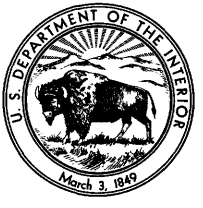
Quality of Surface Waters of the United States 1956

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 1453

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



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PREFACE

This report was prepared by the Geological Survey in cooperation with the States of California, New Mexico, and Utah, U. S. Bureau of Reclamation, and with other agencies.

The data were collected and computed by personnel of the Water Resources Division under the direction of C. G. Paulsen, chief hydraulic engineer, succeeded by L. B. Leopold, S. K. Love, chief, Quality of Water Branch, and supervised by district chemists:

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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.

Publication of annual records of chemical analyses, suspended sediment, and water temperature was begun by the Geological Survey in 1941. The records prior to 1948 were published each year in a single volume for the entire country. Beginning in 1948, the records were published in two volumes, and beginning in 1950, in four volumes, covering the drainage basins shown in Figure 1. The samples for which data are given in this volume were collected from October 1, 1955, to September 30, 1956. The records are arranged by drainage basins according to Geological Survey practice in reporting records of streamflow: Stations on tributary

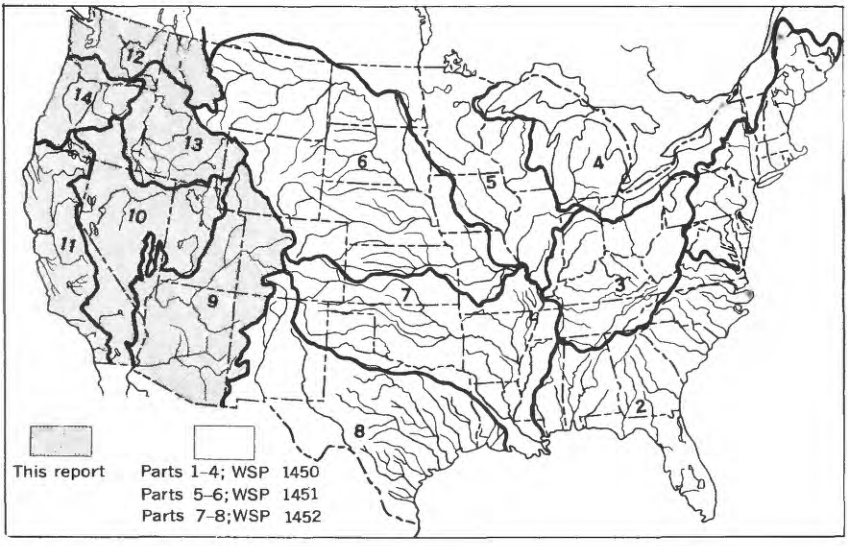

Figure 1.--Map of the United States showing basins covered by the four water-supply papers on quality of surface waters in 1956. The shaded portion represents the section of the country covered by this volume; the unshaded portion represents the section of the country covered by other water-supply papers.

streams are listed between stations on the main stem in the order in which those tributaries enter the main stem. 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 mineralization, hardness, water temperature, sediment loads, and other pertinent data. Records of water discharge of the streams at or near the sampling period are included in most tables of analyses.

During the year ending September 30 , 1956, 217 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 116 stations. Not all analyses of samples of surface water collected during the year have been included. Single analyses of an incomplete nature generally have been omitted. Also, analyses made of the daily samples before compositing have not been reported. The specific conductance of almost all daily samples was determined, and as noted in the table head-

ings 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 25 stations during the year ending September 30, 1956. 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 25 of the stations.

Material which is transported almost 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 routine method has been developed for determining bed load.

COLLECTION AND EXAMINATION OF SAMPLES

CHEMICAL QUALITY

Samples for chemical analysis were usually collected at or near points on streams where gaging stations are maintained for measurement of water discharge. Two methods of compositing water samples for analysis are used by the Geological Survey: (1) Equal volume method—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 from the 21st to the end of the month. Composite samples were prepared for shorter periods if the specific conductance of the daily samples indicated that the mineral content of the water had changed significantly. Conversely, composite samples were occasionally prepared for longer periods if the specific conductance of the daily samples indicated that the mineral content had remained nearly uniform. (2) Discharge method—Composite samples were prepared by mixing together a volume from each sample in proportion to the product of the rate of water discharge at the time of sampling and the time interval represented by that sample. Generally, each daily sample is assumed to represent an equal time interval; therefore, the volume from each sample is proportional only to the water discharge at the time of sampling. Compositing samples by the discharge method was limited to some streams west of the Mississippi River.

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., 1955).

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TEMPERATURE

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

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

SEDIMENT

In general, suspended-sediment samples were collected daily with U. S. depth-integrating cable-suspended samplers (U. S. Interagency, 1948, p. 70-76 and U. S. Interagency, 1952, p. 86-90) from a fixed sampling point at one vertical in the cross section. The US DH-48 hand sampler was used at many stations during periods of low flow. Depth-integrated samples were collected periodically at three or more verticals in the cross section to determine the cross-sectional distribution of the concentration of suspended sediment with respect to that at the daily sampling vertical. In streams where transverse distribution of sediment concentration ranges widely, samples were taken 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. For some streams, samples were collected about weekly, monthly, or less frequently, and only rates of sediment discharge at the time of sampling are shown.

In addition to the records of quantities of suspended sediment transported, records of the particle sizes of sediment are included. The particle sizes of the suspended sediments for many of the stations, and the particle sizes of the bed material for some of the stations were determined periodically. As much of the material carried in suspension is finer than 0.062 mm, the pipet 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. For most samples, material between 1.0 mm and 0.062 mm was analyzed by the visual accumulation tube method (U. S. Interagency 1957). Separation of sand from the silt-clay-colloid fraction was by sieve. For some samples all sediment coarser than 0.062 mm was analyzed by the sieve method. For material finer than 0.062 mm the settling medium used was native water or distilled water to which a dispersing agent had been added. Because sedimentation diameters of the clay and colloidal fractions are often affected by the chemical character of the settling medium, analyses made with native water may more nearly simulate particle sizes existing in the stream. Results of analyses with dis-

tilled water containing a dispersing agent 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 pipet method; therefore, the concentration of sediment for analyses was often different from the concentration in the stream. The concentration at which analyses were made is indicated in the appropriate tables.

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, expressed in terms of an equivalent quantity of 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.

The value usually reported as dissolved solids is the residue

on evaporation after drying at 180°C for 1 hour. For some waters, particularly those containing moderately large quantities of soluble salts, the value reported is calculated from the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The calculated sum of the constituents may be given instead of or in addition to the residue. In the analyses of most waters used for irrigation, the quantity of dissolved solids is given in tons per acre-foot as well as in parts per million.

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 is given for most analyses and was determined by means of a conductance bridge and using a standard potassium chloride solution as reference. Specific conductance values are expressed in micromhos per centimeter at 25°C. Specific conductance in micromhos is 1 million times the reciprocal of specific resistance at 25°C. Specific resistance is the resistance in ohms of a column of water 1 centimeter long and 1 square centimeter in cross section. The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 17) 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 that is generally used in Survey laboratories determines the activity of the hydrogen ions as distinguished from concentration.

An average of analyses for the water year is given for most daily sampling stations. Most of these averages are arithmetical or time-weighted; when analyses during a year are all on 10-day composites of daily samples with no missing days, the arithmetical and time-weighted averages are equivalent. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the river each day for the water year. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all of the water passing a given station during the year after thorough mixing in the reservoir. A discharge-weighted average is computed by multiplying the discharge for the sampling period by the concentrations of the individual constituents for the corresponding period and dividing the sum of the products

by the sum of the discharges. Discharge-weighted averages are usually lower than arithmetical averages for most streams because at times of high discharge the rivers generally have lower concentrations of dissolved solids.

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

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

COMPOSITION OF SURFACE WATERS

All natural waters contain dissolved mineral matter. Water in contact with soils or rock, even for only a few hours, will dissolve some rock materials. The quantity of dissolved mineral matter in a natural water depends primarily on the type of rocks or soils with which the water has been in contact and the length of time of contact. Some streams are fed by both surface runoff and ground water from 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. Ground water is generally more highly mineralized than surface runoff because it remains in contact with the rocks and soils for much longer periods. The 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 drainage from irrigated lands.

The mineral constituents and physical properties of natural waters reported in the tables of analyses include those that have a practical bearing on the value of the waters for most purposes. The analyses generally include results for silica, iron, calcium, magnesium, sodium, potassium (or sodium and potassium together 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. Phenolic

material and minor elements including strontium, chromium, nickel, copper, lead, zinc, cobalt, arsenic, cadmium, and others are occasionally determined for a few streams in connection with specific problems in local areas and the results are reported when appropriate. The source and significance of the different constituents and properties of natural waters are discussed in the following paragraphs.

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 a few contain more than 50 parts, but most waters contain from 1 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 stream turbines.

Aluminum (Al)

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

Magnesium (Mg)

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

Sodium and potassium (Na and K)

Sodium and potassium are dissolved from almost 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 but 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 content, 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 in about the same amount 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 may indicate contamination by sewage or other organic matter. The quantities of nitrate present in surface waters are generally less than 5 parts per million (as NO_3) and have no effect on the value of the water for ordinary uses.

It has been reported that as much as 2 parts per million of nitrate in boiler water tends to decrease intercrystalline cracking of boiler steel. Studies made in Illinois indicate that nitrates in excess of 70 parts per million (as NO_3) may contribute to 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 cause methemoglobinemia (Waring, 1949). In a report published by the National Research Council, Maxcy (1950, p. 271) concludes that a nitrate content in excess of 44 parts per million (as NO_3) should be regarded as unsafe for infant feeding.

Boron (B)

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

Dissolved solids

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

PROPERTIES AND CHARACTERISTICS OF WATER

Water temperature

Large quantities of water are used in industrial operation; therefore temperature and seasonal fluctuations of that temperature are major considerations in planning the use of water for cooling in industrial plants. Water at high temperature can carry less oxygen in solution than at low temperature. Consequently water temperature can affect or determine the pollution characteristics of a stream. Temperature data are required in studies of water intended for aquatic life. A few degrees rise in temperature may seriously limit the capacity of a stream to support fish life.

Oxygen consumed

The amount of 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. Waters of naturally high color may have relatively high values for oxygen consumed, and 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 generally 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 (see p.7), is related to the corrosive properties of water and is useful in determining the proper treatment for coagulation that may be necessary at water-treatment plants. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8. Some alkaline surface waters have pH values greater than 8.0, and waters containing free mineral acid 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 (see p.7). 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.

Hardness

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

pipes, with the resultant decrease in rate of heat transfer, possibility of boiler failure, and loss of flow.

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

Acidity

The acidity of a natural water represents the content of free carbon dioxide and other uncombined gases, organic acids, mineral acids and salts of strong acids and weak bases that hydrolyze to give hydrogen ions. Sulfates of iron and aluminum in mine and industrial wastes are common sources of acidity.

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

The proportion of sodium to the total cation concentration is termed "percent sodium", and 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 constituents in the water is explained on page 10 under "Sodium and potassium". 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).

Sodium-adsorption-ratio

Of more significance than percent sodium for use as an index of the sodium or alkali hazard to the soil is the sodium-adsorption-ratio because it relates more directly to the adsorption of sodium by the soil. The term, "sodium-adsorption-ratio (SAR)" was introduced by the U. S. Salinity Laboratory Staff (1954), and is a ratio expressing the relative activity of sodium ions in exchange reactions with the soil. It 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).

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR and the specific conductance. At a conductance of 100 micromhos per centimeter the dividing points are at SAR values of 10, 18, and 26, but at 5,000 micromhos the corresponding dividing points are SAR values of approximately 2.5, 6.5, and 11. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

SEDIMENT

Fluvial sediment is generally regarded as that sediment which is transported by, suspended in, or deposited by water. Suspended sediment is that part of it which remains in suspension in water owing to the upward components of turbulent currents or by colloidal suspension. 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, plant 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.

STREAMFLOW

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

PUBLICATIONS

Reports giving records of chemical quality and temperatures of surface waters and suspended-sediment loads of streams in the

area covered by this volume for the water years 1941-56, are listed below:

Numbers of water-supply papers containing records for Parts 9-14, 1941-56

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	1132	1952	1253	1956	1453

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

PROFESSIONAL PAPER

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

BULLETINS

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

WATER-SUPPLY PAPERS

*108. Quality of water in the Susquehanna River drainage basin, with an introductory chapter on physiographic features, 1904.
*161. Quality of water in the upper Ohio River basin and at Erie, Pa., 1906.
*193. The quality of surface waters in Minnesota, 1907.
*236. The quality of surface waters in the United States, Part 1, Analyses of waters east of the one hundredth meridian, 1909.
*237. The quality of the surface waters of California, 1910.
*239. The quality of the surface waters of Illinois, 1910.
*273. Quality of the water supplies of Kansas, with a preliminary report on stream pollution by mine waters in southeastern Kansas, 1911.

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

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

COOPERATION

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

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. Starting in Arizona, investigations of the chemical quality and suspended-sediment loads

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in the Colorado River basin in Arizona, Colorado, New Mexico, and Utah have been carried on as a continuing Federal project since 1925.

DIVISION OF WORK

The quality-of-water program was conducted by the Water Resources Division of the Geological Survey, C. G. Paulsen, chief hydraulic engineer, succeeded by L. B. Leopold; 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 Colorado and Wyoming (Colorado River basin), Nevada, and Utah - J. G. Connor; in Arizona and New Mexico - J. M. Stow; in Washington, Oregon, and Idaho - H. A. Swenson; in California - I. W. Walling. Any additional information on file may be obtained by writing or visiting the responsible Quality of Water district office as listed in the following table.

Geology Building University of New Mexico P. O. Box 4217 Albuquerque, N. Mex.	Colorado River basin (Arizona, New Mexico)
P. O. Box 2657 Building 504 Fort Douglas Salt Lake City, Utah	Colorado River basin (Colorado, Utah, Wyoming, and Nevada) The Great Basin (Utah, Nevada)
2929 Fulton Ave. Sacramento 21, Calif.	The Great Basin (California) Pacific slope basins in California
1001 N. E. Lloyd Blvd. P. O. Box 3418 Portland 8, Oreg.	Pacific slope basins in Washington and upper Columbia River basin Snake River basin Pacific slope basin in Oregon and lower Columbia River basin

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U. S. Interagency Report 8, 1948, A study of methods used in measurement and analysis of sediment loads of streams, measurement of the sediment discharge of streams, p. 70-76; U. S. Engineer Office, St. Paul, Minn.

U. S. Interagency Report 11, 1957, A study of methods used in measurement and analysis of sediment loads in streams, the development and calibration of the visual-accumulation tube, p. 1-109.

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CHEMICAL ANALYSES, WATER TEMPERATURES, AND SEDIMENT

PART 9. COLORADO RIVER BASIN

COLORADO RIVER MAIN STEM

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 1956.
Water temperatures: April 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 116 ppm July 1-10; minimum, 70 ppm May 8-20.
Hardness: Maximum, 76 ppm July 11-20; minimum, 34 ppm May 21-31.
Specific conductance: Maximum daily, 185 micromhos July 7, Sept. 28; minimum daily, 78.9 micromhos May 20.
Water temperatures: Maximum, 72°F July 24; minimum, freezing point on many days during January to March.
EXTREMES, 1947-56.--Dissolved solids (1947-50, 1952-56): Maximum, 123 ppm July 16-31, 1955; minimum, 38 ppm June 21-30, 1947.
Hardness (1947-50, 1952-56): 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 (1949-56): Maximum, 72°F July 27, 1953, July 15, 1954, Aug. 20, 1955, July 24, 1956; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955...	67.1	17	0.04	20	3.8	6.3	1.7	84	6.5	1.2	0.4	0.3	--	97	0.13	17.6	66	0	17	0.3	150	7.8
Oct. 11-20	59.7	17	.04	20	3.6	6.3	1.7	86	6.3	1.2	.5	.3	0.05	98	.13	15.8	65	0	17	.3	152	7.7
Oct. 21-31	65.5	15	.05	19	3.3	6.0	1.7	82	5.8	1.9	.4	.4	--	94	.13	16.6	61	0	17	.3	145	7.4
Nov. 1-8	92.5	16	.08	17	3.4	5.7	1.7	74	6.1	.9	.4	.3	--	90	.12	22.5	56	0	17	.3	135	7.5
Jan. 30-31, 1956, Feb. 1-10.....	74.1	14	.09	16	3.2	6.1	1.2	70	6.6	1.9	.3	.8	--	86	.12	17.2	53	0	20	.4	132	7.3
Feb. 11-20.....	79.9	14	.01	16	3.7	5.6	1.2	70	5.7	1.4	.1	1.3	.04	87	.12	18.8	55	0	18	.3	129	7.4
Feb. 21-29.....	77.2	14	.01	17	3.3	5.6	1.2	71	6.1	1.2	.1	1.3	--	85	.12	17.7	56	0	18	.3	129	7.2
Mar. 1-10.....	79.4	13	.01	17	3.7	5.9	1.2	71	5.5	1.2	.2	1.2	--	85	.12	18.2	58	0	18	.3	130	7.4
Mar. 11-20.....	80.6	14	.02	17	3.6	6.0	1.2	72	5.8	2.0	.1	1.2	.03	87	.12	18.9	57	0	18	.3	132	7.4
Mar. 21-31.....	101	14	.03	17	3.8	6.0	1.5	70	6.8	1.1	.1	1.3	--	88	.12	24.0	58	1	18	.3	135	7.3
Apr. 1-10.....	140	14	.06	19	4.2	6.5	2.1	76	9.5	2.2	.1	1.5	--	98	.13	37.0	65	2	17	.4	152	7.1
Apr. 11-20.....	215	15	.12	21	4.5	7.9	2.1	84	11	2.0	.1	1.7	.03	113	.15	65.6	71	2	19	.4	167	7.3
Apr. 21-30.....	468	15	.14	17	3.8	6.2	1.7	68	11	1.4	.1	1.8	--	101	.14	128	58	2	18	.4	139	7.2
May 1-7.....	566	13	.13	16	3.6	5.5	1.8	62	8.6	1.4	.3	1.3	--	92	.13	141	55	4	17	.3	124	7.6
May 8-20.....	642	12	.10	12	2.7	3.8	.9	45	6.3	.9	.1	1.3	.04	70	.10	121	41	4	16	.3	91.5	6.9
May 21-31.....	1,137	14	.12	11	1.5	4.1	1.2	44	7.4	.6	.5	1.3	--	71	.10	218	34	0	20	.3	87.8	7.3

June 1-10, 1956..	730	14	.06	13	1.9	4.3	1.2	54	6.2	.6	5	1.0	--	75	.10	148	40	0	18	.3	98.4	7.1
June 11-20.....	300	16	.08	19	2.9	5.9	1.4	79	6.4	1.0	.5	.8	0.04	96	.13	77.8	58	0	18	.3	140	7.3
June 21-30.....	187	15	.08	22	3.5	7.2	1.7	97	7.0	1.2	.5	.8	--	110	.15	55.5	70	0	18	.4	167	7.3
July 1-10.....	210	16	.08	24	3.6	7.5	1.7	104	6.8	1.4	.5	1.0	--	116	.16	65.8	75	0	17	.4	179	7.3
July 11-20.....	183	15	.08	24	3.6	7.3	2.0	102	6.2	1.2	.5	2.4	.03	115	.16	56.8	76	0	17	.4	178	7.2
July 21-31.....	189	15	.12	23	3.4	6.7	2.1	99	6.0	1.2	.5	1.2	--	111	.15	56.6	72	0	16	.3	170	7.1
Aug. 1-10.....	161	14	.08	23	3.8	6.7	2.0	99	6.0	1.1	.5	1.1	--	110	.15	47.8	72	0	16	.3	170	7.2
Aug. 11-20.....	138	13	.10	20	3.2	6.2	1.7	88	6.6	1.2	.5	1.1	.04	99	.13	36.9	64	0	17	.3	153	7.4
Aug. 21-31.....	111	13	.10	20	2.8	6.2	1.5	86	6.6	.9	.5	.6	--	96	.13	28.8	62	0	17	.3	149	7.5
Sept. 1-10.....	56.7	11	.01	22	2.4	7.1	1.7	91	5.2	1.5	.3	.3	--	100	.14	15.3	65	0	19	.4	157	7.5
Sept. 11-20.....	38.2	12	.01	24	3.6	8.0	1.8	100	5.8	1.6	.3	.3	.02	109	.15	11.2	74	0	19	.4	173	7.6
Sept. 21-30.....	37.7	13	.02	24	3.2	8.2	1.8	101	7.4	1.8	.3	.3	--	112	.15	11.4	74	0	19	.4	178	7.6
Weighted average	a 227	14	0.09	16	2.9	5.4	1.4	67	7.2	1.1	0.4	1.2	--	88	0.12	53.9	52	0	18	0.3	124	--

a Represents 90 percent of runoff for water year October 1955 to September 1956.

COLORADO RIVER MAIN STEM--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956

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

EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At bridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek and bridge on U. S. Highways 6 and 24, and about 475 feet upstream from gaging station.
DRAINAGE AREA.--844 square miles above sampling station (957 square miles above gaging station below Gypsum).
RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1956.
Water temperatures: April 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 945 ppm Sept. 21-30; minimum, 126 ppm May 21-25, 27, 29-31, June 1-10.
Specific conductance: Maximum daily, 1,440 micromhos Sept. 30; minimum daily, 182 micromhos May 24.
Water temperatures: Maximum, 71°F Aug. 20; minimum, freezing point on many days during December to March.
EXTREMES, 1947-56.--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 (1949-56): Maximum, 76°F Aug. 24, 1949; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for gaging station below Gypsum for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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 1955 ..	--	--		--	--	--	--	--	--	--		--	--	856	1.16	324	--	--	--	--	1,290	--
Oct. 11-20	134	15		152	31	99	4.3	180	353	148		0.2	0.07	909	1.24	329	506	359	30	1.9	1,360	7.8
Oct. 21-31	165	--		--	--	--	--	--	--	--		--	--	837	1.14	373	--	--	--	--	1,240	--
Nov. 1-10.....	221	--		--	--	--	--	--	--	--		--	--	767	1.04	458	--	--	--	--	1,140	--
Nov. 11-20.....	238	11		133	28	65	3.5	172	295	97		.3	.04	746	1.01	479	447	306	24	1.3	1,090	8.0
Nov. 21-30.....	226	--		--	--	--	--	--	--	--		--	--	739	1.01	451	--	--	--	--	1,100	--
Dec. 1-10.....	198	--		--	--	--	--	--	--	--		--	--	756	1.03	404	--	--	--	--	1,120	--
Dec. 11-20.....	200	11		127	27	63	2.7	172	275	94		.3	.04	707	.96	382	428	287	24	1.3	1,060	7.8
Dec. 21-31.....	205	--		--	--	--	--	--	--	--		--	--	711	.97	394	--	--	--	--	1,070	--
Jan. 1-10, 1956...	174	--		--	--	--	--	--	--	--		--	--	752	1.02	353	--	--	--	--	1,120	--
Jan. 11-20	181	11		128	22	70	--	170	268	106		2.1	.08	711	.97	347	410	271	27	1.5	1,080	7.6
Jan. 21-31	170	--		--	--	--	--	--	--	--		--	--	714	.97	328	--	--	--	--	1,070	--
Feb. 1-10.....	153	--		--	--	--	--	--	--	--		--	--	754	1.03	311	--	--	--	--	1,130	--
Feb. 11-20.....	174	10		125	20	70	--	164	259	106		2.6	.07	693	.94	326	394	260	28	1.5	1,060	7.5
Feb. 21-29.....	171	--		--	--	--	--	--	--	--		--	--	706	.96	326	--	--	--	--	1,090	--
Mar. 1-10.....	166	--		--	--	--	--	--	--	--		--	--	721	.98	323	--	--	--	--	1,100	--
Mar. 11-20.....	167	10		128	20	74	--	164	278	114		2.8	.09	735	1.00	331	404	270	29	1.6	1,110	7.4
Mar. 21-31.....	289	--		--	--	--	--	--	--	--		--	--	613	.83	478	--	--	--	--	920	--

EAGLE RIVER BASIN--Continued

EAGLE RIVER AT GYPSUM, COLO.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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. 1-8, 10, 1956	244	--		--	--	--	--	--	--	--		--	--	520	0.71	343	--	--	--	--	808	--
Apr. 9	223	--		--	--	--	--	--	--	--		--	--	264	.36	159	--	--	--	--	417	--
Apr. 11-13, 15	304	11		93	23	54	--	146	202	80		2.2	0.07	550	.75	451	324	204	27	1.3	847	8.1
Apr. 14, 16-20	384	10		65	16	25	--	121	126	38		2.6	.04	344	.47	357	226	127	19	.7	543	8.0
Apr. 21, 24	534	--		--	--	--	--	--	--	--		--	--	371	.50	535	--	--	--	--	584	--
Apr. 22-23, 25-26 28-29	627	--		--	--	--	--	--	--	--		--	--	264	.36	447	--	--	--	--	413	--
Apr. 27, 30	680	--		--	--	--	--	--	--	--		--	--	152	.21	279	--	--	--	--	235	--
May 1, 5, 7, 9-10	1,435	--		--	--	--	--	--	--	--		--	--	167	.23	647	--	--	--	--	265	--
May 2-4, 6, 8	1,131	--		--	--	--	--	--	--	--		--	--	253	.34	773	--	--	--	--	401	--
May 11-20	1,635	7.6		31	6.3	6.3	--	81	36	8.5		1.2	.02	142	.19	627	104	38	11	.3	224	7.6
May 21-25, 27, 29-31	3,170	--		--	--	--	--	--	--	--		--	--	126	.17	1,080	--	--	--	--	197	--
May 26, 28	2,985	--		--	--	--	--	--	--	--		--	--	179	.24	1,440	--	--	--	--	284	--
June 1-10	3,153	--		--	--	--	--	--	--	--		--	--	126	.17	1,070	--	--	--	--	204	--
June 11-20	1,974	5.6		30	6.1	7.4	--	69	44	12		1.0	.01	144	.20	767	101	44	14	.3	233	7.1
June 21-30	989	--		--	--	--	--	--	--	--		--	--	222	.30	593	--	--	--	--	360	--
July 1-10	683	--		--	--	--	--	--	--	--		--	--	303	.41	559	--	--	--	--	483	--
July 11-20	430	8.0		76	15	36	--	135	142	54		1.9	.05	413	.56	479	252	141	24	1.0	653	7.4
July 21-31	281	--		--	--	--	--	--	--	--		--	--	530	.72	402	--	--	--	--	824	--
Aug. 1-10	327	--		--	--	--	--	--	--	--		--	--	536	.73	473	--	--	--	--	801	--
Aug. 11-20	210	11		141	25	60	3.4	186	294	84		1.0	.08	755	1.03	428	452	299	22	1.2	1,060	7.5
Aug. 21-31	209	--		--	--	--	--	--	--	--		--	--	733	1.00	414	--	--	--	--	1,050	--
Sept. 1-10	160	--		--	--	--	--	--	--	--		--	--	846	1.15	365	--	--	--	--	1,190	--
Sept. 11-20	140	12		143	29	89	--	168	324	125		1.9	.06	851	1.16	322	476	338	29	1.8	1,250	7.8
Sept. 21-30	124	--		--	--	--	--	--	--	--		--	--	945	1.29	316	--	--	--	--	1,380	--
Weighted average	540	--		--	--	--	--	--	--	--		--	--	316	0.43	461	--	--	--	--	484	--

EAGLE RIVER BASIN--Continued

EAGLE RIVER AT GYPSUM, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

COLORADO RIVER MAIN STEM

COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION.--At Shoshone powerplant, 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, approximately (above gaging station)
RECORDS AVAILABLE.--Chemical analyses: October 1941 to September 1956.
Water temperatures: May 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 791 ppm July 31; minimum, 144 ppm June 1-10.
Hardness: Maximum, 284 ppm Nov. 1-10; minimum, 98 ppm June 1-10.
Specific conductance: Maximum daily, 1,200 micromhos Nov. 3; minimum daily, 200 micromhos June 4.
Water temperatures: Maximum, 68°F July 16, 18-20; minimum, freezing point on many days during winter months.
EXTREMES, 1941-56.--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 (1949-56): Maximum, 71°F July 31, 1954, Aug. 19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for gaging station at Glenwood Springs for water year October 1955 to September 1956 given in WSP 1443. No appreciable inflow between Shoshone powerplant and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	1,117	12	0.00	61	13	58	2.8	130	107	85	0.3	0.3	0.04	402	0.55	1,210	206	99	38	1.8	683	7.7
Oct. 11-22	982	12	.01	67	14	69	2.8	137	119	103	.3	.7	.04	456	.62	1,210	224	112	40	2.0	768	7.5
Oct. 23-31.....	849	13	.01	80	16	88	2.9	146	154	124	.3	.6	.03	554	.75	1,270	266	146	42	2.4	908	7.5
Nov. 1-10.....	735	16	.02	84	18	91	3.2	162	162	131	.2	1.6	--	592	.81	1,170	284	151	41	2.3	971	7.9
Nov. 11-20	1,006	14	.02	71	15	69	2.6	142	135	99	.2	.5	.05	483	.66	1,310	238	122	38	1.9	797	7.5
Nov. 21-30	1,012	14	.02	66	14	70	2.6	138	122	99	.2	.5	--	464	.63	1,270	222	109	40	2.0	769	7.4
Dec. 1-10.....	837	15	.01	68	15	69	2.3	144	126	99	.3	1.3	--	467	.64	1,060	231	113	39	2.0	780	7.6
Dec. 11-20.....	890	14	.02	62	14	62	2.3	135	117	83	.2	1.0	.04	436	.59	1,050	212	102	39	1.9	733	7.7
Dec. 21-31.....	963	14	.03	64	15	62	2.3	132	116	88	.2	.9	--	424	.58	1,100	221	113	38	1.8	713	7.7
Jan. 1-10, 1956..	818	15	.03	63	15	70	2.3	136	116	102	.2	1.0	--	452	.61	998	218	107	41	2.0	758	7.6
Jan. 11-20	866	17	.01	58	15	65	3.0	128	104	97	.2	1.1	.06	422	.57	987	206	101	40	2.0	716	7.7
Jan. 21-31.....	831	13	.04	59	14	74	2.3	131	107	108	.2	1.5	--	444	.60	996	204	97	44	2.2	756	7.8
Feb. 1-10.....	799	15	.01	61	13	68	2.7	132	106	102	.2	.8	--	444	.60	958	206	98	41	2.1	740	7.7
Feb. 11-20.....	852	13	.00	56	12	64	2.4	126	91	99	.3	.7	.05	392	.53	902	189	86	42	2.0	661	7.5
Feb. 21-29	867	13	.00	55	12	66	2.2	126	89	95	.2	2.0	--	397	.54	929	186	83	43	2.1	678	7.8
Mar. 1-10.....	950	13	.01	57	13	68	2.8	126	99	102	.2	1.8	--	428	.58	1,100	196	92	43	2.1	715	7.6
Mar. 11-20.....	986	13	.00	60	13	65	2.8	127	103	96	.2	1.5	.06	427	.58	1,140	203	99	41	2.0	708	7.5
Mar. 21-31.....	1,384	13	.01	73	15	59	3.5	139	140	80	.2	2.2	--	464	.63	1,730	244	130	34	1.6	736	7.5

