH.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 4, 7-8, 11-13, 16, 20, 26, 31, 1955	3,074			21	6.9	13		116	13	4.2		2.4	--	148	0.20	1,230	81	0	24	0.6	226	7.8
May 5-6, 9-10, 14-15, 21-25	4,016			17	6.2	10		96	10	3.2		2.4	0.09	125	.17	1,360	68	0	23	.5	189	7.5
June 1-6, 22, 29-30	4,747			17	6.2	11		100	9.8	3.5		1.9	--	131	.18	1,680	68	0	24	.6	192	7.8
June 7-9, 18-21, 23, 27-28	7,551			13	4.8	8.6		76	6.9	2.2		2.0	--	100	.14	2,040	52	0	25	.5	145	7.5
June 10-17, 24-26	12,490			11	4.1	6.9		62	5.8	1.8		2.2	.05	85	.12	2,870	44	0	25	.5	122	7.5
July 1-10	4,928			17	6.2	11		96	9.9	3.5		1.7	--	125	.17	1,660	68	0	25	.6	188	7.6
July 11-20	3,584			19	6.7	13		107	11	4.0		1.9	.01	142	.19	1,370	75	0	27	.7	209	7.5
July 21-31	2,197			27	9.0	19		150	18	5.8		2.2	--	196	.27	1,160	104	0	27	.8	290	7.8
Aug. 1-10	2,045			28	11	20		159	19	6.0		1.9	--	200	.27	1,100	115	0	27	.8	306	7.8
Aug. 11-20	1,640			31	11	22		174	22	6.2		1.6	.02	217	.30	961	123	0	28	.9	332	7.9
Aug. 21-31	1,747			30	11	22		170	21	6.2		1.9	--	208	.28	981	120	0	28	.9	323	7.9
Sept. 1-10	1,964			30	11	21		170	20	6.1		2.0	--	199	.27	1,060	120	0	27	.8	323	7.9
Sept. 11-20	2,162			30	12	21		172	21	6.9		2.1	.02	212	.29	1,240	124	0	26	.8	328	7.9
Sept. 21-30	2,060			32	11	23		176	23	7.4		1.9	--	219	.30	1,220	125	0	28	.9	339	8.0
Weighted average	3,068			21	7.4	14		115	13	4.6		2.1	--	147	0.20	1,220	83	0	27	0.7	225	--

YAKIMA RIVER BASIN--Continued

YAKIMA RIVER AT KIONA, WASH.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	58	40	42	--	40	50	58	61	60	75	73
2	57	49	39	40	--	41	50	59	64	--	74	73
3	57	48	40	39	--	39	49	60	60	63	74	73
4	56	48	40	37	40	36	49	61	68	65	74	73
5	52	48	41	38	40	37	52	61	68	65	75	73
6	51	49	42	37	41	41	54	61	68	63	76	72
7	59	50	41	36	40	43	56	61	65	66	75	72
8	57	50	41	38	39	45	59	61	65	66	74	68
9	58	52	40	36	42	46	55	61	65	65	75	--
10	--	--	39	37	39	44	55	61	65	--	76	70
11	51	51	39	37	36	43	52	61	65	69	76	65
12	--	52	39	38	38	44	49	61	64	71	75	69
13	55	50	40	38	39	43	49	59	63	74	73	65
14	54	50	41	39	40	41	51	54	61	75	74	68
15	54	50	41	39	41	46	57	54	60	76	74	60
16	54	49	40	38	42	46	49	54	61	76	75	63
17	--	50	40	38	40	47	49	58	60	74	74	62
18	55	51	37	37	40	48	51	64	63	72	75	63
19	54	52	36	39	40	47	51	68	64	--	75	65
20	53	51	35	39	39	47	51	61	65	74	73	--
21	53	49	36	39	41	46	51	61	68	76	73	61
22	54	49	37	38	43	46	54	--	68	74	73	60
23	52	48	36	38	42	46	53	58	66	78	73	--
24	--	47	36	38	43	49	--	58	64	76	72	60
25	50	48	37	38	41	49	58	59	63	75	70	61
26	49	48	37	37	39	45	50	58	65	68	70	63
27	49	46	35	38	40	46	52	61	65	72	--	59
28	48	45	36	38	39	47	54	62	64	--	71	60
29	48	43	40	38	--	49	55	63	--	72	71	63
30	--	42	41	39	--	49	58	61	62	78	71	63
31	48	--	42	39	--	50	--	61	--	74	72	--
Average	53	49	39	38	40	45	53	60	64	71	74	66

PART 13. SNAKE RIVER BASIN

SNAKE RIVER MAIN STEM

SNAKE RIVER NEAR HEISE, IDAHO

LOCATION.--At Eagle Rock canal headgate, 1½ miles upstream from Heise, Bonneville County, 1 5/8 miles downstream from Anderson canal headgate, 1½ miles downstream from gaging station, about 4½ miles east of Ririe, and about 21 miles upstream from Henrys Fork.
DRAINAGE AREA.--5,752 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: January 1953 to September 1955.
Water temperatures: January 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 369 ppm Dec. 21-31; minimum, 162 ppm July 11-20.
Hardness: Maximum, 276 ppm Feb. 1-10, 11-19, 20-28; minimum, 117 ppm July 21-31, Aug. 1-10.
Specific conductance: Maximum daily, 635 micromhos Jan. 9; minimum daily, 241 micromhos June 25.
Water temperatures: Maximum, 67°F July 19; minimum, freezing point on many days from November to March.
EXTREMES, January 1953 to September 1955.--Dissolved solids: Maximum, 369 ppm Dec. 21-31, 1954; minimum, 161 ppm July 1-10, 1954.
Hardness: Maximum, 276 ppm Feb. 1-10, 11-19, 20-28, 1955; minimum, 117 ppm July 21-31, Aug. 1-10, 1955.
Specific conductance: Maximum daily, 635 micromhos Jan. 9, 1955; minimum daily 240 micromhos June 27, 1954.
Water temperatures: Maximum, 67°F July 19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1954 to September 1955 given in WSP 1397. About 2.5 percent of normal annual streamflow of 5,000,000 acre feet is 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 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954..	3,218	11	0.02	64	18	14	2.0	202	74	18	0.4	0.6	--	305	0.41	2,650	234	68	11	0.4	497	7.6
Oct. 11-20	3,117	10		69	19	14	2.0	209	80	18		.9	0.06	312	.42	2,630	250	78	11	.4	504	7.7
Oct. 21-31	3,063	9.6		70	18	14	2.0	207	81	19		.8	--	312	.42	2,580	248	79	11	.4	504	7.7
Nov. 1-10	2,850	10		71	19	14	2.0	214	81	20		.9	--	320	.44	2,460	255	80	11	.4	515	7.7
Nov. 11-20	2,873	12		72	19	14	2.1	215	80	20		1.0	.10	320	.44	2,480	258	82	10	.4	518	7.7
Nov. 21-30	2,664	9.5		73	20	14	2.1	215	83	20		.7	--	336	.46	2,420	264	88	10	.4	533	7.7
Dec. 1-10	2,507	12		71	19	17	2.8	218	83	20		.9	--	342	.47	2,310	255	76	13	.5	554	7.9
Dec. 11-20	2,276	12		75	20	17	2.8	226	85	22		1.0	.11	356	.48	2,190	269	84	12	.5	576	7.8
Dec. 21-31	2,192	12		77	20	18	2.8	228	92	22		1.2	--	369	.50	2,180	274	87	12	.5	583	8.0
Jan. 1-10, 1955..	2,150	11		74	20	18	2.9	224	87	22		1.0	--	356	.48	2,070	266	83	13	.5	570	7.9
Jan. 11-20	2,184	11		76	19	18	3.3	227	86	22		1.2	.05	359	.49	2,120	268	82	13	.5	587	7.6
Jan. 21-31.....	2,141	11		74	19	17	2.5	219	86	20		.6	--	349	.47	2,020	262	83	12	.5	565	7.8
Feb. 1-10	2,111	13		76	21	17	2.4	222	93	22		1.1	--	362	.49	2,060	276	94	12	.4	567	7.9
Feb. 11-19	2,159	13		76	21	17	2.4	218	98	23		1.1	03	363	.49	2,120	276	98	12	.4	561	8.1
Feb. 20-28	2,176	13		76	21	17	2.4	224	98	22		.9	--	364	.50	2,140	276	92	12	.4	568	7.9
Mar. 1-10.....	2,152	12		75	21	17	2.4	222	92	23		1.0	--	364	.50	2,110	274	92	12	.4	569	7.8
Mar. 11-20	2,193	12		74	20	17	2.4	218	91	23		.7	08	353	.48	2,090	266	88	12	.5	554	8.0
Mar. 21-31.....	2,084	13		72	21	18	2.1	218	88	24		1.0	--	348	.47	1,960	266	88	13	.5	561	7.7

Apr. 1-10, 1955 ..	2,204	12		68	20	18	2.1	208	83	24		.9	--	332	.45	1,980	252	81	13	.5	540	7.9
Apr. 11-20	3,223	9.0		66	18	17	2.1	205	71	22		1.1	.05	311	.42	2,710	238	70	13	.5	513	7.7
Apr. 21-30	3,304	8.8		68	17	17	1.9	209	73	24		.8	--	310	.42	2,765	240	68	13	.5	510	7.7
May 1-10.....	6,026	14		58	15	6.7	.7	188	55	6.8		1.7	--	268	.36	4,360	206	52	7	.2	430	7.8
May 11-20.....	8,735	13		50	12	8.1	.7	166	41	7.5		1.0	.07	224	.30	5,280	174	38	9	.3	359	7.8
May 21-31.....	10,830	12		44	12	6.9	.7	152	36	6.6		1.0	--	203	.28	5,940	159	35	9	.2	328	7.6
June 1-10	11,400	12		46	12	5.4	.7	158	35	7.0		.9	--	204	.28	6,280	164	35	7	.2	333	7.6
June 11-20	16,750	13		37	9.4	6.8	1.7	134	27	5.4		1.1	.04	169	.23	7,640	131	21	10	.3	278	7.6
June 21-30	14,990	12		36	9.3	5.9	1.7	124	29	5.9		1.0	--	163	.22	6,600	128	26	9	.2	269	7.6
July 1-10.....	11,510	15		37	9.9	6.7	1.7	124	32	8.0		.7	--	176	.24	5,470	133	31	10	.3	290	7.6
July 11-20.....	12,350	16		33	8.7	9.6	2.0	118	27	7.6		1.5	.11	162	.22	5,400	118	21	15	.4	272	7.3
July 21-31.....	12,010	17		33	8.4	9.6	2.0	120	28	7.5		1.3	--	166	.23	5,380	117	19	15	.4	275	7.5
Aug. 1-10	10,550	16		33	8.5	10	2.0	116	29	8.2		1.3	--	167	.23	4,760	117	22	15	.4	277	7.3
Aug. 11-20	8,333	16		37	8.9	12	2.2	130	34	9.5		1.2	.10	183	.25	4,120	129	22	17	.5	314	7.7
Aug. 21-31	7,557	16		38	9.4	13	2.2	132	36	9.9		1.2	--	191	.26	3,900	133	25	17	.5	322	7.6
Sept. 1-10	7,544	16		37	8.8	14	2.2	127	39	10		1.2	--	190	.26	3,870	128	24	19	.5	315	7.5
Sept. 11-20.....	6,852	20		38	9.2	14	2.2	130	37	11		1.0	.10	193	.26	3,570	133	26	18	.5	323	7.5
Sept. 21-30	4,425	14		49	13	15	2.2	165	51	13		1.2	--	245	.33	2,930	176	40	15	.5	409	7.7
Weighted average	5,651	14		48	12	11	1.8	156	47	11		1.1	--	225	0.31	3,430	169	41	12	0.4	368	--

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER NEAR HEISE, IDAHO--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	38	32	33	33	34	41	48	46	52	64	59
2	45	38	33	32	--	35	43	46	45	54	65	59
3	46	38	34	32	32	--	39	44	44	56	64	57
4	46	38	33	32	32	34	42	46	45	56	63	59
5	47	37	34	32	33	33	36	49	47	59	63	60
6	48	38	32	--	--	32	38	51	50	58	62	60
7	50	--	34	32	33	33	40	50	56	56	62	60
8	49	36	32	32	34	34	40	50	56	56	63	60
9	51	36	31	32	32	34	43	46	58	59	64	57
10	48	38	32	32	32	35	44	46	55	57	62	56
11	48	39	32	32	32	36	40	46	56	58	61	56
12	44	42	32	32	33	36	42	48	47	58	63	57
13	43	--	32	--	32	35	40	47	48	58	62	55
14	41	41	32	33	33	34	42	46	51	59	62	58
15	41	44	33	32	32	34	40	44	49	60	62	55
16	43	47	32	32	32	33	43	42	48	61	63	55
17	44	40	32	32	34	35	45	43	53	66	62	54
18	43	41	32	32	33	36	44	45	54	64	58	53
19	44	39	32	33	32	36	42	49	53	67	60	55
20	44	39	32	32	32	33	39	51	56	64	61	53
21	45	39	--	32	34	34	44	51	--	60	62	52
22	45	40	32	32	33	35	43	49	57	61	61	49
23	45	39	33	32	34	35	44	47	57	64	62	50
24	41	38	33	32	32	36	44	46	57	62	61	50
25	41	37	33	32	34	35	45	45	--	66	61	50
26	40	38	32	33	34	34	41	45	55	63	61	49
27	39	39	32	33	34	34	46	45	58	64	60	49
28	38	34	32	32	34	42	38	44	57	62	60	49
29	39	31	32	--	--	39	44	47	56	61	59	47
30	39	31	32	33	--	41	45	52	53	61	60	47
31	38	--	32	34	--	40	--	47	--	62	60	--
Average	44	38	32	32	33	35	42	47	53	60	62	54

HENRYS FORK NEAR REXBURG, IDAHO

LOCATION.--Temperature recorder at gaging station, 200 feet downstream from highway bridge, downstream from all tributaries, and 7 miles west of Rexburg, Madison County.
DRAINAGE AREA.--2,920 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 77°F July 17-19; minimum, freezing point on many days January to March.
EXTREMES, 1953-55.--Water temperatures: Maximum, 77°F July 17-19, 1955, minimum, freezing point on many days January to March 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1397.