Apr. 1-10, 1956..	1,419	14	.01	58	15	60	3.2	134	112	80	.2	1.7	--	422	.57	1,620	206	96	38	1.8	683	7.5
Apr. 11-20	1,705	13	.03	54	13	45	2.4	130	100	58	.2	1.5	0.05	356	.48	1,640	188	82	34	1.4	571	7.4
Apr. 21-30	2,920	13	.10	45	9.8	25	1.9	112	72	32	.3	2.1	--	262	.36	2,070	153	61	26	.9	413	7.5
May 1-10	4,514	14	.04	49	8.3	17	1.8	124	58	22	.3	2.2	--	237	.32	2,890	156	54	19	.6	376	7.6
May 11-20.....	5,781	13	.04	41	5.8	13	1.4	111	39	16	.3	1.2	.03	190	.26	2,970	126	35	18	.5	304	7.6
May 21-31.....	9,966	12	.10	41	4.6	6.7	1.3	110	33	10	.3	1.3	--	172	.23	4,630	121	31	11	.3	271	7.4
June 1-10	9,098	9.0	.04	30	5.4	8.7	1.3	84	31	13	.3	.8	--	144	.20	3,540	98	29	16	.4	235	7.4
June 11-20	5,018	11	.04	34	7.5	18	1.2	91	48	24	.3	1.1	.04	188	.26	2,550	115	40	25	.7	319	7.6
June 21-30	2,497	11	.02	46	10	35	1.9	108	74	50	.3	.9	--	281	.38	1,890	155	66	33	1.2	474	7.5
July 1-10.....	1,977	12	.03	57	14	44	2.1	131	107	58	.2	.8	--	362	.49	1,930	199	92	32	1.4	594	7.4
July 11-20.....	1,679	12	.03	63	14	51	2.3	132	121	68	.2	.9	.03	394	.54	1,790	213	105	34	1.5	645	7.5
July 21-30	1,454	12	.14	63	15	56	2.3	137	121	76	.2	.9	--	416	.57	1,630	218	106	36	1.6	678	7.9
July 31.....	1,510	16	--	173	16	53	4.2	135	390	69	--	2.9	--	a791	1.08	3,220	248	137	19	1.0	1,100	7.9
Aug. 1-10.....	1,412	12	.02	70	14	60	2.6	143	132	82	.2	2.1	--	446	.61	1,700	231	114	36	1.7	727	7.5
Aug. 11-15, 17-20	1,298	12	.03	74	13	56	2.9	133	138	82	.4	2.6	.02	444	.60	1,560	239	130	33	1.6	726	7.3
Aug. 16.....	1,650	17	--	180	14	43	5.7	170	368	62	--	.8	--	a774	1.05	3,450	254	115	15	.8	1,090	7.2
Aug. 21-31.....	1,279	12	.03	65	13	56	2.8	130	123	79	.4	1.5	--	420	.57	1,450	217	110	36	1.7	691	7.5
Sept. 1-10	1,145	11	.01	59	12	66	2.4	120	110	86	.4	.6	--	403	.55	1,250	196	98	42	2.1	660	7.6
Sept. 11-20.....	1,247	10	.01	55	11	64	2.7	114	101	89	.4	.7	.04	387	.53	1,300	180	87	43	2.1	642	7.5
Sept. 21-30	1,280	9.4	.01	53	10	64	2.5	115	93	90	.3	.6	--	419	.57	1,450	174	80	44	2.1	628	7.6
Weighted average	2,024	12	0.04	50	9.7	35	2.0	117	77	49	0.3	1.2	--	299	0.41	1,630	165	69	31	1.2	488	--

a Calculated from determined constituents.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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 1956.
Water temperatures: April 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 854 ppm Nov. 1-10; minimum, 188 ppm June 1-10.
Specific conductance: Maximum daily, 1,540 micromhos Dec. 8; minimum daily, 275 micromhos May 26, June 5.
Water temperatures: Maximum, 75°F July 28; minimum, 33°F on several days during December and February.
EXTREMES, 1933-56.--Dissolved solids (1933-43, 1950-56): 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 (1941-56): Maximum daily, 1,850 micromhos June 8, 1944; minimum daily, 244 micromhos July 2, 1947.
Water temperatures (1949-56): Maximum, 75°F July 27, 1953, July 12, 29, 31, 1954, July 28, 1956; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	1,589	--		--	--	--	--	--	--	--		--	--	699	0.95	3,000	--	--	--	--	1,170	--
Oct. 11-20	1,456	11		86	22	145	5.5	180	178	200		1.1	0.07	754	1.03	2,960	305	158	50	3.6	1,260	8.1
Oct. 21-31	1,391	--		--	--	--	--	--	--	--		--	--	803	1.09	3,020	--	--	--	--	1,350	--
Nov. 1-10	1,356	--		--	--	--	--	--	--	--		--	--	854	1.16	3,130	--	--	--	--	1,410	--
Nov. 11-20	1,709	14		90	23	139	5.5	184	195	185		1.1	.06	755	1.03	3,480	319	168	48	3.4	1,250	8.0
Nov. 21-30	1,696	--		--	--	--	--	--	--	--		--	--	743	1.01	3,400	--	--	--	--	1,240	--
Dec. 1-10	1,399	--		--	--	--	--	--	--	--		--	--	830	1.13	3,140	--	--	--	--	1,370	--
Dec. 11-20	1,450	13		90	23	152	4.9	186	194	205		1.4	.06	786	1.07	3,080	319	166	50	3.7	1,310	7.8
Dec. 21-31	1,507	--		--	--	--	--	--	--	--		--	--	740	1.01	3,010	--	--	--	--	1,220	--
Jan. 1-10, 1956..	1,288	--		--	--	--	--	--	--	--		--	--	814	1.11	2,830	--	--	--	--	1,350	--
Jan. 11-20	1,302	11		81	21	158	--	164	194	218		4.8	.06	788	1.07	2,770	288	154	54	4.0	1,310	8.2
Jan. 21-31.....	1,350	--		--	--	--	--	--	--	--		--	--	778	1.06	2,840	--	--	--	--	1,280	--
Feb. 1-10	1,240	--		--	--	--	--	--	--	--		--	--	853	1.18	2,860	--	--	--	--	1,410	--
Feb. 11-20	1,330	12		86	19	154	--	176	184	216		5.3	.08	783	1.06	2,810	294	150	53	3.9	1,300	8.0
Feb. 21-29	1,363	--		--	--	--	--	--	--	--		--	--	791	1.08	2,910	--	--	--	--	1,320	--
Mar. 1-10	1,460	--		--	--	--	--	--	--	--		--	--	755	1.03	2,980	--	--	--	--	1,240	--
Mar. 11-20.....	1,494	9.9		84	18	132	--	178	174	178		6.2	.08	709	.96	2,860	284	138	50	3.4	1,170	7.6
Mar. 21-31.....	2,085	--		--	--	--	--	--	--	--		--	--	709	.96	3,990	--	--	--	--	1,150	--
Apr. 1-10	2,090	--		--	--	--	--	--	--	--		--	--	615	.84	3,470	--	--	--	--	1,010	--
Apr. 11-20	2,615	13		70	18	93	--	168	133	120		4.4	.04	545	.74	3,850	248	110	45	2.6	905	7.4
Apr. 21-30	4,591	--		--	--	--	--	--	--	--		--	--	396	.54	4,910	--	--	--	--	650	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CAMEO, COLO.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 1-9, 1956 ..	6,894	--		--	--	--	--	--	--	--		--	--	342	0.47	6,370	--	--	--	--	559	--
May 10-20.....	9,187	11		47	9.0	27	--	133	50	36		3.7	0.03	256	.35	6,350	155	46	27	0.9	424	7.6
May 21-31	16,560	--		--	--	--	--	--	--	--		--	--	216	.29	9,660	--	--	--	--	353	--
June 1-10	16,930	--		--	--	--	--	--	--	--		--	--	188	.26	8,590	--	--	--	--	311	--
June 11-20	10,050	8.4		38	8.5	29	--	101	51	39		2.0	.02	232	.32	6,300	131	48	32	1.1	389	7.3
June 21-30.....	5,126	--		--	--	--	--	--	--	--		--	--	340	.46	4,710	--	--	--	--	570	--
July 1-10	3,853	--		--	--	--	--	--	--	--		--	--	450	.61	4,680	--	--	--	--	746	--
July 11-20	2,723	7.2		69	16	87	--	150	132	122		2.4	.04	528	.72	3,880	238	115	43	2.6	874	7.4
July 21-31.....	1,940	--		--	--	--	--	--	--	--		--	--	625	.85	3,270	--	--	--	--	1,060	--
Aug. 1-10	2,047	--		--	--	--	--	--	--	--		--	--	686	.93	3,790	--	--	--	--	1,100	--
Aug. 11-20	1,819	11		99	18	122	--	184	198	168		4.0	.06	729	.99	3,580	322	171	45	3.0	1,190	7.4
Aug. 21-31.....	1,748	--		--	--	--	--	--	--	--		--	--	685	.93	3,230	--	--	--	--	1,130	--
Sept. 1-10	1,419	--		--	--	--	--	--	--	--		--	--	708	.96	2,710	--	--	--	--	1,200	--
Sept. 11-20	1,471	6.1		70	17	131	--	150	142	182		2.4	.04	644	.88	2,560	242	119	54	3.7	1,100	7.4
Sept. 21-30.....	1,528	--		--	--	--	--	--	--	--		--	--	635	.86	2,620	--	--	--	--	1,080	--
Weighted average	3,328	--		--	--	--	--	--	--	--		--	--	432	0.59	3,880	--	--	--	--	716	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CAMEO, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

GUNNISON RIVER BASIN

GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

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 1956.
Water temperatures: April 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,380 ppm Sept. 11-20; minimum, 315 ppm June 1-10.
Hardness: Maximum, 1,160 ppm Sept. 11-20; minimum, 191 ppm June 1-10.
Specific conductance: Maximum daily, 2,730 micromhos Sept. 10; minimum daily, 380 micromhos May 10.
Water temperatures: Maximum, 83°F July 23; minimum, freezing point on several days during December and February.
EXTREMES, 1931-56.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.
Hardness (1931-35, 1943-56): Maximum, 1,370 ppm Sept. 1-10, 1934; minimum, 143 ppm June 1-10, 1933, May 11-20, 1948.
Specific conductance (1941-56): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.
Water temperatures (1949-56): Maximum, 85°F July 31, 1954; minimum, freezing point on several days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	548	--	--	136	41	98	--	158	--	--	--	--	--	--	--	--	508	378	30	1.9	1,290	8.2
Oct. 3-10	505	--	--	229	75	182	--	198	--	--	--	--	--	1,780	2.42	2,430	880	718	31	2.7	2,140	8.2
Oct. 11-20	664	23	0.00	228	97	197	5.1	198	1,160	30	0.7	12	0.35	1,930	2.62	3,460	968	806	31	2.8	2,260	7.8
Oct. 21-31	669	--	--	240	84	196	--	232	--	--	--	--	--	1,880	2.56	3,400	945	755	31	2.8	2,220	7.9
Nov. 1-10	797	--	--	230	79	181	--	266	--	--	--	--	--	1,750	2.38	3,770	900	682	30	2.6	2,090	7.8
Nov. 11-20	926	--	--	200	69	148	--	258	--	--	--	--	--	1,520	2.07	3,800	785	573	29	2.3	1,890	7.7
Nov. 21-30	996	--	--	178	61	135	--	243	--	--	--	--	--	1,330	1.81	3,580	695	496	30	2.2	1,670	7.7
Dec. 1-10	929	--	--	149	64	140	--	176	--	--	--	--	--	1,290	1.75	3,240	636	492	32	2.5	1,620	8.0
Dec. 11-20	909	--	--	136	58	124	--	163	--	--	--	--	--	1,160	1.58	2,850	580	446	32	2.2	1,480	8.1
Dec. 21-31	944	--	--	142	57	127	--	187	--	--	--	--	--	1,170	1.59	2,980	590	437	32	2.3	1,480	8.1
Jan. 1-10, 1956..	800	--	--	151	61	131	--	220	--	--	--	--	--	1,230	1.67	2,660	630	450	31	2.3	1,540	8.1
Jan. 11-20.....	830	20	.01	127	65	130	5.8	181	665	20	.5	10	.22	1,190	1.62	2,670	584	436	32	2.3	1,490	7.9
Jan. 21-31	819	--	--	137	59	132	--	194	--	--	--	--	--	1,180	1.60	2,610	588	429	33	2.4	1,510	7.8
Feb. 1-10	758	--	--	152	60	133	--	221	--	--	--	--	--	1,240	1.69	2,540	628	447	32	2.3	1,560	8.2
Feb. 11-20	808	--	--	140	54	120	--	181	--	--	--	--	--	1,120	1.52	2,440	572	424	31	2.2	1,460	8.1
Feb. 21-29	741	--	--	130	58	127	--	214	--	--	--	--	--	1,130	1.54	2,260	564	389	33	2.3	1,450	7.8
Mar. 1-10.....	738	--	--	114	56	121	--	177	--	--	--	--	--	1,080	1.47	2,150	514	369	34	2.3	1,390	8.0
Mar. 11-20.....	775	--	--	112	55	118	--	175	--	--	--	--	--	1,060	1.44	2,220	506	362	34	2.3	1,350	8.2
Mar. 21-31	1,206	--	--	104	40	82	--	190	--	--	--	--	--	818	1.11	2,660	426	270	30	1.7	1,080	8.1

Apr. 1-10, 1956..	1,496	--	--	81	26	55	--	174	--	--	--	--	--	576	.78	2,330	310	167	28	1.4	805	8.1
Apr. 11-20	2,161	22	.01	77	22	44	3.3	167	221	10	0.4	5.8	0.10	489	.67	2,850	280	143	25	1.1	705	7.9
Apr. 21-30	3,497	--	--	65	14	26	--	158	--	--	--	--	--	361	.49	3,410	220	90	30	.8	531	7.8
May 1-10.....	4,997	--	--	61	13	23	--	144	--	--	--	--	--	332	.45	4,480	204	86	20	.7	487	8.0
May 11-20.....	4,056	--	--	58	15	25	--	126	--	--	--	--	--	342	.47	3,750	204	101	21	.8	505	7.8
May 21-31.....	6,612	--	--	57	13	22	--	130	--	--	--	--	--	322	.44	5,750	197	90	20	.7	480	7.5
June 1-10	7,236	--	--	55	13	21	--	121	--	--	--	--	--	315	.43	6,150	191	92	19	.7	472	7.3
June 11-20	4,305	--	--	63	17	30	--	123	--	--	--	--	--	391	.53	4,540	228	127	22	.9	571	7.3
June 21-30	1,644	--	--	108	27	63	--	156	--	--	--	--	--	688	.94	3,050	380	252	26	1.4	931	7.6
July 1-10	952	--	--	154	47	107	--	178	--	--	--	--	--	1,120	1.52	2,880	576	430	29	1.9	1,390	7.8
July 11-20.....	371	14	.01	238	90	188	7.0	193	1,130	32	.6	6.9	.33	1,940	2.64	1,940	965	807	30	2.6	2,210	7.5
July 21-27.....	333	--	--	263	96	222	--	158	--	--	--	--	--	2,190	2.98	1,970	1,050	922	31	3.0	2,410	7.5
July 28-31, Aug. 1-10.....	683	--	--	138	47	108	--	182	--	--	--	--	--	1,040	1.41	1,920	536	387	30	2.0	1,330	7.8
Aug. 11-20	422	--	--	232	78	189	--	202	--	--	--	--	--	1,830	2.49	2,090	900	734	31	2.7	2,090	7.9
Aug. 21-31	337	--	--	258	90	212	--	212	--	--	--	--	--	2,090	2.84	1,900	1,020	842	31	2.9	2,310	7.9
Sept. 1-10.....	254	--	--	290	97	224	--	224	--	--	--	--	--	2,290	3.11	1,570	1,120	940	30	2.9	2,500	7.9
Sept. 11-20.....	340	--	--	295	102	241	--	216	--	--	--	--	--	2,380	3.24	2,180	1,160	979	31	3.1	2,590	8.0
Sept. 21-30.....	429	--	--	258	95	252	--	212	--	--	--	--	--	2,200	2.99	2,550	1,040	862	35	3.4	2,490	7.6
Weighted average	1,533	--	--	100	32	68	--	159	--	--	--	--	--	717	0.98	2,970	381	250	28	1.5	936	--

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GUNNISON RIVER BASIN--Continued

GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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 1956.
Water temperatures: March 1951 to September 1956.
Sediment records: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 6,830 ppm Sept. 21-30; minimum, 274 ppm June 1-10.
Hardness: Maximum, 1,900 ppm Sept. 21-30; minimum, 170 ppm June 1-10.
Specific conductance: Maximum daily, 10,700 micromhos Sept. 30; minimum daily, 392 micromhos June 6.
Water temperatures: Maximum, 81°F July 13, 27; minimum, freezing point on several days during winter months.
Sediment concentrations: Maximum daily, 42,300 ppm Aug. 16; minimum daily, 2 ppm Sept. 29.
Sediment loads: Maximum daily, 96,100 tons Aug. 16; minimum daily, less than 0.50 ton on many days in September.
EXTREMES (1951-52, 1953-56).--Dissolved solids (1953-56): Maximum, 6,830 ppm Sept. 21-30, 1956; minimum, 274 ppm June 1-10, 1956.
Hardness (1953-56): Maximum, 1,900 ppm Sept. 21-30, 1956; minimum, 168 ppm Apr. 18, 22, 25-30, 1955.
Specific conductance: Maximum daily, 10,700 micromhos Sept. 30, 1956; minimum daily, 254 micromhos May 8, June 6, 1952.
Water temperatures: Maximum, 81°F Sept. 1, 1953, Aug. 2, 1955, July 13, 27, 1956; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 80,500 ppm Aug. 6, 1955; minimum daily, 2 ppm Sept. 29, 1956.
Sediment loads: Maximum daily, 442,000 tons Oct. 24, 1953; minimum daily, less than 0.50 ton on many days in September 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. Flow affected by ice Nov. 15-17, Dec. 4-18, and Feb. 1-11.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....	39.2	7.2		249	139	1,180	69	194	1,240	1,650		39	--	4,670	6.35	494	1,190	1,030	67	15	7,010	7.9
Oct. 11-20	61.5	8.3		230	128	982	64	20	1,140	1,440		47	0.26	4,050	5.51	673	1,100	1,080	64	13	6,270	6.4
Oct. 21-31	71.9	8.9		175	90	783	48	40	780	1,180		41	--	3,130	4.26	608	806	774	66	12	5,030	6.8
Nov. 7, 10, 14.....	90.3	10		170	81	878	53	46	725	1,360		40	.16	3,340	4.54	814	757	720	70	14	5,520	6.6
Nov. 16, 21, 23, 25, 28.....	113	10		168	82	1,000	61	58	698	1,560		34	--	3,640	4.95	1,110	756	708	72	16	6,050	6.5
Nov. 30, Dec. 2, 5, 7, 9, 12	123	10		158	74	680	37	91	603	1,020		55	.16	2,680	3.64	890	698	624	66	11	4,370	7.3
Dec. 14.....	120	12		221	108	1,820	91	76	803	2,910		102	.13	6,100	8.30	1,980	996	933	78	25	9,690	6.4
Dec. 16, 19, 21, 23, 27, 30.....	158	12		143	62	678	35	87	498	1,030		62	.13	2,560	3.48	1,090	612	540	69	12	4,230	7.6
Jan. 3, 6, 9, 11, 13, 16, 1956	110	10		147	74	1,110	58	48	579	1,760		72	.19	3,830	5.21	1,140	672	632	76	19	6,380	7.3
Jan. 18, 20, 23, 25, 27, 30.....	137	7.9		131	66	788	43	81	527	1,220		46	.16	2,870	3.90	1,060	598	532	72	14	4,790	7.0
Feb. 3.....	130	9.2		163	85	1,480	74	104	591	2,360		82	.37	4,900	6.66	1,720	756	671	79	23	8,010	7.7
Feb. 6, 8, 10, 13, 15.....	163	9.2		149	62	680	38	107	532	1,020		67	.12	2,610	3.55	1,150	627	540	69	12	4,300	7.0

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 (calculated)			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. 17, 20, 24, 27, 29, 1956	147	9.4		121	55	631	33	114	442	950		41	0.11	2,340	3.18	929	528	434	71	12	3,930	7.7
Mar. 2, 5, 7, 9, 12, 15, 19	146	8.0		123	56	720	40	105	468	1,120		41	.13	2,630	3.58	1,040	538	452	73	13	4,430	7.4
Mar. 21, 23, 26	274	7.9		128	48	408	26	125	445	592		38	.09	1,750	2.38	1,290	517	414	62	7.8	2,880	7.3
Mar. 28	1,070	13		102	27	190		149	278	250		19	--	952	1.29	2,750	366	244	53	4.3	1,590	7.8
Mar. 30, Apr. 2, 4, 6, 12	714	11		67	18	79	7.1	135	142	105		13	.05	509	.69	981	241	130	41	2.2	850	7.8
Apr. 9	454	10		80	24	162		131	193	230		22	--	786	1.07	963	298	190	54	4.1	1,360	7.6
Apr. 16, 18, 20, 23, 25-30	1,149	10		57	14	52	5.2	140	93	70		9.2	.06	379	.52	1,180	200	85	35	1.6	642	7.5
May 1-10	1,300	11		61	13	53	5.0	140	100	75		9.2	--	396	.54	1,390	204	89	35	1.6	665	7.7
May 11-18	916	10		61	12	45	3.8	134	102	59		7.9	.06	367	.50	908	200	90	32	1.4	602	7.7
May 19-20	1,086	9.6		71	16	82	4.7	150	132	112		11	--	512	.70	1,500	242	119	42	2.3	853	7.6
May 21-31	1,820	10		62	11	39	2.9	144	94	50		5.7	--	346	.47	1,700	198	80	30	1.2	567	7.6
June 1-10	1,954	9.2		54	8.8	25	2.2	124	72	35		7.2	--	274	.37	1,450	170	68	24	.8	454	7.7
June 11-17	1,027	7.9		55	11	45	4.3	98	108	64		12	.04	355	.48	984	184	104	34	1.4	592	7.6
June 18-20	557	8.0		68	17	92	6.2	98	162	137		14	--	552	.75	830	238	158	45	2.6	936	7.2
June 21-30	315	8.2		82	28	194	10	64	256	292		23	--	925	1.26	787	320	268	56	4.7	1,550	7.0
July 1-5, 7-10	202	7.3		106	33	244	14	64	344	375		35	--	1,190	1.62	649	400	348	56	5.3	1,980	7.2
July 6	196	9.1		111	41	766	40	92	364	1,200		40	--	2,620	3.56	1,390	444	369	77	16	4,360	6.8
July 11-20	102	3.5		136	51	418	22	58	528	610		35	.12	1,830	2.49	504	548	500	61	7.8	2,920	6.6
July 21-30	83.0	4.8		173	62	600	34	92	668	890		37	--	2,510	3.41	562	688	613	64	9.9	3,910	6.8
July 31	196	15		138	43	299	14	208	424	405		1.7	--	1,440	1.96	762	520	349	55	5.7	2,290	6.9
Aug. 1, 6	148	12		143	31	177	11	164	412	216		21	--	1,100	1.50	440	484	350	44	3.5	1,680	7.3
Aug. 2-4, 7-10	141	13		202	51	327	18	120	700	425		38	--	1,830	2.49	697	712	614	49	5.3	2,700	7.3
Aug. 11-17	122	9.6		253	80	665	35	116	876	965		65	.17	3,010	4.09	991	960	865	59	9.3	4,590	7.0
Aug. 18-20	158	14		216	51	156	16	189	690	162		3.3	--	1,400	1.90	597	746	591	31	2.5	1,920	7.3
Aug. 21-25	59.2	13		319	71	334	21	121	1,100	400		35	--	2,350	3.20	376	1,090	989	39	4.4	3,180	7.2
Aug. 26-31	29.3	11		317	117	743	42	50	1,280	1,040		79	--	3,650	4.96	289	1,270	1,230	55	9.1	5,270	6.8
Sept. 1-10	16.4	4.4		341	147	1,050	59	40	1,570	1,520		43	--	4,750	6.46	210	1,460	1,420	60	12	6,990	6.5
Sept. 11-20	14.0	5.2		413	179	1,440	82	33	1,950	2,100		29	.32	6,210	8.45	235	1,760	1,740	63	15	9,030	6.4
Sept. 21-30	11.1	6.0		441	193	1,600	94	67	2,080	2,360		25	--	6,830	9.29	205	1,900	1,840	63	16	9,940	6.5
Weighted average	a424	9.6		78	21	145	9.2	124	190	212		15	--	739	1.01	846	281	180	52	3.8	1,200	--

a Represents 79 percent of runoff for water year October 1955 to September 1956.

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

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	37	--	e 2	76	39	a 8	102	48	a 13
2	37	--	e 2	76	36	a 7	139	113	42
3	36	--	e 2	78	32	a 7	161	220	a 96
4	39	24	3	81	30	a 7	150	--	b 80
5	39	17	2	78	26	a 5	145	--	b 70
6	40	--	e 1	78	18	a 4	125	--	b 30
7	40			81	17	4	115	--	b 20
8	40			87	23	a 5	110	--	b 15
9	41	12	1	92	24	a 6	125	--	b 30
10	43			92	28	7	115	--	b 20
11	44			89	35	a 8	110	--	b 15
12	46			89	32	a 8	110	--	b 15
13	43	5	2	92	33	a 8	115	--	b 20
14	44			98	47	12	120		b 25
15	76			110	72	a 21	130	--	b 30
16	73			90	159	39	150	--	b 80
17	73	17	3	105	120	a 34	165	--	b 120
18	70			109	93	a 27	170	--	b 150
19	73			102	68	a 19	174	402	189
20	73			116	52	a 16	174	370	a 170
21	70	8	2	109	38	11	165	340	151
22	70	--	e 2	120	33	a 11	161	320	a 140
23	70			123	35	12	152	299	123
24	70			123	42	a 14	161	270	a 120
25	70	13	2	116	53	17	170	230	a 110
26	73			130	55	a 19	170	170	a 78
27	70			139	47	a 18	161	134	58
28	73			126	55	19	156	100	a 42
29	76			123	47	a 16	148	80	a 32
30	76	9	2	106	39	11	143	72	28
31	73			--	--	--	134	70	a 25
Total	1,798	--	63	3,034	--	400	4,426	--	2,137

Day	January			February			March		
1	134	62	a 22	130	--	b 60	116	52	16
2	126	55	a 19	125	--	b 50	120	32	10
3	112	52	16	130	--	b 60	126	39	a 13
4	98	50	a 13	130	--	b 60	143	38	a 15
5	84	47	a 11	135	--	b 70	148	26	10
6	84	41	9	150	--	b 100	152	32	a 13
7	89	40	a 10	165	--	b 120	148	48	19
8	130	77	a 27	170	--	b 130	130	58	a 20
9	126	80	27	170	--	b 130	130	68	24
10	123	73	a 24	165	--	b 120	123	62	a 21
11	102	50	14	155	--	b 110	134	50	a 18
12	106	39	a 11	148	300	a 120	130	30	11
13	112	31	9	165	292	130	139	34	a 13
14	116	38	a 12	174	250	a 120	152	35	a 14
15	120	60	a 19	165	186	83	152	38	16
16	126	72	24	165	140	a 62	143	48	a 19
17	123	55	a 18	165	132	59	139	52	a 20
18	126	35	12	156	130	a 55	170	52	a 24
19	139	37	a 14	161	110	a 48	190	53	27
20	156	47	20	152	102	42	196	68	36
21	148	48	a 19	143	88	a 34	223	135	81
22	143	42	a 16	139	69	a 26	241	260	170
23	152	38	16	143	53	a 20	248	310	208
24	161	42	a 18	148	59	24	235	230	a 150
25	130	52	18	156	70	a 29	261	660	a 470
26	120	63	a 20	148	68	a 27	351	1,820	1,720
27	112	125	38	143	58	22	706	7,700	a 15,000
28	201	280	a 150	130	60	a 21	1,070	14,800	42,800
29	179	260	a 130	126	71	24	844	8,400	a 19,000
30	148	242	97	--	--	--	603	5,220	8,500
31	134	240	a 87	--	--	--	544	4,500	a 6,600
Total	3,960	--	940	4,352	--	1,956	8,207	--	95,058

e Estimated.
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 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	775	5,100	a 11,000	873	1,680	3,960	2,060	2,910	16,200
2.....	932	4,850	12,200	761	1,210	2,490	2,220	3,430	20,600
3.....	902	4,200	a 10,000	761	1,010	2,080	2,250	3,600	21,900
4.....	747	2,900	5,850	932	1,380	3,470	2,180	3,490	20,500
5.....	603	2,000	a 3,300	1,210	2,900	9,470	2,130	2,810	16,200
6.....	444	1,100	1,320	1,500	3,790	15,300	2,060	2,420	13,500
7.....	385	720	a 750	1,700	5,280	24,200	1,990	2,120	11,400
8.....	385	700	a 730	1,750	6,370	30,100	1,770	1,700	8,120
9.....	454	980	1,200	1,820	5,600	a 28,000	1,530	1,310	5,410
10.....	509	1,000	1,400	1,690	4,220	19,300	1,350	1,000	a 3,600
11.....	680	1,900	a 3,500	1,460	3,030	11,900	1,260	780	2,650
12.....	902	3,750	9,130	1,080	1,990	5,800	1,210	720	2,350
13.....	1,110	4,000	a 12,000	858	1,210	2,800	1,110	700	2,100
14.....	1,290	4,400	a 15,000	788	890	1,890	1,070	700	a 2,000
15.....	1,370	4,400	a 16,000	887	1,200	a 2,900	976	520	1,370
16.....	1,260	4,380	14,900	858	1,020	2,360	873	312	735
17.....	1,110	2,800	a 8,400	747	730	1,470	693	226	423
18.....	1,100	2,750	8,170	654	880	a 1,600	629	193	328
19.....	1,110	3,000	a 9,000	802	820	1,780	544	153	225
20.....	1,080	2,000	5,830	1,370	2,910	10,800	497	119	160
21.....	1,080	1,900	a 5,500	1,690	3,120	14,200	434	84	a 98
22.....	1,050	1,600	a 4,500	2,030	3,550	19,500	375	54	55
23.....	1,000	1,450	3,920	2,160	4,150	24,200	385	58	60
24.....	1,050	1,700	a 4,800	1,930	5,400	28,100	351	53	a 50
25.....	1,020	1,800	4,960	1,720	4,200	a 20,000	318	52	a 45
26.....	1,070	1,810	5,230	1,740	3,190	15,000	287	41	32
27.....	1,140	1,850	5,690	1,820	2,480	12,200	281	111	34
28.....	1,350	3,280	12,000	1,820	2,400	a 12,000	261	40	28
29.....	1,400	3,780	14,300	1,640	2,180	9,650	235	62	39
30.....	1,070	2,750	7,940	1,620	1,890	8,270	223	33	20
31.....	--	--	--	1,850	2,300	11,500	--	--	--
Total	28,378	--	218,520	42,521	--	356,290	31,552	--	150,282

	July			August			September		
1.....	228	100	a 62	180	14,600	s 9,860	20	26	1
2.....	261	156	110	226	3,550	2,170	19	27	a 1
3.....	254	131	90	261	3,220	2,270	18	25	1
4.....	228	435	268	228	2,320	1,430	19	9	(t)
5.....	235	1,080	685	156	4,900	2,100	17	8	(t)
6.....	196	134	71	116	7,720	2,420	16	12	1
7.....	174	55	26	89	2,150	517	14	7	(t)
8.....	161	49	a 21	73	830	164	13	7	(t)
9.....	148	51	20	61	630	104	14	7	(at)
10.....	130	27	9	52	380	53	14	9	(t)
11.....	120	19	6	41	270	30	15	6	(t)
12.....	112	18	5	36	200	a 19	16	6	(t)
13.....	109	12	4	32	150	13	14	15	1
14.....	112	20	6	30	80	6	14	6	(t)
15.....	109	23	a 7	30	80	6	14	5	(t)
16.....	102	24	7	417	42,300	s 96,100	14	5	(at)
17.....	109	17	5	268	38,200	28,700	14	19	1
18.....	92	33	8	174	20,700	9,720	14	11	(t)
19.....	81	23	5	165	15,600	6,950	13	10	(t)
20.....	76	124	25	134	13,300	4,810	12	15	(t)
21.....	68	23	4	89	11,800	2,840	7.6	34	1
22.....	66	26	a 5	68	2,900	532	4.8	30	(t)
23.....	59	22	4	55	700	104	4.2	11	(t)
24.....	53	23	3	44	341	41	9.5	4	(t)
25.....	50	22	3	40	273	29	13	15	1
26.....	53	21	3	37	140	a 14	15	21	1
27.....	57	20	3	34	95	9	14	6	(t)
28.....	125	48	16	31	64	5	14	3	(at)
29.....	143	60	a 23	28	60	5	15	2	(t)
30.....	156	5,600	2,360	25	105	7	14	5	(t)
31.....	196	9,480	s 5,340	21	43	2	--	--	--
Total	4,063	--	9,204	3,241	--	171,030	415.1	--	13

Total discharge for year (cfs - days) 135,947.1
Total load for year (tons) 1,005,893

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.

DOLORES RIVER BASIN--Continued

DOLORES RIVER NEAR CISCO, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 26, 1956 ..	10:45 a.m.	1,160	55	1,800	3,220		15		28	38	54	80	99		100		SPWCM
May 3	11:20 a.m.	719	59	1,020	4,460		17		27	38	49	68	97		100		SPWCM
May 13	9:45 a.m.	873	55	1,160	5,580		25		41	59	72	87	98		100		SPWCM
May 20	10:15 a.m.	1,460	63	3,230	3,400		11		22	38	59	82	97		100		SPWCM
May 22	10:20 a.m.	1,960	63	3,420	4,410		17		29	41	56	80	96		100		SPWCM
June 2	9:40 a.m.	2,030	65	3,020	3,940		18		33	46	60	80	96		100		SPWCM
June 12.....	11:30 a.m.	1,240	69	682	3,560		14		25	36	51	76	97		100		SPWCM
July 30.....	12:10 p.m.	179	74	7,990	4,740		95		100	--	--	--	--		--		SPWCM
July 31.....	12:15 p.m.	212	73	9,320	5,180		85		99	100	--	--	--		--		SPWCM
Aug. 1	12:00 m.	165	76	5,380	4,000		77		98	100	--	--	--		--		SPWCM
Aug. 2	11:50 a.m.	268	73	3,660	4,150		80		93	99	100	--	--		--		SPWCM
Aug. 3	2:15 p.m.	287	76	2,970	3,740		74		95	98	100	--	--		--		SPWCM
Aug. 17	12:10 p.m.	261	69	34,700	5,200		73		95	97	100	--	--		--		SPWCM
Aug. 18	11:30 a.m.	152	69	20,200	3,810		82		100	--	--	--	--		--		SPWCM
Aug. 19	5:40 p.m.	76	74	14,500	3,960		87		99	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 1956.
Water temperatures: May 1949 to September 1956.
Sediment records: May 1930 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,780 ppm Sept. 1-10; minimum, 252 ppm June 1-10.
Hardness: Maximum, 884 ppm Sept. 1-10, 11-20; minimum, 154 ppm June 1-10.
Specific conductance: Maximum daily, 2,560 micromhos Sept. 9, 10; minimum daily, 360 micromhos June 4.
Water temperatures: Maximum, 78°F July 15; minimum, freezing point Dec. 9, 12, 14, Feb. 6, 10.
Sediment concentrations: Maximum daily, 22,400 ppm Aug. 1; minimum daily, 13 ppm Jan. 6.
Sediment loads: Maximum daily, 213,000 tons May 8; minimum daily, 72 tons Jan. 6.
EXTREMES, (1928-52, 1953-56): Dissolved solids: Maximum, 2,670 ppm Aug. 11-20, 1940; minimum, 202 ppm June 11-20, 1933.
Hardness (1928-35, 1943-52, 1953-56): Maximum, 1,090 ppm Sept. 1-10, 1934; minimum, 131 ppm June 11-20, 1952.
Specific conductance (1941-52, 1953-56): Maximum daily, 4,100 micromhos Sept. 30, 1946; minimum daily, 310 micromhos June 15, 1952.
Water temperatures (1949-52, 1953-56): Maximum, 81°F Aug. 5, 1949; minimum, freezing point on many days during winter months.
Sediment concentrations (1930-56): Maximum daily, 66,300 ppm Oct. 27, 1952; minimum daily, 13 ppm Jan. 6, 1956.
Sediment loads (1930-56): Maximum daily, 2,790,000 tons Oct. 14, 1941; minimum daily, 72 tons Jan. 6, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955...	1,876	17		178	79	213	7.2	193	779	180		14	--	1,560	2.12	7,900	769	611	37	3.3	2,180	7.6
Oct. 11-20.....	1,929	16		181	81	226	8.0	189	804	192		12	0.19	1,610	2.19	8,390	784	630	38	3.5	2,220	7.8
Oct. 21-31.....	2,012	16		187	83	232	8.0	206	814	190		15	--	1,650	2.24	8,960	808	639	38	3.5	2,260	7.9
Nov. 1, 3, 7, 10, 14	2,502	18		169	69	232	8.0	224	690	208		11	.17	1,520	2.07	10,270	705	522	41	3.8	2,130	7.7
Nov. 16, 18, 21,23 25, 28, 30.....	3,027	17		136	56	209	8.0	194	547	210		11	--	1,290	1.75	10,540	570	411	44	3.8	1,900	7.9
Dec. 2,5,7,9,12, 14.....	2,687	17		130	59	213	8.1	182	551	215		15	.17	1,300	1.77	9,430	567	418	45	3.9	1,910	8.2
Dec. 16,19,21, 23, 27,30.....	2,965	15		128	52	196	7.5	198	486	202		16	.16	1,200	1.63	9,610	534	371	44	3.7	1,800	7.9
Jan. 3,6,9,11,13, 1956.....	2,356	15		122	54	226	8.2	181	501	240		16	.15	1,270	1.73	8,080	526	378	48	4.3	1,930	7.9
Jan. 16,18,20,23, 25,27,30.....	2,611	13		115	51	217	8.1	175	483	228		16	.13	1,220	1.66	8,600	496	353	48	4.2	1,850	8.0
Feb. 3,6,8,10,13, 15.....	2,423	14		123	53	241	9.1	192	483	278		17	.13	1,310	1.78	8,570	525	368	49	4.6	2,030	8.1

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 (calculated)			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. 17, 20, 24, 27, 29, 1956	2,516	13		111	49	217	8.4	186	439	232		12	0.11	1,170	1.59	7,950	478	326	49	4.3	1,820	7.8
Mar. 2, 5, 7, 9, 12, 15	2,592	13		108	46	218	8.3	178	423	240		13	.11	1,160	1.58	8,120	458	312	50	4.4	1,800	8.2
Mar. 19, 21, 23, 26, 28	3,544	14		104	42	185	8.0	168	390	202		13	.14	1,040	1.41	9,950	432	294	48	3.9	1,610	8.2
Mar. 30, Apr. 2, 4, 6, 9, 12	4,397	16		84	29	99	5.0	168	251	98		7.9	.09	673	.92	7,990	328	191	39	2.4	1,040	7.4
Apr. 16, 18, 20, 23-30	7,916	14		67	21	54	3.3	157	162	51		4.7	.06	454	.62	9,700	254	125	31	1.5	718	7.7
May 1-10	12,200	17		63	16	44	2.7	150	140	39		6.0	--	402	.55	13,240	224	101	30	1.3	630	7.8
May 11-20	13,070	15		55	15	35	2.1	132	118	34		4.7	.07	344	.47	12,140	198	90	27	1.1	548	7.5
May 21-31	23,110	13		53	12	24	2.1	140	88	20		4.1	--	285	.39	17,780	182	67	22	.8	461	7.5
June 1-10	25,700	11		44	11	23	2.1	110	82	20		4.5	--	252	.34	17,490	154	64	24	.8	405	7.6
June 11-20	14,650	10		56	14	36	2.6	124	126	34		4.5	.07	344	.47	13,610	198	96	28	1.1	552	7.4
June 21-30	6,221	11		82	24	82	2.9	138	248	72		7.0	--	597	.81	10,030	304	191	37	2.0	897	7.5
July 1-10	4,332	12		117	36	115	4.1	166	396	102		9.6	--	874	1.19	10,220	440	304	36	2.4	1,270	7.8
July 11-20	2,363	11		141	45	160	4.1	178	512	138		11	.12	1,110	1.51	7,080	536	390	39	3.0	1,570	7.9
July 21-31	1,805	10		180	69	210	5.9	196	736	176		11	--	1,490	2.03	7,260	732	571	38	3.4	2,060	7.6
Aug. 1-10	2,415	14		180	53	165	5.6	206	644	138		12	--	1,310	1.78	8,540	664	495	35	2.8	1,810	7.5
Aug. 11-20	1,792	13		191	75	202	7.7	204	802	161		13	.15	1,560	2.12	7,550	784	617	36	3.1	2,140	7.7
Aug. 21-31	1,617	13		197	73	193	7.3	208	774	159		15	--	1,530	2.08	6,680	794	623	34	3.0	2,100	7.7
Sept. 1-10	1,177	9.0		208	89	238	7.5	201	914	200		17	--	1,780	2.42	5,660	884	719	37	3.5	2,420	7.6
Sept. 11-20	1,348	8.3		206	90	238	7.5	200	902	199		17	.19	1,770	2.41	6,440	884	720	37	3.5	2,390	7.5
Sept. 21-30	1,583	9.7		197	84	227	6.8	207	860	184		17	--	1,690	2.30	7,220	836	666	37	3.4	2,270	7.6
Weighted average	a6,243	13		83	27	81	3.7	149	256	74		7.2	--	617	0.84	10,400	318	196	35	2.0	921	--

a Represents 82 percent of runoff for water year October 1955 to September 1956.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	2,010			2,370	95	608	2,960	89	a 710
2	1,930			2,390	90	a 580	3,120	95	800
3	1,880	62	317	2,310	115	717	3,310	200	a 1,800
4	1,840			2,370	110	a 700	3,170	260	a 2,200
5	1,820			2,490	130	a 874	3,080	218	1,810
6	1,840			2,390	98	a 630	2,850	160	a 1,200
7	1,800			2,410	105	683	2,390	55	355
8	1,880	50	251	2,740	440	s a 3,300	2,370	50	a 320
9	1,850			2,870	330	a 2,600	2,550	60	413
10	1,910			2,640	150	1,070	2,690	100	a 730
11	1,910			2,730	320	a 2,400	2,600	78	a 550
12	1,880			2,760	340	a 2,500	2,420	60	392
13	1,910	51	261	2,820	450	a 3,400	2,410	60	a 390
14	1,880			2,780	380	2,850	2,560	103	712
15	1,900			2,950	700	a 5,600	2,710	130	a 950
16	1,960			3,040	520	4,270	2,830	142	1,080
17	2,010			3,000	940	a 7,600	3,000	160	a 1,300
18	1,960	26	138	2,800	460	3,480	3,100	160	a 1,300
19	1,950			3,120	1,200	a 10,000	3,100	150	1,250
20	1,930			3,140	1,500	a 13,000	3,100	140	a 1,200
21	1,950			3,340	2,140	s 20,200	3,020	115	938
22	1,930			3,270	1,200	a 11,000	2,800	50	a 450
23	1,900	24	124	3,060	905	s 7,570	2,780	55	413
24	1,870			3,580	2,300	a 22,000	2,760	40	a 300
25	1,930			3,420	1,500	13,900	3,040	65	a 530
26	1,950			3,170	1,300	a 11,000	3,190	180	1,600
27	2,070			2,780	190	a 1,400	3,190	285	2,450
28	2,090			2,580	70	488	3,060	210	a 1,700
29	2,090	43	243	2,730	85	a 630	2,830	110	a 840
30	2,150			2,950	55	438	2,870	105	814
31	2,200			--	--	--	2,870	195	a 740
Total	60,180	--	6,913	85,000	--	155,488	88,730	--	30,247

Day	January			February			March		
1	2,780	80	a 600	2,220	180	a 1,100	2,320	85	a 530
2	2,740	60	a 440	1,980	50	a 270	2,320	40	251
3	2,580	38	265	1,880	35	178	2,550	220	a 1,500
4	2,440	28	a 180	2,060	38	a 210	2,640	240	a 1,700
5	2,200	20	a 120	1,950	40	a 210	2,800	450	3,400
6	2,060	13	72	2,040	42	231	2,960	980	a 7,800
7	2,270	42	a 260	2,320	40	a 250	2,980	1,120	9,010
8	2,480	50	a 330	2,690	200	1,450	2,550	560	a 3,900
9	2,390	32	206	2,690	100	a 730	2,260	290	1,770
10	2,460	50	a 330	2,730	70	516	2,200	270	a 1,600
11	2,390	58	374	2,550	60	a 410	2,530	250	a 1,700
12	2,240	40	a 240	2,550	55	a 380	2,710	240	1,760
13	2,360	25	159	2,460	65	432	2,740	190	a 1,400
14	2,370	35	a 220	2,560	70	a 480	2,530	150	a 1,000
15	2,580	57	a 400	2,740	65	481	2,480	135	904
16	2,690	65	472	2,730	80	a 590	2,600	240	a 1,700
17	2,850	73	a 560	2,600	60	421	2,600	220	a 1,500
18	2,710	38	278	2,560	60	a 410	2,490	150	a 1,000
19	2,510	40	a 270	2,510	60	a 410	2,620	225	a 1,590
20	2,530	200	1,370	2,510	40	271	2,800	260	a 2,000
21	2,440	95	a 630	2,360	35	a 220	3,060	295	2,440
22	2,490	65	a 440	2,420	35	a 230	3,040	280	a 2,300
23	2,600	77	541	2,550	60	a 410	3,140	550	4,660
24	2,550	60	a 410	2,580	90	627	3,330	770	a 6,900
25	2,420	53	346	3,000	680	a 5,500	3,440	880	a 8,200
26	2,410	60	a 390	2,740	640	a 4,700	3,860	1,100	11,500
27	2,510	140	949	2,410	610	3,970	4,380	2,700	a 32,000
28	2,650	400	a 2,900	2,410	330	a 2,100	5,040	4,280	58,200
29	3,000	1,400	a 11,000	2,480	125	837	4,930	3,700	a 49,000
30	2,820	1,290	9,820	--	--	--	4,380	1,840	21,800
31	2,620	760	a 5,400	--	--	--	4,040	1,400	a 15,000
Total	78,140	--	39,972	71,280	--	28,024	94,320	--	258,015

s Computed by subdividing day.

a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	4,310	1,700	a 20,000	7,670	1,370	28,400	25,900	1,300	90,900
2.....	4,800	1,980	25,700	6,960	1,030	19,400	27,500	1,380	102,000
3.....	5,610	2,500	a 38,000	7,220	960	18,700	28,400	1,310	100,000
4.....	5,330	1,680	24,200	8,510	1,520	34,900	30,000	1,730	140,000
5.....	4,630	1,200	a 15,000	10,500	2,520	71,400	28,300	1,290	98,600
6.....	3,880	920	9,640	12,400	3,460	116,000	27,500	1,080	80,200
7.....	3,920	930	a 9,800	14,700	4,300	171,000	26,300	1,080	76,700
8.....	3,860	950	a 9,900	17,000	4,630	213,000	22,700	1,110	68,000
9.....	3,660	625	6,180	18,500	3,930	196,000	20,800	1,000	56,200
10.....	3,900	630	a 6,600	18,500	2,830	141,000	19,600	920	48,700
11.....	4,000	800	a 8,600	16,400	2,080	92,100	19,000	960	49,200
12.....	4,330	1,240	14,500	13,800	1,650	61,500	19,100	950	49,000
13.....	4,710	1,400	a 18,000	12,500	1,340	45,200	18,000	800	38,900
14.....	5,220	1,600	a 23,000	13,000	1,240	43,500	16,700	830	37,400
15.....	6,070	2,000	a 33,000	12,500	1,130	38,100	15,700	880	37,300
16.....	6,210	2,060	34,500	11,300	1,010	30,800	14,400	710	27,600
17.....	5,650	1,500	a 23,000	9,980	970	26,100	12,700	650	22,300
18.....	5,510	1,310	19,500	10,600	880	25,200	11,400	700	21,500
19.....	5,880	1,400	a 22,000	13,200	1,490	53,100	10,100	550	15,000
20.....	5,860	1,300	20,600	17,400	2,090	98,200	9,420	510	13,000
21.....	5,930	1,400	a 22,000	19,100	2,250	116,000	8,920	510	12,300
22.....	6,520	1,800	a 32,000	21,800	2,990	176,000	8,110	430	9,420
23.....	7,360	2,550	50,700	23,500	2,890	183,000	7,460	420	8,460
24.....	8,430	3,210	73,100	23,900	2,630	170,000	6,920	450	8,410
25.....	8,490	2,740	62,800	24,900	2,330	157,000	6,260	325	5,490
26.....	8,060	1,980	43,100	25,100	2,110	143,000	5,770	275	4,280
27.....	8,780	2,030	48,100	25,300	1,750	120,000	5,330	770	11,100
28.....	9,840	2,700	71,700	23,900	1,460	94,200	4,960	250	3,350
29.....	9,810	2,510	66,500	21,300	1,320	75,900	4,360	200	2,350
30.....	8,730	1,880	44,300	21,700	1,210	70,900	4,120	140	1,560
31.....	--	--	--	23,700	1,260	80,600	--	--	--
Total.	179,290	--	896,020	506,840	--	2,910,200	465,730	--	1,239,220

Day	July			August			September		
1.....	4,190	200	2,260	2,960	22,400	179,000	1,300	85	298
2.....	4,710	2,170	s 27,800	2,670	12,400	89,400	1,290	75	a 260
3.....	5,770	7,200	112,000	3,000	4,400	35,600	1,230	68	226
4.....	5,400	4,150	60,500	3,290	1,500	13,300	1,160	65	204
5.....	5,130	2,250	31,200	2,910	830	6,520	1,120	70	212
6.....	4,540	784	9,610	2,510	639	4,330	1,070	69	199
7.....	3,840	291	3,020	2,170	490	2,870	1,000	68	184
8.....	3,560	200	1,920	1,840	282	1,400	1,050	78	221
9.....	3,360	102	925	1,480	190	759	1,240	105	352
10.....	2,820	80	609	1,320	112	399	1,310	105	371
11.....	2,550	70	482	1,350	125	456	1,300	98	344
12.....	2,440	67	441	1,170	139	439	1,280	88	304
13.....	2,440	52	343	1,110	75	225	1,310	80	283
14.....	2,370	220	1,410	1,070	85	246	1,350	82	299
15.....	2,550	2,030	14,000	1,060	95	272	1,330	72	259
16.....	2,420	480	3,140	1,800	2,380	s 15,700	1,360	82	a 300
17.....	2,290	150	927	2,850	19,900	s 151,000	1,370	78	289
18.....	2,420	124	810	2,980	7,900	63,600	1,420	68	261
19.....	2,190	98	579	2,270	6,000	36,800	1,380	80	298
20.....	1,960	92	487	2,260	9,350	57,100	1,380	112	417
21.....	1,700	88	404	2,120	5,250	30,100	1,430	95	367
22.....	1,590	79	339	1,910	1,250	6,450	1,460	88	347
23.....	1,550	225	942	1,870	675	3,410	1,480	82	328
24.....	1,470	120	476	1,820	415	2,040	1,550	88	368
25.....	1,480	90	360	1,660	265	1,190	1,590	110	472
26.....	1,470	75	298	1,560	195	821	1,630	115	506
27.....	1,500	3,680	14,900	1,380	160	596	1,630	110	484
28.....	1,660	320	1,430	1,360	128	470	1,670	118	532
29.....	2,120	320	1,830	1,380	113	421	1,690	125	570
30.....	2,120	300	1,720	1,410	118	449	1,700	122	560
31.....	3,190	6,150	s 57,000	1,320	102	364	--	--	--
Total.	86,800	--	352,162	59,860	--	705,727	41,080	--	10,115

Total discharge for year (cfs-days)..... 1,817,250
Total load for year (tons)..... 6,632,103

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 suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 26, 1956	6:40 p.m.	7,980	57	1,820	2,760		29		49	67	77	89	99		100		SPWCM
May 3	6:30 p.m.	7,360	62	944	5,040		21		37	48	64	81	98		100		SPWCM
May 10	7:00 p.m.	18,300	54	2,450	3,560		24		42	55	69	85	99		100		SPWCM
May 23	6:30 p.m.	24,000	60	3,090	5,800		23		39	54	69	83	94		100		SPWCM
June 2	11:30 a.m.	28,200	60	1,440	3,200		20		30	44	65	81	98		100		SPWCM
June 12	7:25 p.m.	19,000	66	950	4,540		9		15	21	33	48	79		91	99	SPWCM
July 2	12:20 p.m.	4,930	69	5,220	3,700		62		91	97	98	98	100		--		SPWCM
July 3	7:50 a.m.	5,420	68	5,950	4,310		61		93	94	99	99	100		--		SPWCM
July 4	7:25 a.m.	5,440	67	2,270	5,040		55		85	95	96	98	100		--		SPWCM
July 5	7:35 a.m.	5,040	68	2,380	4,730		56		89	94	98	99	100		--		SPWCM
July 31	7:40 a.m.	3,210	72	13,900	4,380		57		88	97	100	--	--		--		SPWCM
Aug. 1	7:40 a.m.	2,740	71	11,800	4,040		67		96	100	--	--	--		--		SPWCM
Aug. 2	7:50 a.m.	2,620	71	7,840	4,170		71		98	99	100	--	--		--		SPWCM
Aug. 3	7:45 a.m.	2,850	69	4,460	5,120		70		94	98	99	100	--		--		SPWCM
Aug. 17	9:40 a.m.	2,820	69	18,400	5,300		67		94	98	100	--	--		--		SPWCM
Aug. 19	8:10 a.m.	2,320	68	6,160	3,280		70		92	99	99	100	--		--		SPWCM
Aug. 19	7:25 p.m.	2,170	73	6,040	3,860		82		98	100	--	--	--		--		SPWCM
Aug. 20	7:25 p.m.	2,090	73	7,490	3,960		83		97	99	100	--	--		--		SPWCM
Sept. 8	8:45 a.m.	1,000	68	62	593	39	69	81	88	93	97	99	100		--		SBWCM

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 1956.
Water temperatures: May 1951 to September 1956.
Sediment records: May 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 855 ppm Nov. 15-20; minimum, 171 ppm June 11-20.
Hardness: Maximum, 420 ppm Nov. 15-20; minimum, 129 ppm June 11-20.
Specific conductance: Maximum daily, 1,240 micromhos Nov. 19; minimum daily, 264 micromhos June 17.
Water temperatures: Maximum, 75°F July 24; minimum, freezing point on many days during November to March.
Sediment concentrations: Maximum daily, 3,870 ppm Mar. 26; minimum daily, 7 ppm Sept. 24.
Sediment loads: Maximum daily, 48,000 tons May 29; minimum daily, 11 tons Sept. 24.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 855 ppm Nov. 15-20, 1955; minimum, 159 ppm June 21-30, 1953, May 21-31, 1954.
Hardness: Maximum, 420 ppm Nov. 15-20, 1955; minimum, 114 ppm July 1-10, 1954.
Specific conductance: Maximum daily, 1,240 micromhos Dec. 13, 1953, Nov. 19, 1955; 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, 3,870 ppm Mar. 26, 1956; minimum daily, 6 ppm Jan. 21-31, 1954.
Sediment loads: Maximum daily, 48,000 tons May 29, 1956; minimum daily, 6 tons Jan. 6-10, 1955.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. Flow affected by ice Nov. 13-25, Dec. 2-6, 14-16, Dec. 29 to Jan. 5, Jan. 28 to Mar. 12, Mar. 16-27.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	532	11		59	25	64	1.9	172	231	8.8		0.2	--	501	0.68	720	250	109	36	1.8	732	7.8
Oct. 11-20.....	516	12		60	26	67	1.9	173	247	9.2		.3	0.09	529	.72	737	256	114	36	1.8	769	8.1
Oct. 21-31.....	542	11		62	27	68	1.9	177	253	9.2		.1	--	542	.74	793	266	120	36	1.8	781	7.7
Nov. 1-10.....	548	12		66	27	66	1.9	192	246	8.8		.2	--	546	.74	808	276	118	34	1.7	788	7.9
Nov. 11-14.....	578	14		69	26	57	1.9	212	217	8.3		.5	.12	518	.70	808	279	106	31	1.5	759	8.1
Nov. 15-20.....	245	15		98	43	121		254	439	14		.4	--	a 855	1.16	566	420	212	38	2.6	1,200	8.1
Nov. 21-30.....	509	17		72	30	63	2.0	221	231	11		1.0	--	540	.73	742	303	122	31	1.6	793	7.9
Dec. 1-10.....	480	17		72	31	73	1.8	207	269	12		1.1	--	588	.80	759	307	138	34	1.8	844	7.7
Dec. 11-20.....	499	16		79	32	73	2.0	229	270	12		1.1	.08	602	.82	811	328	141	32	1.8	870	7.8
Dec. 21-31.....	892	15		62	26	57	2.5	185	211	11		1.5	--	488	.66	1,180	262	110	32	1.5	710	7.7
Jan. 1-10, 1956 ..	801	14		72	28	57	2.6	213	223	9.0		.5	.04	517	.70	1,120	294	120	29	1.4	768	8.2
Jan. 11-20.....	717	13		66	25	57	1.6	193	212	7.8		.4	.03	481	.65	931	268	110	32	1.5	723	8.0
Jan. 21-31.....	550	11		70	27	57	1.6	204	220	8.2		.5	.02	506	.69	751	286	118	30	1.5	736	8.0
Feb. 1-10.....	363	11		76	29	61	2.3	224	236	9.0		.7	.27	545	.74	534	308	125	30	1.5	810	7.8
Feb. 11-20.....	539	12		72	26	51	1.4	208	206	7.0		1.0	.02	482	.66	701	286	116	28	1.3	719	7.7
Feb. 21-29.....	598	11		66	25	50	1.6	190	202	7.1		.8	--	461	.63	744	268	112	29	1.3	700	8.1

a Calculated from determined constituents.

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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. 1-10, 1956..	1,031	11		65	23	49	1.6	186	188	7.6		1.1	--	442	0.60	1,230	256	104	29	1.3	678	7.5
Mar. 11-20.....	1,050	9.8		66	26	59	1.6	188	223	8.4		.7	0.06	495	.67	1,400	272	118	32	1.6	748	7.6
Mar. 21-31.....	2,264	15		53	16	43	3.3	184	124	7.9		1.7	--	358	.49	2,190	198	47	32	1.3	562	7.5
Apr. 1-10.....	1,940	13		62	21	32	3.5	199	132	7.8		.8	--	378	.51	1,980	241	78	22	.9	589	7.4
Apr. 11-20.....	2,305	13		60	21	27	2.6	210	109	6.8		1.4	.05	349	.47	2,170	236	64	20	.8	555	7.7
Apr. 21-30.....	3,745	12		55	19	16	2.6	207	72	4.8		.9	--	293	.40	2,960	215	46	14	.5	479	7.2
May 1-10.....	2,969	12		57	18	21	2.0	209	79	4.0		1.2	--	310	.42	2,490	215	44	17	.6	478	7.9
May 11-20.....	2,766	12		59	19	23	1.9	211	90	4.8		1.2	.05	322	.44	2,400	226	53	18	.7	502	8.2
May 21-31.....	8,976	14		45	13	15	2.1	171	54	3.2		1.1	--	242	.33	5,860	168	28	16	.5	380	7.7
June 1-10.....	12,480	11		37	12	12	2.0	153	38	2.5		1.2	--	194	.26	6,540	142	17	15	.4	316	7.5
June 11-20.....	10,140	9.3		34	10	10	1.4	142	29	2.2		1.1	.04	171	.23	4,680	129	13	14	.4	280	7.9
June 21-30.....	5,354	9.9		38	14	15	1.4	160	44	3.6		1.1	--	204	.28	2,950	152	21	17	.5	341	7.8
July 1-10.....	4,083	11		39	13	16	1.4	164	50	3.6		.9	--	217	.30	2,390	152	18	19	.6	357	7.8
July 11-20.....	2,969	10		40	14	19	1.6	168	58	4.2		.7	.05	232	.32	1,860	158	20	21	.7	377	7.7
July 21-31.....	2,599	9.5		43	13	22	1.6	166	68	3.6		.6	--	244	.33	1,710	162	26	23	.8	392	7.8
Aug. 1-10.....	2,215	9.2		42	14	24	1.6	160	78	4.4		.9	--	252	.34	1,510	164	33	24	.8	412	7.9
Aug. 11-20.....	1,465	8.8		45	15	28	1.3	155	97	4.5		.3	.04	282	.38	1,120	172	45	26	.9	442	8.2
Aug. 21-31.....	1,167	8.42		49	17	36	1.8	160	126	6.0		.1	--	332	.45	1,050	192	61	29	1.1	506	7.8
Sept. 1-10.....	810	7.8		53	18	41	1.8	164	147	5.8		.4	--	368	.50	805	208	74	30	1.2	554	7.9
Sept. 11-20.....	698	7.6		56	21	50	2.2	172	176	7.0		.2	.10	420	.57	792	226	85	32	1.5	621	7.8
Sept. 21-30.....	579	7.7		59	22	54	2.2	178	192	7.5		.2	--	450	.61	703	240	94	33	1.5	658	7.9
Weighted average	2,232	11		47	16	24	1.9	172	85	4.5		1.0	--	281	0.38	1,690	184	42	22	0.8	441	--

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1955 to September 1956

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	566			566			580		
2	559			498			540		
3	545	24	35	492	24	33	520	11	16
4	531			486			500		
5	524			531			470		
6	510			573			440	--	a 20
7	517			573			415	--	a 20
8	524	13	18	552	60	94	420	--	a 20
9	524			531			440	31	38
10	524			680			480		
11	524			680			480		
12	517			644			486		
13	517	13	18	540	36	49	510	22	29
14	524			450			500		
15	517			200			500		
16	517			170	--	a 30	500		
17	517			220	--	a 30	480		
18	510	14	19	250			480	56	76
19	510			300	50	40	510		
20	510			330			545		
21	524			360			559		
22	545			390			580		
23	538	37	54	420	48	55	628	36	63
24	538			450			710		
25	545			500			786		
26	545			566			955	--	a 330
27	545			604			1,120		
28	538	22	32	612	46	74	1,290		
29	545			612			1,180	213	643
30	545			580			1,050		
31	552			--	--	--	950		
Total	16,447		912	14,360		1,705	19,604		4,601

Day	January			February			March		
1	850			300			650	38	67
2	760			300			680	20	37
3	700	16	32	310	19	16	730	428	844
4	660			330			800	810	1,750
5	720			350			900	550	1,340
6	838	--	a 80	370			1,400	380	b 1,400
7	903	--	a 580	400			1,350	135	492
8	864	63	147	400	42	46	1,300	78	274
9	903	240	585	420			1,250	40	135
10	812	26	57	450			1,250	25	84
11	786			470			1,200	35	113
12	690			500			1,100	43	128
13	670	33	62	530	23	32	1,050	58	164
14	680			540			1,000	52	140
15	660			550			980	45	119
16	680	51	94	560			970	41	107
17	660	23	41	560			980	31	82
18	825	26	58	560	16	24	1,000	75	202
19	825	19	42	560			1,070	360	1,040
20	690	23	43	560			1,150	1,010	3,140
21	690			570			1,250	1,280	4,320
22	660			580			1,400	1,900	7,180
23	620	22	39	580	20	32	2,100	2,760	15,600
24	660			590			3,000	2,790	22,600
25	670			600			3,000	2,980	24,100
26	628			600			2,800	3,870	29,300
27	559			610	23	38	2,600	3,030	21,300
28	500	14	17	620			2,400	1,910	12,400
29	400			630			2,250	1,060	6,440
30	350			--	--	--	2,100	800	4,540
31	310			--	--	--	2,000	530	2,860
Total	21,223	--	2,494	14,400	--	902	45,710	--	162,298

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

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	1,900	375	1,920	3,500			11,600	400	12,500
2	1,950	490	2,580	3,200			10,800	260	7,580
3	2,250	520	3,160	3,000	129	1,070	11,000	259	7,690
4	2,100	450	2,550	2,850			13,000	275	9,650
5	2,000	228	1,230	2,750			13,100	335	11,800
6	1,950	172	906	2,750			13,900	343	12,900
7	1,850	135	674	2,850			14,000	306	11,600
8	1,800	129	627	2,970	122	948	13,700	268	9,910
9	1,800	91	442	2,970			12,500	254	8,570
10	1,800	97	471	2,850			11,200	188	5,690
11	1,800	129	627	2,950			10,200	241	6,640
12	1,850	159	794	3,070			9,960	203	5,460
13	1,900	194	995	3,140	117	936	9,960	224	6,020
14	2,250	189	1,150	2,850			10,240	211	5,830
15	2,350	167	1,060	2,800			10,700	188	5,430
16	2,300	164	1,020	2,700			10,900	182	5,360
17	2,300	146	907	2,600			10,800	191	5,570
18	2,500	293	1,980	2,550	49	340	10,500	163	4,620
19	2,700	326	2,380	2,500			9,750	133	3,500
20	3,100	198	1,660	2,500			8,360	162	3,660
21	3,050	167	1,380	3,000	174	1,410	6,890	193	3,590
22	3,150	333	2,830	4,000	360	3,890	6,380	201	3,460
23	3,350	478	4,320	5,700	1,310	20,200	6,200	192	3,210
24	3,600	457	4,440	6,680	1,170	21,100	6,000	168	2,720
25	3,900	427	4,500	7,700	1,490	31,000	5,240	153	2,160
26	4,200	362	4,100	9,160	1,350	33,400	4,800	168	2,180
27	4,300	259	3,010	10,800	1,120	32,700	4,590	151	1,870
28	4,200	238	2,700	11,900	1,010	32,500	4,510	92	1,120
29	4,000	191	2,060	14,000	1,270	48,000	4,480	91	1,100
30	3,700	195	1,950	13,200	480	17,100	4,450	92	1,110
31	--	--	--	12,600	520	17,700	--	--	--
Total	79,900	--	58,423	156,090	--	275,470	279,710	--	172,500

Day	July			August			September		
1	4,510	78	950	2,760	505	3,760	950	15	38
2	4,650	67	841	2,660	158	1,130	950	15	38
3	4,970	103	1,380	2,560	1,000	6,910	901	13	32
4	4,910	93	1,230	2,380	260	1,670	878	14	33
5	4,510	80	974	2,240	70	423	830	11	25
6	4,080	55	606	2,150	56	325	794	11	24
7	3,680	69	686	2,040	63	347	750	10	20
8	3,340	57	514	1,880	51	259	700	11	21
9	3,120	51	430	1,780	37	178	680	8	15
10	3,060	50	413	1,700	34	156	670	11	20
11	2,990	47	379	1,620	31	136	710	17	33
12	2,990	75	605	1,600	30	130	730	49	97
13	3,160	43	367	1,550	36	151	770	43	89
14	3,190	49	422	1,490	26	105	760	33	68
15	3,120	43	362	1,460	21	83	720	19	37
16	3,020	32	261	1,400	24	91	690	14	26
17	2,950	32	255	1,340	24	87	670	16	29
18	2,850	27	208	1,320	20	71	652	13	23
19	2,760	23	171	1,320	19	68	643	10	17
20	2,660	21	151	1,550	30	126	634	10	17
21	2,620	18	127	1,420	60	230	607	11	18
22	2,600	120	842	1,380	29	108	589	8	13
23	2,910	2,890	22,700	1,340	21	76	580	9	14
24	2,700	290	2,110	1,260	17	58	573	7	11
25	2,580	75	522	1,190	16	51	580	10	16
26	2,540	91	624	1,120	15	45	580	11	17
27	2,460	49	325	1,080	16	47	589	12	19
28	2,420	72	470	1,050	16	45	573	12	19
29	2,420	76	497	1,040	14	39	559	10	15
30	2,540	673	4,620	1,010	14	38	559	9	14
31	2,800	2,100	15,900	950	16	41	--	--	--
Total	99,110	--	59,942	49,640	--	16,984	20,871	--	858

Total discharge for year (cfs-days) 817,065
Total load for year (tons) 757,089

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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 24, 1956....	5:00 p.m.	6,860	62	1,080	3,890	--	24	--	44	57	70	83	96		99	100	SPWCM
May 27.....	8:45 a.m.	10,200	60	1,110	4,190	--	22	--	35	44	54	66	84		96	100	SPWCM
May 29.....	2:15 p.m.	14,400	59	1,390	2,770	--	43	--	61	67	71	79	88		97	100	SPWCM
May 31.....	2:15 p.m.	12,500	64	523	2,430	--	36	--	47	55	60	67	78		94	100	SPWCM
June 5.....	3:00 p.m.	13,200	60	310	2,660	--	27	--	44	50	59	70	83		95	100	SPWCM
June 7.....	3:00 p.m.	14,000	60	305	2,270	--	23	--	37	44	54	62	77		92	100	SPWCM
June 16.....	2:00 p.m.	11,000	58	185	1,410	--	27	--	37	43	55	66	81		96	100	SPWCM
July 31.....	10:05 a.m.	2,870	66	1,380	4,450	--	59	--	99	99	99	99	100		--	--	SPWCM
Aug. 1.....	3:20 p.m.	2,660	72	108	1,300	33	45	60	78	89	93	96	98		100	--	SBWCM
Aug. 3.....	9:00 a.m.	2,600	62	1,590	3,200	--	70	--	93	99	99	100	--		--	--	SPWCM
Aug. 4.....	9:15 a.m.	2,440	68	348	5,470	--	71	--	93	98	98	99	99		100	--	SPWCM
Aug. 21.....	10:45 a.m.	1,420	65	64	887	54	78	85	91	94	96	98	100		--	--	SBWCM

BLACKS FORK NEAR MARSTON, WYO.

LOCATION.--At Bonomo Ranch, approximately 5 miles south of U. S. Highway 30, 12 miles west of 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 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,620 ppm Oct. 20-23; minimum, 305 ppm Apr. 17-20.
Hardness: Maximum, 966 ppm Nov. 11-20; minimum, 208 ppm Apr. 17-20.
Specific conductance: Maximum daily, 3,910 micromhos Oct. 22; minimim daily, 476 micromhos Apr. 19.
Water temperatures: Maximum, 79°F July 18-19, Aug. 1-2; minimum, 33°F Nov. 14-15, 18, Feb. 4.
EXTREMES, 1951-56.--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, 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. 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 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955..	7.2	23	0.01	51	17	280	4.7	166	540	79	0.8	2.3	0.30	1,080	1.47	21.0	197	61	75	8.7	1,600	8.2
Oct. 11-19	.7	13	.01	70	31	359	6.0	123	806	113	.7	1.2	.37	1,460	1.99	2.76	302	201	72	9.0	2,100	7.6
Oct. 20-23	3.0	9.9	.00	202	97	483	8.1	112	1,600	161	.6	2.7	.53	2,620	3.56	21.2	903	811	53	7.0	3,350	7.4
Oct. 27-31	10.8	9.8	.01	172	79	319	5.0	199	1,110	104	.4	.6	.42	1,900	2.58	55.4	754	591	48	5.0	2,500	7.8
Nov. 1-10	16.6	9.2	.02	157	77	280	4.6	200	993	98	.5	.8	.35	1,720	2.34	77.1	798	554	46	4.6	2,290	7.7
Nov. 11-20	17.5	14	.03	216	104	374	5.7	313	1,320	134	.6	1.0	.45	2,320	3.16	110	966	710	45	5.2	3,000	7.8
Nov. 21-27	27.9	15	.02	166	75	254	3.7	248	901	96	.5	9.9	.31	1,640	2.23	124	722	520	43	4.1	2,170	8.1
Nov. 28-Dec. 1-10.....	33.8	17	.01	129	52	189	3.5	254	606	81	.4	10	.25	1,210	1.65	110	536	328	43	3.6	1,680	7.9
Dec. 11-20	55.0	14	.01	139	55	165	3.2	269	593	73	.4	8.6	.24	1,180	1.60	175	573	352	38	3.0	1,640	7.9
Dec. 21-31	90.0	15	.04	80	30	124	3.5	208	318	61	.5	14	.18	748	1.02	182	323	152	45	3.0	1,130	7.8
Jan. 1-10, 1956	88.5	15	.02	108	40	111	4.6	276	349	65	.5	9.2	.18	838	1.14	200	434	208	35	2.3	1,230	7.8
Jan. 11-20	88.0	12	.04	104	39	112	3.2	264	357	66	.4	.8	.18	818	1.11	194	420	204	36	2.4	1,200	7.8
Jan. 21-31	86.4	12	.02	108	40	122	4.0	275	356	71	.4	1.1	.21	850	1.16	198	434	208	38	2.5	1,250	7.8
Feb. 1-10	76.5	14	.02	138	52	154	5.0	329	489	86	.4	1.5	.25	1,100	1.50	227	558	289	37	2.8	1,570	7.8
Feb. 11-20	79.5	13	.03	137	54	173	5.6	316	543	92	.4	1.7	.29	1,180	1.60	253	564	305	40	3.3	1,660	7.8
Feb. 21-29	87.2	13	.01	131	48	140	4.5	310	461	74	.5	1.1	.23	1,030	1.40	243	524	270	36	2.7	1,470	7.5
Mar. 6-10.....	122	15	.01	59	16	87	2.8	179	193	39	.4	3.3	.14	504	.69	166	213	66	47	2.6	769	8.1
Mar. 11-20.....	229	15	.00	71	21	99	3.2	195	240	54	.4	2.8	.15	601	.82	372	263	103	45	2.6	909	7.9
Mar. 21-31.....	1,050	16	.04	56	21	60	5.3	214	127	40	.4	2.6	.15	433	.59	1,230	224	49	36	1.7	678	7.8

GREEN RIVER BASIN--Continued

BLACKS FORK NEAR MARSTON, WYO.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 (calculated)			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, 1956 .	449	15	0.00	76	24	62	4.4	233	169	46	0.4	2.0	0.14	514	0.70	623	289	98	31	1.6	798	7.9
Apr. 11-16	409	15	.00	78	26	66	4.0	247	172	49	.4	1.2	.12	534	.73	590	300	97	32	1.6	830	7.9
Apr. 17-20	648	15	.00	57	16	26	2.6	204	68	18	.3	2.0	.10	305	.41	534	208	41	21	.8	485	8.0
Apr. 21-30	941	13	.10	61	16	26	3.3	214	73	18	.4	1.4	.06	317	.43	805	217	42	20	.8	512	7.6
May 1-10	918	13	.04	62	16	30	2.8	219	79	21	.4	1.0	.06	333	.45	825	220	40	23	.9	533	7.8
May 11-20.....	862	14	.01	63	17	36	2.8	218	93	24	.4	1.6	.10	359	.49	836	227	48	25	1.0	571	7.9
May 21-31.....	1,940	15	.03	56	17	41	3.0	200	103	23	.4	1.4	.12	359	.49	1,880	211	47	29	1.2	559	7.6
June 1-10	1,610	13	.01	62	18	45	2.8	200	130	23	.4	1.3	.14	395	.54	1,720	228	64	30	1.3	613	7.6
June 11-21.....	695	12	.01	86	25	70	3.1	238	226	32	.2	1.0	.14	572	.78	1,070	317	122	32	1.7	861	8.0
June 22-30, July 1-5	192	12	.01	112	41	127	3.5	246	441	52	.4	1.1	.20	911	1.24	472	450	248	38	2.6	1,290	7.8
July 6-14.....	82.4	12	.02	141	54	198	4.7	222	703	66	.5	1.2	.29	1,290	1.75	287	576	394	43	3.6	1,750	7.9
July 15-20.....	33.0	11	.03	156	65	248	6.0	196	892	86	.7	.4	.38	1,560	2.12	139	654	493	45	4.2	2,100	7.6
July 21-31.....	22.0	11	.03	186	84	315	6.2	178	1,140	104	.6	.5	--	1,940	2.64	115	808	662	46	4.8	2,570	7.7
Aug. 1-10	80.9	9.1	.02	107	47	182	4.4	172	592	62	.6	.9	--	1,090	1.48	238	460	319	46	3.7	1,560	7.9
Aug. 11-18	12.4	8.2	.00	106	48	204	4.5	163	641	74	.6	1.3	.33	1,170	1.59	39.2	460	318	49	4.1	1,640	8.4
Aug. 29	.8	4.7	.00	127	69	283	5.1	167	904	117	.5	.3	.40	1,590	2.16	3.43	598	461	50	5.0	2,170	7.4
Weighted average	a344	14	0.03	70	22	59	3.4	217	167	32	0.4	1.8	0.13	476	0.65	442	265	87	32	1.6	725	--

a Represents 99 percent of runoff for water year October 1955 to September 1956.