Temperature (°F) of water, water year October 1954 to September 1955

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

SNAKE RIVER MAIN STEM

SNAKE RIVER AT KING HILL, IDAHO

LOCATION.--At county highway bridge about 400 yards downstream from gaging station, which is 300 feet east of railroad 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 1955.
Water temperatures: March 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 351 ppm Aug. 11-20; minimum, 306 ppm May 1-10.
Hardness: Maximum, 218 ppm Jan. 21-31, Feb. 1-10; minimum, 180 ppm May 1-10, 11-20, 21-31.
Specific conductance: Maximum daily, 577 micromhos Oct. 12; minimum daily, 461 micromhos Apr. 13.
Water temperatures: Maximum, 73°F Aug. 2; minimum, 42°F Jan. 18.
EXTREMES, 1951-55.--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 micromhos Oct. 3, 1952; minimum daily, 394 micromhos May 7, 1952.
Water temperatures: Maximum, 73°F Aug. 2, 1955; minimum, 41°F Jan. 3-6, Feb. 15, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1397.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	9,384	35		48	22	36	4.9	228	61	28		4.7	--	344	0.47	8,720	210	24	27	1.1	546	8.1
Oct. 11-20	11,490	37		50	22	38	4.0	232	62	30		3.9	0.11	348	.47	10,800	216	26	27	1.1	553	8.0
Oct. 21-31.....	10,960	38		50	22	37	4.0	228	62	29		3.1	--	342	.47	10,120	216	28	27	1.1	537	8.1
Nov. 1-10	11,090	37		51	21	35	4.0	226	62	29		3.2	--	340	.46	10,180	214	28	26	1.0	534	8.0
Nov. 11-20.....	10,670	36		52	21	35	4.0	226	63	29		4.0	.13	342	.47	9,850	216	31	26	1.0	539	7.8
Nov. 21-30.....	10,860	35		52	21	35	4.0	226	62	30		3.9	--	340	.46	9,970	216	31	26	1.0	536	7.9
Dec. 1-20	10,220	36		49	20	34	4.6	222	54	28		2.5	--	340	.46	9,380	204	22	26	1.0	547	7.8
Dec. 21-31.....	9,754	35		49	20	34	4.6	223	55	28		2.6	--	341	.46	8,980	204	22	26	1.0	546	7.9
Jan. 1-10, 1955...	10,000	35		51	20	34	4.6	222	57	28		2.8	--	338	.46	9,130	209	27	26	1.0	540	8.0
Jan. 11-20.....	10,240	35		50	20	34	4.6	218	57	30		3.0	.07	337	.46	9,320	207	28	26	1.0	538	7.8
Jan. 21-31	9,966	38		51	22	32	3.5	218	58	28		3.3	--	342	.47	9,200	218	39	24	.9	530	7.9
Feb. 1-10	9,615	38		51	22	32	3.5	216	57	28		3.7	--	340	.46	8,830	218	40	24	.9	523	8.1
Feb. 11-19	8,288	38		50	22	32	3.6	212	58	28		3.9	.12	338	.46	7,560	216	42	24	.9	517	7.9
Feb. 20-28	8,193	38		49	22	32	3.6	212	59	28		3.8	--	334	.45	7,390	213	40	24	.9	514	8.0
Mar. 1-10.....	8,586	38		48	21	32	3.6	212	58	29		4.0	--	336	.46	7,790	206	33	25	1.0	516	8.2
Mar. 11-20.....	9,885	40		47	20	33	4.5	209	54	27		3.2	.10	329	.45	8,780	200	28	26	1.0	516	7.9
Mar. 21-31.....	11,140	37		48	20	32	4.5	213	54	28		3.3	--	329	.45	9,900	202	28	25	1.0	522	7.9

Apr. 1-10, 1955...	12,020	32		45	17	29	4.6	206	50	26		2.8	--	322	.44	10,450	182	13	25	.9	505	8.1
Apr. 11-20.....	12,650	36		44	18	30	4.3	203	51	25		2.9	.08	317	.43	10,830	184	18	26	1.0	496	8.4
Apr. 21-30.....	12,120	34		46	17	30	4.4	208	51	26		2.4	--	317	.43	10,370	185	14	25	1.0	504	8.1
May 1-10.....	8,911	36		44	17	29	4.6	204	49	24		2.8	--	306	.42	7,360	180	13	25	.9	498	8.2
May 11-20.....	8,310	34		44	17	30	5.1	204	51	25		3.0	.05	315	.43	7,070	180	13	26	1.0	502	8.1
May 21-31.....	8,025	35		44	17	31	4.7	206	50	24		3.0	--	316	.43	6,850	180	11	27	1.0	504	8.0
June 1-10	7,669	34		43	18	31	4.5	204	53	24		2.8	--	313	.43	6,480	182	15	26	1.0	513	8.0
June 11-20	8,096	35		43	18	32	4.5	205	54	24		2.9	.05	318	.43	6,950	182	14	27	1.0	512	8.0
June 21-30	8,503	35		43	19	33	4.8	209	54	24		2.8	--	321	.44	7,370	186	15	27	1.0	518	7.9
July 1-10.....	8,405	33		44	20	33	4.8	210	55	24		2.9	--	324	.44	7,350	192	20	27	1.0	517	8.2
July 11-20.....	7,843	35		43	20	31	4.7	210	54	24		2.9	.06	324	.44	6,860	190	18	26	1.0	513	8.1
July 21-31.....	7,882	40		45	19	34	4.9	216	56	25		2.9	--	342	.47	7,280	190	13	27	1.1	522	7.9
Aug. 1-10.....	7,889	38		44	20	35	5.1	218	55	25		2.8	--	349	.47	7,430	192	13	28	1.1	533	7.9
Aug. 11-20.....	7,989	42		44	21	36	5.2	221	57	26		3.1	.08	351	.48	7,570	196	15	28	1.1	540	7.8
Aug. 21-31.....	7,850	36		48	19	36	4.9	220	59	26		3.5	--	340	.46	7,210	198	18	28	1.1	543	8.0
Sept. 1-10.....	8,023	36		47	19	36	4.4	220	60	26		3.5	--	338	.46	7,320	196	16	28	1.1	542	8.1
Sept. 11-20.....	8,453	38		48	21	36	4.6	224	61	26		3.5	.01	348	.47	7,940	206	22	27	1.1	548	8.1
Sept. 21-30.....	9,003	35		48	20	37	5.1	224	62	26		3.8	--	348	.47	8,460	202	18	28	1.1	559	8.0
Weighted average	9,455	36		47	20	33	4.4	216	56	27		3.2	--	324	0.45	8,530	200	23	26	1.0	527	--

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER AT KING HILL, IDAHO--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	53	48	48	46	49	51	--	58	62	69	67
2	57	53	47	47	46	50	--	53	59	65	73	66
3	57	53	49	45	45	49	48	50	61	64	70	66
4	57	53	50	46	46	48	49	55	62	64	66	66
5	57	53	50	45	45	49	49	55	63	64	70	67
6	58	53	49	46	44	47	51	58	64	64	69	67
7	58	53	--	46	46	47	51	59	65	63	69	66
8	59	53	--	43	47	48	49	60	65	65	70	66
9	59	53	--	44	47	48	49	60	66	63	68	65
10	58	54	--	44	46	49	49	61	67	63	68	65
11	58	54	--	43	46	49	48	61	66	64	71	65
12	57	54	--	43	47	50	48	62	66	65	69	64
13	55	53	--	44	45	50	49	61	67	67	69	64
14	55	53	--	45	47	49	50	60	66	66	69	64
15	55	53	--	44	49	48	51	58	64	69	69	63
16	56	53	--	45	49	49	50	55	64	70	68	63
17	56	52	--	44	48	49	52	57	65	70	68	64
18	56	53	--	42	47	50	52	58	64	70	68	62
19	56	53	--	44	47	48	51	64	66	71	68	60
20	55	53	--	45	45	48	51	63	67	70	67	61
21	55	53	44	45	45	49	52	63	69	71	68	60
22	57	53	47	44	46	47	52	60	69	70	65	60
23	55	53	47	46	47	48	53	63	69	71	70	60
24	54	53	46	47	49	49	53	58	65	70	69	60
25	53	52	45	47	48	49	53	58	65	70	68	58
26	53	52	45	46	48	49	52	58	66	70	67	60
27	53	50	45	47	49	49	52	59	66	69	67	59
28	53	50	45	46	49	49	52	60	65	67	67	59
29	53	49	--	46	--	52	53	61	61	68	66	59
30	53	48	45	46	--	50	55	60	62	68	68	60
31	53	--	48	47	--	52	--	--	--	68	67	--
Average	56	52	--	45	47	49	51	59	65	67	68	63

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 northwest of Caldwell.
DRAINAGE AREA.--3,820 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: January 1939 to January 1940, November 1950 to September 1955.
Water temperatures: November 1950 to September 1955.
Sediment records: January 1939 to June 1940.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 546 ppm May 8-11, 14; minimum 264 ppm June 1, 11-17, 29-30.
Hardness: Maximum, 234 ppm Jan. 21-31; minimum, 109 ppm May 15-20, 26-31.
Specific conductance: Maximum daily, 924 micromhos May 10; minimum daily, 307 micromhos May 16.
Water temperatures: Maximum, 83°F July 15, 17; minimum, 38°F Jan. 15, 18.
EXTREMES, 1939-40, 1950-55.--Dissolved solids: Maximum, 914 ppm Aug. 21-31, 1939; minimum, 77 ppm May 1-10, 1952, June 11-20, 1953.
Hardness: Maximum, 284 ppm July 21-31, 1939; minimum, 35 ppm June 11-20, 21-26, 1953.
Specific conductance: Maximum daily, 1,470 micromhos July 30, Aug. 26, 1939; minimum daily, 81.7 micromhos Apr. 27, 1952.
Water temperatures, (1950-54): Maximum, 85°F on several days during summer months; minimum, 35°F Jan. 18, Dec. 25-27, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1397.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	412	30		41	12	68	4.2	240	77	19		4.1	--	370	0.50	412	152	0	48	2.4	571	7.9
Oct. 11-20.....	908	30		41	12	63	3.9	227	73	17		3.2	0.15	351	.48	861	152	0	47	2.2	543	7.9
Oct. 21-31.....	831	36		51	16	80	4.7	284	99	22		3.4	--	446	.61	1,000	193	0	47	2.5	680	7.7
Nov. 1-10	700	36		54	17	82	4.7	294	105	24		4.5	--	464	.63	877	204	0	46	2.5	707	7.7
Nov. 11-20	688	36		53	16	82	5.2	288	110	24		4.5	.20	464	.63	862	198	0	47	2.5	707	7.6
Nov. 21-30	621	42		54	16	83	4.8	291	102	23		2.7	--	469	.64	786	200	0	47	2.6	715	8.0
Dec. 1-10	594	44		53	16	81	4.8	293	103	24		2.8	--	471	.64	755	198	0	46	2.5	716	8.2
Dec. 11-20.....	550	44		54	16	84	5.1	295	102	24		2.1	.16	479	.65	711	200	0	47	2.6	727	7.9
Dec. 21-31	546	42		55	16	84	5.4	294	105	24		2.5	--	473	.64	697	203	0	46	2.5	732	7.8
Jan. 1-10, 1955 ..	566	42		54	17	81	5.4	287	104	24		2.2	--	461	.63	705	204	0	45	2.5	709	7.7
Jan. 11-20.....	499	46		57	17	82	4.8	299	104	25		3.8	.14	478	.65	644	212	0	45	2.5	725	7.9
Jan. 21-31.....	472	44		66	17	82	4.8	329	103	26		3.1	--	504	.69	642	234	0	43	2.3	764	7.9
Feb. 1-10.....	456	42		61	16	82	4.8	316	104	27		3.7	--	498	.68	613	218	0	44	2.4	757	7.6
Feb. 11-19.....	464	39		55	16	77	4.8	282	102	25		6.8	.13	464	.63	581	203	0	44	2.4	710	7.8
Feb. 20-28	475	37		52	15	77	4.8	271	100	24		6.9	--	450	.61	577	191	0	46	2.4	689	7.7
Mar. 1-10	477	36		54	14	74	4.1	264	99	24		5.9	--	440	.60	567	192	0	45	2.3	679	7.9
Mar. 11-20	461	35		52	14	77	4.1	266	101	24		4.1	.15	444	.60	553	187	0	47	2.4	685	7.9
Mar. 21-31	440	33		52	14	79	4.1	267	102	24		4.2	--	444	.60	527	187	0	47	2.5	684	8.0

BOISE RIVER BASIN--Continued

BOISE RIVER AT NOTUS, IDAHO--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955..	381	31		48	12	75	4.2	257	93	22		5.6	--	424	0.58	436	170	0	48	2.5	658	8.2
Apr. 11-13, 15-18, 28-30.....	128	26		42	10	62	3.6	230	78	21		3.4	0.09	368	.50	127	146	0	47	2.2	585	8.0
Apr. 14, 19-27...	257	29		33	8.8	48	3.5	185	54	14		3.7	--	293	.40	203	119	0	46	1.9	454	8.0
May 1-7, 12-13, 21-25.....	103	28		41	9.7	66	3.8	220	78	22		3.6	--	366	.50	102	142	0	49	2.4	577	8.2
May 8-11, 14	29.6	34		52	16	106	5.7	288	134	39		3.2	.06	546	.74	44	196	0	53	3.3	836	8.2
May 15-20, 26-31.	297	26		31	7.6	43	3.5	162	48	13		3.1	--	274	.37	220	109	0	45	1.8	413	7.9
June 1, 11-17, 29-30	364	28		33	6.9	45	4.1	170	49	12		4.6	--	264	.36	259	111	0	46	1.9	421	7.6
June 2-4, 6, 18-20, 25-27.....	170	30		37	9.7	63	4.3	204	67	18		3.5	.09	332	.45	152	132	0	50	2.4	519	7.8
June 5, 7-10, 21-24 28.....	91.6	28		43	11	79	4.9	237	90	24		3.6	--	403	.55	100	152	0	52	2.8	625	7.8
July 1-7, 29-31....	275	31		37	9.2	63	4.2	207	65	15		3.3	--	334	.45	248	130	0	50	2.4	516	7.7
July 12-17, 19-21, 28.....	79.1	35		47	13	93	5.1	268	108	28		3.8	.06	469	.64	100	171	0	53	3.1	725	7.8
July 8-11, 18, 22-27	132	34		44	12	81	4.8	247	89	22		3.7	--	415	.56	148	160	0	52	2.8	638	7.9
Aug. 1-2, 6-7, 11-13, 24-26	153	30		43	12	76	4.6	244	86	22		3.5	--	400	.54	165	157	0	50	2.6	623	7.7
Aug. 3, 15-18, 20-23, 28, 30-31	85.2	37		48	14	102	5.0	282	115	30		3.6	.06	489	.67	112	178	0	55	3.3	747	8.1
Aug. 4-5, 8-10, 14, 19, 27, 29.....	99.1	33		47	12	87	4.7	265	102	26		3.3	--	450	.61	120	167	0	52	2.9	691	--
Sept. 1-10	159	36		44	13	85	4.6	262	95	24		3.7	--	434	.59	186	164	0	52	2.9	664	8.3
Sept. 11-20	475	32		40	11	68	4.2	227	74	18		3.9	.04	362	.49	464	145	0	50	2.5	563	8.1
Sept. 21-30	409	32		42	11	72	4.2	241	79	18		3.9	--	378	.51	417	150	0	50	2.6	594	8.1
Weighted average.	386	36		49	14	75	4.6	265	93	22		3.8	--	427	0.58	445	180	0	47	2.4	655	--

BOISE RIVER BASIN--Continued

BOISE RIVER AT NOTUS, IDAHO--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	55	45	46	46	45	50	58	60	70	79	78
2	59	55	46	44	42	51	48	56	65	70	79	74
3	61	55	48	43	43	45	47	60	65	68	75	74
4	61	53	49	43	40	45	49	65	71	67	78	76
5	63	55	49	43	45	43	55	65	75	73	79	75
6	63	53	48	43	40	46	57	65	76	68	79	76
7	63	51	49	42	45	48	59	69	79	72	80	75
8	63	51	47	40	46	50	60	66	76	70	78	70
9	63	63	41	40	44	50	62	66	75	71	79	70
10	60	63	45	41	43	47	59	70	75	70	79	70
11	60	54	44	41	40	50	53	70	80	76	80	72
12	54	55	44	44	44	52	51	70	78	77	79	70
13	54	52	46	44	44	50	57	65	70	78	76	73
14	55	54	--	46	44	47	52	45	68	80	78	72
15	55	53	46	38	47	45	53	46	66	83	78	61
16	56	54	45	42	40	49	54	58	70	81	79	61
17	60	50	43	40	45	52	54	67	71	83	78	65
18	58	53	43	38	45	50	50	68	76	82	76	65
19	56	52	43	44	42	48	50	62	76	78	78	61
20	56	52	40	43	42	46	56	62	79	82	75	62
21	58	54	41	44	44	58	58	65	82	80	77	60
22	58	52	42	43	45	52	55	66	82	82	78	60
23	52	52	43	44	45	49	55	65	72	80	78	60
24	50	52	43	40	40	53	56	61	72	61	76	60
25	50	50	45	44	45	52	55	66	70	60	75	60
26	53	49	44	43	45	55	55	64	70	75	75	60
27	53	48	41	40	48	50	54	64	76	75	75	62
28	53	48	39	43	40	50	56	65	63	75	74	62
29	53	46	40	43	--	50	60	65	69	77	76	60
30	53	45	40	40	--	51	65	65	70	80	75	60
31	52	--	44	44	--	59	--	62	--	79	74	--
Average	57	53	44	42	44	50	55	63	73	75	77	67

SNAKE RIVER MAIN STEM

SNAKE RIVER NEAR CLARKSTON, WASH.