GREEN RIVER BASIN--Continued

BLACKS FORK NEAR GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

GREEN RIVER BASIN--Continued

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 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,640 ppm Sept. 21-30; minimum, 436 ppm June 1-11.
Hardness: Maximum, 1,580 ppm Sept. 21-30; minimum, 290 ppm May 21-31, June 1-11.
Specific conductance: Maximum daily, 3,040 micromhos Sept. 8, 26-27, 30; minimum daily, 516 micromhos June 6.
Water temperatures: Maximum, 63°F Aug. 26; minimum, freezing point on many days during November to March.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 2,640 ppm Sept. 21-30, 1956; minimum, 312 ppm June 1-6, 9-10, 1952.
Hardness: Maximum, 1,580 ppm Sept. 21-30, 1956; 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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955..	20.5	29		160	87	89	12	238	682	47		1.0	0.37	1,220	1.66	67.5	756	562	20	1.4	1,590	8.0
Oct. 11-20.....	20.8	31		164	91	89	12	242	701	44		1.0	.28	1,250	1.70	70.2	783	584	20	1.4	1,620	8.1
Oct. 21-31.....	18.7	30		157	85	81	12	260	635	41		.6	.35	1,170	1.59	59.1	741	528	19	1.3	1,530	7.9
Nov. 1-10.....	28.4	29		161	86	78	11	272	631	40		.7	.33	1,170	1.59	89.7	755	532	18	1.2	1,540	7.9
Nov. 11-20.....	27.6	27		164	82	76	11	297	600	38		.7	.20	1,140	1.55	85.0	746	502	18	1.2	1,510	7.9
Nov. 21-30.....	37.8	28		146	69	61	8.7	270	516	34		1.2	.26	997	1.36	102	648	426	17	1.0	1,360	8.1
Dec. 1-10.....	30.3	28		158	73	68	8.7	282	551	36		1.1	.29	1,060	1.44	86.7	694	463	17	1.1	1,430	8.1
Dec. 11-20.....	21.6	25		160	71	66	9.5	294	544	36		1.1	.28	1,060	1.44	61.8	691	450	17	1.1	1,420	8.0
Dec. 21-31.....	48.3	24		131	59	62	8.2	264	444	30		1.2	.24	889	1.21	116	570	353	19	1.1	1,230	7.9
Jan. 1-10, 1956..	35.6	25		155	67	62	8.2	296	501	34		.8	.28	999	1.36	96.0	662	420	17	1.1	1,360	8.0
Jan. 11-20.....	47.1	25		136	71	63	8.5	270	484	32		.3	.25	953	1.30	121	632	410	18	1.1	1,300	7.5
Jan. 21-31.....	31.1	22		118	70	64	8.2	212	485	32		.3	.22	904	1.23	75.9	582	409	19	1.2	1,230	7.8
Feb. 1-10.....	26.7	24		132	72	66	8.3	236	509	35		.6	.23	963	1.31	69.4	626	432	18	1.1	1,310	7.6
Feb. 11-20.....	42.2	22		125	65	56	7.2	238	445	30		.4	.20	868	1.18	98.9	580	384	17	1.0	1,190	7.7
Feb. 21-29.....	60.9	21		129	65	53	7.2	246	441	30		.7	.19	868	1.18	143	590	388	16	1.0	1,200	7.6
Mar. 1-10.....	68.0	21		116	54	64	8.8	216	416	28		1.8	.18	816	1.11	150	512	334	21	1.2	1,130	7.7
Mar. 11-17.....	60.0	23		129	65	62	8.7	250	459	32		1.5	.18	903	1.23	146	590	384	18	1.1	1,240	7.7
Mar. 18-29.....	93.0	23		95	34	42	9.5	217	262	20		2.4	.12	595	.81	149	377	199	19	.9	864	7.4
Mar. 30-31, Apr. 1-10.....	78.4	20		115	55	53	7.7	266	364	29		.8	.17	776	1.06	164	513	295	18	1.0	1,090	7.7

Apr. 11-20, 1956 .	72.4	18		106	50	48	7.2	259	318	26		.2	.19	701	0.95	137	470	258	18	1.0	1,010	7.8
Apr. 21-30.....	64.2	23		90	50	48	7.4	224	307	28		1.8	--	665	.90	115	430	246	19	1.0	960	7.8
May 1-15.....	32.4	23		109	56	58	7.9	228	370	31		1.9	.19	760	1.03	66.5	480	293	20	1.2	1,080	7.9
May 16-20	12.3	24		158	96	96	9.7	226	732	52		1.9	--	1,280	1.74	42.5	790	605	21	1.5	1,670	7.9
May 21-31	215	25		76	24	30	6.6	202	175	14		3.7	--	454	.62	264	290	124	18	.8	678	7.9
June 1-11	210	23		74	26	27	5.8	198	165	14		2.9	--	436	.59	247	290	128	16	.7	648	8.0
June 12-20	65.2	25		106	49	50	7.4	239	337	24		2.3	.22	719	.98	127	465	269	19	1.0	1,000	8.0
June 21-30	10.5	27		176	100	116	11	259	794	52		2.0	--	1,410	1.92	40.0	850	638	23	1.7	1,780	7.9
July 1-10.....	4.4	26		240	133	156	13	318	1,100	64		2.5	--	1,890	2.57	22.5	1,140	884	23	2.0	2,310	7.9
July 11-18	2.2	26		253	141	170	13	291	1,210	70		3.1	.56	2,030	2.76	12.1	1,210	971	23	2.1	2,440	7.8
July 19-31	1.5	26		281	141	178	14	339	1,240	72		2.3	--	2,120	2.88	8.59	1,280	1,000	23	2.2	2,560	7.8
Aug. 1-10.....	.8	25		321	147	193	14	398	1,370	77		2.3	--	2,350	3.20	5.08	1,400	1,080	23	2.2	2,760	7.8
Aug. 11-20.....	.6	25		309	156	186	14	383	1,330	74		.7	.58	2,280	3.10	3.69	1,410	1,100	22	2.2	2,750	7.7
Aug. 21-31.....	.5	25		324	152	189	16	362	1,350	76		.5	--	2,310	3.14	3.12	1,430	1,140	22	2.2	2,750	7.8
Sept. 1-10	.2	24		323	167	231	16	358	1,540	84		.7	--	2,560	3.48	1.38	1,490	1,200	25	2.6	2,960	7.7
Sept. 11-20.....	.2	25		323	162	231	16	344	1,540	85		.6	.50	2,550	3.47	1.38	1,470	1,190	25	2.6	2,950	7.7
Sept. 21-30.....	.4	24		355	169	231	16	410	1,560	85		.4	--	2,640	3.59	2.85	1,580	1,240	24	2.5	3,020	7.6
Weighted average	42.6	24		110	51	51	7.9	234	359	26		1.8	--	745	1.01	85.5	484	292	18	1.0	1,040	--

GREEN RIVER BASIN--Continued

HENRYS FORK AT LINWOOD, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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 1956.
Water temperatures: November 1950 to September 1956.
Sediment records: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 545 ppm Sept. 21-30; minimum, 79 ppm June 1-10.
Hardness: Maximum, 214 ppm Sept. 21-30; minimum, 48 ppm June 1-10.
Specific conductance: Maximum daily, 940 micromhos Sept. 29; minimum daily, 106 micromhos June 9.
Water temperatures: Maximum, 77°F July 27, 28; minimum, freezing point Nov. 16.
Sediment concentrations: Maximum daily, 1,400 ppm Mar. 29; minimum daily, 2 ppm July 1.
Sediment loads: Maximum daily, 14,300 tons Apr. 21; minimum daily, 1 ton Sept. 17, 18.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 545 ppm Sept. 21-30, 1956; minimum, 72 ppm June 21-30, 1951.
Hardness: Maximum, 238 ppm Dec. 1-10, 1952; minimum, 45 ppm June 21-30, July 1-10, 1951.
Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94.3 micromhos June 19, 1953.
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, July 1, 1956.
Sediment loads: Maximum daily, 23,400 tons May 9, 1955; minimum daily, 1 ton Jan. 2 to Feb. 4, 1951, Sept. 17, 18, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. Stage-discharge relation affected by ice Nov. 15-17, 22-27, 29-30, Dec. 4-24, 29 to Jan. 14, Jan. 23 to Mar. 27.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	88.3	4.2		42	22	70	3.2	212	111	53		1.1	--	410	0.56	97.7	200	27	43	2.1	698	7.7
Oct. 11-20	128	4.8		42	20	59	3.2	200	95	41		1.6	0.10	358	.49	124	187	23	40	1.9	608	7.7
Oct. 21-31	178	6.1		42	19	50	2.7	196	85	33		.6	--	333	.45	160	183	22	37	1.6	560	7.6
Nov. 1-10.....	227	12		41	17	40	2.7	182	77	27		.7	--	296	.40	181	172	24	33	1.3	496	7.4
Nov. 11-20.....	276	13		42	18	42	2.7	180	79	28		.7	.10	307	.42	229	179	32	33	1.4	508	7.7
Nov. 21-30.....	284	14		42	17	40	2.7	184	80	23		.8	--	310	.42	238	175	24	33	1.3	509	8.0
Dec. 1-10.....	263	14		44	17	43	2.7	192	79	26		.8	--	316	.43	224	180	22	34	1.4	523	7.8
Dec. 11-20.....	298	14		42	16	39	2.7	188	68	26		1.1	.07	304	.41	245	171	17	33	1.3	502	7.4
Dec. 21-31.....	398	12		39	14	33	2.7	162	68	20		1.8	--	274	.37	294	155	22	31	1.2	446	7.6
Jan. 1-10, 1956..	316	11		44	17	37	2.7	184	83	22		1.0	--	314	.43	268	180	29	30	1.2	509	7.8
Jan. 11-20	275	11		42	16	42	2.2	180	82	26		1.5	.07	310	.42	230	171	24	34	1.4	517	7.7
Jan. 21-31	244	12		44	18	44	2.5	186	85	26		1.5	--	322	.44	212	184	32	34	1.4	535	8.0
Feb. 1-10.....	233	13		46	20	45	2.5	204	87	28		1.5	--	344	.47	216	197	30	33	1.4	560	8.1
Feb. 11-20.....	257	14		42	16	41	2.5	190	71	26		1.7	.06	309	.42	214	171	16	34	1.4	512	7.6
Feb. 21-29.....	249	14		42	17	43	2.5	188	75	27		2.2	--	314	.43	211	175	21	34	1.4	516	8.1
Mar. 1-10	277	12		46	16	37	3.5	164	100	20		2.5	--	323	.44	242	181	46	30	1.2	515	7.9
Mar. 11-20.....	279	11		48	17	41	3.5	178	102	22		2.2	.06	339	.46	255	190	44	31	1.3	549	7.6
Mar. 21-31.....	874	14		44	14	31	3.5	144	97	9.5		3.9	--	301	.41	710	168	50	28	1.0	459	7.6

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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. 1-13, 1956	1,595	14		43	16	28	2.8	144	94	10		4.1	--	295	0.40	1,270	174	56	26	0.9	455	7.4
Apr. 14-20.....	4,430	12		32	9.4	11	2.8	110	38	5.0		6.3	0.04	194	.26	2,320	118	28	16	.4	275	7.3
Apr. 21-30.....	5,618	17		28	7.3	9.3	2.2	103	29	3.0		3.4	--	164	.22	2,490	100	16	16	.4	237	7.8
May 1-10.....	5,880	15		25	6.3	7.3	1.8	94	20	2.5		2.7	--	138	.19	2,190	88	11	15	.3	206	7.4
May 11-20.....	5,180	12		18	5.1	6.2	1.3	77	15	3.0		1.7	.05	106	.14	1,480	66	3	17	.3	157	7.4
May 21-31	8,315	11		17	3.6	4.7	1.4	64	12	1.5		1.0	--	94	.13	2,110	58	6	14	.3	135	7.2
June 1-10.....	7,423	9.2		14	3.2	4.6	.9	52	9.8	2.5		1.1	--	79	.11	1,580	48	5	17	.3	112	7.1
June 11-19	4,217	8.1		14	3.2	6.4	1.1	55	12	4.5		.9	.06	85	.12	968	49	4	22	.4	128	6.8
June 20-30	1,688	9.4		18	5.8	12	1.3	77	21	9.0		.7	--	118	.16	538	69	6	27	.6	191	7.2
July 1, 6-10.....	713	9.8		26	8.8	20	2.0	108	34	15		1.6	--	173	.24	333	101	12	30	.9	285	7.1
July 12.....	436	9.3		60	14	36	--	178	--	22		3.6	--	--	--	--	207	61	27	1.1	545	7.2
July 13-20	476	8.0		31	9.2	24	2.1	123	40	18		1.0	.05	197	.27	253	116	15	30	1.0	329	7.2
July 21-31.....	308	3.9		35	12	30	2.6	145	56	22		1.5	--	240	.33	200	136	17	32	1.1	401	7.4
Aug. 1-10.....	423	7.4		42	13	28	3.5	169	54	16		2.5	--	256	.35	292	156	17	28	1.0	424	7.9
Aug. 11-19.....	189	4.5		42	14	43	3.5	172	67	30		2.0	.06	294	.40	150	162	21	36	1.5	494	7.7
Aug. 20-31.....	228	6.4		42	14	39	3.5	177	64	24		1.2	--	287	.39	177	162	17	34	1.3	471	8.0
Sept. 1-10	96.1	3.6		42	18	64	3.5	182	90	49		.9	--	364	.50	94.4	176	27	44	2.1	608	7.5
Sept. 11-20.....	54.2	3.5		43	21	95	4.1	188	132	78		.9	.11	473	.64	69.2	194	40	51	3.0	784	7.8
Sept. 21-30.....	42.5	3.5		55	18	114	4.5	206	151	90		1.5	--	545	.74	62.5	214	45	53	3.4	890	7.7
Weighted average	a1,430	12		24	7.0	12	1.8	92	29	6.3		2.1	--	149	0.20	575	89	14	22	0.5	226	--

a Represents 99 percent of runoff for water year October 1955 to September 1956.

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Suspended sediment, water year October 1955 to September 1956

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	87			244			320		
2	79			248			320		
3	83			212			320		
4	79	18	4	194	30	18	280	21	16
5	83			208			240		
6	85			212			200		
7	85			264			220		
8	87			244			200		
9	100			233			250		
10	115			212	32	21	280	16	11
11	120	22	7	216			250		
12	122			272			270		
13	128			302			300		
14	135	--	e 9	264			300		
15	132			250			250		
16	130			230	64	46	300	17	14
17	128	26	9	250			320		
18	130			298			330		
19	128			365			330		
20	128			316			330		
21	128			316	27	22	300	20	18
22	132			300			330		
23	149			280			360		
24	155			270			380		
25	158	34	15	260			410	49	52
26	188			260			480		
27	198			280	17	13	498		
28	198			307			469		
29	212		8	290			420	89	104
30	219	15		280			380		
31	216			--			350		
Total	4,117	--	270	7,877	--	720	9,987	--	1,064

Day	January			February			March		
	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	320	72	62	220			230		
2	310			180			240		
3	290			200			270	31	22
4	300			220	12	7	310		
5	320	20	17	240			360	40	a 39
6	350			250			250		
7	350			260			230		
8	330			280			280	50	a 37
9	300			250			300		
10	290			230	11	8	300		
11	270	22	17	250			270		
12	260			280			240	72	48
13	250			280			240		
14	250			270			240		
15	268			260			210		
16	316	72	55	250	11	8	240		
17	302			250			270	90	a 73
18	276			260			320		
19	284			240			400		
20	276	76	57	230			360		
21	280			240	11	7	320		
22	248			240			340	240	a 250
23	230	17	11	260			400		
24	220			270			480		
25	210			280			680	500	a 920
26	230			260	9	6	850	550	a 1,260
27	260			240			1,200	900	a 2,920
28	260	20	14	230			1,660	1,200	a 5,380
29	250			220			1,190	1,400	4,500
30	240			--	--	--	1,200	1,310	4,240
31	260			--	--	--	1,290	1,280	4,460
Total	8,600	--	792	7,140	--	210	15,170	--	25,622

e Estimated.

a Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	1,650	1,280	5,700	4,390	190	2,250	8,140	175	3,850
2.....	2,090	1,180	6,660	4,080	200	2,200	8,190	155	3,430
3.....	2,150	460	2,670	4,000	450	4,860	8,050	235	5,110
4.....	1,520	340	1,400	4,800	475	6,160	8,340	215	4,840
5.....	1,280	295	1,020	5,580	480	7,230	7,830	240	5,070
6.....	1,300	185	649	6,390	460	7,940	8,020	110	2,380
7.....	1,080	175	510	6,860	460	8,520	7,500	62	1,260
8.....	1,020	160	441	7,380	575	11,500	6,470	62	1,080
9.....	1,250	140	472	7,660	520	10,800	5,980	68	1,100
10.....	1,090	130	383	7,660	595	12,300	5,710	59	910
11.....	1,560	366	s1,840	6,900			5,300	73	1,040
12.....	2,220	865	5,180	5,660			5,350	64	924
13.....	2,530	810	5,530	5,260			4,990	61	822
14.....	3,230	755	6,580	5,280	136	1,900	4,650	60	753
15.....	3,670	690	6,840	4,350			4,350	53	622
16.....	3,760	740	7,510	3,610			3,950	53	565
17.....	4,690	915	11,600	3,500			3,540	50	478
18.....	4,980	885	11,900	4,630	170	2,140	3,050	45	371
19.....	5,100	830	11,400	5,860			2,770	43	322
20.....	5,580	935	14,100	6,750	280	5,100	2,620	30	212
21.....	5,640	940	14,300	7,290	300	5,900	2,400		
22.....	5,830	810	12,800	7,520	300	6,090	2,220		
23.....	5,980	525	8,480	8,190	325	7,190	1,930	14	74
24.....	6,040	490	7,990	8,890	325	7,800	1,710		
25.....	5,250	490	6,950	9,460	310	7,920	1,590		
26.....	5,560	435	6,530	9,610	295	7,650	1,500		
27.....	5,770	280	4,360	9,220			1,360		
28.....	5,830	155	2,440	8,340			1,200	9	30
29.....	5,470	155	2,290	7,500	184	4,020	1,070		
30.....	4,810	155	2,010	7,540			966		
31.....	--	--	--	7,900			--	--	--
Total	107,930	--	170,535	202,060	--	159,330	130,746	--	35,659

	July			August			September		
1.....	908	2	5	469	505	639	143	24	9
2.....	982	--	e 16	522	245	345	125	23	8
3.....	1,010	--	e 27	614	172	285	113	19	6
4.....	1,240	--	e 40	588	88	140	108	98	29
5.....	1,100	--	e 42	492	50	66	102	16	4
6.....	887			405	30	33	91	14	3
7.....	754			345	20	19	79	16	3
8.....	649	18	33	294	21	17	70	16	3
9.....	570			260	30	21	66	13	2
10.....	510			244	22	14	64	16	3
11.....	469	--	e 19	222	18	11	64	20	3
12.....	436	--	24	205	18	10	67	20	4
13.....	425	20	23	198	15	8	62	16	3
14.....	474	25	32	188	17	9	55	14	2
15.....	628	25	42	174	16	8	52	12	2
16.....	552	14	21	164	14	6	50	13	2
17.....	522	10	14	155	12	5	49	11	1
18.....	480	10	13	152	15	6	49	6	1
19.....	400	10	11	244	20	13	50	20	3
20.....	330	10	9	380	90	92	44	29	3
21.....	307	10	8	307	77	64	42	18	2
22.....	276	10	7	294	79	63	43	15	2
23.....	260	10	7	284	43	33	42	17	2
24.....	272	10	7	240	19	12	41	20	2
25.....	345	10	9	212	19	11	41	18	2
26.....	320	10	9	191	22	11	44	14	2
27.....	289	10	8	180	--	e 11	44	13	2
28.....	272	10	7	174	--	e 10	36	25	2
29.....	280	10	8	170	--	e 10	40	26	3
30.....	302	50	41	158	24	10	52	29	4
31.....	466	558	s723	152	23	9	--	--	--
Total	16,715	--	1,337	8,677	--	1,991	1,928	--	117

Total discharge for year (cfs - days) 520,947
Total load for year (tons) 397,647

e Estimated.
s Computed by subdividing day.

GREEN RIVER BASIN--Continued

YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Mar. 28, 1956.	4:00 p.m.	1,500	35	1,490	3,910		77		93	100	--	--	--				SPWCM
Apr. 22	3:00 p.m.	5,320	49	614	3,720		46		60	73	82	97	100				SPWCM
May 15	4:00 p.m.	4,220	51	96	1,750		50		72	91	98	100	--				SPWCM
June 11.....	6:00 p.m.	5,070	64	50	729	37	50	67	81	94	98	99	100				SBWCM

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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 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,180 ppm Aug. 1, minimum, 128 ppm June 1-10.
Hardness: Maximum, 309 ppm Oct. 11-20; minimum, 74 ppm June 1-10.
Specific conductance: Maximum daily, 1,800 micromhos Nov. 1; minimum daily, 157 micromhos June 5.
Water temperatures: Maximum, 87°F July 28; minimum, freezing point on many days during November to March.
EXTREMES, 1950-56.--Dissolved solids (1950-51, 1952-56): Maximum, 2,230 ppm July 24, 1955; minimum, 116 ppm June 11-20, 1953.
Hardness (1950-51, 1952-56): Maximum, 1,340 ppm July 24, 1955; minimum, 66 ppm June 11-20, 1953.
Specific conductance (1950-51, 1952-56): Maximum daily, 2,670 micromhos July 24, 1955; minimum daily, 146 micromhos June 17, 1953.
Water temperatures: Maximum, 88°F July 17, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955	2.5	17		85	19	210	4.8	230	445	74		0.9	--	969	1.32	6.54	290	102	61	5.4	1,420	8.0
Oct. 11-20	.5	19		86	23	189	4.8	228	432	68		.7	0.15	940	1.28	1.27	309	122	57	4.7	1,390	8.0
Oct. 21-31, Nov. 1-3	6.9	15		80	26	241	4.8	258	485	98		1.1	--	1,080	1.47	20.1	306	95	63	6.0	1,620	8.0
Nov. 4	40	--		--	--	--	--	262	204	44		2.4	--	--	--	--	194	0	--	--	945	8.0
Nov. 5-10	59.0	17		54	14	74	2.0	222	136	27		1.8	--	428	.58	68.2	192	10	45	2.3	682	8.0
Nov. 11-20	60.7	18		62	16	91	2.6	238	170	32		1.2	.12	508	.69	83.3	220	26	47	2.7	785	7.7
Nov. 21-30	105	22		54	13	64	1.9	217	117	22		1.4	--	403	.55	114	188	10	42	2.0	622	7.9
Dec. 1-10	82.0	22		57	14	78	2.4	229	135	32		1.4	--	456	.62	101	200	12	46	2.4	715	7.8
Dec. 11-20	97.0	24		59	15	61	2.4	238	115	20		1.3	.06	410	.56	107	208	14	39	1.8	642	7.9
Dec. 21-25, 27-31	238	20		45	8.7	62	2.4	200	91	21		1.8	--	348	.47	224	148	0	47	2.2	559	7.7
Dec. 26	350	20		--	--	--	--	232	163	70		1.0	--	--	--	--	130	0	--	--	881	7.8
Jan. 1-10, 1956	116	21		54	12	63	2.4	212	115	25		1.3	--	403	.55	126	184	10	42	2.0	626	7.7
Jan. 11-18	125	21		52	13	52	1.9	200	97	20		1.6	.05	361	.49	122	183	19	38	1.7	562	7.9
Jan. 19-31	109	21		57	12	79	2.6	213	126	38		1.6	--	453	.62	133	192	17	47	2.5	701	7.9
Feb. 1-10	72.0	27		68	19	80	2.8	265	145	38		1.6	--	520	.71	101	248	30	41	2.2	796	7.8
Feb. 11-20	96.0	24		58	14	52	2.1	220	101	18		1.3	.07	387	.53	100	202	22	36	1.6	595	7.8
Feb. 21-29	91.0	22		56	13	52	2.1	214	99	18		.8	--	374	.51	91.9	193	18	37	1.6	576	7.9
Mar. 1-10	709	16		48	9.2	54	2.9	190	86	19		2.5	--	341	.46	653	158	2	42	1.9	531	7.9
Mar. 11-20	798	15		51	9.8	66	2.9	190	100	33		2.4	.07	385	.52	830	168	12	46	2.2	600	7.7
Mar. 21-31	2,125	15		48	11	47	3.3	172	107	12		3.0	--	349	.47	2,000	165	24	38	1.6	520	7.7

GREEN RIVER BASIN--Continued

LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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. 1-12, 1956 ..	525	17		51	14	38	2.0	170	102	14		2.4	--	344	0.47	488	184	45	31	1.2	514	7.8
Apr. 13-20.....	1,020	17		39	10	23	2.0	146	58	7.8		2.4	0.04	252	.34	694	138	19	26	.8	372	7.5
Apr. 21-22, 24....	1,833	19		52	7.3	15	1.8	186	33	4.4		1.7	--	234	.32	1,160	160	7	17	.5	365	7.3
Apr. 2, 25-30.....	2,173	22		33	5.8	12	1.3	124	24	3.4		1.9	--	173	.24	1,020	106	4	19	.5	254	7.9
May 1-10	2,477	24		30	5.8	13	1.3	122	25	3.9		.6	--	172	.23	1,150	100	0	22	.6	248	7.8
May 11-20	2,223	20		26	5.1	8.5	1.3	102	17	2.6		.6	.08	140	.19	840	86	2	17	.4	197	7.9
May 21-26, 28-31..	2,848	16		26	3.2	8.8	1.3	100	16	2.4		.4	--	132	.18	1,020	78	0	19	.4	191	7.8
May 22-25, 27.....	3,368	18		32	3.9	17	1.8	132	21	4.9		.8	--	172	.23	1,560	96	0	27	.8	257	7.8
June 1-10.....	2,414	15		25	2.9	10	1.1	96	16	2.9		.6	--	128	.17	834	74	0	23	.5	184	7.6
June 11-21.....	879	15		26	5.1	15	1.4	106	26	4.5		.3	.04	158	.21	375	86	0	27	.7	231	7.6
June 22-30.....	243	16		38	8.0	35	2.6	156	62	11		.3	--	258	.35	169	128	0	37	1.3	398	7.8
July 1-5, 8-10.....	89.1	18		59	14	75	5.1	217	146	26		.8	--	471	.64	113	204	26	44	2.3	705	7.6
July 6-7.....	82.0	16		72	17	153	8.2	216	292	72		1.3	--	763	1.04	169	247	70	56	4.3	1,140	7.7
July 11-20	17.6	17		68	16	99	6.2	224	210	36		.6	.10	580	.79	27.6	235	51	47	2.8	868	7.8
July 21-31	124	17		71	17	112	6.3	200	258	45		.2	--	650	.88	218	244	80	49	3.1	961	7.8
Aug. 1.....	714	21		88	16	300	5.3	402	432	120		.6	--	a1,180	1.60	2,270	284	0	69	7.7	1,760	7.9
Aug. 2-10.....	168	19		55	7.3	161	3.9	258	240	49		1.0	--	656	.89	298	168	0	67	5.4	1,010	7.8
Aug. 11-20.....	9.8	18		75	15	165	5.0	242	324	57		.7	.12	774	1.05	20.5	248	50	59	4.5	1,160	8.2
Aug. 21-31.....	201	22		66	11	189	4.7	260	324	64		.3	--	803	1.09	436	210	0	66	5.7	1,220	8.1
Sept. 1-10	1.3	20		79	16	148	3.7	240	312	53		.0	--	779	1.06	2.73	262	65	55	4.0	1,090	7.9
Sept. 11-20	.2	25		85	16	121	3.9	244	267	50		.1	.08	692	.92	.37	276	76	48	3.2	1,020	8.1
Weighted average.	566	18		36	6.9	27	1.9	139	51	9.0		1.2	--	229	0.31	350	118	4	33	1.1	343	--

a Calculated from determined constituents.

GREEN RIVER BASIN--Continued

LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	32	32	32	32	32	41	49	62	66	72	75
2	45	32	32	32	32	32	39	52	65	66	65	66
3	45	32	33	32	32	32	34	54	64	70	72	69
4	45	39	34	32	32	32	37	54	61	65	72	54
5	47	40	32	32	32	32	40	52	61	64	74	49
6	40	40	32	32	32	32	39	49	58	74	70	--
7	38	32	32	32	32	32	49	54	60	73	74	59
8	45	32	32	32	32	32	36	53	60	81	74	56
9	46	32	32	32	32	32	38	53	64	84	74	58
10	45	45	32	32	32	32	44	51	63	75	80	61
11	50	37	32	32	32	--	42	48	69	77	76	60
12	46	--	32	32	32	32	42	49	62	72	74	55
13	45	32	32	32	32	32	44	48	61	82	82	56
14	40	32	32	32	32	32	45	45	--	76	84	52
15	40	32	32	32	32	32	43	50	--	79	78	50
16	42	32	32	32	32	32	46	52	58	76	72	47
17	40	32	32	32	32	32	46	58	68	83	76	48
18	39	32	32	32	32	32	46	58	72	74	65	50
19	48	32	32	32	32	--	54	60	73	84	70	54
20	47	33	32	32	32	32	48	59	66	79	66	55
21	45	33	33	32	32	32	52	57	66	65	74	56
22	46	33	32	32	32	32	52	58	72	76	75	50
23	40	32	32	32	32	33	48	56	60	79	74	50
24	35	32	33	32	32	33	47	56	74	76	75	50
25	33	32	33	32	32	33	46	56	71	82	74	50
26	36	32	33	32	32	33	48	56	68	71	74	51
27	38	33	35	32	32	33	--	60	82	86	67	52
28	33	33	32	32	32	33	45	56	84	87	59	53
29	32	32	32	32	32	34	48	58	78	85	67	48
30	42	33	32	32	--	37	46	60	66	--	67	47
31	35	--	32	32	--	41	--	64	--	80	69	--
Average	42	34	32	32	32	33	44	54	67	76	72	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 1956.
Sediment records: May 1948 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Minimum, freezing point Jan. 31.
Sediment concentrations: Maximum daily, 15,100 ppm Mar. 25; minimum daily, 23 ppm Sept. 16, 18.
Sediment loads: Maximum daily, 424,000 tons Mar. 25; minimum daily, 62 tons Sept. 18.
EXTREMES, 1948-56.--Water temperatures (1952-56): 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 1955 to September 1956 given in WSP 1443.

Temperature (°F) of water, water year October 1955 to September 1956

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

GREEN RIVER BASIN--Continued

GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

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	945			922	211	525	1,350	260	948
2	969			930	210	527	1,480	130	519
3	908	111	271	908	212	520	1,340	137	496
4	856			922	212	528	1,080	140	408
5	842			930	212	532	849	146	335
6	814			985	210	558	723	150	293
7	787			969	208	544	849	151	346
8	780	114	241	961	210	545	938	145	367
9	780			1,010	213	581	828	90	201
10	754			1,100	--	e 680	807	75	163
11	761			1,100	--	e 680	814	77	169
12	768			1,120	--	e 700	828		
13	780	45	94	1,120	--	e 700	856		
14	787			1,170	--	e 730	870	88	210
15	787			1,190	--	e 740	922		
16	794			768	--	e 480	945		
17	807			456	--	e 280	969	226	591
18	800	82	177	495	300	401	1,000	231	624
19	794			515	255	355	1,040	231	649
20	794			651	257	452	1,100	232	689
21	794	--	e 210	735	276	548	1,110	233	698
22	807	--	e 220	794	272	583	1,100	232	689
23	835	--	e 230	723	278	543	1,170	232	733
24	835	--	e 230	800	300	648	1,370	237	877
25	828	--	e 220	849	310	711	1,780	1,600	7,690
	849								
26	849	--	e 230	1,020	348	958	1,960	3,900	20,600
27	892	--	e 240	1,140	398	1,220	2,250	3,870	23,500
28	892	--	e 240	1,240	437	1,460	2,160	3,760	21,900
29	930	--	e 250	1,220	297	978	2,110	3,100	a 18,000
30	930	--	e 250	1,220	230	a 760	2,050	2,320	12,800
31	922	148	368	--	--	--	1,920	1,100	a 5,700
Total	25,821	--	6,603	27,963	--	19,467	38,568	--	121,035
	January			February			March		
1	1,870	430	2,170	540	130	190	1,050	100	284
2	1,480	384	1,530	500	123	166	1,080	150	a 440
3	1,210	240	784	507	118	s 165	1,170	327	1,030
4	1,010	195	532	621	117	196	1,440	375	1,460
5	1,110	188	563	663	121	217	2,040	560	3,080
6	1,210	184	601	754	124	252	3,180	5,280	45,300
7	1,320	184	656	807	128	279	3,910	6,380	s 70,400
8	1,510	178	726	856	130	300	2,670	730	5,260
9	1,620	177	774	849	127	291	2,410	400	a 2,600
10	1,510	179	730	856	123	284	2,190	740	4,380
11	1,450	206	806	878	116	275	2,420	1,410	9,210
12	1,300	207	727	922	110	274	1,990	600	3,220
13	1,300	212	744	961	110	285	1,850	450	2,250
14	1,370	213	788	993	107	287	1,640	340	1,510
15	1,390	216	811	969	126	330	1,510	390	1,590
16	1,500	213	863	969	137	358	1,560	430	1,810
17	1,530	212	876	938	140	a 350	1,610	580	2,520
18	1,620	218	954	961	110	285	2,020	4,000	a 22,000
19	1,520	214	878	945	80	204	3,000	12,300	99,600
20	1,480	235	939	938	85	215	5,790	13,600	213,000
21	1,440	245	953	938	76	192	6,550	13,900	246,000
22	1,280	245	847	961	83	215	7,630	13,800	284,000
23	1,280	242	836	977	89	235	8,160	11,700	258,000
24	1,220	240	791	1,070	89	257	10,100	14,500	395,000
25	1,120	245	741	977	85	224	10,400	15,100	424,000
26	1,100	239	710	1,020	85	234	10,300	13,900	387,000
27	1,150	239	742	1,010			9,990	12,500	337,000
28	1,200	235	761	1,020	88	242	9,650	9,800	255,000
29	930	173	434	1,020			8,190	8,500	188,000
30	693	110	206	--	--	--	6,150	6,500	108,000
31	699	106	200	--	--	--	5,420	4,400	64,400
Total	40,422	--	24,673	25,420	--	7,286	137,070	--	3,437,344

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 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	4,810	2,800	36,400	11,900	1,660	53,300	26,000	2,580	181,000
2	5,060	2,270	31,000	11,000	1,500	a 45,000	25,200	2,500	a 170,000
3	5,720	2,670	41,200	10,300	1,200	a 33,000	23,900	2,500	a 160,000
4	6,030	3,200	52,100	9,820	1,000	a 27,000	23,200	2,200	a 140,000
5	5,380	2,600	37,800	10,500	1,000	a 28,000	23,700	1,800	a 120,000
6	4,500	1,410	17,100	11,600	1,000	a 31,000	23,700	1,500	a 96,000
7	4,100	1,090	12,100	12,700	1,300	a 45,000	24,900	1,300	a 87,000
8	3,730	940	9,470	13,500	1,400	a 51,000	25,000	1,200	81,000
9	3,490	1,110	10,500	14,500	1,500	a 59,000	23,600	1,200	a 76,000
10	3,440	1,240	11,500	15,100	1,400	57,100	22,400	1,200	a 73,000
11	3,440	1,100	10,200	15,100	1,980	80,700	20,600	1,200	a 67,000
12	3,440	1,100	10,200	14,400	1,130	43,900	18,600	1,100	a 55,000
13	4,260	1,050	12,100	12,500	650	21,900	17,800	1,000	a 48,000
14	4,930	1,530	20,400	11,900	560	18,000	17,100	880	a 41,000
15	6,100	2,400	a 40,000	11,900	450	14,500	16,500	770	a 34,000
16	7,110	3,150	60,500	10,600	560	16,000	16,300	650	a 29,000
17	7,160	2,460	47,600	9,370	550	13,900	16,200	570	a 25,000
18	8,680	2,200	a 52,000	8,760	820	19,400	15,800	460	a 20,000
19	9,090	1,520	37,300	9,710	1,200	a 31,000	15,100	350	a 14,000
20	9,400	1,380	35,000	11,200	1,500	a 45,000	14,200	240	a 9,200
21	10,300	1,430	39,800	12,600	1,800	a 61,000	13,100	215	7,600
22	10,600	1,570	44,900	14,000	2,300	a 87,000	11,800	210	a 6,700
23	11,080	1,660	49,700	15,800	3,100	a 130,000	10,400	210	a 5,900
24	11,600	1,510	47,300	18,100	3,700	a 180,000	9,590	190	a 4,900
25	12,300	1,390	46,200	20,500	3,760	208,000	9,090	190	a 4,700
26	11,600	1,350	42,300	22,500	3,400	a 210,000	8,430	240	a 5,500
27	12,200	1,200	39,500	23,900	2,900	a 190,000	7,680	260	5,390
28	13,000	1,250	43,900	24,900	2,370	159,000	7,110	280	a 5,400
29	13,500	1,330	48,500	24,400	2,410	159,000	6,650	280	a 5,000
30	12,900	1,500	a 52,000	24,200	2,450	160,000	6,300	240	a 4,100
31	--	--	--	25,300	2,550	174,000	--	--	--
Total	228,950	--	1,038,570	462,560	--	2,451,700	499,950	--	1,581,390

Day	July			August			September		
1	6,150	250	a 4,200	3,140	2,070	17,500	1,360	53	195
2	6,030	240	a 3,900	3,780	2,000	20,400	1,310	54	191
3	6,080	230	a 3,800	4,050	1,700	a 19,000	1,290	50	174
4	6,220	230	a 3,900	3,960	1,800	a 19,000	1,260	40	136
5	6,400	230	a 4,000	3,650	1,500	a 15,000	1,220	40	132
6	6,680	250	a 4,500	3,410	1,200	a 11,000	1,170	45	142
7	5,940	230	a 3,700	3,080	860	a 7,200	1,140	43	132
8	5,340	220	a 3,200	2,870	600	a 4,600	1,110	50	150
9	4,850	220	a 2,900	2,690	410	a 3,000	1,090	60	177
10	4,390	220	a 2,600	2,470	345	2,300	1,060	53	152
11	4,030	210	a 2,300	2,310	380	2,370	1,020	44	121
12	3,830	202	a 2,100	2,260	165	1,010	993	42	113
13	3,700	208	2,080	2,220	180	1,080	985	39	104
14	3,580	210	a 2,000	2,070	210	1,170	1,020	40	110
15	3,620	220	a 2,200	2,030	145	795	1,060	24	69
16	3,710	230	a 2,300	1,970	110	585	1,010	23	63
17	3,740	220	a 2,200	1,920	90	467	1,020	29	80
18	3,580	220	a 2,100	1,830	95	469	993	23	62
19	3,460	210	a 2,000	1,750	70	331	961	496	1,290
20	3,320	210	a 1,900	1,740	78	366	930	510	1,280
21	3,160	210	a 1,800	1,730	75	350	908	375	919
22	3,000	200	a 1,600	1,850	1,260	6,290	908	213	522
23	2,920	190	a 1,500	1,980	160	855	900	210	510
24	2,900	190	a 1,500	1,850	100	500	870	108	254
25	2,960	180	1,440	1,820	110	541	856	70	162
26	3,060	170	a 1,400	1,730	1,300	6,070	849	55	126
27	2,970	180	a 1,400	1,610	325	1,410	835	48	108
28	2,920	180	a 1,400	1,510	175	713	842	45	102
29	2,830	180	a 1,400	1,460	95	374	842	44	100
30	2,850	190	a 1,500	1,420	62	238	842	35	80
31	3,040	1,000	a 8,200	1,380	76	283	--	--	--
Total	127,260	--	81,020	71,540	--	145,267	30,654	--	7,756

Total discharge for year (cfs-days) 1,716,178
Total load for year (tons) 8,922,111

a Computed from estimated concentration graph.

GREEN RIVER NEAR JENSEN, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet, 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	
Dec. 30, 1955....	10:50 a. m.	1,970	34	2,310	6,030		75		95	96	99	100	--		--	--	SPWCM
Mar. 26, 1956 ...	2:30 p. m.	10,200	45	12,600	4,520		52		75	86	88	92	97		100	--	SPWCM
Apr. 2	5:15 p. m.	5,120	43	2,320	4,930		42		56	66	72	78	86		98	100	SPWCM
Apr. 16	9:25 a. m.	7,030	50	3,270	3,210		28		41	59	72	82	94		99	100	SPWCM
May 1.....	12:05 p. m.	11,700	53	1,650	3,950		23		33	45	75	90	99		100	--	SPWCM
May 18.....	10:40 a. m.	8,700	60	787	3,600		20		29	38	55	74	92		97	100	SPWCM
May 25.....	11:50 a. m.	20,500	62	3,820	3,020		37		51	63	76	88	97		100	--	SPWCM
June 1.....	12:00 m.	26,400	64	2,580	5,940		37		54	64	76	88	95		98	100	SPWCM
June 8.....	10:50 a. m.	25,100	65	1,170	4,970		18		27	35	50	73	90		97	100	SPWCM
June 27.....	1:25 p. m.	7,570	72	488	3,540		12		25	36	55	78	94		99	100	SPWCM
July 12.....	1:50 p. m.	3,810	74	199	3,760		21		38	56	77	91	98		100	--	SPWCM

GREEN RIVER BASIN--Continued

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 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,090 ppm Aug. 2-3; minimum, 230 ppm June 1-10.
Hardness: Maximum, 628 ppm Aug. 2-3; minimum, 156 ppm June 1-10.
Specific conductance: Maximum daily, 1,540 micromhos Feb. 3; minimum daily, 330 micromhos June 3.
Water temperatures: Maximum, 81°F July 18; minimum, freezing point on many days November to March.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 1,450 ppm Aug. 1, 1953; minimum, 230 ppm June 21-30, 1951, June 1-10, 1956.
Hardness (1954-56): Maximum, 1,410 ppm Aug. 4, 1955; minimum, 156 ppm June 1-10, 1956.
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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 .	303	19		78	27	84	2.8	210	195	78	0.2	6.8	--	610	0.83	499	306	134	37	2.1	931	8.1
Oct. 11-20	343	18		80	26	87	3.1	217	196	78	.3	5.7	0.09	617	.84	571	306	128	38	2.2	941	7.6
Oct. 21-31	346	18		76	26	89	3.1	213	194	78	.3	5.9	.10	607	.83	567	296	122	39	2.3	928	7.7
Nov. 1-10	342	18		74	26	94	3.1	228	187	76	.3	7.8	.12	604	.82	558	292	104	41	2.4	941	7.4
Nov. 11-20.....	359	21		81	31	106	2.6	258	227	80	.3	2.3	.08	699	.95	678	330	118	41	2.5	1,050	7.7
Nov. 21-30.....	384	19		72	29	94	2.7	253	195	76	.3	12	.10	624	.85	647	298	116	40	2.4	949	7.9
Dec. 1-10	302	18		77	30	100	2.7	236	205	82	--	6.9	--	639	.87	521	316	122	41	2.5	988	7.8
Dec. 11-20.....	314	20		79	29	102	2.7	240	200	86	--	5.3	.10	641	.87	543	316	120	41	2.5	994	8.2
Dec. 21-31.....	415	17		74	27	94	2.5	224	192	72	--	13	--	605	.82	678	296	112	41	2.4	943	7.8
Jan. 1-10, 1956 .	289	17		80	26	99	2.8	231	201	81	--	9.4	--	635	.86	495	306	117	41	2.5	994	7.9
Jan. 11-20	356	17		75	26	98	2.0	223	200	76	--	12	.07	624	.85	600	294	112	42	2.5	975	7.7
Jan. 21-31	337	19		86	29	103	2.5	248	219	80	--	16	--	685	.93	623	334	130	40	2.4	1,060	7.4
Feb. 1-8.....	240	20		104	40	144	3.5	284	309	121	--	21	--	933	1.27	605	424	192	42	3.0	1,390	8.2
Feb. 9-20	355	17		80	26	98	2.3	218	201	85	--	12	.08	639	.87	612	306	128	41	2.4	1,000	7.6
Feb. 21-29	402	15		76	25	103	2.3	223	208	74	--	13	--	636	.86	690	292	110	43	2.6	991	7.6
Mar. 1-10	928	15		78	28	100	4.9	238	224	60	--	19	--	653	.89	1,640	310	114	41	2.5	1,010	7.4
Mar. 11-20	586	17		78	31	110	4.3	290	215	70	--	8.8	.11	681	.93	1,080	322	84	42	2.7	1,080	7.5
Mar. 21-31	621	16		72	32	91	4.5	260	208	56	--	7.7	--	622	.85	1,040	311	98	38	2.2	981	7.3

Apr. 1-10, 1956 .	404	17		78	29	93	2.3	237	211	71	--	2.7	--	641	0.87	699	314	120	39	2.3	978	7.6
Apr. 11-20	455	21		73	24	82	2.7	238	169	65	--	5.6	.07	563	.77	692	280	85	39	2.1	885	7.9
Apr. 21-30.....	815	21		66	17	45	2.3	204	103	38	--	8.6	--	406	.55	893	236	69	29	1.3	636	7.7
May 1-10	1,151	22		55	16	32	2.1	178	83	28	--	3.3	--	332	.45	1,030	202	56	25	1.0	518	8.0
May 11-20	1,309	19		57	13	28	1.7	178	68	26	--	8.2	.05	311	.42	1,100	197	51	23	.9	492	7.7
May 21-22, 24-31	2,272	15		49	12	19	1.7	168	49	16	--	3.1	--	253	.34	1,550	172	34	19	.6	406	7.6
May 23.....	2,420	--		66	19	--	--	234	--	--	--	--	--	--	--	--	241	49	--	--	584	7.5
June 1-10	2,371	15		45	11	17	1.8	150	45	16	--	2.2	--	230	.31	1,470	156	33	19	.6	370	7.6
June 11-20	1,348	17		47	12	24	1.7	148	63	22	--	2.9	.04	264	.36	961	169	48	23	.8	421	7.6
June 21-29	581	16		63	18	45	2.8	174	116	41	--	2.6	--	404	.55	634	229	86	30	1.3	641	7.5
June 30, July 1-10	427	16		78	26	69	3.6	203	182	60	--	11	--	552	.75	636	300	134	33	1.7	880	7.8
July 11-20	361	16		76	26	67	3.1	220	175	60	--	1.8	.04	544	.74	530	294	114	33	1.7	836	7.7
July 21-31	287	17		79	26	84	3.5	217	200	68	--	4.4	--	604	.82	468	306	128	37	2.1	919	7.4
Aug. 1, 4-10	381	18		87	25	74	4.8	272	165	58	--	1.5	--	580	.79	597	318	95	33	1.8	916	7.5
Aug. 2-3.....	650	19		176	46	95	9.4	332	437	74	--	5.4	--	1,090	1.48	1,910	628	356	24	1.6	1,460	7.2
Aug. 11-20	334	16		86	28	78	3.5	236	199	70	--	2.1	.09	619	.84	558	328	134	34	1.9	932	7.5
Aug. 21-31	274	17		73	28	75	1.5	213	184	65	--	3.6	--	571	.78	422	298	123	35	1.9	875	7.5
Sept. 1-10	242	15		80	26	81	2.0	206	198	77	--	3.6	--	600	.82	392	306	137	36	2.0	920	7.7
Sept. 11-20	212	15		79	28	90	3.2	202	211	86	--	6.5	.08	636	.86	364	310	144	38	2.2	979	7.4
Sept. 21-30	196	13		82	30	103	5.0	220	228	92	--	2.9	--	691	.94	366	326	146	40	2.5	1,110	7.5
Weighted average	577	17		66	21	61	2.6	204	139	49	--	6.4	--	471	0.64	734	251	84	34	1.7	732	--

GREEN RIVER BASIN--Continued

WHITE RIVER NEAR WATSON, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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 1956.
Water temperatures: February 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 6,470 ppm Oct. 21-31; minimum, 1,490 ppm Mar. 22-28.
Hardness: Maximum, 2,260 ppm July 13-14; minimum, 691 ppm Mar. 22-28.
Specific conductance: Maximum daily, 8,440 micromhos Oct. 25-26; minimum daily, 1,780 micromhos Mar. 24.
Water temperatures: Maximum, 86°F July 1, 4; minimum, freezing point on many days during November to January.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 8,220 ppm Dec. 11, 1951; minimum, 592 ppm May 21-30, 1952.
Hardness: Maximum, 3,010 ppm Dec. 11, 1951; minimum, 353 ppm June 1-3, 6-10, 1952.
Specific conductance: 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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	19.1	9.3		252	268	874	9.2	292	3,180	98		6.5	0.44	4,840	6.58	250	1,730	1,490	52	9.1	5,570	8.0
Oct. 11-20	22.0	5.7		288	339	1,170	11	292	4,110	120		5.4	.48	6,190	8.42	368	2,110	1,870	54	11	6,910	8.0
Oct. 21-31	25.0	5.8		310	354	1,230	11	340	4,260	127		6.6	.51	6,470	8.80	437	2,230	1,950	54	11	7,090	8.0
Nov. 1-10	26.6	7.0		300	328	1,110	11	360	3,890	116		7.5	.42	5,950	8.09	427	2,100	1,800	53	11	6,630	8.0
Nov. 11-20	25.4	6.5		316	344	1,110	11	354	4,060	126		7.2	.43	6,150	8.36	422	2,200	1,910	52	10	6,810	8.0
Nov. 21-30	32.1	13		304	294	929	9.0	403	3,380	106		9.3	.37	5,240	7.13	454	1,970	1,640	51	9.1	5,930	7.8
Dec. 1-10	31.4	15		302	295	924	9.5	402	3,340	111		8.2	.43	5,200	7.07	441	1,970	1,640	50	9.1	5,810	7.8
Dec. 11-20	32.5	16		286	267	804	9.5	437	2,920	98		9.3	.42	4,620	6.28	405	1,810	1,450	49	8.2	5,210	7.8
Dec. 21-31	65.8	13		242	211	618	8.1	357	2,320	78		7.1	.35	3,670	4.99	652	1,470	1,180	48	7.0	4,370	7.6
Jan. 1-10, 1956	37.2	12		264	249	738	9.2	400	2,770	95		7.7	.33	4,340	5.90	436	1,680	1,350	49	7.8	5,040	7.6
Jan. 11-20	36.2	11		274	255	759	9.2	400	2,850	96		7.6	.36	4,460	6.07	436	1,730	1,400	49	7.9	5,090	7.7
Jan. 21-31	29.8	13		249	264	811	8.4	313	3,010	100		14	.39	4,620	6.28	372	1,710	1,450	51	8.5	5,240	8.1
Feb. 1-10	25.0	15		261	272	801	9.1	398	2,960	104		16	.41	4,630	6.30	313	1,770	1,440	49	8.3	5,240	8.0
Feb. 11-20	44.6	13		245	230	665	8.1	379	2,500	88		15	.38	3,950	5.37	476	1,560	1,250	48	7.3	4,550	7.7
Feb. 21-29	47.8	12		251	240	717	8.3	374	2,680	91		14	.39	4,200	5.71	542	1,610	1,310	49	7.8	4,810	7.8
Mar. 1-10	41.1	12		248	240	733	8.6	356	2,680	93		14	.41	4,200	5.71	466	1,610	1,310	50	8.0	4,860	7.7
Mar. 11-20	33.2	11		249	246	733	9.4	350	2,710	94		14	.41	4,240	5.77	380	1,630	1,350	49	7.9	4,920	7.9
Mar. 21	88.0	23		181	147	371	5.1	462	1,380	57		3.8	--	2,400	3.26	570	1,060	678	43	5.0	2,990	7.4
Mar. 22-28	104	13		127	91	218	7.5	344	828	35		4.0	.19	1,490	2.03	418	691	409	40	3.6	1,920	7.7
Mar. 29-31	67.3	14		184	152	468	7.5	300	1,690	63		12	.27	2,740	3.73	498	1,080	838	48	6.2	3,380	7.5

GREEN RIVER BASIN--Continued

PRICE RIVER AT WOODSIDE, UTAH--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 (calculated)			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, 1956	52.8	12		212	208	681	7.5	370	2,370	79		16	0.30	3,770	5.13	537	1,380	1,080	52	8.0	4,420	7.8
Apr. 11-20	27.5	7.3		253	282	883	9.0	321	3,230	110		7.2	.41	4,940	6.72	367	1,790	1,530	52	9.1	5,610	7.7
Apr. 21-30	35.9	8.4		215	232	726	9.0	317	2,640	88		7.5	.37	4,080	5.55	395	1,490	1,230	51	8.2	4,760	7.8
May 1-10	28.9	11		220	233	737	10	300	2,720	78		.9	--	4,160	5.66	325	1,510	1,260	51	8.2	5,070	7.8
May 11-20	36.6	14		220	207	611	9.1	314	2,260	82		1.0	.38	3,560	4.84	352	1,400	1,140	48	7.1	4,380	7.7
May 21-31	52.7	15		212	214	638	9.5	323	2,380	75		2.5	--	3,700	5.03	526	1,410	1,150	49	7.4	4,430	7.7
June 1-10.....	31.8	11		208	221	638	9.5	274	2,360	76		3.5	--	3,660	4.98	314	1,430	1,210	49	7.3	4,440	7.9
June 11-20.....	24.4	6.6		188	214	619	8.9	243	2,320	80		2.5	.40	3,560	4.84	235	1,350	1,150	50	7.3	4,300	7.8
June 21-30.....	20.5	5.7		196	226	650	8.9	248	2,420	82		.9	--	3,710	5.05	205	1,420	1,220	50	7.5	4,560	7.5
July 1-10	32.4	13		208	190	588	9.8	297	2,180	70		1.8	--	3,410	4.64	298	1,300	1,060	49	7.1	4,120	7.6
July 11-12, 15-20	28.0	9.1		240	199	588	11	272	2,320	76		1.5	.42	3,580	4.87	271	1,420	1,200	47	6.8	4,250	7.6
July 13-14	74.5	27		369	326	917	13	878	3,260	135		2.3	--	5,480	7.45	1,100	2,260	1,540	47	8.4	6,300	7.5
July 21-24	45.2	14		283	186	572	14	319	2,280	71		1.3	--	3,580	4.87	437	1,470	1,210	46	6.5	4,080	7.4
Aug. 1-2, 5-10.	26.2	12		287	220	764	13	233	2,860	90		3.6	--	4,360	5.93	308	1,620	1,430	50	8.3	4,900	7.5
Aug. 3-4	36.0	13		240	107	429	12	268	1,660	49		.3	--	2,640	3.59	257	1,040	820	47	5.8	3,160	7.8
Aug. 11-15, 17-18, 20.....	23.6	8.6		263	225	742	12	268	2,770	89		1.5	.44	4,240	5.77	270	1,580	1,360	50	8.1	4,840	7.4
Aug. 16, 19 ...	38.0	14		172	75	332	7.7	244	1,170	46		.2	.24	1,940	2.64	199	740	540	49	5.3	2,480	7.6
Aug. 21-31	12.5	7.4		240	246	790	12	258	2,910	91		2.9	--	4,430	6.02	150	1,610	1,400	51	8.6	5,020	7.9
Sept. 1-10	8.4	4.2		253	263	846	12	233	3,120	102		1.8	--	4,720	6.42	107	1,710	1,520	52	8.9	5,290	8.0
Sept. 11-20	7.5	2.7		281	289	890	13	249	3,380	111		1.2	.24	5,090	6.92	103	1,890	1,690	50	8.9	5,630	7.4
Sept. 21-30	9.1	3.0		281	302	946	12	271	3,520	116		2.9	--	5,320	7.24	131	1,940	1,720	51	9.3	5,850	7.7
Weighted average	a32.9	12		242	234	719	9.4	344	2,640	88		7.3	--	4,120	5.60	366	1,570	1,280	50	7.9	4,780	--

a Represents 95 percent of runoff for water year October 1955 to September 1956.

GREEN RIVER BASIN--Continued

PRICE RIVER AT WOODSIDE, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	37	40	32		45	51	60	64	86	--	59
2	67	32	35	32		45	51	58	66	76	66	59
3	67	42	32	33		45	52	59	64	78	70	62
4	65	42	32	32		45	53	59	63	86	62	65
5	65	47	32	32		45	54	58	63	65	62	64
6	48	36	32	32		39	54	59	62	70	62	63
7	47	45	32	32		37	55	58	68	72	59	61
8	44	32	32	32		44	59	59	72	73	64	61
9	44	33	32	32		45	59	55	66	72	64	62
10	45	37	32	33		46	59	56	69	70	65	62
11	46	39	32	34		44	59	58	69	71	62	63
12	50	35	32	34		41	59	59	70	70	64	65
13	53	47	32	33		43	59	58	68	72	68	63
14	56	42	32	33		44	59	60	64	75	68	65
15	60	33	32	38		45	62	--	62	70	70	63
16	64	32	32	37		48	69	67	62	72	63	63
17	64	32	32	35		51	59	70	--	72	66	59
18	62	32	32	32		52	64	65	65	73	63	58
19	60	33	32	32		52	67	71	68	72	62	61
20	--	36	32	33		50	54	68	64	71	70	56
21	--	35	32	34		55	68	65	66	70	62	54
22	55	34	32	38		47	70	66	68	68	63	59
23	56	32	32	36		47	63	66	66	68	62	59
24	55	34	33	35		49	54	63	66	68	63	59
25	55	32	33	32		49	60	68	65	--	66	58
26	55	32	33	35		44	56	65	69	--	64	59
27	51	33	35	38		51	51	68	70	--	63	58
28	46	35	36	32		52	49	67	68	--	64	57
29	41	36	34	33		52	49	70	68	--	62	56
30	40	39	34	32		51	48	69	78	--	64	56
31	46	--	34	32		51	--	66	--	--	60	--
Average	54	36	33	34		47	58	63	67	73	64	60

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH

LOCATION.--At gaging station, 1 mile southeast of 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 1956.
Water temperatures: May 1949 to September 1956.
Sediment records: May 1930 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 842 ppm Nov. 21-30; minimum, 213 ppm June 11-20.
Hardness: Maximum, 410 ppm Dec. 11-20; minimum, 138 ppm June 11-20.
Specific conductance: Maximum daily, 1,350 micromhos Nov. 24; minimum daily, 272 micromhos May 13.
Water temperatures: Maximum, 80°F July 27; minimum, freezing point Feb. 2.
Sediment concentrations: Maximum daily, 13,400 ppm Mar. 27; minimum daily, 20 ppm Sept. 27.
Sediment loads: Maximum daily, 445,000 tons May 28; minimum daily, 54 tons Sept. 27.
EXTREMES, 1928-56.--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 (1941-56): Maximum daily, 2,420 micromhos Sept. 29, 1943; minimum daily, 272 micromhos May 13, 1956.
Water temperatures (1949-56): Msximum, 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 (1930-56): Maximum daily, 63,100 ppm July 11, 1936; minimum daily, 20 ppm Sept. 27, 1956.
Sediment loads (1930-56): Maximum daily, 2,230,000 tons July 11, 1936; minimum daily, 54 tons Sept. 27, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	1,255	10		74	34	115	3.6	204	327	55		1.4	--	742	1.01	2,510	324	158	43	2.8	1,080	8.0
Oct. 11-20	1,199	13		83	39	129	3.6	224	366	58		1.5	0.25	821	1.12	2,660	368	184	43	2.9	1,190	7.9
Oct. 21-31	1,307	9.4		84	37	129	3.6	224	373	56		.8	--	828	1.13	2,920	362	178	43	3.0	1,190	7.8
Nov. 1-10	1,427	10		84	39	129	3.1	236	366	54		1.1	--	822	1.12	3,170	370	176	43	2.9	1,180	7.8
Nov. 11-20	1,391	11		84	38	122	3.1	244	349	50		.8	.24	796	1.08	2,990	366	166	42	2.8	1,160	7.9
Nov. 21-30	1,531	17		90	44	120	2.5	262	368	52		2.5	--	842	1.15	3,480	406	191	39	2.6	1,210	7.8
Dec. 1-10	1,973	18		84	38	102	2.5	246	306	46		2.8	--	732	1.00	3,900	366	164	38	2.3	1,060	7.6
Dec. 11-20	1,535	18		90	45	111	2.5	264	354	50		2.8	.24	829	1.13	3,440	410	193	37	2.4	1,190	7.7
Dec. 21-31	2,630	16		84	38	100	2.5	245	302	45		3.1	--	719	.98	5,110	366	165	37	2.3	1,050	7.7
Jan. 1-10, 1956 ..	2,370	14		74	33	100	2.5	224	284	39		2.9	--	664	.90	4,250	320	136	40	2.4	976	7.7
Jan. 11-20.....	2,693	15		75	35	97	2.5	231	273	43		2.4	.18	666	.91	4,840	331	142	39	2.3	976	7.7
Jan. 21-31	2,482	13		74	36	93	2.6	222	290	42		1.7	--	674	.92	4,520	332	150	38	2.2	1,000	8.0
Feb. 1-10	1,375	14		91	43	113	2.6	268	347	51		7.9	--	823	1.12	3,060	404	184	38	2.4	1,190	7.9
Feb. 11-20	1,838	13		84	41	108	2.6	255	329	51		2.0	.12	780	1.06	3,870	378	169	38	2.4	1,140	8.2
Feb. 21-29	2,022	13		81	39	100	2.6	242	309	46		1.7	--	732	1.00	4,000	362	164	37	2.3	1,070	8.2
Mar. 1-10.....	3,299	13		76	34	92	2.6	222	282	40		1.7	--	665	.90	5,920	330	148	38	2.2	982	7.9

Mar. 11-20, 1956	3,133	14		74	26	89	2.7	212	254	37		4.0	.17	611	.83	5,170	292	118	40	2.3	907	7.6
Mar. 21-31.....	8,554	16		71	24	82	3.5	222	221	34		5.0	--	570	.78	13,160	274	92	39	2.2	858	7.7
Apr. 1-10.....	6,141	16		60	20	61	3.0	194	168	24		5.6	--	455	.62	7,540	232	73	36	1.7	697	7.8
Apr. 11-20.....	5,367	15		60	22	60	3.0	192	170	28		4.2	.09	458	.62	6,640	240	83	35	1.7	702	8.0
Apr. 21-30.....	11,690	16		52	15	33	3.0	182	90	16		5.4	--	322	.44	10,160	192	43	27	1.0	512	7.8
May 1-10	12,480	14		48	14	25	2.3	169	71	13		3.6	--	277	.38	9,330	176	37	23	.8	447	7.6
May 11-20.....	13,950	14		38	11	22	2.0	138	61	10		3.2	.08	233	.32	8,780	143	30	25	.8	372	8.0
May 21-31.....	21,570	13		44	12	24	2.0	146	70	11		3.8	--	256	.35	14,910	158	38	24	.8	411	7.8
June 1-10.....	28,600	13		44	11	22	2.0	156	59	10		3.7	--	246	.33	19,000	156	28	23	.8	393	7.8
June 11-20.....	21,090	12		37	11	19	2.0	138	51	9.0		2.4	.07	213	.29	12,130	138	25	23	.7	347	7.5
June 21-30	11,180	12		51	11	23	1.9	170	72	9.0		1.5	--	266	.36	8,030	172	33	22	.8	416	7.8
July 1-10	6,645	12		52	16	34	2.3	178	100	16		.8	--	326	.44	5,850	194	48	27	1.1	500	7.8
July 11-20	4,457	13		54	18	40	2.3	180	124	18		1.2	.08	370	.50	4,450	208	60	29	1.2	555	8.0
July 21-31.....	3,369	11		59	18	51	3.0	190	144	21		1.8	--	406	.55	3,690	224	68	33	1.5	611	7.8
Aug. 1-10.....	3,785	12		72	21	68	3.0	198	208	30		2.5	--	515	.70	5,260	268	106	35	1.8	767	7.9
Aug. 11-15.....	2,802	13		67	21	71	3.8	198	196	33		2.9	.15	505	.69	3,820	252	90	38	2.0	762	8.0
Aug. 16-20.....	2,348	15		45	33	62	3.6	200	175	26		1.4	.12	466	.63	2,950	248	84	35	1.7	718	7.5
Aug. 21-31.....	1,969	9.1		64	22	63	3.8	198	182	31		2.3	--	473	.64	2,510	252	90	35	1.7	728	8.0
Sept. 1-10	1,464	9.3		64	23	69	2.8	200	182	35		1.3	--	492	.67	1,940	254	90	37	1.9	751	7.8
Sept. 11-20.....	1,167	9.0		65	25	76	2.8	199	204	40		1.6	.11	526	.72	1,660	264	101	38	2.0	803	7.8
Sept. 21-30	1,020	7.5		69	28	85	3.0	204	232	43		.7	--	577	.78	1,590	288	121	39	2.2	871	7.7
Weighted average	5,588	13		54	18	46	2.4	177	131	20		3.2	--	380	0.52	5,730	208	64	32	1.4	583	--