LOCATION.--One mile downstream from gaging station, 1 mile upstream from Alpowa Creek, 8 miles downstream from Clarkston, Asotin County, and 133 miles upstream from mouth.
DRAINAGE AREA.--103,200 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1955.
Water temperatures: November 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 298 ppm Sept. 21-30; minimum, 76 ppm June 9-16, 18, 23.
Hardness: Maximum, 166 ppm Dec. 21-31; minimum, 34 ppm June 9-16, 18, 23.
Specific conductance: Maximum daily, 513 micromhos Dec. 23; minimum daily, 97.9 micromhos June 13.
Water temperatures: Maximum, 74°F July 23, 24, 25; minimum, 33°F Feb. 21, Mar. 4.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 314 ppm Oct. 21-31, 1953; minimum, 76 ppm June 9-16, 18, 23, 1955.
Hardness: Maximum, 176 ppm Oct. 21-31, 1953; minimum, 34 ppm June 9-16, 18, 23, 1955.
Specific conductance: Maximum daily, 529 micromhos Nov. 30, Dec. 3, 1952; minimum daily, 91.8 micromhos May 22, 1954.
Water temperatures: Maximum, 74°F July 23, 24, 25, 1955; minimum, freezing point Jan. 14, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1397.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 180C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	23,110	31		37	15	40	4.1	187	59	18		1.6	--	294	0.40	18,340	154	1	35	1.4	457	7.9
Oct. 11-20	25,580	32		36	15	39	4.0	181	59	20		2.1	0.12	286	.39	19,750	152	3	35	1.4	452	7.8
Oct. 21-31	25,550	31		37	14	37	3.9	178	55	18		2.2	--	276	.38	19,040	150	4	34	1.3	437	8.0
Nov. 1-10	24,740	31		37	15	36	4.0	187	54	18		2.6	--	290	.39	19,370	154	1	33	1.3	455	8.0
Nov. 11-20	25,560	29		36	14	34	3.7	179	50	18		2.4	.08	275	.37	18,980	147	1	33	1.2	434	7.6
Nov. 21-30	25,000	31		37	13	32	3.6	174	49	17		2.5	--	273	.37	18,430	146	3	32	1.2	426	7.8
Dec. 1-10	23,880	30		37	14	34	4.0	181	52	18		2.7	--	282	.38	18,180	150	2	32	1.2	445	7.8
Dec. 11-20	21,850	31		38	15	34	4.0	183	52	19		3.0	.06	286	.39	16,870	156	7	31	1.2	450	8.0
Dec. 21-31	20,990	34		42	15	33	3.3	190	56	19		2.3	--	296	.40	16,780	166	11	30	1.1	465	7.8
Jan. 1-10, 1955...	23,070	32		39	15	32	3.3	176	52	18		2.5	--	278	.38	17,320	159	15	30	1.1	434	7.9
Jan. 11-20	21,680	32		40	15	32	3.3	186	52	19		2.1	.08	285	.39	16,680	162	9	30	1.1	440	7.9
Jan. 21-31	21,460	31		38	14	31	3.3	172	50	18		1.7	--	270	.37	15,640	152	11	30	1.1	424	8.1
Feb. 1-10	21,840	29		40	14	31	3.3	176	49	18		2.0	--	270	.37	15,920	157	13	29	1.1	427	7.6
Feb. 11-19	20,790	30		35	12	29	3.6	164	46	18		1.2	.05	256	.35	14,370	137	2	31	1.1	405	7.7
Feb. 20-28	19,590	29		37	12	30	3.6	168	47	19		1.7	--	262	.36	13,860	142	4	31	1.1	417	7.9
Mar. 1-10	20,220	27		36	12	30	3.6	168	45	18		1.3	--	255	.35	13,920	139	2	31	1.1	408	7.7
Mar. 11-20.....	23,090	25		32	11	28	3.6	150	43	18		1.1	.05	238	.32	14,840	125	2	32	1.1	379	7.8
Mar. 21-31.....	26,380	24		31	12	27	3.6	149	42	17		1.1	--	234	.32	16,670	127	5	31	1.0	372	8.0

Apr. 1-10, 1955...	43,810	24		27	8.6	21	2.0	121	31	12		3.1	--	200	.27	23,660	103	4	30	.9	304	7.8
Apr. 11-20.....	52,570	26		22	7.7	16	2.7	105	25	10		2.5	.04	174	.24	24,700	87	1	28	.7	259	7.7
Apr. 21-30.....	59,560	34		22	6.8	16	2.7	101	24	9.2		2.2	--	164	.22	26,370	83	0	29	.8	246	7.6
May 1-8, 16.....	82,160	24		19	5.3	13	2.3	89	19	7.2		1.6	--	141	.19	31,280	69	0	28	.7	206	7.6
May 9-11, 17-21, 29-31	95,650	19		14	4.0	10	2.0	64	14	5.2		1.0	.01	104	.14	26,860	51	0	29	.6	151	7.2
May 12-15, 22-28.	118,200	16		12	3.3	8.6	1.9	58	11	4.0		.8	--	94	.13	30,000	44	0	29	.6	133	7.0
June 1-6, 26-30...	92,350	16		14	3.7	11	2.4	67	15	4.8		.8	--	104	.14	25,930	50	0	31	.7	157	7.1
June 7-8, 17, 19-22, 24-25	126,600	14		11	2.9	9.4	2.1	54	12	3.8		.8	.02	87	.12	29,740	39	0	33	.7	127	7.0
June 9-16, 18, 23.	170,400	14		9.5	2.4	7.6	2.1	45	9.2	3.0		.8	--	76	.10	34,970	34	0	31	.6	105	6.9
July 1-10	68,590	15		15	4.6	14	2.2	72	19	6.0		1.0	--	115	.16	21,300	56	0	34	.8	182	7.4
July 11-20	53,410	16		16	5.4	14	2.2	79	20	6.8		.8	.01	122	.17	17,590	62	0	32	.8	192	7.6
July 21-31	34,270	21		20	6.6	19	3.0	102	26	8.5		.9	--	160	.22	14,800	77	0	34	.9	244	7.4
Aug. 1-10.....	24,940	26		27	8.6	25	3.4	137	33	12		.9	--	203	.28	13,670	103	0	34	1.1	321	7.4
Aug. 11-20.....	20,980	27		30	12	29	4.1	162	35	12		1.3	.10	229	.31	12,970	124	0	33	1.1	369	7.5
Aug. 21-31.....	18,990	25		30	13	31	4.2	170	38	13		1.2	--	242	.33	12,410	128	0	34	1.2	394	7.7
Sept. 1-10	18,040	26		33	12	32	4.4	180	40	14		1.2	--	253	.34	12,320	132	0	34	1.2	413	8.0
Sept. 11-20	20,440	28		34	13	33	4.5	183	43	14		1.9	.02	263	.36	14,510	138	0	33	1.2	425	7.7
Sept. 21-30	21,740	30		35	13	35	4.4	190	44	15		1.9	--	298	.41	17,490	141	0	34	1.3	436	7.9
Weighted average	42,670	22		22	7.5	19	2.8	107	27	9.7		1.4	--	168	0.23	19,360	86	0	32	0.9	257	--

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER NEAR CLARKSTON, WASH.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	48	38	38	38	39	46	49	54	57	71	65
2	--	47	38	38	36	39	45	51	53	59	72	68
3	55	46	39	36	35	39	47	51	53	57	70	68
4	59	47	40	35	34	33	46	53	54	56	71	72
5	56	47	38	37	36	--	45	54	57	59	70	69
6	55	50	38	37	36	39	45	54	55	56	70	68
7	57	47	38	37	40	45	--	54	56	59	69	--
8	56	49	39	37	42	39	45	55	56	59	70	68
9	60	47	39	36	37	38	49	53	57	59	69	71
10	59	47	43	35	35	39	47	54	57	61	70	68
11	56	46	43	34	36	41	47	54	58	61	72	67
12	57	47	40	35	39	41	47	54	58	64	70	64
13	58	47	39	36	40	41	47	54	59	64	70	62
14	55	--	39	35	39	40	47	51	57	65	71	66
15	56	48	39	35	38	39	47	49	57	67	67	63
16	58	48	36	35	39	39	47	50	57	70	71	61
17	55	47	36	38	37	38	47	52	57	69	69	61
18	59	48	35	36	34	38	47	52	56	70	70	59
19	53	46	37	35	35	38	47	54	57	70	68	60
20	52	46	34	36	36	41	47	56	58	71	70	60
21	--	46	35	36	33	41	49	55	60	71	67	58
22	52	47	35	37	38	43	50	54	61	73	68	58
23	58	49	39	37	37	45	50	54	60	74	68	57
24	59	48	36	36	40	40	50	54	59	74	67	--
25	52	50	35	37	40	39	50	53	59	74	66	50
26	59	47	34	36	38	39	50	54	58	72	66	58
27	47	45	34	38	37	--	48	53	59	72	65	56
28	46	43	34	35	39	44	48	54	59	70	68	60
29	46	44	35	35	--	44	50	54	58	70	60	56
30	47	40	38	35	--	45	49	52	--	69	66	55
31	47	--	40	35	--	45	--	54	--	70	61	--
Average	55	47	38	36	37	40	48	53	57	66	68	62

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JOHN DAY RIVER BASIN

SOUTH FORK JOHN DAY RIVER NEAR DAYVILLE, OREG.

LOCATION.--Temperature recorder at gaging station, 0.7 mile downstream from Smoky Creek and 3 miles south of Dayville, Grant County.
DRAINAGE AREA.--590 square miles approximately.
RECORDS AVAILABLE.--Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 76°F July 14; minimum, 33°F Dec. 28.
EXTREMES, 1951-55.--Water temperatures: Maximum, 77°F July 10, 11, 27, 1952; minimum, freezing point many days in December 1951, January and February 1952.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (F) of water, water year October 1954 to September 1955

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

JOHN DAY RIVER BASIN--Continued

DESOLATION CREEK NEAR DALE, OREG.

LOCATION.--Temperature recorder at gaging station, three-quarters of a mile upstream from mouth and 1½ miles east of Dale, Grant County.
DRAINAGE AREA.--108 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 72°F July 22, Aug. 1; minimum, freezing point on many days during December to March.
EXTREMES, 1950-55.--Water temperatures: Maximum, 76°F July 24, 1951; minimum, freezing point on many days each winter.
REMARKS.--Records of discharge for the water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

DESCHUTES RIVER NEAR CULVER, OREG.

LOCATION.--Temperature recorder at gaging station, 0.7 mile downstream from bridge on Cove-Grandview road, 2½ miles upstream from Crooked River, 4 miles northwest of Culver, Jefferson County, and at mile 116.5
DRAINAGE AREA.--2,723 square miles.
RECORDS AVAILABLE.--Water temperatures: September 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 60°F June 11, July 13-15; minimum, 38°F Jan. 12, Mar. 5, 6.
EXTREMES, 1952-55.--Water temperatures: Maximum, 63°F July 6-8, 11, 12, 1953, July 4, 5, 14, 1954; minimum, 38°F Jan. 17, 18, 20-22, 25-27, 1954, Jan. 12, Mar. 5, 6, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	51	50	49	47	42	39	42	41	41	41	42	41	49	48	52	51	54	52	55	54	59	57	55	54
2	51	50	47	46	39	39	42	41	41	40	42	41	48	48	51	50	55	52	54	54	58	56	56	54
3	51	51	47	46	39	39	41	40	40	39	41	40	48	47	52	51	55	54	54	53	57	55	56	54
4	52	51	47	46	40	39	40	39	39	39	40	39	48	47	53	51	57	54	54	53	57	56	56	54
5	52	51	47	46	43	40	39	39	39	39	39	38	49	47	55	52	59	56	54	53	57	54	55	54
6	51	51	47	46	43	43	39	39	40	39	40	38	51	48	55	53	59	57	54	53	57	55	55	54
7	51	51	49	47	43	42	39	39	42	40	43	40	51	50	55	52	59	58	55	52	57	55	55	54
8	51	51	49	48	42	41	39	39	42	42	44	42	52	50	55	53	59	57	55	55	57	55	55	54
9	51	51	49	48	41	41	39	39	42	41	44	43	52	51	55	52	59	57	55	54	57	55	55	53
10	52	51	48	48	41	41	39	39	41	39	44	43	51	50	56	53	59	57	55	54	57	55	55	53
11	52	51	48	48	41	41	39	39	39	39	44	43	50	50	56	53	60	57	58	54	58	55	55	53
12	52	51	48	48	41	41	39	38	40	39	43	43	50	49	55	53	59	58	59	56	57	54	54	53
13	52	50	48	48	41	41	39	39	41	40	43	42	49	49	54	51	58	55	60	57	56	54	54	53
14	50	49	48	47	41	41	39	39	41	40	43	41	49	49	52	51	56	55	60	57	56	54	53	53
15	50	50	47	47	42	41	39	39	41	41	42	40	49	48	51	51	55	54	60	59	57	54	53	53
16	50	50	47	46	42	41	39	39	42	41	42	41	50	49	51	51	55	53	59	57	57	54	53	53
17	51	50	47	46	41	41	39	39	42	41	44	42	50	49	52	51	56	54	58	55	57	54	54	53
18	51	51	47	46	41	39	39	39	41	39	45	43	50	49	55	52	57	55	58	55	57	54	53	52
19	51	51	47	46	39	39	39	39	39	39	45	44	49	49	57	54	58	55	58	55	57	53	54	52
20	51	51	47	46	39	39	39	39	40	39	44	43	49	49	57	56	58	56	58	55	56	54	54	53
21	51	51	46	46	40	39	40	39	41	39	44	43	49	49	56	54	59	56	58	55	56	53	53	52
22	51	51	46	46	40	40	42	40	40	39	46	44	50	49	55	53	58	56	59	56	55	53	52	52
23	51	50	46	46	41	40	42	41	40	40	46	45	50	49	54	53	56	55	58	56	56	54	52	52
24	50	49	46	46	41	41	42	41	42	40	47	46	50	49	53	52	55	53	57	55	55	53	52	51
25	50	49	46	46	42	41	42	41	42	42	47	46	50	49	53	52	55	54	57	55	55	53	52	51
26	49	48	46	44	42	40	42	41	42	41	46	45	50	49	53	52	56	55	56	55	55	53	52	51
27	49	48	45	44	40	39	41	40	42	41	46	45	49	49	54	51	57	55	56	54	55	53	52	52
28	49	48	44	44	39	39	40	40	42	41	48	46	49	49	56	52	57	55	56	54	55	53	52	51
29	49	48	44	43	40	39	40	40	--	--	49	48	51	49	57	55	55	53	58	55	55	53	52	51
30	49	48	43	42	42	40	41	40	--	--	49	48	51	50	56	55	55	54	58	55	55	53	52	51
31	49	49	--	--	42	41	41	41	--	--	49	48	--	--	55	53	--	--	58	56	55	53	--	--
Average	51	50	47	46	41	40	40	40	41	40	44	43	50	49	54	52	57	55	57	55	56	54	54	53

DESCHUTES RIVER BASIN--Continued

CROOKED RIVER NEAR CULVER, OREG.