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

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.....	1,140	175	539	1,390	370	1,390	2,120	350	2,000
2.....	1,130	195	595	1,390	255	957	2,410	525	3,420
3.....	1,300	320	1,120	1,410	165	628	2,450	545	3,610
4.....	1,410	365	1,390	1,410	170	647	2,300	525	3,260
5.....	1,330	440	1,580	1,410	190	723	2,240	480	2,900
6.....	1,300	305	1,070	1,420	205	786	2,000	415	2,240
7.....	1,270	235	806	1,440	230	894	1,700	490	2,250
8.....	1,240	305	1,020	1,460	210	828	1,590	410	1,760
9.....	1,210	345		1,470	175	695	1,410	310	1,180
10.....	1,220	255	840	1,470	155	615	1,510	220	897
11.....	1,220	245	807	1,460	150	591	1,520	230	944
12.....	1,200	295	956	1,490	170	684	1,360	215	789
13.....	1,200	295	956	1,490	155	624	1,440	150	583
14.....	1,170	260	a820	1,610	215	935	1,410	200	761
15.....	1,150	255	792	1,650	335	1,490	1,410	175	666
16.....	1,180	250	796	1,650	3,350	a1,600	1,490	155	624
17.....	1,180	230	733	1,470	260	1,030	1,610	190	826
18.....	1,210	160	523	1,240	210	703	1,590	125	537
19.....	1,240	155	519	914	260	642	1,720	145	673
20.....	1,240	150	602	938	225	570	1,800	155	753
21.....	1,240	160	536	1,130	230	702	1,920	205	1,060
22.....	1,250	125	422	1,250	200	675	2,040	185	1,020
23.....	1,270	130	a450	1,340	200	724	2,120	210	1,200
24.....	1,240	120	a400	1,460	175	690	2,180	235	1,380
25.....	1,280	100	346	1,670	215	969	2,430	360	2,360
26.....	1,310	75	265	1,670	285	1,290	2,540	460	3,150
27.....	1,330	95	341	1,690	295	1,350	2,590	475	3,320
28.....	1,380	125	466	1,650	275	1,230	2,980	575	4,630
29.....	1,360	125	459	1,650	270	1,200	3,180	670	5,750
30.....	1,360	210	771	1,800	265	1,290	3,450	910	8,480
31.....	1,360	250	918	--	--	--	3,500	875	8,270
Total.	38,920	--	22,868	43,492	--	27,152	64,010	--	71,293
	January			February			March		
1.....	3,350	1,270	11,500	1,860	255	1,280	2,120	345	1,970
2.....	3,180	1,460	12,500	1,650	320	1,430	2,180	370	2,180
3.....	2,840	1,750	13,400	1,220	265	873	2,280	375	2,310
4.....	2,390	870	a5,600	974	210	552	2,450	445	2,940
5.....	2,040	550	a3,000	1,080	200	583	2,680	1,200	8,680
6.....	1,940	460	a2,400	1,080	170	496	3,030	1,950	16,000
7.....	1,880	395	2,010	1,280	225	778	4,330	4,850	56,700
8.....	1,940	260	1,360	1,420	265	1,020	4,670	6,950	87,600
9.....	1,920	270	1,400	1,580	260	1,110	4,580	6,450	79,800
10.....	2,220	380	2,280	1,610	295	1,280	4,670	5,350	67,500
11.....	2,450	370	2,450	1,690	260	1,190	4,080	4,250	46,800
12.....	2,610	315	2,220	1,740	250	1,170	3,760	3,200	32,500
13.....	2,650	355	2,540	1,840	280	1,390	3,700	1,950	19,500
14.....	2,680	395	2,860	1,900	345	1,770	3,450	1,600	14,900
15.....	2,560	400	2,760	2,040	405	2,230	3,150	2,550	21,700
16.....	2,590	405	2,830	2,140	445	2,570	2,910	1,800	14,100
17.....	2,630	445	3,160	2,120	400	2,290	2,700	1,200	8,750
18.....	2,770	410	3,070	1,840	330	1,640	2,520	1,100	7,480
19.....	3,030	485	3,970	1,560	255	1,070	2,430	750	4,920
20.....	2,960	845	6,750	1,510	230	938	2,630	700	4,970
21.....	2,980	670	5,390	1,470	175	695	3,180	825	7,080
22.....	3,000	605	4,900	1,630	200	880	4,440	1,200	4,670
23.....	2,960	620	4,960	1,800	250	1,220	6,850	8,100	150,000
24.....	2,860	640	4,940	2,060	330	1,840	8,120	11,000	241,000
25.....	2,590	260	1,820	2,330	460	2,890	8,700	12,000	282,000
26.....	2,560	585	4,040	2,330	445	2,800	10,500	12,100	343,000
27.....	2,410	590	3,840	2,220	355	2,130	11,300	13,400	409,000
28.....	2,200	605	3,590	2,080	320	1,800	11,000	13,300	395,000
29.....	2,020	505	2,750	2,280	315	1,940	10,600	8,800	252,000
30.....	1,940	385	2,020	--	--	--	10,300	10,000	278,000
31.....	1,780	260	1,250	--	--	--	9,100	9,100	224,000
Total.	77,930	--	127,560	50,334	--	41,855	158,410	--	3,087,050

a Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	7,640	7,500	155,000	14,200	3,850	148,000	27,100	4,680	342,000
2.....	6,590	6,300	112,000	113,600	2,300	84,500	28,600	5,000	386,000
3.....	6,020	4,900	79,600	12,200	2,250	74,100	29,500	4,830	385,000
4.....	5,820	3,800	59,700	11,400	2,500	77,000	29,000	3,950	309,000
5.....	6,060	3,050	49,900	10,500	2,000	a57,000	28,500	3,850	296,000
6.....	6,560	2,350	41,600	10,200	1,850	50,900	28,700	2,650	205,000
7.....	6,590	2,200	39,100	10,700	2,600	75,100	28,900	1,900	148,000
8.....	5,960	1,750	28,200	12,400	2,850	95,400	28,600	3,150	243,000
9.....	5,260	1,600	22,700	14,200	3,100	119,000	28,800	2,750	214,000
10.....	4,910	1,200	15,900	15,400	2,550	106,000	28,300	2,800	214,000
11.....	4,530	1,200	14,700	16,800	2,800	127,000	27,400	2,050	152,000
12.....	4,300	1,000	11,600	17,400	3,700	174,000	25,800	1,900	a130,000
13.....	4,240	900	10,300	17,100	3,900	180,000	24,000	1,950	126,000
14.....	4,160	850	9,550	15,700	3,550	150,000	22,200	3,000	180,000
15.....	4,190	650	7,350	14,000	3,150	119,000	20,900	3,350	189,000
16.....	4,760	700	9,000	13,200	2,950	105,000	19,700	2,800	149,000
17.....	5,450	900	13,200	12,900	2,100	73,100	18,800	2,620	133,000
18.....	6,740	1,500	27,300	11,700	1,750	55,300	18,000	2,350	114,000
19.....	7,260	2,300	45,100	10,500	2,000	56,700	17,500	2,400	113,000
20.....	8,040	2,650	57,500	10,200	2,350	64,700	16,600	2,300	103,000
21.....	9,190	3,350	83,100	11,500	2,550	79,200	15,900	2,200	94,400
22.....	9,370	2,920	73,900	14,100	3,400	129,000	14,900	1,650	66,400
23.....	10,300	3,200	89,000	15,800	4,100	175,000	13,800	1,420	52,900
24.....	11,100	3,350	100,000	18,000	3,200	156,000	12,100	750	24,500
25.....	11,800	3,650	116,000	20,800	5,000	281,000	10,700	470	a14,000
26.....	12,400	3,950	132,000	23,600	5,950	379,000	10,000	480	a13,000
27.....	12,900	3,950	138,000	25,600	4,650	321,000	9,600	480	12,400
28.....	12,500	3,650	123,000	26,600	6,200	445,000	8,840	1,160	27,700
29.....	13,200	3,700	132,000	27,100	5,950	435,000	8,280	750	16,800
30.....	14,100	3,950	150,000	27,200	5,800	426,000	7,680	460	9,540
31.....	--	--	--	27,000	4,900	357,000	--	--	--
Total.	231,940	--	1,946,300	501,600	--	5,175,000	608,700	--	4,462,640

	July			August			September		
1.....	7,370	325	6,470	3,300	3,100	27,600	1,670	165	744
2.....	6,960	550	10,300	3,320	3,400	30,500	1,610	270	a1,200
3.....	6,810	985	18,100	3,680	4,100	40,700	1,560	475	2,000
4.....	6,520	625	11,000	3,940	3,100	33,000	1,490	320	1,290
5.....	6,410	575	9,950	3,970	3,000	32,200	1,460	215	848
6.....	6,480	1,230	21,500	4,270	5,050	58,200	1,410	165	628
7.....	6,590	1,020	18,100	4,270	4,100	47,300	1,390	135	507
8.....	6,700	820	14,800	3,970	3,100	a33,000	1,380	110	410
9.....	6,590	730	13,000	3,730	3,600	a36,000	1,340	100	362
10.....	6,020	425	6,910	3,400	5,000	45,900	1,330	85	305
11.....	5,550	335	5,020	3,150	4,400	37,400	1,280	80	a280
12.....	5,160	225	3,130	2,930	2,900	22,900	1,250	80	a270
13.....	4,790	380	4,910	2,740	1,650	12,200	1,220	75	a250
14.....	4,410	550	a6,500	2,630	850	6,040	1,210	55	180
15.....	4,270	850	9,800	2,560	850	5,880	1,180	85	271
16.....	4,190	810	9,160	2,430	1,200	7,870	1,140	80	a250
17.....	4,080	610	6,720	2,330	2,250	14,200	1,110	55	165
18.....	4,020	350	3,800	2,390	1,350	8,710	1,080	35	102
19.....	4,050	260	2,840	2,370	2,200	14,100	1,100	35	104
20.....	4,050	340	3,720	2,220	900	5,390	1,100	60	178
21.....	3,910	240	2,530	2,160	750	4,370	1,080	70	204
22.....	3,760	190	1,930	2,040	1,950	10,700	1,060	45	129
23.....	3,600	1,170	11,400	1,980	2,000	10,700	1,040	40	112
24.....	3,450	740	6,890	1,960	1,200	6,350	1,020	35	96
25.....	3,220	850	7,390	1,960	670	3,550	1,010	30	82
26.....	3,120	1,100	9,270	2,060	370	2,060	998	30	81
27.....	3,080	810	6,740	2,060	550	3,060	998	20	54
28.....	3,100	420	3,520	1,960	615	3,250	986	30	80
29.....	3,220	310	2,700	1,920	685	3,550	998	70	a190
30.....	3,250	1,600	14,000	1,820	440	2,160	1,010	100	273
31.....	3,350	3,200	28,900	1,740	230	1,080	--	--	--
Total.	148,080	--	281,000	85,260	--	569,920	36,510	--	11,645

Total discharge for year (cfs-days) 2,045,186
Total load for year (tons) 15,824,283

a Computed from estimated concentration graph.

GREEN RIVER AT GREEN RIVER, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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
Nov. 18, 1955 ..	11:00 a.m.	1,280	36	199	3,040		74		93	98	99	10	--		--		SPWCM
Dec. 4.....	3:30 p.m.	2,300	34	575	4,520		60		90	94	95	9	100		--		SPWCM
Feb. 22, 1956 ..	4:00 p.m.	1,820	36	246	3,670		61		92	98	98	99	99		100		SPWCM
Mar. 20	3:30 p.m.	2,630	49	733	4,840		73		96	99	99	99	100		--		SPWCM
Mar. 26	9:15 a.m.	10,500	47	11,800	3,970		52		79	87	94	98	100		--		SPWCM
Apr. 16.....	12:00 m.	4,760	52	715	3,960		47		69	80	88	93	100		--		SPWCM
Apr. 23	11:50 a.m.	10,300	57	3,140	4,050		35		60	76	86	95	100		--		SPWCM
Apr. 27.....	10:00 a.m.	12,900	55	3,820	3,200		34		56	72	84	95	100		--		SPWCM
May 6.....	6:30 p.m.	10,100	60	1,900	3,950		29		45	60	74	90	99		100		SPWCM
May 18	12:40 p.m.	11,500	60	1,800	3,260		25		39	54	67	88	100		--		SPWCM
May 25	11:40 a.m.	20,600	64	5,490	4,690		28		42	59	73	89	99		100		SPWCM
May 28	12:30 p.m.	26,700	62	6,950	4,960		27		39	63	71	90	99		100		SPWCM
May 31	9:15 a.m.	26,700	63	4,510	7,450		21		36	51	69	87	99		100		SPWCM
June 8	12:45 p.m.	28,500	66	3,220	5,300		8		18	31	54	77	97		100		SPWCM
June 14	2:30 p.m.	22,100	70	3,270	4,970		0		20	31	51	76	97		100		SPWCM
June 22	7:15 a.m.	15,200	67	1,520	929	12	15	17	22	32	53	82	99		100		SBWCM
July 31	11:30 a.m.	3,320	78	2,900	3,150		55		91	96	99	100	--		--		SPWCM
Aug. 20	4:10 p.m.	2,160	74	741	4,200		73		93	98	99	100	--		--		SPWCM

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH

LOCATION.--At gaging station 15 feet upstream 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 1956.
Water temperatures: July to September 1949, October 1950 to September 1956.
Sediment records: March 1948 to September 1949, October 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 4,550 ppm Oct. 21-31; minimum, 852 ppm May 21-31.
Hardness: Maximum, 1,940 ppm Oct. 21-31; minimum, 461 ppm May 21-31.
Specific conductance: Maximum daily, 5,550 micromhos Apr. 27; minimum daily, 997 micromhos May 25.
Water temperatures: Maximum, 86°F July 16, 19; minimum, freezing point on many days during November to March.
Sediment concentrations: Maximum daily, 103,000 ppm July 31; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 90,400 tons July 31; minimum daily, 0 tons on many days.
EXTREMES, 1948-49, 1950-56.--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, 1950-56): Maximum observed, 95°F July 11, 1954; minimum observed, freezing point on many days during winter months.
Sediment concentrations (1948-56): Maximum daily, 115,000 ppm Aug. 4, 1951; minimum daily, no flow on many days.
Sediment loads (1948-56): Maximum daily, 786,000 tons Aug. 4, 1951; minimum daily, 0 tons on many days.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. Flow affected by ice Dec. 7-23, Jan. 2-19, 25, 26, Jan. 29 to Feb. 12.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 21-31, 1955..	6.8	10		382	241	678	13	285	2,960	121		1.3	--	4,550	6.19	83.5	1,940	1,710	43	6.7	5,110	7.9
Nov. 1-10.....	12.9	11		332	239	678	11	247	2,780	99		1.4	--	4,270	5.81	149	1,810	1,610	45	6.9	4,820	7.9
Nov. 11-20.....	13.4	11		342	232	649	11	289	2,700	95		1.9	0.33	4,180	5.68	151	1,810	1,570	44	6.6	4,730	7.8
Nov. 21-30.....	24.9	13		306	209	560	11	298	2,370	85		2.9	--	3,700	5.03	249	1,620	1,380	43	6.0	4,290	7.7
Dec. 1-10.....	25.9	15		262	193	517	9.6	256	2,210	75		1.9	--	3,410	4.64	238	1,450	1,240	44	5.9	4,000	8.1
Dec. 11-20.....	25.5	16		340	240	631	11	370	2,650	90		2.9	.34	4,160	5.66	286	1,840	1,530	43	6.4	4,700	7.8
Dec. 21-31.....	55.8	12		232	146	381	7.5	320	1,600	49		2.1	--	2,590	3.52	390	1,180	918	41	4.8	3,140	7.8
Jan. 1-10, 1956...	48.7	12		246	160	397	8.6	326	1,730	60		2.4	--	2,780	3.78	366	1,270	1,000	40	4.8	3,350	7.8
Jan. 11-20	56.9	11		220	142	359	7.3	332	1,490	50		2.5	.21	2,450	3.33	376	1,130	861	41	4.6	2,960	7.8
Jan. 21-31	41.3	13		212	147	376	7.1	254	1,640	59		3.0	--	2,580	3.51	288	1,130	926	42	4.9	3,170	7.8
Feb. 1-10.....	24.8	14		276	195	505	9.7	324	2,150	81		3.0	--	3,390	4.61	227	1,490	1,220	42	5.7	4,010	7.8
Feb. 11-20.....	54.1	12		191	135	336	6.8	264	1,440	48		2.9	.22	2,300	3.13	336	1,030	815	41	4.6	2,850	7.9
Feb. 21-29.....	69.4	12		183	130	365	6.8	242	1,480	48		3.7	--	2,350	3.20	440	991	792	44	5.0	2,920	7.9
Mar. 1-10.....	60.6	15		198	136	394	7.1	290	1,570	50		4.7	--	2,520	3.43	412	1,050	816	45	5.3	3,070	8.0
Mar. 11-20	40.7	14		200	150	406	7.1	224	1,680	57		3.9	.23	2,630	3.58	289	1,120	932	44	5.3	3,210	7.9
Mar. 21-31	32.0	12		234	165	456	8.2	272	1,890	65		2.9	--	2,970	4.04	257	1,260	1,040	44	5.6	3,590	7.7

Apr. 1-10, 1956 ..	23.1	12		288	205	586	12	288	2,440	86		2.9	--	3,770	5.13	235	1,560	1,330	45	6.5	4,380	7.7
Apr. 11-20.....	22.9	8.6		282	211	586	10	252	2,430	86		1.2	0.30	3,840	5.22	237	1,570	1,360	45	6.4	4,340	7.9
Apr. 21-30.....	19.3	7.6		328	243	727	13	311	2,930	98		1.6	--	4,500	6.12	234	1,820	1,560	46	7.4	5,110	7.7
May 1-10.....	19.8	8.0		274	204	588	12	281	2,390	87		1.5	--	3,700	5.03	198	1,520	1,290	45	6.6	4,340	7.8
May 11, 16-19....	45.6	10		228	172	482	10	294	1,970	61		2.5	.29	3,080	4.19	379	1,280	1,040	45	5.9	3,730	7.8
May 12-15, 20....	78.6	11		172	114	305	6.9	286	1,220	40		3.1	.24	2,010	2.73	427	898	664	42	4.4	2,580	7.8
May 21-31	455	9.6		104	49	104	3.4	248	439	18		3.1	--	852	1.16	1,050	461	258	33	2.1	1,200	7.8
June 1-10	290	12		108	65	141	3.4	262	580	20		3.5	--	1,060	1.44	830	537	322	36	2.6	1,450	7.8
June 11-20	82.6	11		152	122	289	6.2	274	1,180	38		1.9	.25	1,940	2.64	433	880	655	41	4.2	2,500	7.9
June 21-30	23.2	8.1		224	173	456	9.2	247	1,940	63		1.9	--	3,000	4.08	188	1,270	1,070	44	5.6	3,640	8.0
July 1-10	11.7	11		353	224	517	17	207	2,530	120		2.5	--	3,880	5.28	123	1,800	1,630	38	5.3	4,410	8.0
July 11-20	13.4	13		357	182	612	15	251	2,550	102		3.4	.35	3,960	5.39	143	1,640	1,430	45	6.6	4,570	7.7
July 21-23, 30....	1.4	12		369	216	684	14	256	2,870	116		2.5	--	4,410	6.00	16.7	1,810	1,600	45	7.0	4,990	7.7
July 31, Aug. 1-10	38.5	14		389	129	378	13	316	1,940	70		1.9	.30	3,090	4.20	321	1,500	1,240	35	4.2	3,550	7.6
Aug. 18-20.....	8.9	13		545	122	299	15	189	2,200	95		2.6	--	3,380	4.60	81.2	1,860	1,710	26	3.0	3,690	7.6
Weighted average	a57.0	11		178	112	286	6.3	270	1,200	42		2.9	--	1,980	2.69	305	904	683	41	4.1	2,450	--

a Represents 99 percent of runoff for water year October 1955 to September 1956.

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	40	41	35	32	41	--	71	69	78	76	
2	--	35	36	36	32	43	49	68	75	73	76	
3	--	38	--	35	32	44	54	69	--	--	76	
4	--	35	32	32	33	--	--	68	66	--	74	
5	--	38	32	34	34	48	--	65	67	76	77	
6	--	45	32	37	33	--	55	68	71	--	76	
7	--	41	--	35	35	34	60	66	74	80	78	
8	--	40	33	34	34	--	--	68	76	80	80	
9	--	40	33	33	33	45	59	--	--	79	79	
10	--	40	33	34	32	--	--	61	--	72	82	
11	--	42	33	37	38	34	57	62	--	74	--	
12	--	40	32	35	38	38	59	63	--	79	--	
13	--	45	32	34	40	--	--	56	--	78	--	
14	--	38	32	35	38	--	56	65	--	78	--	
15	--	32	32	40	40	42	64	70	65	79	--	
16	--	--	32	--	38	48	62	74	78	86	--	
17	--	32	32	33	35	--	62	75	--	81	--	
18	--	33	32	37	35	--	62	72	80	84	71	
19	--	35	32	35	34	50	52	71	--	86	76	
20	--	35	34	34	35	55	--	71	69	84	79	
21	60	38	--	39	40	56	70	70	76	85	--	
22	51	--	32	39	40	58	--	65	79	73	--	
23	--	34	32	42	40	--	63	68	--	85	--	
24	--	34	35	34	--	54	61	66	--	--	--	
25	--	34	38	32	38	--	--	69	77	--	--	
26	54	37	--	36	38	57	61	66	81	--	--	
27	--	36	35	42	38	--	53	--	--	--	--	
28	--	35	38	38	40	--	58	62	82	--	--	
29	49	33	35	34	37	54	58	65	77	--	--	
30	49	39	40	33	--	56	67	--	--	85	--	
31	45	--	40	35	--	--	--	75	--	77	--	
Average	--	37	34	36	36	--	--	67	--	--	--	

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

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	410	15	42	850	96
2				13	263	9	42	1,300	147
3				13	247	9	35	810	sa 86
4				12	256	8	30	750	61
5				11	220	7	20	441	s 30
6				12	202	7	12	120	4
7				13	290	10	16	244	10
8				13	283	10	20	171	9
9				14	288	11	21	141	8
10	0.2	--	(et)	14	277	10	21	177	10
11				13	260	9	21	239	14
12				14	258	10	22	159	9
13				15	252	10	23	178	11
14				15	268	11	24	302	20
15				15	215	9	25	192	13
16				8.1	110	a 2	26	121	8
17				12	244	8	27	234	17
18				12	258	8	28	166	12
19				14	302	11	29	149	12
20	.4	140	(at)	16	315	14	30	249	20
21	.6	228	(t)	24	340	22	30	--	e 19
22	1.6	158	1	32	775	67	31	241	20
23	3.2	130	a 1	28	1,020	s 82	36	296	29
24	4.1	130	a 1	31	1,130	s 114	53	765	109
25	8.1	196	sa 5	14	220	a 8	54	840	122
26	8.1	163	4	13	218	8	71	--	e 300
27	7.4	220	a 4	24	393	s 27	79	1,910	407
28	7.4	298	6	23	335	21	75	1,730	350
29	9.2	387	10	26	540	38	62	1,540	258
30	11	250	7	34	625	57	58	1,190	186
31	14	329	12	--	--	--	65	958	168
Total	78.9	--	59	512.1	--	632	1,128	--	2,565

	January			February			March		
1	66	1,020	182	20	266	14	67	1,300	a 240
2	50	660	89	15	280	11	70	1,460	276
3	35	364	34	17	271	12	76	2,150	441
4	36	234	23	19	208	11	73	2,500	a 490
5	40	513	55	21	369	21	70	1,720	325
6	46	--	b 80	28	262	20	64	1,200	a 210
7	51	--	b 110	32	376	32	57	1,470	226
8	52	--	b 120	30	454	37	44	930	a 110
9	54	--	b 130	31	399	33	41	850	94
10	57	--	b 80	35	761	72	44	890	106
11	58	412	64	40	694	75	47	810	a 100
12	58	567	89	42	882	100	43	978	s 121
13	59	571	91	43	640	74	36	750	a 73
14	59	592	94	54	680	99	34	710	65
15	59	1,200	191	64	970	168	36	880	86
16	62	1,400	234	73	1,080	213	44	1,260	150
17	64	1,510	261	65	1,180	s 215	42	1,200	a 140
18	58	1,580	247	65	1,230	216	42	1,200	a 140
19	48	894	116	52	1,050	s 178	43	865	100
20	44	867	103	43	925	s 118	40	700	76
21	48	557	72	45	570	69	42	675	77
22	60	952	154	50	900	122	41	610	68
23	60	1,580	256	58	1,050	164	38	610	a 63
24	65	1,360	239	90	2,200	535	36	625	61
25	40	1,300	140	119	7,000	2,250	34	580	a 53
26	33	699	62	78	4,200	885	31	525	44
27	28	2,030	153	70	3,300	s 649	29	520	a 41
28	34	873	80	57	1,650	254	28	520	a 39
29	31	401	33	58	930	146	26	580	41
30	29	566	44	--	--	--	24	500	32
31	26	408	29	--	--	--	23	500	a 31
Total	1,510	--	3,655	1,414	--	6,793	1,365	--	4,119

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

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

GREEN RIVER BASIN--Continued

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	23	490	a30	20	97	5	367	4,790	s4,870
2.....	23	435	27	16	52	2	399	5,330	s5,800
3.....	26	376	26	12	45	1	384	4,600	sa4,900
4.....	26	330	a23	10	110	3	339	2,700	2,470
5.....	23	300	a19	7.8	44	1	331	2,000	1,790
6.....	22	265	16	8.4	15	(t)	299	2,100	1,700
7.....	22	205	12	18	85	4	256	1,500	1,040
8.....	21	160	a9	29	258	20	201	1,300	706
9.....	21	152	9	28	260	a20	169	1,500	684
10.....	24	160	a10	49	1,020	135	155	950	398
11.....	23	171	11	53	1,310	187	130	750	263
12.....	22	162	10	62	1,480	248	116	600	a190
13.....	24	160	a10	48	815	106	107	484	140
14.....	24	180	12	39	600	63	96	430	111
15.....	25	177	12	30	430	35	82	373	83
16.....	25	196	13	27	398	29	70	335	63
17.....	20	190	10	26	323	23	65	300	a53
18.....	18	173	8	28	255	19	63	248	42
19.....	19	310	16	94	2,880	s879	54	210	a31
20.....	29	370	a29	214	7,920	s4,920	43	172	20
21.....	28	300	23	379	15,000	15,300	41	169	19
22.....	22	220	a13	425	17,500	20,100	38	152	16
23.....	17	220	10	550	20,500	30,400	37	130	a13
24.....	15	210	a9	525	19,300	27,400	29	120	a9
25.....	15	210	a9	508	13,000	17,800	24	92	6
26.....	17	315	14	536	11,000	15,900	18	77	4
27.....	17	210	10	530	9,200	a13,200	16	73	a3
28.....	18	130	6	452	6,750	8,240	12	72	2
29.....	20	150	8	437	5,500	6,490	8.4	80	½
30.....	24	190	12	359	4,000	a3,900	8.4	81	a2
31.....	--	--	--	304	3,330	2,730	--	--	--
Total.	653	--	426	5,824.2	--	168,160	3,957.8	--	25,430

	July			August			September		
1.....	8.8	65	2	93	42,000	10,500			
2.....	12	375	12	57	31,000	4,770			
3.....	16	3,600	sa380	33	72,000	6,420			
4.....	35	13,000	sa1,300	24	56,000	3,630			
5.....	15	1,500	61	11	10,800	321			
6.....	9.9	260	a7	4.3	233	3	0.2	0	0
7.....	8.1	175	4	1.8	150	1			
8.....	5.3	98	1	.7	100	(t)			
9.....	4.3	50	1	.4	100	(t)			
10.....	2.6	140	1	.4	90	(t)			
11.....	1.8	120	1						
12.....	1.4	42	(t)						
13.....	2.0	95	1	.3	0	0			
14.....	31	3,070	s426						
15.....	51	36,800	5,260						
16.....	26	22,000	1,540	32	32,000	sa13,000			
17.....	12	3,000	97	56	51,800	s9,000	.1	0	0
18.....	5.3	400	6	18	16,000	778			
19.....	2.1	246	1	5.3	420	6			
20.....	1.2	155	1	3.4	210	2			
21.....	.6	100	(t)	6.2	162	3			
22.....	.5	130	(t)	2.5	57	(t)			
23.....	.4	102	(t)	.8	20	(et)			
24.....	0	0	0				0	0	0
25.....	0	0	0	.3	0	0	0	0	0
26.....	0	0	0				0	0	0
27.....	0	0	0				0	0	0
28.....	0	0	0				0	0	0
29.....	.2	65	(t)	.2	0	0	0	0	0
30.....	4.0	270	s12				0	0	0
31.....	198	103,000	s90,400				--	--	--
Total.	454.5	--	99,515	353.4	--	48,435	3.4	--	0

Total discharge for year (cfs - days) 17,254.3
Total load for year (tons) 359,789

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.

SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Nov. 21, 1955	2:10 p. m.	25	38	488	5,660		63		80	82	84	86	96		100		SPWCM
Dec. 2	2:40 p. m.	40	36	1,740	4,820		61		80	83	85	88	93		100		SPWCM
Feb. 29, 1956	2:10 p. m.	43	37	794	5,580		76		93	98	100	--	--		--		SPWCM
Mar. 19	2:20 p. m.	44	51	792	5,330		79		95	98	99	100	--		--		SPWCM
Apr. 16	2:30 p. m.	24	65	135	2,360		64		89	94	99	100	--		--		SPWCM
May 18	3:40 p. m.	32	72	226	3,280		60		88	95	97	99	100		--		SPWCM
May 25	3:00 p. m.	520	72	8,670	3,950		23		32	50	82	97	99		100		SPWMC
June 8	4:40 p. m.	195	76	1,500	6,480		29		46	59	80	98	100		--		SPWCM
Aug. 3	4:00 p. m.	32	78	96,700	3,720		75		99	100	--	--	--		--		SPWCM

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 1956.
Water temperatures: May 1949 to September 1956.
Sediment records: October 1948 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,350 ppm Oct. 21-31, Nov. 1-10; minimum, 250 ppm May 21-31.
Hardness: Maximum, 644 ppm Nov. 1-10; minimum, 144 ppm May 21-31.
Specific conductance: Maximum daily, 1,960 micromhos Oct. 22; minimum daily, 341 micromhos May 31.
Water temperatures: Maximum, 82°F July 18; minimum, 34°F on several days during winter months.
Sediment concentrations: Maximum daily, 12,500 ppm July 1; minimum daily, 64 ppm Sept. 30.
Sediment loads: Maximum daily, 716,000 tons May 28; minimum daily, 454 tons Sept. 30.
EXTREMES, 1948-56.--Dissolved solids (1950-56): Maximum, 1,990 ppm Sept. 22, 1952; minimum, 250 ppm May 21-31, 1956.
Hardness (1950-56): Maximum, 1,080 ppm Sept. 22, 1952; minimum, 144 ppm May 21-31, 1956.
Specific conductance (1950-56): Maximum daily, 2,470 micromhos Sept. 22, 1952; minimum daily, 341 micromhos May 31, 1956.
Water temperatures (1949-56): 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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	3,133	14		138	61	185	6.2	203	605	143	0.4	9.2	--	1,260	1.71	10,660	596	492	40	3.3	1,790	7.9
Oct. 11-20	3,216	12		142	63	192	6.2	203	620	151	.4	9.9	0.19	1,300	1.77	11,290	614	447	40	3.4	1,840	7.7
Oct. 21-31	3,275	12		145	65	204	6.6	202	652	156	.4	9.3	--	1,350	1.84	11,940	630	464	41	3.5	1,910	8.0
Nov. 1-10	3,800	12		149	66	200	6.4	225	644	154	.4	8.8	--	1,350	1.84	13,850	644	459	40	3.4	1,900	7.9
Nov. 11-20	4,464	15		146	53	180	5.9	234	558	154	--	7.3	.23	1,230	1.67	14,820	582	390	40	3.3	1,790	7.8
Nov. 21-30	4,650	16		135	47	175	5.9	224	507	150	--	6.6	--	1,150	1.56	14,440	530	347	41	3.3	1,690	8.1
Dec. 1-10	5,007	15		124	45	165	5.9	230	458	136	--	6.5	--	1,070	1.46	14,470	494	306	42	3.2	1,580	7.7
Dec. 11-20	4,105	16		133	48	169	6.6	226	483	144	--	7.2	.19	1,120	1.52	12,410	530	344	41	3.2	1,650	8.0
Dec. 21-31	5,340	15		122	44	171	4.4	234	442	140	--	6.6	--	1,060	1.44	15,280	486	294	43	3.4	1,580	7.7
Jan. 1-10, 1956	5,410	15		108	41	140	4.7	210	388	113	--	6.0	--	919	1.25	13,420	438	266	41	2.9	1,390	7.8
Jan. 11-20	5,033	16		115	44	163	5.3	210	426	142	--	6.9	.18	1,020	1.39	13,860	468	296	43	3.3	1,530	7.9
Jan. 21-31	5,549	14		105	41	153	4.7	208	392	125	--	6.1	--	943	1.28	14,130	430	260	43	3.2	1,420	8.0
Feb. 1-10	3,720	15		114	45	172	5.5	218	442	154	--	8.5	--	1,060	1.44	10,650	470	291	44	3.5	1,590	7.9
Feb. 11-20	4,499	14		120	48	172	5.5	228	448	164	--	8.8	.19	1,090	1.48	13,240	497	310	43	3.4	1,650	7.8
Feb. 21-29	4,499	14		110	44	163	5.5	218	412	142	--	6.1	--	1,000	1.36	12,150	456	277	43	3.3	1,520	7.8
Mar. 1-10	5,348	15		95	42	163	5.2	200	393	132	--	7.6	--	952	1.29	13,750	410	246	46	3.5	1,420	7.8
Mar. 11-20	6,350	16		88	34	135	4.7	192	336	103	--	7.2	.15	819	1.11	14,040	360	202	45	3.1	1,230	8.0
Mar. 21-31	10,840	15		90	32	130	4.9	206	315	97	--	6.5	--	791	1.08	23,150	356	187	44	3.0	1,190	7.9

Apr. 1-10, 1956 .	11,230	17		76	23	83	3.6	192	222	56		5.9	--	582	0.79	17,650	284	126	38	2.1	889	7.8
Apr. 11-20.....	9,677	16		74	25	80	3.6	176	217	63		5.4	.09	571	.78	14,920	288	144	37	2.0	890	7.8
Apr. 21-30	18,490	15		59	19	52	3.1	164	150	38		6.0	--	423	.58	21,120	225	90	33	1.5	671	7.8
May 1-10	23,050	15		58	16	39	2.2	162	109	30		4.8	--	354	.48	22,030	210	78	28	1.2	560	7.8
May 11-20	27,220	13		52	14	29	2.2	152	90	21		3.2	.08	299	.41	21,970	187	62	25	.9	483	7.9
May 21-31	42,430	8.0		38	12	29	1.9	102	90	20		1.1	--	250	.34	28,640	144	61	30	1.0	409	--
June 1-10.....	54,820	12		44	12	23	1.0	130	75	16		3.0	--	251	.34	37,150	160	53	24	.8	410	7.7
June 11-20	38,160	15		45	12	24	2.0	135	75	17		2.3	.07	259	.35	26,690	161	50	24	.8	425	7.3
June 21-30.....	19,440	14		51	16	37	2.4	144	116	29		3.1	.07	340	.46	17,850	195	77	29	1.2	536	7.5
July 1-10	11,770	15		83	20	67	3.8	160	236	51		4.2	--	559	.76	17,760	290	159	33	1.7	832	8.2
July 11-20	7,613	12		82	23	69	3.8	172	228	54		3.7	.10	560	..76	11,510	298	157	33	1.7	864	7.9
July 21-31	5,313	12		96	30	92	4.7	192	300	74		4.0	--	708	.96	10,160	364	207	35	2.1	1,060	7.8
Aug. 1-10	6,343	14		126	39	134	6.7	198	428	98		7.5	--	951	1.29	16,290	464	312	38	2.7	1,370	7.8
Aug. 11-20.....	4,822	14		105	34	112	5.9	204	336	74		8.1	.16	788	1.07	10,260	400	233	37	2.4	1,170	7.7
Aug. 21-31	3,970	14		144	44	140	7.2	208	502	104		8.2	--	1,070	1.46	11,470	540	369	36	2.6	1,520	7.6
Sept. 1-10	2,897	11		122	46	140	5.2	190	455	112		6.4	--	992	1.35	7,760	494	338	38	2.7	1,450	8.2
Sept. 11-20	2,617	9.1		132	57	165	5.5	200	544	130		7.4	.18	1,150	1.56	8,130	565	401	39	3.0	1,670	7.9
Sept. 21-30	2,577	8.7		142	63	179	5.5	200	608	140		8.8	--	1,250	1.70	8,700	615	451	39	3.1	1,770	8.2
Weighted average	10,600	13		72	24	73	3.3	162	215	57		4.5	--	542	0.74	15,510	278	145	36	1.9	826	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	51	40	43	37	43	50	59	68	74	78	71
2	63	49	40	41	35	43	48	60	67	74	77	72
3	63	49	39	39	34	43	47	59	67	73	76	72
4	64	47	39	39	34	44	48	61	67	72	76	72
5	64	45	37	37	35	45	49	61	65	72	75	72
6	61	47	36	38	34	44	50	63	65	73	75	72
7	59	47	36	36	34	44	50	62	65	73	73	71
8	58	46	36	36	34	44	50	62	67	75	73	72
9	57	45	36	36	37	42	51	62	67	75	73	73
10	58	45	36	37	38	44	52	60	67	77	74	72
11	61	47	36	38	36	44	53	59	68	78	73	72
12	60	48	35	36	38	42	44	59	69	77	73	72
13	61	--	34	38	36	40	55	59	70	75	73	73
14	60	48	35	39	41	40	54	59	70	76	74	73
15	60	46	35	41	40	42	55	59	70	77	74	72
16	60	43	34	40	39	40	56	59	69	77	75	71
17	60	41	35	41	39	43	57	60	--	77	74	71
18	60	40	36	41	40	44	58	63	60	82	74	71
19	61	39	36	40	41	46	57	64	69	80	74	71
20	61	40	36	40	41	48	58	66	70	79	74	71
21	60	41	37	41	38	48	58	65	70	81	73	70
22	61	42	37	42	38	50	60	65	71	80	74	69
23	61	41	40	41	41	54	60	66	71	80	74	68
24	59	39	40	42	42	52	61	66	73	79	76	67
25	56	40	41	41	42	53	60	64	71	78	78	66
26	56	38	41	41	42	54	60	67	72	79	75	68
27	55	41	42	43	42	51	59	64	76	78	73	73
28	54	39	43	41	--	51	59	64	78	79	73	72
29	54	39	43	42	39	49	59	64	76	78	72	71
30	52	39	--	41	--	49	59	64	75	77	72	67
31	53	--	43	39	--	50	--	64	--	77	71	--
Average	59	44	38	40	38	46	55	62	70	77	74	71

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

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.....	3,040	370	3,040	3,550	345	3,310	4,550	650	7,990
2.....	3,080	310	2,580	3,590	330	3,200	4,750	1,000	12,800
3.....	3,080	270	2,250	3,620	325	3,180	4,980	600	8,070
4.....	3,070	255	2,110	3,800	365	3,740	5,260	575	8,170
5.....	3,020	230	1,880	3,790	405	4,140	5,690	610	9,370
6.....	3,070	210	1,740	3,820	445	4,590	5,690	670	10,300
7.....	3,210	235	2,040	3,970	470	5,040	5,400	650	9,480
8.....	3,290	245	2,180	3,920	435	4,600	5,150	820	11,400
9.....	3,240	265	2,320	3,900	425	4,480	4,510	820	9,990
10.....	3,230	265	2,310	4,040	425	4,640	4,090	585	6,460
11.....	3,240	265	2,320	4,390	560	6,640	3,920	440	4,660
12.....	3,180	280	2,400	4,380	575	6,800	3,900	375	3,950
13.....	3,240	270	2,360	4,170	530	a6,000	3,910	400	4,220
14.....	3,240	230	2,010	4,330	520	6,080	3,960	410	4,380
15.....	3,210	230	1,990	4,360	455	5,360	3,910	690	7,280
16.....	3,230	225	1,960	4,460	495	5,960	3,940	475	5,050
17.....	3,150	215	1,830	4,600	585	7,270	4,040	610	6,650
18.....	3,140	245	2,080	4,660	480	6,040	4,150	520	5,830
19.....	3,250	255	2,240	4,790	830	10,700	4,390	650	7,700
20.....	3,280	270	2,390	4,500	1,300	15,800	4,930	1,340	17,800
21.....	3,280	260	2,300	4,330	870	10,200	4,910	780	10,300
22.....	3,250	275	2,410	4,360	690	8,120	4,980	650	8,740
23.....	3,250	245	2,150	4,300	710	8,240	5,040	540	7,350
24.....	3,240	235	2,060	4,630	640	8,000	5,020	540	7,320
25.....	3,210	255	2,210	4,560	685	8,430	4,970	625	8,390
26.....	3,160	280	2,390	4,820	800	10,400	5,040	600	8,160
27.....	3,160	305	2,600	5,130	1,060	14,700	5,300	650	9,300
28.....	3,190	266	2,280	5,110	830	a11,000	5,710	720	11,100
29.....	3,290	260	2,310	4,750	730	9,360	5,910	750	12,000
30.....	3,450	300	2,790	4,510	660	8,040	5,870	800	a13,000
31.....	3,540	350	3,350	--	--	--	5,990	960	15,500
Total.	99,510	--	70,880	129,140	--	214,060	149,860	--	272,710
	January			February			March		
1.....	6,260	1,050	18,700	5,090	625	8,590	4,770	575	7,410
2.....	6,490	1,080	18,900	4,630	575	7,190	4,700	750	9,520
3.....	6,430	1,090	18,900	3,520	530	5,040	4,790	670	8,670
4.....	6,170	1,050	17,500	3,010	590	4,790	4,650	500	6,280
5.....	5,730	1,020	15,800	2,870	560	4,340	4,790	450	5,820
6.....	5,170	1,050	15,700	3,410	575	5,290	4,980	450	6,050
7.....	4,650	875	11,000	3,650	1,430	14,100	5,240	450	6,370
8.....	4,360	1,100	12,900	3,360	1,100	9,980	5,690	560	8,600
9.....	4,330	980	11,500	3,620	580	5,670	6,490	875	15,300
10.....	4,510	925	11,300	4,040	450	4,910	7,380	1,500	29,900
11.....	4,410	730	8,690	4,190	450	5,090	7,250	2,150	42,100
12.....	4,440	575	6,890	4,360	470	5,530	7,120	3,300	63,400
13.....	4,560	475	5,850	4,280	470	5,430	6,960	4,550	85,500
14.....	4,790	470	6,080	4,330	430	5,030	6,700	3,600	65,100
15.....	4,930	560	7,450	4,330	440	5,140	6,660	2,800	50,300
16.....	5,190	630	8,830	4,410	410	4,880	6,220	2,100	35,300
17.....	5,360	620	8,970	4,660	470	5,910	5,890	1,750	27,800
18.....	5,450	580	8,530	4,840	490	6,400	5,770	1,200	18,700
19.....	5,570	560	8,420	4,860	470	6,170	5,570	1,000	15,000
20.....	5,630	590	8,970	4,730	430	5,490	5,360	1,100	15,900
21.....	5,630	660	10,000	4,500	520	6,320	5,150	1,100	15,300
22.....	5,770	680	10,600	4,230	480	5,480	5,240	800	11,300
23.....	5,630	760	11,600	4,080	390	4,300	5,570	780	11,700
24.....	5,690	900	13,800	4,040	400	4,360	6,540	820	14,500
25.....	5,790	970	15,200	4,190	410	4,640	10,000	2,650	71,600
26.....	5,770	980	15,300	4,390	460	5,450	12,100	5,550	181,000
27.....	5,590	860	13,000	4,910	460	6,100	13,400	8,800	318,000
28.....	5,380	825	12,000	5,200	500	a7,000	14,800	10,700	428,000
29.....	5,320	710	10,200	4,950	520	6,950	15,400	10,300	428,000
30.....	5,170	670	9,350	--	--	--	15,800	10,000	427,000
31.....	5,300	680	9,730	--	--	--	15,200	10,500	431,000
Total.	165,470	--	359,660	122,680	--	175,570	236,180	--	2,860,420

a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT HITE, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	13,800	9,550	356,000	23,600	3,980	254,000	50,500	4,150	566,000
2.....	12,400	8,260	277,000	22,600	3,500	214,000	52,400	4,100	580,000
3.....	11,300	7,000	214,000	20,900	3,200	181,000	55,400	3,850	576,000
4.....	11,100	5,800	174,000	19,300	2,900	151,000	58,800	3,900	619,000
5.....	11,400	5,020	155,000	18,900	2,800	143,000	59,800	4,020	649,000
6.....	11,100	4,180	125,000	19,700	2,580	137,000	57,800	3,750	585,000
7.....	10,600	3,620	104,000	21,600	2,700	157,000	56,100	3,250	492,000
8.....	10,400	3,900	110,000	24,000	3,250	211,000	55,200	3,250	484,000
9.....	10,400	2,900	81,400	28,000	3,900	295,000	52,100	3,050	429,000
10.....	9,800	2,300	60,900	31,900	4,400	379,000	50,100	3,050	413,000
11.....	9,000	2,000	48,600	33,800	4,300	392,000	48,100	3,020	392,000
12.....	8,640	1,750	40,800	32,600	3,980	350,000	46,500	2,950	370,000
13.....	8,370	1,500	33,900	30,700	3,900	323,000	45,100	2,920	356,000
14.....	8,470	1,400	32,000	28,600	3,600	278,000	42,800	2,750	318,000
15.....	8,800	1,350	32,100	28,000	3,200	242,000	39,300	2,700	286,000
16.....	9,200	1,450	36,000	26,800	2,640	191,000	36,600	2,800	277,000
17.....	9,990	1,600	43,200	24,800	2,350	157,000	34,200	2,700	a 250,000
18.....	10,700	1,950	56,300	23,000	2,180	135,000	31,900	2,700	233,000
19.....	11,100	2,050	61,400	21,700	2,020	118,000	29,400	2,580	205,000
20.....	12,500	2,150	72,600	22,200	2,060	123,000	27,700	2,380	178,000
21.....	13,500	2,200	80,200	26,000	2,200	154,000	26,200	2,350	166,000
22.....	14,900	2,400	96,600	29,600	2,580	206,000	24,900	2,250	151,000
23.....	15,500	2,800	117,000	35,600	3,300	317,000	23,400	2,020	128,000
24.....	16,300	3,050	134,000	40,200	3,850	418,000	21,700	2,000	117,000
25.....	18,400	3,780	188,000	42,600	4,180	481,000	20,000	1,900	103,000
26.....	20,000	4,000	216,000	46,000	4,220	524,000	18,100	1,820	88,900
27.....	20,600	4,050	225,000	48,400	4,620	604,000	16,400	1,780	78,800
28.....	21,100	3,980	227,000	51,000	5,200	716,000	15,400	1,450	60,300
29.....	21,800	3,980	234,000	50,400	5,050	687,000	14,600	1,220	48,100
30.....	22,800	3,860	238,000	48,100	4,600	597,000	13,700	1,100	40,700
31.....	---	--	--	48,800	4,200	553,000	--	--	--
Total.	393,970	--	3,870,000	969,400	--	9,688,000	1,124,200	--	9,239,800

Day	July			August			September		
1.....	13,900	12,500	s518,000	5,770	3,250	50,600	3,330	434	3,900
2.....	13,200	12,000	428,000	6,150	2,300	38,200	3,270	340	3,000
3.....	12,700	5,500	189,000	6,850	2,500	46,200	3,140	208	1,760
4.....	11,700	3,530	112,000	6,050	2,650	43,300	3,020	426	3,470
5.....	12,100	2,600	84,900	6,050	6,050	98,800	2,940	406	3,220
6.....	11,600	2,550	79,900	6,790	8,600	158,000	2,850	282	2,170
7.....	11,200	3,400	103,000	6,720	6,000	109,000	2,750	225	1,670
8.....	10,800	2,300	67,100	6,550	3,180	56,200	2,640	192	1,370
9.....	10,300	1,800	50,100	6,470	1,900	33,200	2,550	222	1,530
10.....	10,200	1,450	39,900	6,030	2,210	36,000	2,480	305	2,040
11.....	9,880	1,160	30,900	5,470	3,780	55,800	2,480	259	1,730
12.....	8,960	1,250	30,200	5,040	3,450	46,900	2,590	298	2,080
13.....	8,180	1,060	23,400	4,700	2,020	25,600	2,680	212	1,530
14.....	7,770	950	19,900	4,530	2,980	36,400	2,640	162	1,150
15.....	7,430	700	14,000	4,380	5,450	64,500	2,630	146	1,040
16.....	7,120	660	12,700	4,820	6,100	79,400	2,680	133	962
17.....	6,940	1,130	21,200	4,510	5,000	60,900	2,660	129	926
18.....	6,850	775	14,300	4,190	4,980	56,300	2,620	105	743
19.....	6,550	970	17,200	5,170	6,300	87,900	2,610	112	789
20.....	6,450	1,080	18,800	5,410	3,550	51,900	2,580	155	1,080
21.....	6,300	1,020	17,400	4,980	5,400	72,600	2,540	119	816
22.....	6,090	880	14,500	4,660	9,550	120,000	2,480	122	817
23.....	5,830	740	11,600	4,410	4,800	57,200	2,510	100	678
24.....	5,510	710	10,600	4,170	2,820	31,800	2,560	127	878
25.....	5,280	640	9,120	4,020	2,950	32,000	2,590	108	755
26.....	5,060	550	7,510	3,910	2,960	31,200	2,590	110	e 770
27.....	4,840	420	5,490	3,710	1,780	17,800	2,600	120	842
28.....	4,800	700	9,070	3,570	1,250	12,000	2,640	120	e 860
29.....	4,930	2,450	32,600	3,480	1,600	15,000	2,630	115	817
30.....	4,630	2,600	32,500	3,440	950	8,820	2,630	64	454
31.....	5,170	5,600	78,200	3,320	600	5,380	--	--	--
Total.	252,270	--	2,103,090	155,320	--	1,638,900	80,910	--	43,847

Total discharge for year (cfs-days) 3,878,910
Total load for year (tons) 30,536,937

e Estimated.
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 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 19, 1955...	5:10 p.m.	3,250	63	234	2,690		43		55	59	69	93	100		--		SPWCM
Nov. 21.....	10:10 a.m.	4,310	41	845	2,520		56		73	79	80	92	100		--		SPWCM
Dec. 2	10:35 a.m.	4,770	40	1,290	4,420		39		61	71	82	95	100		--		SPWCM
Dec. 3	9:55 a.m.	4,970	39	609	4,720		39		54	60	68	88	99		100		SPWCM
Dec. 5	2:20 p.m.	5,730	37	599	4,640		32		45	51	60	87	99		100		SPWCM
Jan. 7, 1956 ...	11:10 a.m.	4,660	36	802	4,430		62		78	81	84	95	100		--		SPWCM
Mar. 10	9:35 a.m.	7,450	44	1,430	4,150		32		46	53	66	94	100		--		SPWCM
Mar. 30	9:15 a.m.	15,900	49	9,910	3,460		53		79	84	89	97	100		--		SPWCM
Apr. 7.....	8:15 a.m.	10,600	50	3,670	4,490		53		73	78	83	94	99		100		SPWCM
May 10	6:10 p.m.	33,200	61	4,350	4,560		27		48	63	78	95	99		100		SPWCM
June 8	7:50 a.m.	55,400	67	3,130	3,550		16		27	38	54	73	99		100		SPWCM
July 1	4:00 p.m.	16,300	77	42,300	5,580		42		66	84	97	99	100		--		SPWCM
July 2	6:10 a.m.	13,100	74	10,800	3,560		47		70	84	95	99	100		--		SPWCM
July 2	8:00 a.m.	12,900	75	10,400	3,540		47		72	86	96	99	100		--		SPWCM
July 3	6:25 a.m.	13,100	73	3,690	3,200		43		64	74	86	96	100		--		SPWCM
July 5	7:25 p.m.	12,200	74	2,190	4,870		36		53	59	77	93	100		--		SPWCM
July 29.....	7:45 p.m.	4,660	78	6,140	3,370		60		91	94	95	97	100		--		SPWCM
July 30	2:35 p.m.	4,600	82	1,260	4,820		57		77	85	85	92	99		100		SPWCM
July 31	12:30 p.m.	5,190	81	5,110	4,280		59		89	95	96	98	100		--		SPWCM
Aug. 1	6:45 a.m.	5,670	78	1,970	3,790		59		78	84	87	93	99		100		SPWCM
Aug. 3	6:40 a.m.	7,050	76	2,970	4,420		65		82	88	88	93	99		100		SPWCM
Aug. 4	6:45 a.m.	6,150	76	2,720	3,500		63		85	90	90	94	99		100		SPWCM
Aug. 5	12:15 p.m.	6,010	77	6,590	3,600		71		94	96	96	98	100		--		SPWCM
Aug. 6.....	7:30 a.m.	6,720	75	5,820	4,080		74		90	92	94	97	100		--		SPWCM
Aug. 8	6:40 a.m.	6,470	73	3,330	3,180		70		89	90	90	94	99		100		SPWCM
Aug. 15	1:30 p.m.	4,220	78	6,060	3,120		75		94	98	98	99	100		--		SPWCM
Aug. 16	7:35 a.m.	4,730	75	6,240	3,420		59		80	94	97	99	100		--		SPWCM
Aug. 17	6:30 a.m.	4,630	74	5,100	3,500		65		83	90	97	99	100		--		SPWCM
Aug. 18	6:50 a.m.	4,270	74	4,810	5,180		71		94	95	97	98	100		--		SPWCM
Aug. 19	9:40 a.m.	5,380	75	9,090	4,840		68		95	98	98	99	100		--		SPWCM
Aug. 20.....	7:05 a.m.	5,280	74	3,180	4,560		65		92	95	95	97	100		--		SPWCM

SAN JUAN RIVER BASIN

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 1956.
Water temperatures: December 1954 to September 1956.
Sediment records: December 1954 to September 1956.
EXTREMES, 1955-56.--Specific conductance: Maximum daily, 653 micromhos Aug. 17; minimum daily, 115 micromhos May 31, June 1.
Water temperatures: Maximum, 77°F July 16, 17; minimum, freezing point on many days during December to February.
Sediment concentrations: Maximum daily, 34,200 ppm Aug. 17; minimum daily, 15 ppm Jan. 23.
Sediment loads: Maximum daily, 67,600 tons Aug. 17; minimum daily, 10 tons Jan. 23, Sept. 26.
EXTREMES, 1954-56.--Specific conductance: Maximum daily, 653 micromhos Aug. 17, 1956; minimum daily, 115 micromhos May 31, June 1, 1956.
Water temperatures: Maximum, 79°F Aug. 19, 1955; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 34,200 ppm Aug. 17, 1956; minimum daily, 15 ppm Jan. 23, 1956.
Sediment loads: Maximum daily, 152,000 tons July 27, 1955; minimum daily, 10 tons Dec. 1-6, 1954, Jan. 23, 1956, Sept. 26, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year year October 1955 to September 1956 given in WSP 1443. Flow affected by ice Nov. 17, Dec. 4-26, Jan. 31 to Feb. 14.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955	319	13	0.09	39	7.1	28	3.9	142	63	8.5	0.4	0.4	0.08	236	0.32	203	126	10	32	1.1	370	7.6
Oct. 11-31	316	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--	375	--
Nov. 1-15	294	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	396	--
Nov. 16-30	261	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	463	--
Dec. 1-31	247	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	477	--
Jan. 1-10, 1956	240	19	.01	48	9.5	37	3.7	151	102	10	.5	.3	.11	306	.42	198	159	36	33	1.3	464	7.8
Jan. 11-31	272	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	445	--
Feb. 1-29	256	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	489	--
Mar. 1-21	548	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	472	--
Mar. 22-31	1,260	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	313	--
Apr. 1-10	1,146	18	.04	31	5.2	13	2.6	96	45	3.8	.4	.4	.09	178	.24	551	99	20	22	.6	259	7.4
Apr. 11-30	1,412	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	211	--
May 1-18	2,411	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	167	--
May 19-31	3,393	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	138	--
June 1-20	2,574	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	142	
June 21-30	746	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	260	--
July 1-10	561	13	.08	34	5.7	22	3.5	122	50	5.5	.6	.4	.08	199	.27	301	108	8	30	.9	311	7.6
July 11-31	328	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	376	--
Aug. 1-31	374	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	374	--
Sept. 1-30	188	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	391	--
Weighted average	769	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	249	--

SAN JUAN RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956
/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	a55	47	38	a32	34	38	46	56	60	68	71	a50
2	a60	43	--	36	32	39	41	55	60	67	72	66
3	64	a38	32	35	a32	41	43	a54	64	72	72	67
4	63	--	32	34	32	43	45	57	60	a67	73	67
5	59	a36	32	34	32	42	47	57	58	71	a63	67
6	56	a40	32	37	32	37	48	56	60	72	75	70
7	55	a39	32	39	32	36	50	56	58	70	a67	68
8	55	a35	32	39	32	39	47	54	62	71	a65	69
9	57	40	32	40	32	43	48	53	64	73	74	a62
10	59	42	--	39	32	44	49	51	63	a67	74	71
11	58	42	32	38	32	41	49	53	67	a67	72	71
12	59	43	32	38	32	38	57	54	67	73	75	a64
13	59	45	32	39	32	41	51	--	70	a68	75	70
14	59	43	32	39	36	40	47	50	67	74	74	70
15	58	--	32	40	37	a38	50	53	63	76	a67	a62
16	59	34	32	38	34	45	52	57	64	77	67	a61
17	58	35	32	38	36	46	51	58	64	77	a62	a58
18	58	a35	32	39	36	49	52	59	69	a68	70	a59
19	57	38	32	36	37	48	50	57	69	a73	71	a59
20	56	a34	33	38	39	48	53	57	65	74	a62	a59
21	57	a37	32	38	a32	47	55	56	69	73	70	a59
22	59	a37	33	a35	43	48	55	56	69	73	a61	a57
23	56	--	--	35	42	48	54	55	a62	73	71	a60
24	52	38	33	39	37	50	50	55	67	75	69	a55
25	50	37	35	32	36	48	54	54	69	76	69	a59
26	50	37	34	37	35	48	55	55	71	74	a63	a56
27	46	37	34	37	35	a46	52	56	71	74	--	a56
28	45	37	36	35	a32	41	50	57	a65	75	67	a60
29	45	37	35	36	40	44	53	58	73	75	66	a55
30	46	37	38	34	--	47	53	60	68	75	a66	a56
31	48	--	a34	32	--	48	--	60	--	75	a58	--
Average	55	39	33	37	35	44	50	56	65	72	69	62

a Measurement before 11 a. m.

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1955 to September 1956

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	340	99	91	268	33	24	284	33	25
2	335	79	71	264	34	24	350	94	a 89
3	335	70	63	292	54	43	276	129	96
4	315	68	58	310	58	a 49	170	70	32
5	305	76	63	296	45	36	145	109	43
6	305	81	67	300	46	37	180	150	73
7	315	65	55	310	48	40	210	127	72
8	315	58	49	300	64	a 52	180	258	125
9	315	53	45	292	80	63	220	115	68
10	310	58	49	284	92	71	260	130	a 91
11	310	54	45	292	132	104	230	100	62
12	300	59	48	280	83	63	210	139	79
13	305	47	39	292	59	47	230	152	94
14	310	48	40	305	86	71	210	150	85
15	330	65	58	330	110	a 98	220	180	107
16	330	71	63	236	128	82	250	142	96
17	325	64	56	210	107	61	250	160	108
18	330	65	58	248	80	54	240	160	104
19	350	86	81	300	160	130	230	165	102
20	350	74	70	288	108	84	230	141	88
21	355	61	58	280	52	39	240	125	81
22	345	54	50	296	40	32	240	116	75
23	325	45	39	300	37	30	230	120	a 75
24	330	40	36	260	28	20	245	80	53
25	315	39	33	240	21	14	260	92	65
26	300	38	31	248	22	15	300	140	113
27	288	73	57	240	22	14	300	148	120
28	284	58	44	252	20	14	314	195	165
29	292	43	34	260	20	14	318	269	231
30	284	39	30	260	22	15	323	243	212
31	272	33	24	--	--	--	310	170	142
Total	9,820	--	1,605	8,333	--	1,440	7,655	--	2,971
	January			February			March		
1	278	89	67	220	132	78	535	15,500	s 25,200
2	250	75	51	205	160	a 89	577	9,000	14,000
3	228	100	62	190	240	123	619	6,200	10,400
4	224	127	77	190	230	118	662	7,300	13,000
5	228	224	138	220	113	67	662	8,600	15,400
6	250	170	115	250	268	181	690	7,250	13,500
7	228	69	42	300	321	260	529	4,200	6,000
8	246	42	28	300	309	250	431	750	873
9	228	39	24	260	350	246	426	750	863
10	238	38	24	240	205	133	541	1,400	2,040
11	228	35	22	220	228	135	669	3,900	7,040
12	238	40	26	230	233	145	583	3,000	4,720
13	254	41	28	260	210	147	517	850	1,190
14	258	39	27	270	165	120	458	450	556
15	254	38	26	274	245	181	415	250	280
16	262	40	28	310	370	310	385	190	198
17	278	41	31	287	197	153	356	170	163
18	278	35	26	266	96	69	426	550	633
19	258	35	24	246	111	74	625	4,500	7,590
20	254	28	19	242	50	33	718	7,500	14,500
21	250	21	14	228	80	49	683	6,300	11,600
22	262	18	13	234	65	41	950	5,250	13,500
23	258	15	10	292	130	102	1,020	6,550	18,000
24	274	19	14	310	770	644	1,050	7,500	21,300
25	234	29	18	300	1,460	1,180	1,080	11,200	32,700
26	190	25	13	296	2,650	2,120	1,095	8,100	23,900
27	296	41	33	242	1,830	1,200	2,010	6,450	35,000
28	481	550	714	254	980	672	1,080	3,100	9,040
29	431	760	884	300	470	381	1,350	2,500	9,110
30	258	413	288	--	--	--	1,370	2,200	8,140
31	210	220	125	--	--	--	1,590	2,900	12,400
Total	8,104	--	3,011	7,436	--	9,301	24,102	--	332,836

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

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	1,700	2,800	12,900	1,340	940	3,400	3,820	1,500	15,500
2.....	1,430	1,700	6,560	1,510	1,080	4,400	4,210	2,100	23,900
3.....	1,210	1,100	3,590	1,770	1,490	7,120	4,210	1,750	19,900
4.....	987	800	2,130	2,240	2,850	17,200	3,780	1,350	13,800
5.....	904	700	1,710	2,720	4,410	32,400	3,610	1,220	11,900
6.....	904	850	2,070	3,020	4,700	38,300	3,600	1,210	11,800
7.....	920	900	2,240	3,160	3,750	32,000	3,320	1,190	10,700
8.....	1,090	1,300	3,830	3,240	2,910	25,500	2,870	610	4,730
9.....	1,160	1,450	4,540	3,320	2,550	22,900	2,650	480	3,430
10.....	1,160	1,350	4,230	2,870	1,570	12,200	2,550	500	3,440
11.....	1,280	1,450	5,010	2,320	1,320	8,270	2,450	380	2,510
12.....	1,280	1,300	4,490	2,180	1,160	6,830	2,310	390	2,430
13.....	1,380	1,550	5,780	2,230	1,250	7,530	2,140	350	2,020
14.....	1,570	1,900	8,050	2,410	1,170	7,610	1,960	300	1,590
15.....	1,460	1,200	4,730	2,200	1,090	6,470	1,720	220	1,020
16.....	1,300	900	3,160	1,930	880	4,590	1,500	190	770
17.....	1,220	900	2,960	2,160	1,090	6,360	1,340	150	543
18.....	1,270	900	3,090	2,770	1,320	9,870	1,250	110	371
19.....	1,350	1,150	4,190	3,270	1,800	15,900	1,140	101	311
20.....	1,270	950	3,260	3,530	2,400	22,900	1,040	83	233
21.....	1,180	800	2,550	3,820	2,300	23,700	1,020	86	237
22.....	1,220	800	2,640	3,800	2,050	21,000	936	74	187
23.....	1,250	870	2,940	3,580	1,500	14,500	840	65	147
24.....	1,350	750	2,730	3,440	1,300	12,100	792	60	128
25.....	1,370	900	3,330	3,220	940	8,170	762	77	158
26.....	1,590	1,440	6,180	3,240	930	8,140	711	82	157
27.....	1,920	2,490	12,900	3,140	850	7,210	637	70	120
28.....	1,970	2,350	12,500	2,960	860	6,870	589	93	148
29.....	1,600	1,410	6,090	3,140	850	7,210	577	82	128
30.....	1,400	980	3,700	3,390	890	8,150	595	107	172
31.....	--	--	--	3,580	1,190	11,500	--	--	--
Total	39,695	--	144,080	87,500	--	420,300	58,929	--	132,480

	July			August			September		
1.....	625	170	287	583	6,000	9,440	274	95	70
2.....	669	7,260	s 15,100	755	10,500	21,400	262	110	78
3.....	697	1,200	2,260	619	3,100	5,180	254	85	58
4.....	643	400	694	547	1,250	1,850	242	70	46
5.....	589	180	286	420	500	567	224	60	36
6.....	541	168	245	380	215	221	220	55	33
7.....	487	147	193	332	140	125	231	148	s 112
8.....	470	154	195	300	125	101	266	210	151
9.....	448	160	194	274	75	55	231	110	69
10.....	442	149	178	274	75	55	228	120	74
11.....	420	108	122	266	70	50	217	230	135
12.....	337	72	66	254	65	45	190	180	92
13.....	332	70	63	242	60	39	177	60	29
14.....	323	48	42	231	70	44	170	41	19
15.....	314	50	42	242	70	46	164	35	15
16.....	292	66	52	400	12,300	s 29,800	164	34	15
17.....	270	76	55	631	34,200	s 67,600	164	30	13
18.....	266	79	57	410	4,400	4,870	158	31	13
19.....	292	82	65	420	2,100	2,380	158	29	12
20.....	310	81	68	380	2,500	2,560	152	31	13
21.....	292	74	58	400	1,390	s 1,670	149	31	12
22.....	278	188	141	365	1,350	1,330	149	28	11
23.....	332	600	s 644	337	275	250	149	28	11
24.....	346	675	631	337	775	s 904	149	31	12
25.....	296	225	180	323	2,070	1,810	146	29	11
26.....	305	2,350	s 3,380	370	290	290	146	26	10
27.....	332	7,530	s 6,970	328	230	204	143	28	11
28.....	380	4,250	s 8,930	314	180	153	146	30	12
29.....	351	4,640	s 5,380	292	130	102	158	46	20
30.....	314	700	593	287	95	74	155	31	13
31.....	505	18,300	26,400	274	90	67	--	--	--
Total	12,498	--	72,571	11,587	--	153,282	5,636	--	1,206

Total discharge for year (cfs-days)..... 281,295
Total load for year (tons)..... 1,276,083

s Computed by subdividing day.

SAN JUAN RIVER BASIN--Continued

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

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Jan. 29, 1956 ...	12:20 p.m.	448	36	811	2,050	--	70	--	89	--	97	98	99		100	--	SPWCM
Feb. 29	3:45 p.m.	287	42	360	2,910	55	67	80	89	95	97	99	100		--	--	SPWCM
Feb. 29	3:45 p.m.	287	42	360	2,810	5	30	76	88	94	97	99	100		--	--	SPN
Mar. 19	6:25 p.m.	770	48	5,980	3,700	--	50	--	75	--	97	100	--		--	--	VPWCM
Mar. 22	6:30 p.m.	e1,100	48	7,600	3,970	--	34	--	57	--	91	99	100		--	--	VPWCM
Mar. 27	8:14 a.m.	e1,400	43	7,060	2,860	--	14	--	23	--	64	93	99		100	--	VPWCM
Apr. 12	3:25 p.m.	1,320	57	1,170	--	--	--	--	--	--	34	74	97		100	--	V
May 24	12:55 p.m.	3,500	55	1,320	4,460	--	20	--	29	--	40	50	76		99	100	VPWCM
June 2	6:55 p.m.	4,590	60	2,930	2,540	--	21	--	37	--	66	75	82		99	100	VPWCM
June 13	9:25 a.m.	1,970	65	275	642	--	28	--	35	--	51	60	70		100	--	VPWCM
July 2	7:22 p.m.	740	67	19,000	4,740	--	73	--	91	--	97	98	100		--	--	VPWCM
July 27	7:00 a.m.	305	66	10,800	4,960	--	85	--	100	--	--	--	--		--	--	PWCM
July 31	7:30 p.m.	517	75	27,300	3,690	--	86	--	--	--	100	--	--		--	--	PWCM
Aug. 5	7:23 a.m.	420	63	595	1,360	--	81	--	96	--	99	100	--		--	--	SPWCM
Aug. 17.....	8:00 a.m.	770	62	42,800	3,500	--	73	--	96	--	100	--	--		--	--	PWCM

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER AT BLOOMFIELD, N. MEX.

LOCATION.--At gaging station at bridge on State Highway 44, three-quarters of a mile south of Bloomfield, San Juan County, 3 miles upstream from Kutz Canyon, and 10 miles downstream from Canyon Largo.
DRAINAGE AREA.--5,410 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: November 1955 to September 1956.
Sediment records: November 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 84°F Aug. 13; minimum, freezing point on several days during November to February.
Sediment concentrations: Maximum daily, 101,000 ppm Aug. 1; minimum daily, 58 ppm July 15.
Sediment loads: Maximum daily, 520,000 tons Aug. 1; minimum daily, 31 tons July 17.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for November 1955 to September 1956 given in WSP 1443. Flow affected by ice Jan. 3, 4, Feb. 17-20.

Temperature (°F) of water, November 1955 to September 1956
(Once-daily measurement, generally between 4 p.m. and 8 p.m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		--	--	a32	35	40	--	60	63	72	72	69
2		46	a39	b38	32	43	46	62	65	60	76	72
3		50	a34	37	32	47	46	63	62	77	a65	74
4		50	a33	40	a32	50	47	63	63	77	75	73
5		a38	32	41	35	45	53	--	60	79	78	76
6		a39	b35	41	39	39	54	59	64	79	79	75
7		47	37	a33	40	36	55	60	65	79	78	68
8		47	35	a37	35	43	--	56	62	76	78	a55
9		45	35	45	38	50	55	55	68	83	80	79
10		49	33	45	39	a45	55	55	72	82	75	80
11		a37	33	44	42	b43	52	56	72	79	a66	77
12		a45	34	44	45	45	56	55	72	78	a69	74
13		50	35	43	46	46	b57	a52	72	80	84	76
14		45	36	a39	45	a37	a48	56	73	76	77	76
15		39	40	45	45	44	a50	59	67	75	71	62
16		a33	b41	40	42	51	57	61	70	76	71	66
17		38	b40	a37	45	49	a50	66	70	80	72	a52
18		45	b36	40	b40	54	58	63	73	77	75	75
19		a35	41	41	44	53	56	58	77	77	72	75
20		50	40	42	--	50	--	56	69	77	76	62
21		45	41	a36	b39	53	b58	a55	74	76	75	68
22		44	41	41	53	43	61	59	75	76	75	62
23		44	42	42	b48	53	61	--	75	80	80	72
24		a32	43	40	40	54	55	53	69	77	a62	70
25		45	b43	33	46	52	60	57	76	82	73	a53
26		a32	b44	41	39	52	59	57	77	80	75	71
27		35	40	42	40	--	55	60	79	77	75	71
28		45	43	b42	45	46	56	62	77	a66	75	67
29		43	41	b40	46	50	59	64	80	75	72	--
30		43	43	a34	--	51	56	a62	72	76	70	62
31		--	a34	35	--	b54	--	63	--	a67	62	--
Average		43	37	40	41	47	55	59	70	76	71	69

a Measurement before 12 m.
b Measurement 12 m. to 4 p.m.