LOCATION.--Temperature recorder at gaging station, 1 mile upstream from mouth, 1 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 60°F May 20; minimum, 51°F several days during winter months.
EXTREMES, 1952-55.--Water temperatures: Maximum, 63°F July 14, 1953; minimum, 44°F Feb. 9, 10, 1953, Mar. 11-13, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	55	55	53	53	52	52	52	52	52	52	51	51	51	51	55	54	57	56	56	55	59	58	56	56
2	55	55	53	53	52	52	52	52	52	52	51	51	51	51	55	54	57	56	55	55	58	57	56	56
3	55	55	53	53	52	52	52	51	52	52	51	51	51	51	55	54	57	57	55	55	58	57	56	56
4	55	55	53	53	52	52	51	51	52	52	51	51	51	51	56	55	58	57	55	55	58	57	56	56
5	55	55	53	53	52	52	51	51	52	52	51	51	52	51	57	56	59	58	56	55	58	57	56	56
6	55	55	54	53	52	52	51	51	52	52	51	51	52	51	57	56	59	58	57	57	58	57	56	56
7	55	55	54	53	52	52	51	51	52	52	53	51	54	52	57	56	59	58	57	56	58	57	56	56
8	55	55	54	54	52	52	51	51	52	52	53	52	54	53	57	57	59	58	57	57	58	57	56	56
9	55	55	54	54	52	52	51	51	52	52	53	52	54	53	57	56	59	58	57	57	58	57	56	56
10	55	55	54	54	52	52	51	51	52	52	53	52	53	52	57	56	59	58	57	57	58	57	56	56
11	55	55	54	54	52	52	51	51	52	52	52	52	52	51	58	57	59	58	58	57	58	57	56	56
12	55	55	54	54	52	52	51	51	52	52	52	51	51	51	58	57	58	57	59	57	58	57	56	55
13	55	55	54	53	52	52	51	51	52	52	52	51	51	51	57	55	57	56	59	58	57	57	55	55
14	55	54	54	53	52	52	51	51	52	52	51	51	52	51	55	55	56	56	59	58	58	57	55	55
15	55	54	54	53	52	52	51	51	52	52	51	51	52	52	55	55	56	55	59	58	58	57	55	55
16	55	54	54	53	52	52	51	51	52	52	52	51	52	52	55	54	56	55	59	58	58	57	55	55
17	55	54	54	53	52	52	51	51	52	52	52	52	53	52	55	54	56	55	59	58	58	57	55	55
18	55	54	54	53	52	52	52	51	52	51	53	52	53	53	57	55	57	56	59	58	58	57	55	55
19	55	54	54	53	52	52	52	52	52	51	53	53	53	53	59	57	57	56	59	58	58	57	55	55
20	55	54	54	53	52	52	52	52	52	51	53	52	53	53	60	59	57	56	59	58	58	57	55	55
21	54	54	54	53	52	52	52	52	52	51	52	52	53	53	59	59	57	56	59	58	57	57	55	55
22	54	54	53	53	52	52	52	52	52	52	53	52	53	53	59	58	56	56	59	58	57	57	55	55
23	54	54	53	53	52	52	52	52	52	52	52	52	53	53	58	57	56	56	59	58	57	57	55	54
24	54	54	53	53	52	52	52	52	52	52	53	52	53	53	57	56	56	56	59	58	57	57	54	53
25	54	54	53	53	52	52	52	52	52	52	53	52	53	53	56	56	56	56	58	57	57	56	53	53
26	54	53	53	53	52	51	52	51	52	51	52	52	53	53	56	56	56	56	57	57	57	56	53	53
27	53	53	53	53	51	51	52	51	51	51	52	52	53	53	56	55	57	56	57	57	57	56	53	53
28	53	53	53	53	51	51	51	51	51	51	53	52	53	52	57	56	56	56	58	57	57	56	53	53
29	53	53	53	53	52	51	51	51	--	--	53	52	53	52	58	57	56	55	58	57	57	57	53	53
30	53	53	53	52	52	52	51	51	--	--	52	51	54	53	58	57	56	56	59	58	57	56	53	53
31	53	53	--	--	52	52	52	51	--	--	51	51	--	--	57	56	--	--	58	58	56	56	--	--
Average	54	54	54	53	52	52	51	51	52	52	52	52	53	52	57	56	57	56	58	57	58	57	55	55

METOLIUS RIVER NEAR GRANDVIEW, OREG.

LOCATION.--Temperature recorder at gaging station at Montgomery Ranch, 8 miles northwest of Grandview, Jefferson County, and 13 miles northwest of Culver.
DRAINAGE AREA.--324 square miles, hydrologic drainage boundary uncertain owing to ground-water exchange.
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 52°F Aug. 18, 19, and during period of no record July 7 to Aug. 17; minimum, 39°F on several days during winter months.
EXTREMES, 1952-55.--Water temperatures: Maximum, 53°F July 12-14, 16, 18, 19, 1954; minimum, 39°F on several days during winter months each year.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	46	44	43	42	40	40	41	40	42	41	41	40	45	42	47	43	49	43	47	43	(a)	(a)	50	46
2	47	44	43	42	40	40	40	40	41	40	41	40	43	41	47	42	48	43	47	43	(a)	(a)	51	47
3	47	45	43	42	41	40	40	39	41	39	41	40	44	41	47	43	47	45	46	44	(a)	(a)	51	47
4	47	45	44	42	42	41	39	39	41	40	41	39	43	41	48	44	50	45	49	44	(a)	(a)	50	47
5	46	45	44	42	42	41	40	39	41	40	41	39	45	41	49	43	51	44	46	44	(a)	(a)	50	47
6	46	45	44	44	42	42	40	39	42	41	42	41	45	41	48	43	50	44	48	44	(a)	(a)	51	48
7	47	45	44	44	42	41	40	39	42	41	43	41	46	41	49	43	50	45	(a)	(a)	(a)	(a)	51	47
8	47	45	44	44	41	39	40	39	42	41	43	41	47	43	48	44	51	45	(a)	(a)	(a)	(a)	50	47
9	47	45	44	43	41	40	40	39	41	40	43	40	46	43	49	43	51	45	(a)	(a)	(a)	(a)	50	47
10	47	46	43	42	41	40	41	40	40	39	42	41	45	41	50	44	51	46	(a)	(a)	(a)	(a)	50	47
11	47	46	43	43	40	40	40	39	41	39	42	40	44	42	49	44	51	46	(a)	(a)	(a)	(a)	50	46
12	46	45	43	42	41	40	41	40	42	40	42	41	44	42	47	43	51	46	(a)	(a)	(a)	(a)	49	46
13	46	45	42	41	41	41	41	41	42	40	41	40	44	42	45	42	50	45	(a)	(a)	(a)	(a)	49	46
14	46	44	43	42	42	41	41	39	42	40	42	39	44	41	45	42	49	45	(a)	(a)	(a)	(a)	48	47
15	46	44	43	42	42	41	41	39	42	40	42	39	43	41	45	43	49	44	(a)	(a)	(a)	(a)	47	46
16	46	45	43	42	41	39	41	40	42	41	43	39	44	42	44	43	49	43	(a)	(a)	(a)	(a)	48	46
17	46	45	43	42	40	39	41	40	42	40	43	40	44	41	47	43	49	45	(a)	(a)	(a)	(a)	48	46
18	46	45	43	42	40	39	41	40	41	39	43	41	44	41	48	44	50	45	(a)	(a)	52	47	48	46
19	46	45	43	42	40	39	41	40	41	39	43	41	43	41	50	44	50	44	(a)	(a)	52	47	49	46
20	46	44	43	42	41	40	41	41	41	39	43	40	43	41	49	44	50	45	(a)	(a)	51	47	49	46
21	46	44	43	42	41	40	42	41	42	40	43	41	44	42	48	43	50	45	(a)	(a)	51	47	48	45
22	45	42	43	42	41	41	43	41	42	41	43	41	45	43	47	43	48	45	(a)	(a)	51	47	48	45
23	43	42	43	42	41	41	42	41	43	40	43	40	46	42	46	43	47	44	(a)	(a)	51	47	47	46
24	43	42	43	42	41	41	42	41	43	41	43	42	45	41	46	43	48	43	(a)	(a)	51	47	48	45
25	43	42	43	41	41	40	42	41	42	40	43	41	43	42	46	43	47	44	(a)	(a)	50	46	48	45
26	42	41	42	41	40	39	42	40	43	41	43	41	44	41	47	43	47	44	(a)	(a)	50	46	48	45
27	43	41	42	42	39	39	41	40	42	41	43	41	43	41	48	43	49	44	(a)	(a)	50	46	48	46
28	43	42	42	40	41	39	41	40	42	41	44	42	43	42	49	43	48	45	(a)	(a)	50	46	48	46
29	43	42	41	40	41	41	42	41	--	--	44	42	45	42	49	45	48	43	(a)	(a)	50	46	48	45
30	43	42	41	40	41	41	42	41	--	--	44	41	46	43	46	43	47	44	(a)	(a)	51	47	47	45
31	43	42	--	--	41	41	43	42	--	--	45	42	--	--	47	42	--	--	(a)	(a)	50	46	--	--
Average	45	44	43	42	41	40	41	40	42	40	43	41	44	42	47	43	49	44	--	--	--	--	49	46

a Recorder stopped; range in temperature only, 52° to 44°, for period July 7 to Aug. 17.

DESCHUTES RIVER BASIN--Continued

DESCHUTES RIVER NEAR MADRAS, OREG.

LOCATION.--Temperature recorder at gaging station, 1 mile downstream from Pelton dam site, 5 miles upstream from Shitike Creek, 7½ miles northwest of Madras, Jefferson County, and at mile 101.6 (river-profile survey).
DRAINAGE AREA.--7,800 square miles, approximately, (revised).
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 58°F on several days in June, July, August, and September; minimum, 45°F Jan. 11, 12, Mar. 5, 6.
EXTREMES, 1952-55.--Water temperatures: Maximum, 59°F July 3-5, 10, 1952, June 17, July 6-8, 14, 15, 18, 19, 1953, July 14, 1954; minimum, 43°F Dec. 28, 1952, Jan. 20-22, 27, 28, Feb. 9, 10, 19, 1953.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	52	51	50	50	47	47	47	47	48	47	48	48	50	50	53	51	55	52	55	53	58	56	55	55
2	52	51	50	49	47	46	47	47	47	47	48	48	50	49	53	51	55	53	55	53	58	56	57	55
3	52	51	49	49	46	46	47	46	47	46	48	47	50	49	53	52	55	54	55	54	57	55	58	55
4	52	51	49	49	47	46	46	46	46	46	47	46	49	48	54	52	57	54	55	53	57	55	57	56
5	52	52	49	48	48	47	46	46	47	46	47	45	50	48	55	53	58	54	55	54	57	55	57	56
6	52	52	51	49	49	48	46	46	47	47	47	45	51	49	55	53	58	55	55	53	57	55	58	56
7	53	52	51	50	48	47	46	46	48	47	49	47	52	50	55	53	58	55	56	53	58	56	58	56
8	53	52	51	51	47	47	46	46	48	48	50	49	53	51	55	53	58	55	56	55	58	56	57	55
9	52	51	51	51	47	47	46	46	48	47	49	49	53	52	55	52	58	55	55	54	58	55	57	55
10	53	52	51	50	47	47	46	46	47	46	49	49	53	50	55	53	58	55	55	54	58	55	56	54
11	53	53	50	50	47	46	46	45	46	46	49	49	51	50	56	54	58	55	57	54	58	56	56	54
12	53	52	50	50	47	46	46	45	47	46	49	49	51	50	56	53	58	55	58	55	58	55	55	53
13	52	51	50	50	47	47	46	46	47	47	49	48	50	49	54	52	57	54	58	56	57	54	55	54
14	52	51	50	50	47	47	46	46	47	47	48	47	50	49	52	51	56	54	58	56	57	54	54	54
15	52	51	50	50	47	47	46	46	47	47	47	46	50	49	52	51	55	53	58	57	57	55	54	53
16	52	51	50	50	47	47	46	46	47	47	47	46	51	49	52	51	55	53	58	56	57	55	55	53
17	52	52	50	50	47	46	46	46	47	47	48	47	51	49	53	51	56	55	57	54	57	55	54	54
18	52	52	50	50	46	46	46	46	47	46	49	48	51	49	55	53	57	55	57	55	58	55	54	53
19	52	52	50	50	46	46	46	46	46	46	49	48	51	49	57	54	57	54	57	55	58	55	55	53
20	52	51	50	49	46	46	46	46	46	46	48	47	50	49	57	55	58	55	57	55	58	55	55	54
21	53	52	50	50	46	46	47	46	47	46	49	47	51	50	57	54	58	55	57	55	57	55	54	52
22	53	51	50	50	46	46	48	47	47	47	49	48	51	50	56	53	58	55	57	55	57	55	53	52
23	52	51	50	50	47	46	48	47	47	47	49	48	52	50	55	53	56	54	58	55	57	55	53	53
24	51	50	50	50	47	47	48	48	49	47	50	49	52	50	54	53	55	54	58	55	57	55	53	52
25	50	50	50	50	47	47	48	48	49	48	50	49	51	50	54	53	55	54	57	54	56	54	53	52
26	50	49	50	49	47	47	48	47	48	48	49	48	50	49	54	53	56	55	56	54	56	54	53	52
27	50	49	49	49	47	46	47	47	48	48	49	48	50	49	55	52	57	55	56	54	56	54	53	53
28	50	49	49	48	46	46	47	47	48	48	50	49	49	49	56	54	57	55	57	54	56	54	53	53
29	50	49	48	48	47	46	47	47	--	--	51	50	52	49	57	55	55	53	58	55	56	55	53	52
30	50	49	48	47	47	47	47	47	--	--	50	49	53	51	57	54	56	54	58	56	57	55	53	52
31	50	50	--	--	47	47	48	47	--	--	50	49	--	--	54	52	--	--	58	56	57	55	--	--
Average	52	51	50	50	47	47	47	46	47	47	49	48	51	50	55	53	57	54	57	55	57	55	55	54

DESCHUTES RIVER AT MOODY, NEAR BIGGS, OREG.

LOCATION.--Temperature recorder at gaging station at Moody, 1½ miles upstream from mouth and 5 miles southwest of Biggs, Sherman County.
DRAINAGE AREA.--10,500 square miles approximately.
RECORDS AVAILABLE.--Chemical analyses: August 1911 to July 1912, December 1952 to February 1954.
Water temperatures: December 1952 to February 1954, October 1954 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 70°F July 14; minimum, 41°F Dec. 19-22 Jan. 5-7, 9.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

COLUMBIA RIVER MAIN STEM

COLUMBIA RIVER AT MARYHILL FERRY NEAR RUFUS, OREG.

LOCATION.--At Maryhill Ferry about 2½ miles downstream from Rufus, Sherman County, and about 9 miles upstream from The Dalles gaging station, which is just upstream from Celilo Falls, 3 miles downstream from Deschutes River, and 11 miles east of The Dalles, Wasco County.
DRAINAGE AREA.--237,000 square miles (above gaging station near The Dalles).
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1955.
Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 137 ppm Dec. 1-10; minimum, 78 ppm June 11-20, 21-30.
Hardness: Maximum, 89 ppm Dec. 11-20; minimum, 51 ppm June 1-10, 11-20.
Specific conductance: Maximum daily, 232 micromhos Dec. 8; minimum daily, 110 micromhos June 7.
Water temperatures: Maximum, 70°F Sept. 1, 3, 4, 6, 7; minimum, 35°F Mar. 2, 3.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 157 ppm Dec. 21-31, 1952; minimum, 78 ppm June 11-20, 21-30, 1955.
Hardness: Maximum, 104 ppm Dec. 21-31, 1952; minimum, 49 ppm May 11-20, 1954.
Specific conductance: Maximum daily, 268 micromhos Dec. 29, 1952; minimum daily, 110 micromhos June 7, 1955.
Water temperatures: Maximum, 77°F Sept. 4-6, 1953; minimum, freezing point Jan. 25, 30, 1951, Jan. 20, 1954.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for gaging station near The Dalles for water year October 1954 to September 1955 given in WSP 1398. These records include the inflow of the Deschutes River, which on the average amounts to less than 5 percent of the annual runoff at the gaging station. No other appreciable inflow between Maryhill Ferry and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-10, 1954...	114,000	10	0.02	23	6.4	11	2.3	98	23	5.0	0.2	1.3	0.09	136	0.18	41,860	84	4	22	0.5	222	7.7	5
Oct. 11-20	106,000	--	--	--	--	11	--	101	--	--	--	--	--	135	.18	38,640	88	5	--	--	223	7.6	--
Oct. 21-31	108,900	--	--	--	--	11	--	102	--	--	--	--	--	135	.18	39,690	87	3	--	--	224	7.7	--
Nov. 1-10.....	108,200	--	--	--	--	11	--	103	--	--	--	--	--	134	.18	39,150	87	3	--	--	221	7.7	--
Nov. 11-20	110,900	--	--	--	--	9.2	--	93	--	--	--	--	--	123	.17	36,830	81	5	--	--	204	7.7	--
Nov. 21-30.....	119,200	--	--	--	--	9.8	--	94	--	--	--	--	--	125	.17	40,230	81	4	--	--	204	7.9	--
Dec. 1-10	113,000	--	--	--	--	11	--	100	--	--	--	--	--	137	.19	41,800	88	6	--	--	225	8.2	--
Dec. 11-20.....	100,000	--	--	--	--	10	--	97	--	--	--	--	--	131	.18	35,370	89	9	--	--	222	7.5	--
Dec. 21-31.....	97,250	--	--	--	--	9.9	--	99	--	--	--	--	--	130	.18	34,130	86	5	--	--	219	7.2	--
Jan. 1-10, 1955...	100,700	11	.01	25	6.2	9.5	1.7	97	21	4.5	.2	1.6	.04	135	.18	36,710	88	8	19	.4	221	7.7	5
Jan. 11-20	101,800	--	--	--	--	10	--	99	--	--	--	--	--	132	.18	36,280	88	7	--	--	220	7.6	--
Jan. 21-31	103,900	--	--	--	--	10	--	99	--	--	--	--	--	133	.18	37,310	88	7	--	--	221	7.6	--
Feb. 1-13.....	108,600	--	--	--	--	10	--	101	--	--	--	--	--	132	.18	38,710	86	3	--	--	223	--	--
Feb. 14-28.....	108,300	--	--	--	--	9.4	--	94	--	--	--	--	--	121	.16	35,380	83	6	--	--	210	7.5	--
Mar. 1-10	116,300	--	--	--	--	9.1	--	95	--	--	--	--	--	122	.17	38,310	84	6	--	--	210	7.2	--
Mar. 11-20.....	119,200	--	--	--	--	8.9	--	96	--	--	--	--	--	125	.17	40,230	85	6	--	--	212	7.1	--
Mar. 21-31.....	120,300	--	--	--	--	9.2	--	96	--	--	--	--	--	132	.18	42,870	87	8	--	--	215	7.1	--

Apr. 1-10, 1955...	130,700	14	.03	23	6.7	9.1	2.1	96	19	4.5	.2	4.0	.02	132	.18	46,580	85	6	18	.4	215	7.7	5
Apr. 11-20.....	143,600	--	--	--	--	7.3	--	85	--	--	--	--	--	110	.15	42,650	73	3	--	--	184	7.6	--
Apr. 21-30.....	153,200	--	--	--	--	8.6	--	91	--	--	--	--	--	127	.17	52,530	80	5	--	--	201	7.5	--
May 1-10	172,400	--	--	--	--	7.3	--	80	--	--	--	--	--	114	.16	53,060	66	0	--	--	171	7.7	--
May 11-20.....	194,900	--	--	--	--	6.3	--	70	--	--	--	--	--	103	.14	54,200	58	1	--	--	151	7.5	--
May 21-31.....	231,400	--	--	--	--	5.3	--	63	--	--	--	--	--	90	.12	56,230	52	0	--	--	134	7.6	--
June 1-10	323,000	--	--	--	--	4.2	--	60	--	--	--	--	--	80	.11	69,770	51	2	--	--	127	7.7	--
June 11-20.....	496,000	--	--	--	--	3.5	--	60	--	--	--	--	--	78	.11	104,500	51	2	--	--	123	7.8	--
June 21-30	525,200	--	--	--	--	3.2	--	64	--	--	--	--	--	78	.11	110,600	57	5	--	--	131	7.7	--
July 1-10	467,400	9.3	.08	17	3.5	3.6	1.4	65	11	1.2	.4	.8	.08	79	.11	99,700	57	4	12	.2	132	7.4	10
July 11-20	408,800	--	--	--	--	3.7	--	67	--	--	--	--	--	85	.12	93,820	60	5	--	--	136	7.5	--
July 21-31.....	340,300	--	--	--	--	4.0	--	71	--	--	--	--	--	87	.12	79,940	63	5	--	--	146	7.5	--
Aug. 1-10.....	243,400	--	--	--	--	4.3	--	74	--	--	--	--	--	91	.12	59,800	64	3	--	--	151	7.5	--
Aug. 11-20.....	172,200	--	--	--	--	6.0	--	79	--	--	--	--	--	100	.14	46,490	70	5	--	--	167	7.6	--
Aug. 21-31.....	133,000	--	--	--	--	6.4	--	82	--	--	--	--	--	102	.14	36,630	74	7	--	--	172	7.8	--
Sept. 1-10	115,900	--	--	--	--	7.3	--	82	--	--	--	--	--	106	.14	33,170	73	6	--	--	179	7.6	--
Sept. 11-20.....	112,800	--	--	--	--	8.1	--	86	--	--	--	--	--	110	.15	33,500	75	4	--	--	185	7.9	--
Sept. 21-30.....	111,700	--	--	--	--	9.5	--	90	--	--	--	--	--	118	.16	35,590	79	5	--	--	200	7.8	--
Weighted average	179,000	--	--	--	--	6.5	--	79	--	--	--	--	--	103	0.14	49,780	69	4	--	--	169	--	--

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT MARYHILL FERRY NEAR RUFUS, OREG.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	53	42	39	41	36	43	50	55	59	66	70
2	57	53	45	40	42	35	42	51	55	59	67	69
3	57	53	45	40	42	35	44	52	56	59	67	70
4	56	53	46	40	42	39	44	52	55	60	66	70
5	57	53	45	39	41	40	46	50	56	58	65	69
6	56	52	44	38	42	40	46	52	58	58	66	70
7	57	52	43	39	42	39	46	52	57	60	66	70
8	57	52	44	40	43	38	46	54	59	62	67	69
9	56	51	43	41	42	39	45	54	59	62	67	69
10	56	52	44	42	41	40	45	55	59	63	67	69
11	56	51	43	40	42	40	45	56	59	64	67	69
12	56	52	42	39	42	39	46	55	60	65	67	69
13	55	51	42	40	43	40	46	52	59	64	67	67
14	54	53	40	41	39	39	45	55	59	65	67	67
15	53	53	42	42	38	39	46	55	60	65	67	67
16	55	52	41	41	40	41	45	55	60	65	66	67
17	55	51	41	40	39	40	46	56	61	65	67	67
18	54	50	39	39	39	39	46	55	62	64	67	67
19	55	48	38	40	40	40	47	55	62	65	67	68
20	54	48	39	40	40	40	46	55	60	65	68	67
21	54	48	39	41	38	40	47	56	60	65	67	68
22	55	47	40	40	37	41	48	55	61	65	67	67
23	55	47	39	42	39	42	48	56	59	65	66	66
24	54	45	38	41	39	41	47	56	60	65	67	66
25	54	45	40	42	39	41	48	56	60	65	67	66
26	53	44	39	41	39	42	47	53	61	66	67	67
27	52	43	40	41	38	40	49	54	62	66	68	67
28	53	43	41	42	37	42	49	56	61	66	69	67
29	52	42	39	40	--	42	50	54	61	67	69	65
30	53	43	38	40	--	42	50	52	60	66	67	66
31	--	--	--	42	--	42	--	52	--	66	69	--
Average	55	49	41	40	40	40	46	54	59	64	67	68

KLICKITAT RIVER NEAR GLENWOOD, WASH.

LOCATION.--Temperature recorder at gaging station half a mile downstream from Dairy Creek, 5 miles north of Glenwood, Klickitat County, and 7 miles upstream from Trout Creek.
DRAINAGE AREA.--360 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 58°F July 22, Aug. 7, 8; minimum, probably freezing point during period of no record Dec. 29 to Jan. 4.
EXTREMES, 1950-55.--Water temperatures: Maximum, 59°F July 10, 11, 1952; minimum, freezing point on several days during winter months.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

KLICKITAT RIVER BASIN--Continued

KLICKITAT RIVER NEAR PITT, WASH.

LOCATION.--Temperature recorder at gaging station, 2½ miles south of Pitt, Klickitat County, 5 miles upstream from Silvias Creek and 7 miles upstream from mouth at Lyle.
DRAINAGE AREA.--1,290 square miles approximately.
RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 66°F Aug. 7, 8; minimum, 33°F Mar. 5, 6.
EXTREMES, 1950-55.--Water temperatures: Maximum, 66°F July 17, 23, 1951, Aug. 7, 8, 1955; minimum, 33°F Mar. 5, 6, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

MIDDLE FORK WILLAMETTE RIVER BELOW NORTH FORK, NEAR OAKRIDGE, OREG.

LOCATION.--Temperature recorder at gaging station, half a mile downstream from Whitehead Creek, 4 miles downstream from North Fork of Middle Fork Willamette River, and 7 miles northwest of Oakridge, Lane County.
DRAINAGE AREA.--924 square miles.
RECORDS AVAILABLE.--Water temperatures: September 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 67°F Aug. 1, 5-7, 19; minimum, 36°F Dec. 27, 28, Feb. 19-21, Mar. 5.
EXTREMES, 1950-55.--Water temperatures: Maximum, 67°F Aug. 12, 1952, Aug. 1, 5-7, 19, 1955; minimum, 35°F Jan. 29-31, Feb. 1, Mar. 3-7, 1951, Nov. 29, 1952.
REMARKS.--Records of discharge for water yenr October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

WILLAMETTE RIVER BASIN--Continued

MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OREG.

LOCATION.--Temperature recorder at gaging station, three quarters of a mile upstream from Lost Creek and 2 miles northwest of Dexter, Lane County.
DRAINAGE AREA.--1,001 square miles.
RECORDS AVAILABLE.--Water temperatures: August to September 1955.
EXTREMES, August to September 1955.--Water temperatures: Maximum, 60°F Aug. 24, 26-29, Sept. 1-6, 9, 11, 12; minimum, 56°F Aug. 27, 28, Sept. 17, 18.
REMARKS.--Thermograph installed Aug. 24, 1955. Record of discharge for June to September 1955 given in WSP 1398.

Temperature (°F) of water, August to September 1955

Day	August		September		Day	August		September		Day	August		September		Day	August		September		Day	August		September	
	max	min	max	min		max	min	max	min		max	min	max	min		max	min	max	min		max	min	max	min
1	--	--	60	57	7	--	--	58	58	13	--	--	59	58	19	--	--	59	57	25	59	57	59	57
2	--	--	60	57	8	--	--	59	58	14	--	--	58	57	20	--	--	58	57	26	60	57	59	58
3	--	--	60	57	9	--	--	60	57	15	--	--	58	57	21	--	--	58	57	27	60	56	58	58
4	--	--	60	57	10	--	--	58	57	16	--	--	58	57	22	--	--	58	57	28	60	56	58	58
5	--	--	60	58	11	--	--	60	57	17	--	--	58	56	23	--	--	58	57	29	60	57	59	58
6	--	--	60	58	12	--	--	60	57	18	--	--	58	56	24	60	--	59	57	30	58	57	58	57
																				31	59	57	--	--
Average																					--	--	59	57

FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OREG.

LOCATION.--Temperature recorder at gaging station, 10 feet upstream from highway bridge, 1½ miles downstream from Winberry Creek, 2½ miles southeast of Fall Creek, Lane County, and 5 miles above mouth.
DRAINAGE AREA.--186 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 70°F July 31, Aug. 1, 6-8; minimum, 36°F Feb. 20.
EXTREMES, 1950-55.--Water temperatures: Maximum, 74°F Aug. 17, 18, 20, 21, 1950, July 17, 1951, Aug. 4, 1952; minimum, 34°F Jan. 30, 31, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

WILLAMETTE RIVER BASIN--Continued

MIDDLE FORK WILLAMETTE RIVER AT JASPER, OREG.

LOCATION.--Temperature recorder at gaging station, 25 feet downstream from highway bridge at Jasper, Lane County, 650 feet downstream from Hills Creek and 7½ miles southeast of Springfield.
DRAINAGE AREA.--1,340 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 66°F July 31, Aug. 1; minimum, 38°F Feb. 19-21.
EXTREMES, 1953-55.--Water temperatures: Maximum, 66°F July 31, Aug. 1, 1955; minimum, 38°F Feb. 19-21, 1955.
REMARKS.--Record of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

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.
DRAINAGE AREA.--211 square miles
RECORDS AVAILABLE.--Water temperatures: July to September 1955.
EXTREMES, July to September 1955.--Water temperatures: Maximum 62°F July 15, 22, Aug. 1; minimum, 45°F Sept. 30.
REMARKS.--Thermograph installed July 14, 1955. Record of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, July to September 1955

Day	July		August		September		Day	July		August		September		Day	July		August		September	
	max	min	max	min	max	min		max	min	max	min	max	min		max	min	max	min	max	min
1	--	--	62	55	55	49	11	--	--	60	53	56	52	21	61	54	57	50	51	47
2	--	--	61	54	55	50	12	--	--	59	52	54	50	22	62	55	56	50	50	46
3	--	--	59	52	56	51	13	--	--	57	51	53	50	23	61	54	56	50	50	48
4	--	--	60	53	56	51	14	--	--	58	51	52	50	24	61	55	54	50	50	46
5	--	--	61	53	55	51	15	62	56	58	51	51	50	25	60	54	55	50	49	46
6	--	--	61	54	56	52	16	58	54	57	53	51	50	26	56	53	54	49	49	46
7	--	--	60	54	54	52	17	59	52	57	50	52	50	27	55	52	55	49	48	46
8	--	--	60	53	55	51	18	60	53	58	51	52	48	28	58	51	54	48	49	48
9	--	--	59	52	54	50	19	60	53	58	51	52	48	29	58	52	55	49	48	46
10	--	--	60	53	54	50	20	61	53	57	51	51	50	30	61	53	56	51	48	45
														31	60	53	55	50	--	--
Average															--	--	58	51	52	49

WILLAMETTE RIVER BASIN--Continued

LOOKOUT CREEK NEAR BLUE RIVER, OREG.

LOCATION.--Temperature recorder at gaging station, 0.4 mile upstream from mouth and 6 miles northeast of town of Blue River, Lane County.
DRAINAGE AREA.--24.1 square miles.
RECORDS AVAILABLE.--Water temperatures: December 1950 to September 1955 (discontinued).
EXTREMES, 1954-55.--Water temperatures: Maximum, 63°F Aug. 6; minimum, 35°F Dec. 28, Feb. 18-20, 27, Mar. 5.
EXTREMES, 1950-55.--Water temperatures: Maximum, 64°F July 16-18, 23, 1951, Aug. 2-4, 12, 1952, July 13, Aug. 13, 1953; minimum, 33°F Mar. 3-6, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OREG.

LOCATION.--Temperature recorder at gaging station, half a 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum 57°F July 22, 23, 30, 31, Aug. 1, 5-8, 10, 11, 18, 19; minimum, freezing point Dec. 1, Mar. 5.
EXTREMES, 1951-55.--Water temperatures: Maximum 59°F July 28, Aug. 1-3, 1952, Aug. 18, 19, 1953, Aug. 1, 1954; minimum, freezing point Dec. 1, 1954, Mar. 5, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

WILLAMETTE RIVER BASIN--Continued

BREITENBUSH RIVER ABOVE CANYON CREEK, NEAR DETROIT, OREG.

LOCATION.--Temperature recorder at gaging station, 600 feet upstream from mouth of Canyon Creek and 1½ miles northeast of Detroit, Marion County.
DRAINAGE AREA.--106 square miles.
RECORDS AVAILABLE.--Water temperatures: December 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 55°F Aug. 7, 8, 10, 11, 18, 19, Sept. 6; minimum, 35°F Dec. 27, 28.
EXTREMES, 1950-55.--Water temperatures: Maximum, 58°F July 17, 1951, Aug. 4, 13, 14, 1952; minimum, 33°F Mar. 3, 7, 1951.
REMARKS.--Records of discharge for water October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	46	45	44	44	39	38	38	38	37	37	37	36	41	41	43	43	43	41	44	43	54	51	53	50
2	46	45	44	44	39	38	38	38	37	37	37	37	41	41	43	41	45	42	46	43	54	50	53	50
3	48	46	44	43	40	38	38	38	37	37	37	37	41	41	43	42	44	43	46	44	53	49	54	50
4	47	46	44	43	40	39	38	37	37	37	37	37	41	41	44	42	45	42	46	44	53	49	54	51
5	48	47	43	43	40	39	38	37	37	37	37	36	41	41	44	42	46	42	45	45	54	49	53	52
6	48	47	44	43	40	40	38	37	37	37	36	36	42	41	45	43	46	42	46	45	54	50	55	53
7	48	48	45	44	40	40	37	36	37	37	37	36	42	41	45	43	46	42	48	45	55	51	54	52
8	49	48	45	45	40	40	37	36	37	37	37	37	42	41	45	43	47	42	48	46	55	51	54	52
9	49	48	45	45	40	40	37	37	37	37	38	37	42	42	45	43	47	43	46	46	54	50	53	50
10	49	48	45	45	40	40	37	37	37	37	38	38	42	41	46	43	47	43	48	46	55	51	53	51
11	49	48	45	45	40	39	37	37	37	37	38	38	41	40	45	44	47	43	50	46	55	51	53	51
12	49	47	45	45	40	39	37	37	37	37	38	38	41	41	44	44	47	43	51	47	54	50	52	49
13	47	46	45	44	40	39	37	37	38	37	38	37	41	41	44	43	47	42	52	48	53	49	51	50
14	46	45	45	43	40	39	37	37	38	38	37	37	41	41	44	43	46	43	52	49	54	50	50	50
15	46	45	44	43	40	39	37	36	38	38	37	37	42	41	44	43	45	44	53	49	54	50	50	49
16	48	46	44	44	40	39	36	36	38	38	38	37	42	42	43	43	46	42	51	48	54	50	49	49
17	48	47	44	43	39	38	36	36	38	37	38	38	42	42	45	43	47	44	51	47	54	50	50	49
18	47	47	43	43	38	38	36	36	37	36	39	38	42	42	46	43	48	44	51	47	55	51	49	46
19	47	47	43	43	38	37	36	36	36	36	39	38	42	42	46	43	48	44	52	47	55	51	49	47
20	47	47	43	43	37	37	36	36	36	36	38	37	42	42	45	42	48	45	52	48	54	51	49	48
21	47	47	43	43	38	37	37	36	36	36	37	37	42	42	45	42	49	45	52	48	53	50	48	47
22	47	47	43	43	38	38	37	37	37	36	37	37	42	42	45	42	46	45	53	49	53	50	47	46
23	47	46	43	43	38	38	37	37	37	37	37	37	42	42	43	42	46	45	54	50	53	50	49	47
24	46	44	43	43	38	38	37	37	37	37	38	37	42	42	45	43	47	44	53	50	53	50	48	45
25	45	44	43	43	38	37	37	37	37	37	39	38	42	42	43	43	45	44	52	50	53	50	47	45
26	44	43	43	43	37	36	37	37	37	36	40	39	42	42	43	43	46	44	51	50	52	49	47	45
27	43	43	43	43	36	35	37	37	36	36	40	40	42	42	46	43	48	44	50	49	52	49	47	46
28	43	43	43	42	36	35	37	37	36	36	40	40	42	42	45	41	47	45	51	49	52	49	47	47
29	43	43	42	40	36	36	37	37	--	--	40	40	43	42	43	42	45	44	51	49	52	49	48	47
30	43	43	40	39	37	36	37	37	--	--	40	40	44	43	42	42	44	44	54	49	54	51	47	45
31	44	43	--	--	38	37	37	37	--	--	41	40	--	--	42	41	--	--	54	50	54	51	--	--
Average	47	46	44	43	39	38	37	37	37	37	38	38	42	42	44	43	46	43	50	47	54	50	50	49

NORTH SANTIAM RIVER AT NIAGARA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.8 mile downstream from Big Cliff Dam and 2.1 miles east of Niagara, Marion County.
DRAINAGE AREA.--453 square miles.
RECORDS AVAILABLE.--Water temperatures: January 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 54°F Oct. 8-18, 20; minimum, 38°F many days in January, February, and March.
EXTREMES, 1953-55.--Water temperatures: Maximum, 54°F Oct. 8-18, 20, 1954; minimum, 38°F many days in January, February and March, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	53	53	53	53	47	47	39	39	38	38	38	38	39	39	42	42	44	44	45	45	49	49	50	50
2	53	53	53	52	47	47	39	39	38	38	39	38	39	39	42	42	44	44	45	45	49	49	50	50
3	53	53	52	52	47	47	39	39	38	38	39	39	39	39	42	41	44	44	45	45	49	49	50	50
4	53	53	52	52	47	47	39	39	38	38	39	39	39	39	42	41	44	44	46	45	50	49	51	50
5	53	53	52	52	47	46	39	39	38	38	39	38	39	39	42	41	45	44	46	45	49	49	51	50
6	53	53	52	52	46	46	39	39	38	38	39	38	40	39	43	42	45	45	45	45	50	49	50	50
7	53	53	52	51	46	45	39	39	38	38	39	38	40	40	43	43	45	44	45	45	49	49	50	50
8	54	53	51	51	45	45	39	39	38	38	39	38	40	40	43	43	45	44	45	45	49	49	50	50
9	54	53	51	51	45	45	39	39	38	38	39	38	40	40	43	43	45	44	45	45	49	49	50	50
10	54	53	51	51	45	45	39	39	38	38	39	38	40	40	43	43	45	44	46	45	49	49	50	50
11	54	53	51	51	45	44	39	39	38	38	39	38	40	40	44	43	47	45	46	45	49	49	50	50
12	54	53	51	51	44	44	39	39	38	38	39	38	40	40	44	43	47	47	46	45	49	49	50	50
13	54	53	51	51	44	44	39	39	38	38	39	39	40	40	43	43	48	47	(a)	(a)	50	49	50	50
14	54	53	51	51	44	44	39	39	38	38	40	39	40	40	43	43	47	45	(a)	(a)	49	49	50	50
15	54	54	51	51	44	43	39	39	38	38	39	39	40	40	43	43	45	44	(a)	(a)	50	49	50	50
16	54	54	51	50	43	42	39	39	38	38	39	39	40	40	43	43	44	44	47	46	49	49	50	50
17	54	54	50	50	42	42	39	39	38	38	39	39	40	40	43	43	44	44	47	46	49	49	51	50
18	54	53	50	50	42	42	39	39	38	38	39	39	40	40	44	43	45	44	46	46	50	49	51	50
19	53	53	50	49	42	42	39	39	38	38	39	39	40	40	44	44	45	45	46	46	49	49	51	50
20	54	53	50	49	42	42	39	39	38	38	39	39	40	40	45	44	45	45	47	46	50	49	51	50
21	53	53	50	49	42	42	39	39	38	38	39	39	41	40	45	44	45	45	47	46	50	49	51	50
22	53	53	50	49	42	42	39	39	38	38	39	39	41	41	45	44	46	45	48	46	50	50	51	50
23	53	53	50	49	42	42	39	39	38	38	39	39	41	41	45	44	45	45	48	48	50	50	51	50
24	53	53	49	49	42	42	39	39	38	38	39	39	41	41	45	44	45	45	48	48	50	49	51	50
25	53	53	49	48	42	41	39	39	38	38	39	39	41	41	45	44	45	45	48	48	50	49	51	51
26	53	53	48	48	41	41	39	39	38	38	39	39	41	41	44	44	45	45	48	48	50	49	51	51
27	53	53	48	47	41	40	39	39	38	38	39	39	41	41	44	44	45	45	48	48	51	50	51	51
28	53	53	48	47	40	40	39	38	38	38	39	39	41	41	45	44	45	45	48	48	50	50	51	51
29	53	53	48	48	40	40	38	38	--	--	39	39	42	41	45	45	45	45	48	48	50	50	51	51
30	53	53	48	47	40	40	38	38	--	--	39	39	42	41	45	44	45	45	48	48	50	50	51	51
31	53	53	--	--	40	39	38	38	--	--	39	39	--	--	44	44	--	--	49	48	50	50	--	--
Average	53	53	50	50	43	43	39	39	38	38	39	39	40	40	44	43	45	45	--	--	50	49	51	50

a No temperature record.

WILLAMETTE RIVER BASIN--Continued

MIDDLE SANTIAM RIVER AT MOUTH, NEAR FOSTER, OREG.

LOCATION.--Temperature recorder at gaging station, half a mile upstream from mouth and 2½ miles northeast of Foster, Linn County.
DRAINAGE AREA.--287 square miles.
RECORDS AVAILABLE.--Water temperatures: September 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 70°F Sept. 5, 6; minimum, 37°F Feb. 19-21.
EXTREMES, 1953-55.--Water temperatures: Maximum, 70°F Sept. 5, 6, 1955; minimum, 37°F Jan. 25, 26, 1954, Feb. 19-21, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

WILLAMETTE RIVER AT SALEM, OREG.

LOCATION.--At bridge on Oregon Highway 22,300 feet downstream from gaging station at Salem, Marion County.
DRAINAGE AREA.--7,280 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: August to December 1910, August 1911 to August 1912, February 1951 to September 1955.
Water temperatures: February 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 59 ppm Nov. 1-10; minimum, 41 ppm June 1-10.
Hardness: Maximum, 23 ppm Nov. 1-10, 11-20; minimum, 14 ppm May 21-31, June 11-20.
Specific conductance: Maximum daily, 133 micromhos Nov. 7; minimum daily, 39.4 micromhos June 11.
Water temperatures: Maximum, 71°F Aug. 6, Sept. 3, 4, 5; minimum, 40°F Dec. 28.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 69 ppm Nov. 1-30, 1952; minimum, 38 ppm Nov. 22-30, 1953.
Hardness: Maximum, 28 ppm Sept. 16-20, 24-29, 1951, Aug. 11-20, Oct. 11-31, 1952, Aug. 1-10, 1953; minimum, 14 ppm May 21-31, June 11-20, 1955.
Specific conductance: Maximum daily, 133 micromhos Nov. 7, 1954; minimum daily, 34.6 micromhos Jan. 20, 1953.
Water temperatures: Maximum, 75°F on many days during summer months; minimum, 35°F Nov. 30, 1952.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-16, 1954 ..	8,856	18	0.03	6.0	1.8	4.3	1.0	31	2.6	2.5	0.2	0.4	0.01	53	0.07	1,270	22	0	28	0.4	66.4	6.9	5
Oct. 17-31.....	13,030	--	--	--	--	3.9	--	30	--	--	--	--	--	51	.07	1,790	21	0	--	--	61.4	6.8	--
Nov. 1-10	9,060	--	--	--	--	4.8	--	35	--	--	--	--	--	59	.08	1,440	23	0	--	--	69.6	7.0	--
Nov. 11-20.....	18,750	--	--	--	--	4.0	--	31	--	--	--	--	--	58	.08	2,940	23	0	--	--	66.9	6.9	--
Nov. 21-30.....	19,130	--	--	--	--	3.6	--	28	--	--	--	--	--	50	.07	2,580	18	0	--	--	57.4	7.1	--
Dec. 1-10.....	16,170	--	--	--	--	3.8	--	28	--	--	--	--	--	58	.08	2,530	21	0	--	--	61.7	7.1	--
Dec. 11-17	23,090	--	--	--	--	3.5	--	26	--	--	--	--	--	57	.08	3,550	20	0	--	--	57.7	6.9	--
Dec. 18-31	24,290	--	--	--	--	3.6	--	26	--	--	--	--	--	54	.07	3,540	20	0	--	--	59.3	7.2	--
Jan. 1-10, 1955 ..	55,570	13	.06	5.0	1.3	3.3	.6	24	3.0	2.0	.2	1.3	.09	49	.07	7,350	18	0	28	.3	56.8	6.6	20
Jan. 11-31.....	24,550	--	--	--	--	3.5	--	27	--	--	--	--	--	58	.08	3,840	21	0	--	--	62.0	6.4	--
Feb. 1-10	27,450	--	--	--	--	3.3	--	25	--	--	--	--	--	48	.07	3,560	18	0	--	--	54.1	6.3	--
Feb. 11-20.....	22,140	--	--	--	--	3.5	--	25	--	--	--	--	--	50	.07	2,990	20	0	--	--	57.1	6.2	--
Feb. 21-28	13,190	--	--	--	--	3.9	--	27	--	--	--	--	--	54	.07	1,920	21	0	--	--	62.8	6.3	--
Mar. 1-10	24,050	--	--	--	--	3.5	--	26	--	--	--	--	--	54	.07	3,510	19	0	--	--	57.2	6.7	--
Mar. 11-20	21,550	--	--	--	--	3.6	--	27	--	--	--	--	--	50	.07	2,910	19	0	--	--	56.9	6.7	--
Mar. 21-31	38,450	--	--	--	--	3.1	--	21	--	--	--	--	--	46	.06	4,780	16	0	--	--	49.6	6.6	--
Apr. 1-10	38,750	16	.04	5.2	.9	3.3	.6	26	1.6	1.5	.1	.7	.01	48	.07	5,020	17	0	29	.4	52.1	6.9	15
Apr. 11-20.....	51,560	--	--	--	--	3.0	--	26	--	--	--	--	--	51	.07	7,100	17	0	--	--	50.8	6.6	--
Apr. 21-30	43,120	--	--	--	--	3.3	--	26	--	--	--	--	--	53	.07	6,170	18	0	--	--	56.4	6.9	--
May 1-10	25,120	--	--	--	--	3.2	--	27	--	--	--	--	--	47	.06	3,190	17	0	--	--	54.8	7.3	--
May 11-20	25,070	--	--	--	--	3.1	--	24	--	--	--	--	--	42	.06	2,840	16	0	--	--	49.6	7.3	--
May 21-31.....	25,340	--	--	--	--	3.0	--	26	--	--	--	--	--	50	.07	3,420	14	0	--	--	48.8	7.4	--

WILLAMETTE RIVER BASIN--Continued

WILLAMETTE RIVER AT SALEM, OREG.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
June 1-10, 1955 ..	27,280	--	--	--	--	2.9	--	24	--	--	--	--	--	41	0.06	3,020	16	0	--	--	46.7	7.3	--
June 11-20.....	25,490	--	--	--	--	2.8	--	22	--	--	--	--	--	42	.06	2,890	14	0	--	--	46.0	7 0	--
June 21-30.....	15,820	--	--	--	--	3.0	--	24	--	--	--	--	--	43	.06	1,840	16	0	--	--	49.7	7.1	--
July 1-10	13,490	15	0.03	5.2	0.9	3.4	0.9	26	2.3	1.5	0.3	0.8	0.05	43	.06	1,570	17	0	29	0.4	53.3	6.9	10
July 11-20	9,959	--	--	--	--	3.8	--	30	--	--	--	--	--	52	.07	1,400	20	0	--	--	59.7	6.9	--
July 21-31	8,022	--	--	--	--	4.0	--	30	--	--	--	--	--	55	.07	1,190	20	0	--	--	62.1	6.8	--
Aug. 1-10.....	6,698	--	--	--	--	4.4	--	33	--	--	--	--	--	56	.08	1,010	21	0	--	--	65.0	7.0	--
Aug. 11-20.....	6,375	--	--	--	--	4.2	--	31	--	--	--	--	--	53	.07	912	20	0	--	--	63.1	6.9	--
Aug. 21-31	6,178	--	--	--	--	4.2	--	31	--	--	--	--	--	52	.07	867	20	0	--	--	63.1	6.9	--
Sept. 1-10	6,538	--	--	--	--	4.4	--	32	--	--	--	--	--	52	.07	918	20	0	--	--	63.9	7.0	--
Sept. 11-20.....	8,334	--	--	--	--	4.0	--	28	--	--	--	--	--	53	.07	1,190	19	0	--	--	61.5	7.0	--
Sept. 21-30	7,814	--	--	--	--	4.2	--	29	--	--	--	--	--	52	.07	1,100	19	0	--	--	60.8	6.9	--
Weighted average	20,740	--	--	--	--	3.4	--	26	--	--	--	--	--	50	0.07	2,800	18	0	--	--	55.9	--	--

WILLAMETTE RIVER BASIN--Continued

WILLAMETTE RIVER AT SALEM, OREG.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	--	43	45	43	42	47	51	53	57	70	70
2	59	51	42	45	43	43	47	51	53	57	69	70
3	60	52	43	42	43	43	46	53	54	58	68	71
4	59	52	44	43	43	43	47	54	55	60	70	71
5	58	52	45	42	43	44	48	--	59	60	70	71
6	59	52	45	42	45	45	50	56	59	60	71	69
7	58	52	45	41	46	45	51	56	59	60	70	66
8	--	--	45	42	46	46	50	55	59	59	70	65
9	--	--	45	41	44	47	50	55	60	60	70	65
10	--	--	45	41	43	46	48	55	57	63	70	64
11	--	--	44	42	43	45	47	55	57	64	70	63
12	--	--	45	42	43	45	47	53	56	65	69	63
13	54	--	45	42	45	44	46	52	56	65	69	63
14	54	--	45	43	45	43	46	51	55	70	68	60
15	55	--	44	43	45	43	46	50	55	68	68	58
16	57	--	--	42	45	43	47	50	55	65	68	59
17	57	--	--	42	43	45	47	51	55	65	68	60
18	57	--	44	42	43	46	47	50	58	65	70	62
19	57	52	42	42	42	46	47	57	58	65	70	61
20	55	51	41	42	42	46	47	57	58	66	70	60
21	53	51	43	--	42	46	47	55	60	68	69	59
22	52	51	44	--	42	47	47	54	62	69	69	60
23	52	50	45	--	43	45	47	54	58	69	68	60
24	52	50	45	--	45	44	47	54	58	67	67	60
25	--	51	43	--	44	43	47	--	58	66	67	60
26	--	51	42	--	43	45	47	54	59	64	66	61
27	--	50	41	--	43	46	47	55	60	66	67	59
28	--	48	40	42	42	47	47	55	58	64	69	59
29	--	46	43	42	--	45	48	55	58	64	69	60
30	--	45	45	44	--	45	51	55	57	66	66	60
31	--	--	45	44	--	46	--	53	--	68	66	--
Average	--	--	44	--	44	45	48	54	57	64	69	63

LEWIS RIVER BASIN

LEWIS RIVER AT ARIEL, WASH.

LOCATION.--Temperature recorder at gaging station, at Ariel, Cowlitz County, half a mile downstream from Ariel Dam and powsrplant and 3 miles upstream from Cedar Creek.
DRAINAGE AREA.--731 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1950 to Arpil 1952, October 1952 to July 1953, September 1953 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum recorded, 56°F Sept. 25; minimum, 39°F Feb. 22 to Mar. 26.
EXTREMES, 1950-55.--Water temperatures: Maximum, 61°F Oct. 2-5, 1951; minimum, 37°F Feb. 6-16, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	--	49	52	51	47	46	43	43	40	40	39	39	41	41	42	42	46	45	50	50	52	52	53	52
2	52	47	52	52	47	47	43	43	40	40	39	39	41	41	42	42	46	45	50	50	52	52	53	52
3	54	49	52	52	47	47	43	43	40	40	39	39	41	41	42	42	46	46	50	50	52	50	53	52
4	51	49	52	51	47	47	43	42	40	40	39	39	41	41	42	42	47	46	50	50	52	50	--	54
5	52	51	51	51	47	47	43	42	40	40	39	39	41	40	43	42	47	46	50	50	53	51	--	53
6	52	52	51	51	47	46	43	42	40	40	39	39	41	40	43	43	47	45	50	50	--	--	--	54
7	52	52	51	51	47	46	42	42	40	40	39	39	41	40	44	43	48	45	50	50	--	--	54	53
8	52	52	51	51	47	45	42	42	40	40	39	39	41	40	44	43	48	47	50	50	--	--	54	53
9	52	51	51	51	47	46	42	42	40	40	39	39	41	41	43	43	50	48	50	50	--	--	53	53
10	52	52	51	51	47	46	42	42	40	40	39	39	41	41	44	43	50	48	50	50	--	--	53	53
11	52	51	51	50	46	45	42	42	40	40	39	39	41	41	44	44	48	48	50	50	--	--	--	53
12	52	52	51	50	46	45	42	41	40	40	39	39	41	41	44	44	49	48	51	50	--	--	55	53
13	52	51	50	50	46	45	41	41	40	40	40	39	41	41	44	44	49	48	51	51	--	--	54	54
14	52	51	50	50	45	45	41	41	40	40	40	39	41	41	44	44	49	48	51	51	--	--	54	54
15	52	51	50	50	45	45	41	41	40	40	39	39	41	41	44	44	48	48	51	51	--	--	54	54
16	52	52	50	50	45	45	41	41	40	40	39	39	41	41	45	44	48	48	51	51	--	--	54	54
17	52	52	50	49	45	45	41	41	40	40	39	39	41	41	45	45	48	48	51	51	--	--	54	53
18	53	52	49	49	45	45	41	41	40	40	39	39	41	41	45	44	48	48	51	51	--	--	--	52
19	53	53	49	49	45	45	41	41	40	40	43	39	41	41	46	43	49	48	51	51	--	--	54	53
20	53	51	49	49	45	45	41	41	40	40	42	39	41	41	44	44	49	48	51	51	--	--	54	54
21	53	53	49	48	45	45	41	41	40	40	39	39	41	41	44	44	48	48	51	51	--	--	54	53
22	53	52	48	48	45	45	41	41	40	39	39	39	41	41	44	44	49	48	51	50	--	--	54	53
23	52	52	48	48	45	45	41	41	40	39	39	39	41	41	44	44	49	49	51	51	--	--	54	54
24	52	51	48	47	45	44	41	41	40	39	39	39	41	41	44	44	50	49	53	51	55	52	54	53
25	52	52	48	48	44	43	41	41	40	39	39	39	41	41	44	44	50	50	53	52	54	52	56	53
26	52	52	48	48	43	43	41	41	40	39	42	39	41	41	44	44	50	50	52	52	53	51	54	53
27	52	52	48	47	43	43	41	40	40	39	45	40	41	41	44	44	50	50	52	52	55	51	54	54
28	52	52	47	47	43	43	40	40	40	39	42	41	41	41	44	44	50	50	52	52	--	51	54	54
29	52	52	47	47	43	43	40	40	--	--	41	41	42	41	44	44	50	50	52	52	--	51	54	54
30	52	51	47	47	43	43	40	40	--	--	41	41	42	42	44	44	50	50	52	52	55	53	54	53
31	52	51	--	--	43	43	40	40	--	--	41	41	--	--	46	44	--	--	53	52	54	53	--	--
Average	52	51	50	49	45	45	42	41	40	40	40	39	41	41	44	44	49	48	51	51	--	--	54	53

LEWIS RIVER BASIN--Continued

EAST FORK LEWIS RIVER NEAR HEISSON, WASH.

LOCATION.--Temperature recorder at gaging station, 60 feet downstream from Basket Creek. 1½ miles northeast of Heisson, Heisson County, and 20 miles upstream from mouth.
DRAINAGE AREA.--125 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to June 1953, June 1954 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 67°F Sept. 6; minimum, 34°F Mar. 5.
EXTREMES, 1950-53, 1954-55.--Water temperatures: Maximum, 74°F Aug. 4, 1952; minimum, 33°F Jan. 31, Feb. 1, 1951, Nov. 24 to Dec. 3, 1952.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

KALAMA RIVER BASIN

KALAMA RIVER BELOW ITALIAN CREEK, NEAR KALAMA, WASH.

LOCATION.--Temperature recorder at gaging station, 2½ miles 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 1955.
EXTREMES, October 1954 to September 1955.--Water temperatures: Maximum, 60°F Aug. 7, 20; minimum, 36°F Mar. 5, 6.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum recorded, 57°F Aug. 5-7, 9, 10; minimum, 33°F Mar. 5.
EXTREMES, 1950-55.--Maximum, 61°F Aug. 4, 9, 10, 15, 1952; minimum, freezing point on Jan. 20, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

COWLITZ RIVER BASIN--Continued

COWLITZ RIVER NEAR KOSMOS, WASH.

LOCATION.--Temperature recorder at gaging station, half a mile downstream from Tumwater Creek, 1½ 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 61°F Aug. 7, 8, 18-20, minimum, 38°F Feb. 28, Mar. 1, 2.
EXTREMES, 1952-55.--Water temperatures: Maximum, 62°F Aug. 12-16, 19, 20, 1953; minimum, 37°F Jan. 5, 1954.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	51	50	46	45	39	39	39	39	41	41	38	38	44	43	48	48	44	44	47	46	57	54	59	58
2	50	49	46	46	39	39	39	39	41	40	39	38	44	43	48	47	44	44	48	46	57	56	60	58
3	50	50	46	46	39	39	39	39	40	40	39	39	43	43	48	46	44	44	48	48	56	54	60	59
4	51	50	46	46	40	39	39	39	40	40	39	39	44	43	48	47	46	44	48	48	57	55	60	59
5	51	51	46	46	41	40	39	39	40	40	39	39	45	44	49	48	46	46	50	48	59	57	60	59
6	51	51	47	46	41	41	39	39	40	40	39	39	46	45	49	47	46	45	50	48	60	58	60	59
7	51	51	47	47	41	41	39	39	40	40	40	39	46	45	48	47	46	45	49	48	61	59	60	58
8	51	51	47	47	41	41	39	39	40	40	41	40	46	46	48	47	46	45	49	49	61	60	58	56
9	51	51	47	47	41	41	39	39	40	40	41	41	46	44	47	44	46	45	49	49	60	58	56	55
10	52	51	47	46	41	41	39	39	40	39	41	40	44	43	45	45	46	45	49	49	60	58	56	56
11	52	51	46	46	41	41	39	39	39	39	40	40	43	43	45	45	46	45	51	49	60	59	56	56
12	51	50	46	46	41	40	39	39	40	39	40	40	43	43	45	44	46	45	52	51	60	59	56	56
13	50	47	46	46	40	40	39	39	40	40	40	39	43	42	44	43	46	46	52	52	59	56	56	55
14	48	47	46	46	40	40	39	39	40	40	40	39	43	43	44	43	46	46	53	52	59	57	55	53
15	49	48	46	46	40	40	39	39	41	40	41	40	43	43	44	44	46	46	53	53	59	57	53	52
16	50	49	46	46	40	39	39	39	41	41	41	40	43	43	44	44	46	46	53	51	60	58	52	51
17	50	50	46	45	39	39	39	39	41	40	41	40	44	43	44	44	46	46	51	50	60	58	51	51
18	50	50	45	45	39	39	39	39	40	39	41	41	44	44	46	44	47	46	51	51	61	58	52	51
19	50	50	45	45	39	39	39	39	39	39	42	41	44	44	46	46	47	46	53	51	61	59	54	52
20	50	48	45	45	40	39	39	39	39	39	41	40	44	44	46	44	49	47	53	53	61	59	54	53
21	48	48	45	45	41	40	39	39	39	39	41	41	44	44	44	44	49	48	54	53	60	58	53	52
22	48	47	45	45	42	41	39	39	40	39	41	41	44	44	44	44	49	48	55	54	59	57	52	52
23	47	46	45	45	42	42	40	39	40	40	41	41	44	44	44	44	48	47	55	55	59	57	52	52
24	46	45	45	45	42	41	40	40	40	40	41	41	45	44	45	44	47	46	55	54	59	57	52	52
25	45	44	45	45	41	39	40	40	40	40	41	41	45	45	45	45	47	46	54	53	58	56	52	52
26	44	43	45	45	39	39	40	40	40	39	41	41	45	45	45	45	47	47	53	52	56	55	52	52
27	44	43	45	43	39	39	40	40	40	39	44	41	45	44	45	44	48	47	52	52	57	55	52	52
28	44	43	43	43	39	39	40	40	39	38	44	44	46	44	45	45	48	47	53	52	58	56	52	51
29	44	44	43	41	39	39	40	40	--	--	45	44	47	46	45	45	47	47	53	53	59	57	51	51
30	44	44	41	39	39	39	40	40	--	--	44	43	48	47	45	44	47	47	53	52	59	59	51	50
31	45	44	--	--	39	39	41	40	--	--	43	43	--	--	44	44	--	--	54	52	59	58	--	--
Average	49	48	45	45	40	40	39	39	40	40	41	40	44	44	46	45	46	46	52	51	59	57	55	54

WEST FORK TILTON RIVER NEAR MORTON, WASH.

LOCATION.--Temperature recorder at gaging station, three-quarters of a 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 61°F Aug. 7, Sept. 6; minimum, 33°F Feb. 28 to Mar. 2, Mar. 4-7, 13.
EXTREMES, 1950-55.--Water temperatures: Maximum, 66°F Aug. 12, 1952; minimum, 33°F Nov. 26 to Dec. 1, 1952; Feb. 28 to Mar. 2, Mar. 4-7, 13, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

COWLITZ RIVER BASIN--Continued

COWLITZ RIVER NEAR MAYFIELD, WASH.

LOCATION.--Temperature recorder at gaging station, 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and 2¼ miles west of Mayfield, Lewis County.
DRAINAGE AREA.--1,400 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 62°F Sept. 5; minimum, 36°F Mar. 2-6.
EXTREMES, 1950-55.--Water temperatures: Maximum, 67°F Aug. 5, 9-13, 1952; minimum, 35°F Jan. 29-31, Feb. 1, 2, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

TOUTLE RIVER NEAR SILVER LAKE, WASH.

LOCATION.--Temperature recorder at gaging station, half a 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 64°F Aug. 20, Sept. 3-6; minimum, 34°F Mar. 5.
EXTREMES, 1950-55.--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 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

COWLITZ RIVER BASIN--Continued

COWLITZ RIVER AT CASTLE ROCK, WASH.

LOCATION.--Temperature recorder at gaging station at highway bridge in Castle Rock, Cowlitz County, 2½ 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 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 64°F Aug. 7-9, 19-23, Sept. 6, 7; minimum, 39°F Mar. 2-7.
EXTREMES, 1950-55.--Water temperatures: Maximum, 72°F Aug. 21, 1951; minimum, freezing point on Jan. 29, 30, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

COWEMAN RIVER NEAR KELSO, WASH.

LOCATION.--Temperature recorder at gaging station 3 miles downstream from Goble Creek, 3.8 miles southeast of Kelso, Cowlitz County, and 7 miles upstream from mouth.
DRAINAGE AREA.--119 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 72°F Aug. 6, 7, 20; minimum, freezing point Mar. 5.
EXTREMES, 1950-55.--Water temperatures: Maximum, 81°F Aug. 4, 1952; minimum, freezing point Mar. 5, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

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ABERNATHY CREEK BASIN

ABERNATHY CREEK NEAR LONGVIEW, WASH.

LOCATION.--Temperature recorder at gaging station, 1 mile upstream from mouth and 11 miles northwest of Longview, Cowlitz County.
DRAINAGE AREA.--20.3 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 63°F Sept. 4, 5; minimum, 37°F Feb. 28, Mar. 5, 6.
EXTREMES, 1950-55.--Water temperatures: Maximum, 68°F Aug. 19-21, 1950; minimum, 34°F Mar. 7, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

ELOKOMIN RIVER NEAR CATHLAMET, WASH.

LOCATION.--Temperature recorder at gaging station, 125 feet upstream from railroad bridge, 2½ miles northeast of Cathlamet, Wahkiakum County, and 4½ miles upstream from mouth.
DRAINAGE AREA.--65.8 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 67°F July 13; minimum, 35°F Mar. 5.
EXTREMES, 1950-55.--Water temperatures: Maximum, 73°F June 29, 1951; minimum, 35°F Jan. 3, 4, Nov. 28-30, Dec. 1, 1952, Mar. 5, 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

BIG CREEK BASIN

BIG CREEK NEAR KNAPPA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.3 mile downstream from fish hatchery and 2½ miles south of Knappa, Clatsop County.
DRAINAGE AREA.--31.9 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1949 to June 1955 (discontinued).
EXTREMES, 1949-54.--Water temperatures: Maximum, 62°F Aug. 20, 21, 1951; minimum, 37°F Mar. 5-7, 1951, Jan. 3, 4, 1952.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, October 1954 to June 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	--	--	50	50	44	43	45	45	45	44	43	42	45	45	47	46	48	47						
2	--	--	51	50	44	43	45	44	44	44	43	42	45	44	47	46	49	48						
3	--	--	51	51	45	43	44	43	44	44	43	43	46	44	47	46	49	49						
4	--	--	52	51	46	44	43	43	44	44	43	42	46	44	50	46	52	49						
5	--	--	52	50	46	46	43	43	45	44	42	40	47	44	50	47	52	50						
6	--	--	51	51	46	45	43	43	46	45	43	41	48	45	50	46	54	51						
7	--	--	51	50	45	45	43	43	47	45	44	42	48	46	50	47	55	52						
8	--	--	51	51	45	45	43	43	47	45	44	44	48	47	49	48	57	53						
9	--	--	51	51	46	45	43	43	45	44	45	44	47	46	50	46	58	56						
10	--	--	51	51	46	44	43	42	44	44	45	44	46	45	50	49	58	54						
11	--	--	51	51	45	44	43	42	44	44	44	44	45	44	50	49	55	53						
12	--	--	51	51	45	45	43	43	45	44	44	43	45	44	50	48	54	52						
13	--	--	51	51	46	45	43	43	46	45	43	43	44	44	49	47	52	51						
14	--	--	51	51	47	45	43	43	46	46	44	43	44	43	50	48	51	50						
15	--	--	51	51	47	46	43	43	46	45	44	43	44	43	50	48	50	50						
16	--	--	52	51	46	44	43	43	45	44	45	43	45	43	50	48	50	49						
17	--	--	51	51	44	44	43	43	44	43	45	44	45	43	50	49	51	50						
18	--	--	52	51	44	44	43	43	43	42	46	45	44	43	52	50	51	51						
19	--	--	51	50	44	43	43	43	43	42	45	44	44	43	52	51	52	49						
20	--	--	50	50	44	44	44	43	43	42	44	43	45	43	52	49	54	52						
21	--	--	50	49	45	44	44	44	43	42	44	44	45	44	50	49	56	53						
22	--	--	51	50	45	45	45	44	45	43	44	44	45	45	50	48	55	54						
23	--	--	51	49	45	45	45	45	45	45	44	44	45	44	51	49	54	53						
24	--	--	50	49	45	44	45	45	45	45	44	44	45	43	51	47	54	53						
25	--	--	50	49	44	43	45	45	45	44	44	44	44	42	51	49	53	53						
26	--	--	50	50	43	42	45	44	44	43	45	43	45	44	50	49	53	53						
27	--	--	50	48	43	42	44	43	44	43	46	44	44	43	49	48	53	53						
28	48	47	48	47	43	42	44	43	43	43	46	46	45	43	50	47	53	53						
29	48	48	47	45	44	43	44	43	--	--	46	45	47	45	50	49	53	52						
30	49	48	45	44	46	44	45	44	--	--	45	44	48	44	49	48	52	52						
31	50	49	--	--	46	45	45	45	--	--	45	45	--	--	48	47	--	--						
Average	--	--	50	50	45	44	44	43	45	44	44	43	45	44	50	48	53	52						

WEST BRANCH GRAYS RIVER NEAR GRAYS RIVER, WASH.

LOCATION.--Temperature recorder at gaging station, 1 mile upstream from mouth and 3¼ miles northeast of town of Grays River, Wahkiakum County.
DRAINAGE AREA.--16.3 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 60°F Sept. 4; minimum, 39°F Mar. 5.
EXTREMES, 1950-55.--Water temperatures: Maximum, 66°F Aug. 11, 1953; minimum, 36°F Feb. 20, 1952.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	54	52	48	48	45	44	45	45	43	42	42	41	44	44	47	45	49	47	50	49	53	52	57	53
2	54	50	49	48	44	44	45	44	42	42	42	41	44	44	47	46	48	48	50	48	53	51	58	54
3	54	51	49	49	44	44	44	44	42	42	42	41	45	44	48	46	50	48	50	49	55	51	56	53
4	53	52	50	49	45	44	44	43	42	42	41	40	46	44	50	45	52	49	51	50	56	52	60	55
5	53	52	50	50	46	45	43	43	42	42	40	39	47	44	50	46	51	50	52	50	57	53	59	55
6	53	53	50	50	46	46	43	43	42	42	42	40	48	44	51	46	55	50	51	51	58	54	58	56
7	53	53	50	50	46	46	43	43	45	42	43	41	48	45	50	47	57	51	53	51	58	54	57	56
8	53	53	50	50	46	46	43	43	46	44	42	42	46	46	51	47	59	52	53	52	56	54	56	55
9	53	53	50	49	46	46	43	43	45	44	43	42	46	45	52	46	59	54	53	51	57	52	56	55
10	53	53	50	49	46	45	43	42	44	43	42	42	46	43	50	49	57	55	53	52	54	53	56	55
11	53	52	50	49	46	45	42	42	43	43	42	41	44	43	50	47	57	52	55	51	56	52	55	53
12	52	51	50	49	46	45	42	41	43	43	42	41	44	44	48	47	55	52	58	53	55	53	55	52
13	51	49	50	49	46	45	42	42	45	43	42	40	44	44	47	46	53	51	59	54	55	51	55	54
14	51	49	50	49	46	46	42	42	45	44	42	41	44	44	50	47	52	51	59	55	55	51	54	53
15	51	51	50	49	46	45	42	42	45	44	43	42	44	44	51	48	53	50	58	55	56	52	53	52
16	52	51	50	49	45	44	42	42	44	42	42	42	44	44	50	48	53	49	56	54	55	52	52	52
17	53	52	50	49	44	44	42	42	43	42	44	41	45	44	50	49	52	51	57	52	56	51	52	51
18	53	52	50	50	44	44	42	42	42	40	44	43	45	44	52	50	53	52	55	54	57	53	53	50
19	52	52	50	49	44	44	42	42	41	40	44	42	45	44	53	51	55	49	57	52	57	54	53	51
20	52	52	49	49	45	44	42	42	41	40	42	41	45	44	52	48	57	52	58	53	58	55	53	51
21	52	51	49	49	45	45	42	42	41	40	42	42	46	44	51	49	59	53	58	54	57	52	52	49
22	51	50	49	49	45	45	42	42	43	40	43	42	46	45	52	48	56	54	59	54	57	53	53	49
23	51	49	49	49	45	45	42	42	43	42	43	43	45	45	51	49	55	53	58	54	55	52	54	52
24	49	48	49	49	45	44	43	42	43	42	43	43	45	43	53	47	55	53	57	55	53	51	53	50
25	48	48	49	49	44	42	43	43	42	42	43	43	45	43	51	50	54	53	56	55	53	51	53	50
26	48	47	49	49	42	42	43	43	42	41	44	43	45	44	50	48	54	53	55	53	55	51	53	51
27	47	46	49	48	42	42	43	42	41	41	45	44	44	44	51	47	53	52	53	52	56	51	52	52
28	47	46	48	47	42	42	42	42	42	41	45	45	46	44	51	47	52	52	53	52	57	53	52	51
29	47	46	47	46	43	42	42	42	--	--	45	44	47	46	51	49	52	51	53	52	57	53	52	51
30	48	47	46	45	45	43	43	42	--	--	44	44	49	45	50	48	51	50	52	52	56	54	51	49
31	48	47	--	--	45	45	43	43	--	--	44	44	--	--	48	47	--	--	52	52	57	54	--	--
Average	51	50	49	49	45	44	43	42	43	42	43	42	45	44	50	48	54	51	55	52	56	52	54	52

YOUNGS RIVER BASIN

NORTH FORK KLASKANINE RIVER NEAR OLNEY, OREG.

LOCATION.--Temperature recorder at gaging station, half a mile downstream from Barth Falls, 2 miles upstream from North Fork of North Fork, and 4 miles southeast of Olney, Clatsop County.
DRAINAGE AREA.--14.0 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1950 to September 1955 (discontinued).
EXTREMES, 1954-55.--Water temperatures: Maximum, 66°F Sept. 5; minimum, 37°F Mar. 5.
EXTREMES, 1950-55.--Water temperatures: Maximum, 66°F Sept. 5, 1955; minimum, 34°F Nov. 28, 1952.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Temperature (°F) of water, water year October 1954 to September 1955

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

ROGUE RIVER AT GRANTS PASS, OREG.

LOCATION.--At bridge on U. S. Highway 99 at Grants Pass, Josephine County, and 0.6 mile downstream from gaging station.
DRAINAGE AREA.--2,420 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: January 1953 to September 1955.
Water temperatures: January 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 95 ppm Feb. 1-10; minimum, 53 ppm May 22-31.
Hardness: Maximum, 38 ppm Dec. 11-20, Jan. 21-31, Feb. 1-10; minimum, 21 ppm June 21-30.
Specific conductance: Maximum daily, 125 micromhos Feb. 5; minimum daily, 60.1 micromhos May 25.
Water temperatures: Maximum, 73°F Aug. 7, 8; minimum, 37°F Jan. 14, 15, 16, 18.
EXTREMES, 1953-55.--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 micromhos Feb. 21, 1954; minimum daily, 58.5 micromhos Jan. 19, 1953.
Water temperatures: Maximum, 73°F Aug. 7, 8, 1955; minimum, 37°F Jan. 14, 15, 16, 18, 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1954 to September 1955 given in WSP 1398.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	1,528			8.3	2.9	5.9		52	1.5	2.2		0.4	--	80	0.11	330	33	0	27	0.5	93.3	7.4
Oct. 11-20	1,574			8.3	2.9	6.0		53	1.5	2.5		.4	0.06	81	.11	344	33	0	27	.5	93.6	7.4
Oct. 21-31	1,588			8.7	3.0	6.2		54	1.5	2.8		.4	--	83	.11	356	34	0	27	.5	97.9	7.2
Nov. 1-10.....	1,530			8.3	3.0	6.0		52	1.4	2.5		.6	--	80	.11	330	33	0	27	.5	94.6	7.3
Nov. 11-20.....	1,773			8.5	3.0	6.1		52	1.6	2.5		.4	.02	82	.11	393	34	0	28	.5	95.4	7.1
Nov. 21-30.....	1,585			8.5	2.8	5.9		52	1.7	2.8		.4	--	81	.11	347	33	0	26	.4	97.6	7.0
Dec. 1-10.....	1,745			9.1	2.8	6.0		54	1.9	2.8		.4	--	84	.11	396	34	0	26	.4	97.9	7.1
Dec. 11-20.....	1,737			9.9	3.2	5.9		56	2.8	3.2		.7	.01	86	.12	403	38	0	24	.4	109	7.1
Dec. 21-31.....	2,220			8.9	3.0	5.4		52	2.2	2.8		.8	--	81	.11	486	35	0	24	.4	98.8	6.9
Jan. 1-10, 1955...	2,745			8.5	2.6	4.8		40	2.6	3.0		2.7	--	90	.12	667	32	0	25	.4	91.3	6.7
Jan. 11-20	1,918			9.1	3.1	5.9		55	2.1	3.0		.8	.05	84	.11	435	35	0	25	.4	102	7.2
Jan. 21-31	2,401			9.5	3.5	6.0		56	2.4	3.0		.7	--	89	.12	577	38	0	25	.4	105	7.2
Feb. 1-10.....	2,846			9.9	3.2	6.3		55	2.2	3.2		1.3	.02	95	.13	730	38	0	26	.4	109	7.0
Feb. 11-20.....	2,451			9.1	3.1	6.0		55	2.1	3.0		.6	.04	86	.12	569	35	0	25	.4	102	6.8
Feb. 21-28.....	2,020			8.7	3.2	6.0		54	2.0	3.2		.7	--	88	.12	480	35	0	25	.4	103	7.4
Mar. 1-10.....	2,258			9.3	3.2	6.4		56	2.1	3.8		.6	--	90	.12	549	36	0	26	.5	107	6.9
Mar. 11-20.....	2,317			8.7	3.6	6.2		55	2.1	3.0		.6	.06	87	.12	544	36	0	26	.4	105	7.0
Mar. 21-31.....	4,250			8.5	3.2	5.5		53	2.0	2.8		.5	--	83	.11	952	34	0	24	.4	97.2	7.0

ROGUE RIVER BASIN--Continued

ROGUE RIVER AT GRANTS PASS, OREG.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955...	3,561			8.3	3.1	4.9		49	1.9	1.8		0.5	--	77	0.10	740	33	0	24	0.4	89.0	7.1
Apr. 11-20	3,488			7.5	3.0	4.6		46	1.7	1.5		.8	0.05	75	.10	706	31	0	24	.4	82.7	7.3
Apr. 21-30	4,224			8.7	2.9	5.0		50	1.9	2.0		.7	--	81	.11	924	34	0	23	.4	92.4	7.2
May 1-12	4,046			8.7	3.0	5.1		50	1.7	2.0		.7	.02	78	.11	852	34	0	24	.4	93.9	7.1
May 13-21	4,052			6.0	1.9	3.6		35	1.3	1.0		.7	--	56	.08	613	23	0	25	.3	65.2	7.0
May 22-31	3,884			5.6	1.9	3.3		34	1.4	1.5		.6	--	53	.07	556	22	0	22	.3	62.4	7.0
June 1-10.....	3,890			6.4	1.6	3.6		37	1.2	1.8		.9	--	58	.08	609	23	0	23	.3	67.4	6.8
June 11-20.....	3,306			6.2	1.5	4.0		38	1.5	2.0		1.6	.05	58	.08	518	22	0	24	.4	67.4	6.6
June 21-30.....	2,148			5.8	1.5	3.6		35	1.0	1.2		.8	--	57	.08	331	21	0	24	.3	63.8	6.8
July 1-10	1,687			6.7	2.3	4.4		42	1.2	1.8		.6	--	65	.09	296	26	0	25	.4	77.5	6.9
July 11-20	1,344			6.7	2.8	5.0		45	1.1	2.0		.5	.02	71	.10	258	28	0	26	.4	81.4	6.9
July 21-31	1,106			6.7	2.4	5.2		45	1.2	1.8		.7	--	71	.10	212	27	0	27	.4	80.3	7.0
Aug. 1-10	1,033			6.7	2.5	5.1		44	1.2	1.2		.3	--	70	.10	195	27	0	28	.4	82.2	6.9
Aug. 11-20	996			6.6	2.7	5.1		45	1.1	1.5		.5	.01	70	.10	188	28	0	27	.4	81.2	7.1
Aug. 21-31	891			6.7	2.5	5.0		45	1.1	1.8		.6	--	70	.10	168	27	0	26	.4	81.6	7.0
Sept. 1-10	885			6.9	2.5	5.0		46	1.2	1.8		.3	--	71	.10	170	28	0	26	.4	83.1	7.0
Sept. 11-20	1,121			7.3	2.5	5.2		48	1.5	2.0		.4	.00	73	.10	221	28	0	26	.4	86.3	6.9
Sept. 21-30	1,048			8.1	3.0	5.9		51	2.2	2.3		.4	--	79	.11	224	33	0	27	.5	94.9	7.1
Weighted average.	2,259			8.0	2.7	5.1		48	1.7	2.3		0.7	--	76	0.10	464	31	0	24	0.4	88.9	--

ROGUE RIVER BASIN--Continued

ROGUE RIVER AT GRANTS PASS, OREG.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement at approximately 11:45 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	42	38	40	41	42	47	50	54	59	72	63
2	55	42	39	40	41	43	47	50	55	60	72	64
3	54	42	40	38	41	42	46	53	55	60	71	66
4	53	42	41	39	41	42	45	54	55	60	71	69
5	53	43	43	39	42	41	45	56	56	61	71	70
6	52	43	44	38	43	41	46	58	57	61	72	70
7	51	44	43	39	43	42	48	58	59	61	73	69
8	51	45	41	39	44	44	48	58	62	61	73	68
9	51	46	41	40	43	45	48	57	63	60	72	66
10	55	46	41	41	42	45	48	56	63	61	70	64
11	51	46	41	39	41	45	49	55	62	63	69	63
12	51	47	40	38	42	45	48	54	60	65	67	62
13	51	47	40	38	42	45	48	52	59	67	67	61
14	51	48	41	37	42	44	48	52	58	69	66	59
15	51	48	41	37	42	43	47	53	58	70	65	58
16	51	47	41	37	42	42	47	54	58	69	65	58
17	51	47	39	38	41	41	47	55	57	68	64	58
18	51	47	39	37	40	41	47	55	57	68	65	57
19	51	47	38	38	40	41	47	58	59	68	66	57
20	51	47	39	40	39	42	46	58	60	70	66	58
21	51	47	39	40	39	43	46	58	61	70	67	58
22	51	46	40	40	39	43	47	57	62	71	66	57
23	50	45	41	41	38	44	47	56	62	70	66	57
24	48	45	41	41	39	44	47	55	61	70	64	56
25	46	45	40	41	40	45	47	55	61	70	63	56
26	45	45	40	41	40	46	46	54	62	68	62	56
27	43	45	38	40	41	46	46	54	62	67	62	56
28	42	44	38	40	41	47	46	54	60	68	63	55
29	42	42	39	41	--	47	47	54	59	68	62	55
30	42	38	41	41	--	47	48	54	59	69	62	56
31	42	--	41	40	--	47	--	54	--	71	63	--
Average	50	45	40	39	41	44	47	55	59	66	67	61

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