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, November 1955 to September 1956

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				221	1,100	a660	329	1,100	a980
2				203	930	510	351	1,840	1,740
3				252	840	572	241	1,600	1,040
4				307	1,170	970	203	1,300	713
5				307	1,100	912	176	1,060	504
6				252	1,090	742	176	950	451
7				212	1,000	572	212	1,320	756
8				203	880	482	167	1,160	523
9				230	1,060	658	176	970	461
10				230	910	565	252	1,820	1,240
11				263	950	675	203	1,550	850
12				296	1,230	983	194	1,150	602
13				307	890	738	203	1,250	685
14				285	1,000	770	167	1,100	496
15				241	1,390	904	203	1,440	789
16				230	1,660	1,030	263	1,360	966
17				221	1,340	800	252	970	660
18				252	1,130	769	240	1,210	784
19				285	1,240	954	230	1,320	820
20				296	1,010	807	212	950	544
21				296	1,180	943	220	1,060	630
22				221	1,270	758	212	1,210	693
23				263	1,200	852	220	940	558
24				252	1,090	742	230	1,200	745
25				185	690	345	250	930	628
26				194	1,040	545	260	910	639
27				285	870	669	270	1,050	765
28				203	700	384	290	1,220	955
29				212	1,210	693	290	1,440	1,130
30				285	820	631	300	1,350	1,090
31				--	--	--	290	1,430	1,120
Total				7,489	--	21,635	7,282	--	24,557

Day	January			February			March		
1	250	1,310	884	296	1,930	1,540	329	13,100	s 20,700
2	220	1,330	790	296	2,270	1,810	522	22,500	31,700
3	200	1,120	605	185	2,190	1,090	666	18,700	33,600
4	190	1,100	564	167	1,720	776	690	18,800	35,000
5	176	860	409	185	1,630	814	690	14,200	26,500
6	203	1,100	603	203	1,450	795	654	12,000	21,200
7	230	1,000	621	252	1,290	878	642	7,100	12,300
8	212	1,060	607	307	1,550	1,280	546	4,750	7,000
9	203	990	543	285	1,780	1,370	474	4,700	6,020
10	212	840	481	241	1,130	735	522	6,300	8,880
11	230	880	546	230	1,190	739	654	4,900	8,650
12	212	870	498	212	1,550	887	654	8,200	14,500
13	212	780	446	221	1,290	780	558	5,800	8,740
14	241	1,610	1,050	274	1,240	917	498	2,100	2,820
15	241	1,450	944	296	1,180	943	417	2,000	2,250
16	263	830	589	351	1,370	1,300	384	1,600	1,660
17	252	1,400	953	330	1,720	1,530	373	1,500	1,510
18	241	1,020	664	280	1,300	983	384	1,800	1,870
19	263	1,030	731	260	950	667	582	4,000	6,290
20	221	1,200	716	250	1,000	a680	654	8,800	15,500
21	252	1,290	878	230	1,370	851	820	8,800	19,500
22	263	2,000	1,420	274	1,580	1,170	932	7,800	19,600
23	285	1,700	1,310	263	1,190	845	1,080	8,700	25,400
24	263	1,100	781	307	1,160	962	1,300	9,500	33,300
25	221	1,410	841	263	1,520	1,080	1,500	14,400	58,300
26	221	1,280	764	285	2,520	1,940	1,850	12,200	60,900
27	274	1,190	880	241	2,690	1,750	2,000	11,000	a 59,000
28	307	1,730	1,430	252	2,600	1,770	1,800	9,200	44,700
29	450	3,130	3,800	241	2,570	1,670	1,400	5,700	21,500
30	329	3,140	2,790	--	--	--	1,430	5,000	19,300
31	307	2,590	2,150	--	--	--	1,570	8,300	35,200
Total	7,644	--	30,288	7,477	--	32,552	26,575	--	663,390

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

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, November 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	1,730	8,700	a41,000	1,320	2,250	8,020	3,900	2,200	23,200
2.....	1,680	6,000	27,200	1,430	2,300	8,880	4,020	2,100	22,800
3.....	1,390	3,700	13,900	1,820	3,100	15,200	4,200	2,900	32,900
4.....	1,160	3,000	9,400	2,160	3,900	22,700	4,100	3,000	33,200
5.....	1,030	2,500	6,950	2,320	5,000	a31,000	3,800	2,750	28,200
6.....	973	1,900	4,990	3,050	6,600	54,400	3,660	1,750	17,300
7.....	1,020	2,600	7,160	3,440	6,700	62,200	3,500	2,200	20,800
8.....	1,060	3,000	8,590	3,120	5,000	42,100	3,130	1,800	15,200
9.....	1,100	3,100	9,210	3,160	5,250	44,800	2,820	2,100	16,000
10.....	1,140	3,900	12,000	2,870	3,800	29,400	2,720	3,100	22,800
11.....	1,240	3,100	10,400	2,390	2,700	17,400	2,590	2,000	14,000
12.....	1,240	2,800	9,370	2,210	2,700	16,100	2,500	2,500	16,900
13.....	1,260	2,200	7,480	2,310	2,300	14,300	2,320	2,100	13,200
14.....	1,390	3,750	14,100	2,470	2,800	18,700	2,050	1,300	7,200
15.....	1,300	4,300	15,100	2,320	2,250	14,100	1,850	1,250	6,240
16.....	1,290	4,000	13,900	2,000	2,100	11,300	1,820	1,250	6,140
17.....	1,260	3,100	10,500	2,030	2,900	15,900	1,490	1,000	4,020
18.....	1,340	3,000	10,900	2,630	3,200	22,700	1,270	750	2,570
19.....	1,300	3,200	11,200	3,320	3,800	34,100	1,070	700	2,020
20.....	1,230	3,300	a11,000	3,520	6,000	57,000	1,010	500	1,360
21.....	1,240	3,600	12,100	3,900	3,700	39,000	899	550	1,340
22.....	1,240	2,800	9,370	3,800	4,200	a43,000	833	375	843
23.....	1,130	1,900	5,800	3,700	3,900	39,000	720	380	739
24.....	1,270	2,000	6,860	3,500	3,000	28,400	660	330	588
25.....	1,430	2,250	8,690	3,200	2,700	23,300	620	375	628
26.....	1,540	2,600	10,800	3,220	2,750	23,900	600	275	446
27.....	1,840	4,800	23,800	3,280	2,300	20,400	536	180	260
28.....	2,050	5,100	28,200	3,040	2,500	20,500	488	170	224
29.....	1,700	3,600	16,500	3,200	2,800	24,200	488	250	329
30.....	1,400	2,900	11,000	3,400	3,000	27,500	472	180	229
31.....	--	--	--	3,620	2,500	24,400	--	--	--
Total.	39,973	--	387,470	87,750	--	853,900	60,136	--	311,676

	July			August			September		
1.....	528	255	364	1,600	101,000	s520,000	192	1,640	850
2.....	584	967	s1,870	842	36,200	82,300	165	1,370	610
3.....	620	1,920	3,210	642	22,000	38,100	140	1,360	514
4.....	584	725	1,140	547	9,000	13,300	145	1,250	489
5.....	528	540	770	419	4,050	4,580	160	860	372
6.....	496	400	536	340	3,400	3,120	145	600	235
7.....	432	245	286	274	2,200	1,630	125	1,000	338
8.....	395	220	235	234	1,650	1,040	125	950	321
9.....	380	190	105	190	980	503	125	1,230	415
10.....	365	150	148	194	920	482	108	1,300	379
11.....	352	140	133	164	980	434	94	980	249
12.....	300	130	105	150	820	332	100	340	92
13.....	244	75	49	136	620	228	80	300	65
14.....	238	82	53	126	650	221	60	280	45
15.....	226	58	35	120	1,000	324	50	530	72
16.....	203	60	33	908	24,800	s181,000	57	520	80
17.....	186	61	31	1,180	41,100	s147,000	57	290	45
18.....	175	84	40	464	24,000	30,100	81	420	92
19.....	170	92	42	600	19,000	30,800	77	350	73
20.....	175	86	41	528	9,800	14,000	81	330	72
21.....	165	81	36	410	6,400	7,080	81	420	92
22.....	150	82	33	402	7,300	7,920	77	420	87
23.....	179	5,300	sb11,000	326	3,700	3,260	81	350	77
24.....	419	76,100	s123,000	250	2,400	1,620	81	360	79
25.....	226	6,200	3,780	244	3,300	2,170	86	320	74
26.....	209	1,500	846	209	3,000	1,690	73	210	41
27.....	226	4,340	s 2,890	313	3,100	2,620	77	440	91
28.....	234	4,200	2,650	281	2,300	1,750	90	530	129
29.....	384	15,400	s18,600	232	2,000	1,250	86	230	a53
30.....	247	5,800	3,870	203	1,430	784	94	370	94
31.....	1,160	36,000	sb340,000	215	2,000	1,160	--	--	--
Total.	10,780	--	516,021	12,743	--	1,100,798	2,993	--	6,225

Total discharge for period (cfs-days) 270,842
Total load for period (tons) 3,948,512

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 BLOOMFIELD, N. MEX.--Continued

Particle-size analyses of suspended sediment, November 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 2, 1955	3:30 p.m.	185	49	864	--	--	--	--	--	--	20	56	100		--	--	V
Dec. 28	4:40 p.m.	230	43	1,460	--	--	--	--	--	--	19	39	93		100	--	V
Feb. 9, 1956	6:20 p.m.	252	38	1,020	3,100	8	11	13	15	18	22	38	87		98	100	VPWCM
Feb. 9	6:20 p.m.	252	38	1,020	3,360	1	4	11	14	17	22	38	87		98	100	VPN
Mar. 1	4:00 p.m.	716	44	25,500	4,080	--	56	--	82	--	91	94	99		100	--	VPWCM
Mar. 22	9:20 a.m.	781	44	6,270	3,870	--	34	--	50	--	61	68	92		100	--	VPWCM
Mar. 26	6:15 p.m.	e 1,900	52	13,700	4,650	--	16	--	26	--	59	76	96		100	--	VPWCM
May 1	6:00 p.m.	1,230	56	1,420	2,900	--	12	--	17	--	31	59	92		100	--	VPWCM
May 14	5:45 p.m.	2,610	56	3,040	1,900	--	7	--	10	--	20	42	79		96	100	VPWCM
May 25	9:40 a.m.	3,180	56	1,860	3,830	--	11	--	17	--	31	47	83		97	100	VPWCM
May 28	5:45 p.m.	3,060	62	2,160	--	--	--	--	--	--	21	35	75		100	--	V
June 3	5:30 p.m.	4,560	62	3,000	1,930	--	15	--	26	--	48	65	94		99	100	VPWCM
June 4	6:00 p.m.	4,500	63	2,320	2,420	--	13	--	21	--	42	61	87		98	100	VPWCM
June 13	1:50 p.m.	1,890	72	1,780	1,620	--	6	--	8	--	14	20	48		77	100	VPWCM
July 2	6:30 p.m.	982	60	3,190	3,880	--	52	--	85	--	97	99	100		--	--	VPWCM
July 24	7:15 a.m.	519	62	101,000	4,130	--	62	--	83	--	97	99	100		--	--	VPWCM
July 27	3:45 p.m.	256	81	8,060	5,140	44	54	64	70	77	85	86	88		97	100	VPWCM
July 27	3:45 p.m.	256	81	8,060	5,520	2	8	37	69	78	85	86	88		97	100	VPN
Aug. 1	7:15 a.m.	1,610	64	133,000	3,930	--	45	--	58	--	80	92	99		100	--	SPWCM
Aug. 14	6:00 p.m.	117	77	709	--	--	--	--	--	--	61	79	99		100	--	V

e Estimated.

ANIMAS RIVER AT FARMINGTON, N. MEX.

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 1956.
Water temperatures: December 1950 to September 1956.
Sediment records: December 1950 to September 1956.
EXTREMES, 1955-56.--Specific conductance: Maximum daily, 1,270 micromhos Sept. 22, 24-27, 29; minimum daily, 210 micromhos June 2.
Water temperatures: Maximum, 82°F July 25, Aug. 13; minimum, freezing point on several days during December to February.
Sediment concentrations: Maximum daily, 4,440 ppm May 5; minimum daily, 1 ppm on several days in September.
Sediment loads: Maximum daily, 22,000 tons May 19; minimum daily, less than 0.50 ton on many days in August and September.
EXTREMES, 1940-56.--Dissolved solids (1940-49, 1952-54): Maximum, 1,500 ppm Aug. 19, 1949; minimum, 111 ppm June 11-17, 19-20, 1944.
Specific conductance (1941-56): Maximum daily, 1,980 micromhos Aug. 19, 1944; minimum daily, 170 micromhos June 27, 1944.
Water temperatures (1950-56): Maximum, 88°F July 29, 1951; minimum, freezing point on many days during winter months.
Sediment concentrations (1950-56): Maximum daily, 36,100 ppm July 23, 1954; minimum daily, 1 ppm on several days during September 1956.
Sediment loads (1950-56): Maximum daily, 337,000 tons July 23, 1954; minimum daily, less than 0.50 ton on many days in September 1955, and August and September 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. Flow affected by ice Nov. 16-19, Dec. 3-6.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	115	14	0.00	112	22	75	5.9	196	305	37	0.6	0.6	0.16	683	0.93	212	370	210	30	1.7	971	8.2
Oct. 11-31.....	136	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,010	--
Nov. 1-30.....	182	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	966	--
Dec. 1-31.....	227	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	938	--
Jan. 1-31, 1956..	226	11	.00	111	19	70	6.0	195	284	38	.6	1.5	.14	654	.89	399	355	195	30	1.6	942	7.7
Feb. 1-29.....	227	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	929	--
Mar. 1-22.....	303	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	828	--
Mar. 23-31.....	631	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	574	--
Apr. 1-10.....	578	8.3	.01	73	10	31	3.7	149	143	16	.5	1.1	.09	370	.50	577	223	101	23	.9	565	7.7
Apr. 11-30.....	697	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	505	--
May 1-5.....	918	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	457	--
May 6-31.....	2,168	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	297	--
June 1-16.....	2,508	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	244	--
June 17-21.....	1,227	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	374	--
June 22-30.....	698	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	473	--
July 1-10.....	398	7.4	.01	79	10	39	4.2	144	172	21	.6	.6	.11	416	.57	447	238	120	26	1.1	626	7.7
July 11-31.....	89.9	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	914	--
Aug. 1-31.....	70.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,030	--
Sept. 1-30.....	10.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,200	--
Weighted average	503	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	481	--

SAN JUAN RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement, generally between 12 m. and 7 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	50	43	40	35	47	52	62	61	--	76	70
2	69	45	40	34	35	45	a43	64	a55	70	78	75
3	67	b45	b36	38	32	47	49	64	61	72	78	76
4	65	47	36	a32	32	b46	52	62	60	b75	79	73
5	61	48	32	41	32	49	54	62	59	75	80	73
6	56	51	32	41	34	43	53	61	63	78	80	76
7	57	b45	38	43	37	40	58	58	64	78	78	70
8	60	46	33	45	38	45	54	56	65	77	80	76
9	62	44	b32	43	38	b46	55	56	b65	78	81	78
10	a52	48	b35	a40	37	50	56	56	68	80	81	75
11	61	a40	b32	43	37	44	56	57	69	78	72	75
12	61	48	b32	--	42	44	58	b56	a59	78	75	74
13	62	b48	35	b43	44	46	56	62	66	77	82	75
14	60	45	36	44	44	40	51	54	68	78	77	75
15	63	38	b39	43	45	45	b53	60	64	b76	74	74
16	62	37	b37	41	38	48	a46	63	66	78	74	73
17	60	b37	40	42	42	48	55	65	67	80	75	72
18	60	42	39	40	40	55	55	60	71	78	74	71
19	60	45	40	40	44	52	57	58	72	81	74	73
20	61	47	40	42	45	52	b56	59	66	75	74	68
21	b56	45	33	42	47	55	b57	57	69	b76	76	68
22	60	44	40	42	47	55	b59	58	72	78	75	68
23	57	42	41	38	47	b55	61	57	73	76	b75	73
24	55	b40	43	40	41	59	55	59	68	80	71	70
25	54	b40	a37	35	44	57	60	53	72	82	78	71
26	53	42	44	41	41	b52	59	b56	73	b71	76	70
27	50	43	42	b41	42	50	58	61	75	81	76	70
28	49	48	44	40	45	48	55	60	76	79	69	67
29	50	b42	42	41	47	51	60	62	76	76	73	67
30	51	42	a40	38	--	b51	59	63	72	79	68	65
31	51	--	44	35	--	55	--	63	--	75	71	--
Average	58	44	38	40	40	49	55	59	67	77	76	72

a Measurement before 12 m.
b Measurement after 7 p. m.

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1955 to September 1956

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	125	77	26	178	59	28	200	99	53
2	120	70	23	178	60	29	278	395	296
3	109	56	16	169	52	24	220	975	579
4	113	64	20	163	51	22	190	186	95
5	113	41	13	166	45	20	180	279	136
6	111	48	14	172	46	21	190	592	304
7	113	52	16	166	39	17	222	202	121
8	118	51	16	157	32	14	200	144	78
9	125	72	24	160	40	17	210	132	75
10	107	55	16	166	50	22	238	181	116
11	111	86	26	175	72	34	206	104	58
12	109	108	32	178	48	23	196	100	53
13	107	117	34	182	53	26	166	149	67
14	111	81	24	182	77	38	210	175	99
15	113	49	15	218	47	28	234	206	130
16	109	32	9	150	154	62	226	178	109
17	111	35	10	160	272	118	242	154	101
18	111	25	7	170	170	78	246	140	93
19	113	54	16	180	124	60	246	160	106
20	113	25	8	192	119	62	238	120	77
21	120	30	10	203	117	64	258	185	129
22	128	75	26	210	88	50	246	150	100
23	138	98	37	214	149	86	234	126	80
24	138	131	49	218	108	64	242	154	101
25	151	97	40	214	100	58	250	188	127
26	178	206	99	192	62	32	242	178	116
27	175	116	55	196	73	39	234	186	118
28	172	139	65	189	76	39	234	151	95
29	175	122	58	182	66	32	242	152	99
30	196	93	49	189	82	42	254	278	191
31	175	76	36	--	--	--	274	310	229
Total	4,008	--	889	5,469	--	1,249	7,048	--	4,131

Day	January			February			March		
	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	274	334	247	206	232	129	250	546	369
2	246	200	133	222	278	167	298	932	750
3	214	161	93	206	339	189	314	1,170	992
4	206	121	67	206	266	148	396	1,540	1,360
5	206	123	68	222	648	388	326	1,500	1,320
6	210	139	79	250	960	648	310	1,780	1,490
7	222	143	86	214	589	340	286	2,000	1,540
8	238	156	100	242	338	221	258	572	398
9	226	114	70	230	207	129	250	384	259
10	206	114	63	230	201	125	262	840	594
11	206	110	61	230	536	333	286	2,200	1,700
12	210	118	67	242	547	357	290	1,950	1,530
13	214	106	61	242	601	393	294	646	513
14	218	116	68	250	554	374	294	488	387
15	218	131	77	250	557	376	282	373	284
16	230	145	90	246	731	486	266	357	256
17	230	120	75	246	692	460	280	306	231
18	230	108	67	234	515	325	314	645	547
19	214	110	64	226	456	278	314	1,210	1,030
20	210	104	59	222	553	331	345	1,760	1,640
21	206	126	70	214	387	224	390	2,690	2,830
22	210	130	74	214	485	280	430	2,100	2,440
23	234	210	133	206	822	457	448	1,870	2,260
24	246	138	92	230	1,270	789	472	1,480	1,890
25	230	146	91	238	1,410	906	568	2,730	4,190
26	210	101	57	230	979	608	712	3,360	6,460
27	218	320	188	210	992	562	760	2,790	5,730
28	306	1,140	942	203	870	477	776	2,760	5,780
29	302	799	652	230	807	501	652	1,740	3,060
30	230	478	297	--	--	--	624	1,440	2,430
31	196	282	149	--	--	--	666	1,570	2,820
Total	7,016	--	4,440	6,591	--	11,001	12,343	--	57,080

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	673	1,520	2,760	631	908	1,550	3,650	1,620	16,000
2.....	776	2,200	4,610	659	1,010	1,800	3,610	1,130	11,000
3.....	659	1,050	1,870	752	1,080	2,190	3,500	1,310	12,400
4.....	586	1,230	1,950	1,050	2,940	8,330	3,200	694	6,000
5.....	532	683	981	1,500	4,440	18,000	3,060	620	5,120
6.....	502	832	1,130	1,840	4,000	19,900	2,920	438	3,450
7.....	472	800	1,020	2,020	3,270	17,800	2,420	622	4,060
8.....	466	661	832	2,080	3,040	17,100	2,200	520	3,090
9.....	550	1,020	1,510	2,060	1,940	10,800	2,060	378	2,100
10.....	568	794	1,220	1,720	1,540	7,150	2,060	555	3,090
11.....	598	879	1,420	1,320	1,130	4,030	2,040	435	2,400
12.....	631	1,180	2,010	1,110	1,600	4,800	2,050	283	1,570
13.....	617	866	1,440	1,190	831	2,670	1,980	384	2,050
14.....	712	1,590	3,060	1,280	1,060	3,660	1,920	431	2,230
15.....	728	1,360	2,670	1,220	826	2,720	1,780	396	1,900
16.....	645	1,010	1,760	1,020	874	2,410	1,670	246	1,110
17.....	631	810	1,380	1,170	926	2,930	1,530	158	653
18.....	688	1,030	1,910	2,120	2,240	12,800	1,350	225	820
19.....	652	710	1,250	2,720	2,990	22,000	1,190	115	369
20.....	604	693	1,130	2,910	2,200	17,300	1,070	125	361
21.....	538	530	770	3,120	2,100	17,700	993	88	236
22.....	532	678	974	3,160	1,480	12,600	867	52	122
23.....	586	1,020	1,610	2,920	1,040	8,200	885	42	100
24.....	712	1,160	2,230	2,600	795	5,580	840	108	245
25.....	776	1,360	2,850	2,520	757	5,150	728	41	81
26.....	720	1,180	2,290	2,520	713	4,850	645	23	40
27.....	948	3,060	7,830	2,510	538	3,650	652	17	30
28.....	1,030	3,080	8,570	2,350	606	3,850	617	12	20
29.....	858	1,830	4,240	2,560	863	5,970	556	13	20
30.....	736	1,250	2,480	2,980	976	7,850	490	12	16
31.....	--	--	--	3,360	1,590	14,400	--	--	--
Total.	19,726	--	69,757	60,972	--	269,740	52,533	--	80,683
	July			August			September		
1.....	520	35	49	118.3	225	72	24	16	1
2.....	526	10	14	203	542	297	13	6	(t)
3.....	520	104	146	186	382	192	10	10	(t)
4.....	520	50	70	157	190	81	2.9	53	(t)
5.....	460	72	89	142	132	51	2.4	31	(t)
6.....	405	43	47	90	103	25	6.0	34	1
7.....	340	142	130	52	95	13	6.9	26	(t)
8.....	298	98	79	38	25	3	13	18	1
9.....	222	59	35	31	22	2	28	24	2
10.....	172	50	a 20	9.3	12	(t)	20	34	2
11.....	166	36	16	8.8	14	(t)	36	34	3
12.....	135	23	8	9.3	20	1	18	36	2
13.....	135	30	11	9.3	7	(t)	7	44	1
14.....	130	37	13	7.8	31	1	7	47	1
15.....	125	30	10	5.5	59	1	7	49	1
16.....	138	26	10	72	583	s443	7	17	(t)
17.....	122	23	8	182	2,070	1,020	7	16	(t)
18.....	113	18	5	172	2,500	1,160	7	1	(t)
19.....	71	17	3	151	802	327	7	8	(t)
20.....	68	14	3	120	294	95	7	20	(t)
21.....	70	10	2	73	215	42	13	1	(t)
22.....	66	20	4	60	260	42	15	6	(t)
23.....	66	28	5	43	69	8	9.9	1	(t)
24.....	42	193	22	32	72	7	6.9	1	(t)
25.....	61	81	13	25	38	3	5.5	1	(t)
26.....	49	90	12	42	21	2	3.4	11	(t)
27.....	33	48	4	33	27	2	4.5	1	(t)
28.....	58	77	12	20	20	1	6.0	35	1
29.....	84	79	18	14	23	1	9.3	10	(t)
30.....	82	51	11	14	23	1	9.3	7	(t)
31.....	73	72	14	64	20	3	--	--	(t)
Total.	5,870	--	883	2,186.0	--	3,897	319.0	--	20

Total discharge for year (cfs-days)..... 184,081.0
Total load for year (tons)..... 503,770

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.

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

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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
Dec. 3, 1955	8:20 a.m.	a250	32	1,300	3,310	--	70	--	91	--	96	97	98		100	--	SPWCM
Jan. 28, 1956....	5:25 p.m.	318	40	1,500	3,530	--	53	--	80	--	91	95	99		100	--	VPWCM
Mar. 1	10:30 a.m.	266	38	693	1,960	34	43	49	53	59	64	72	79		87	100	VPWCM
Mar. 1	10:30 a.m.	266	38	693	2,510	1	4	8	50	58	64	72	79		87	100	VPN
Mar. 21.....	1:40 p.m.	442	54	2,660	3,020	--	42	--	63	--	82	94	99		100	--	VPWCM
Apr. 28.....	9:15 a.m.	1,060	59	3,560	2,990	--	14	--	26	--	57	80	95		99	100	VPWCM
May 25.....	1:10 p.m.	2,480	58	797	--	--	--	--	--	--	30	44	73		94	100	V
June 1	5:50 p.m.	4,130	61	2,410	2,520	--	11	--	21	--	43	57	72		87	100	VPWCM
Aug. 3	6:20 a.m.	214	65	573	1,470	--	74	--	92	--	97	99	100		--	--	SPWCM

a Flow affected by ice.

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 1956.
Sediment records: December 1950 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 81°F July 21; minimum, freezing point Nov. 25, Dec. 5, Feb. 3, 4, 5.
Sediment concentrations: Maximum daily, 82,100 ppm Aug. 2; minimum daily, 25 ppm July 21.
Sediment loads: Maximum daily, 490,000 tons Aug. 2; minimum daily, 2 tons Sept. 16, 23.
EXTREMES, 1950-56.--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, 2 tons Sept. 16, 23, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Temperature (°F) of water, water year October 1955 to September 1956
(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	60	49	43	41	35	42	57	56	62	a68	a67	a77
2	69	48	41	--	33	b45	48	64	66	b72	b73	73
3	70	47	38	--	32	b46	49	62	66	77	b75	73
4	b63	49	36	39	31	51	53	62	67	a67	b74	a76
5	65	b47	32	41	32	--	53	65	62	b75	a68	77
6	--	48	33	45	35	a39	54	65	66	a69	b77	a73
7	b56	--	36	45	37	36	b57	65	68	a67	b76	a75
8	a44	b42	36	46	41	41	53	61	68	--	b78	a75
9	62	49	33	45	36	48	53	a54	72	b79	b77	72
10	63	b46	34	--	37	51	56	a51	67	b79	a62	a72
11	b56	51	33	45	41	45	a49	b57	74	a70	--	a73
12	b55	52	33	44	37	40	60	b57	a62	b74	a67	a74
13	60	48	35	45	46	46	56	57	b71	a64	b76	a75
14	b58	b46	36	45	a41	a39	53	57	a62	b77	a77	a75
15	64	40	40	40	b42	41	b54	a49	70	a68	a65	b75
16	64	36	b36	b40	43	47	59	65	b70	a63	a72	b72
17	63	b37	41	b38	42	47	a52	b65	--	a66	a75	a76
18	58	43	40	35	40	48	57	60	74	b75	a76	a76
19	63	44	b38	40	42	56	a48	--	77	a73	a73	--
20	64	45	42	40	45	a44	60	62	a66	a67	b73	a75
21	b60	46	42	b40	48	54	62	62	74	b81	74	a75
22	62	b41	41	--	58	55	a50	b60	b64	a75	a75	a75
23	57	36	44	41	49	56	62	62	79	b75	74	b73
24	56	43	46	41	--	59	a53	63	69	b75	73	a75
25	56	b32	--	37	45	57	62	a61	77	--	73	a76
26	b51	42	45	41	40	56	65	b60	b75	a67	72	78
27	b47	42	43	45	41	a43	60	63	b78	a71	73	a53
28	b47	46	56	41	b41	--	57	65	a67	a67	74	a55
29	51	43	44	--	46	50	b58	66	80	a69	73	a55
30	53	b40	45	36	--	a42	62	a60	a66	b75	72	--
31	b47	--	46	a33	--	56	--	b65	--	a68	a74	--
Average	58	44	40	41	41	48	56	61	70	71	71	72

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

SAN JUAN RIVER BASIN--Continued

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

Suspended sediment, water year October 1955 to September 1956

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	438	1,220	1,440	404	460	502	499	858	1,160
2	460	1,270	1,580	409	672	742	620	1,770	2,960
3	410	1,970	2,180	414	474	530	630	2,310	3,930
4	325	730	641	393	294	312	630	1,680	2,860
5	369	920	917	430	410	476	548	2,060	3,050
6	338	760	a690	404	420	458	431	1,160	1,350
7	350	660	624	420	400	a450	452	720	879
8	389	1,230	1,290	430	346	402	514	1,700	2,360
9	417	880	991	414	438	490	468	1,350	1,710
10	424	752	861	425	439	504	491	922	1,220
11	431	938	1,090	457	976	1,200	548	1,730	2,560
12	396	503	538	463	654	818	522	1,420	2,000
13	382	769	793	486	623	818	452	1,280	1,560
14	369	443	441	509	853	1,170	480	1,960	2,540
15	363	573	562	546	929	1,370	500	1,750	2,360
16	363	838	821	577	2,060	3,210	550	1,550	2,300
17	363	952	933	637	1,200	2,060	539	1,280	1,860
18	357	584	563	571	1,190	1,830	575	1,540	2,390
19	357	551	531	546	1,260	1,860	602	1,500	2,440
20	369	645	643	540	889	1,300	602	1,770	2,880
21	424	515	590	604	1,270	2,070	575	1,900	2,950
22	483	810	1,060	584	1,070	1,690	548	2,080	3,080
23	483	659	859	527	1,210	1,720	539	1,610	2,340
24	438	488	577	509	883	1,210	566	1,800	2,750
25	431	1,010	1,180	492	672	893	548	1,900	a2,800
26	396	546	584	503	610	828	566	2,150	3,290
27	468	509	643	515	818	1,140	548	1,750	2,590
28	483	838	1,090	509	706	970	575	1,470	2,280
29	445	575	691	497	582	781	584	1,280	2,020
30	431	1,170	1,360	480	724	938	630	1,850	3,150
31	431	433	504	--	--	--	710	1,020	1,960
Total	12,583	--	27,267	14,695	--	32,742	17,042	--	73,579

Day	January			February			March		
	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	720	2,080	4,040	514	2,120	2,940	602	1,900	3,090
2	593	1,800	a2,900	548	2,380	3,520	885	12,800	s32,800
3	575	1,500	a2,300	557	2,000	3,010	988	15,000	40,000
4	530	1,160	1,660	424	1,420	1,630	1,130	14,700	44,800
5	499	630	849	438	1,620	1,920	1,060	13,000	a37,000
6	483	603	786	507	1,920	2,630	1,090	13,200	38,800
7	475	565	725	522	1,900	a2,700	1,000	9,800	26,500
8	499	1,340	1,810	557	2,260	3,400	872	5,900	13,900
9	566	772	1,180	593	2,200	3,520	690	4,000	7,450
10	548	1,070	1,580	584	1,840	2,900	732	2,850	5,630
11	539	1,060	1,540	522	1,340	1,890	812	3,400	7,450
12	548	1,480	2,190	566	1,010	1,540	1,000	4,550	12,300
13	575	1,470	2,280	514	1,120	1,550	1,100	4,600	13,700
14	584	1,130	1,780	557	1,650	2,480	922	3,400	8,460
15	575	685	1,060	584	2,370	3,740	824	2,000	4,450
16	602	1,320	2,150	602	1,710	2,780	778	1,700	3,570
17	593	1,480	2,370	680	1,580	2,900	732	1,800	3,560
18	557	1,260	1,890	670	1,800	3,260	680	2,000	3,670
19	593	1,460	2,340	650	1,300	2,280	789	2,400	5,110
20	575	1,390	2,160	602	1,300	2,110	1,030	5,100	14,200
21	548	1,680	2,490	530	1,470	2,100	1,330	6,800	24,400
22	548	1,500	a2,200	507	1,260	1,720	1,340	9,800	35,500
23	602	1,430	2,320	491	1,060	1,410	1,360	7,600	27,900
24	620	2,210	3,700	548	1,400	a2,100	1,570	8,000	33,900
25	611	1,970	3,250	530	1,720	2,460	1,720	8,800	40,900
26	611	1,720	2,840	522	2,390	3,370	2,370	11,800	75,500
27	557	1,840	2,770	566	1,650	2,520	2,650	10,500	75,100
28	710	2,470	4,730	491	1,640	2,170	2,610	10,000	a70,000
29	898	4,400	a11,000	557	2,300	3,480	2,140	5,200	30,000
30	690	4,320	8,050	--	--	--	2,000	4,400	23,800
31	611	2,910	4,800	--	--	--	1,820	5,200	25,600
Total	18,235	--	85,740	15,933	--	74,010	38,626	--	789,040

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 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	2,200	5,600	33,300	1,740	2,200	10,300	6,390	2,450	42,300
2	2,650	4,900	35,100	1,820	3,100	15,200	6,860	3,000	55,600
3	2,060	3,600	20,000	2,080	3,700	20,800	7,460	2,850	57,400
4	1,780	2,850	13,700	2,370	4,000	25,600	7,120	2,550	49,000
5	1,470	2,540	10,100	3,150	6,000	51,000	6,460	2,350	41,000
6	1,430	2,350	9,070	4,190	8,300	93,900	6,530	2,050	36,100
7	1,400	2,230	8,430	4,670	7,400	93,300	5,630	1,440	23,600
8	1,400	2,260	8,540	4,790	6,500	84,100	5,010	1,800	24,300
9	1,570	2,420	10,300	4,860	4,850	63,600	4,610	1,700	21,200
10	1,720	2,460	11,400	4,530	4,000	48,900	4,300	1,650	19,200
11	1,630	3,700	16,300	3,580	3,000	29,000	4,330	1,600	18,700
12	1,690	3,140	14,300	2,770	2,600	19,400	4,130	1,750	19,500
13	1,780	2,500	12,000	2,720	3,000	22,000	3,910	1,800	19,000
14	1,880	3,490	17,700	2,930	3,600	28,500	3,630	1,250	12,300
15	2,020	3,530	19,300	3,150	3,400	28,900	3,280	1,550	13,700
16	1,860	2,810	14,100	2,790	2,200	16,600	2,860	1,250	9,650
17	1,700	2,420	11,100	2,520	2,200	15,000	2,590	1,500	10,500
18	1,610	2,080	9,040	3,380	3,000	27,400	2,330	1,300	8,180
19	1,800	2,610	12,700	4,640	4,100	51,400	2,160	1,150	6,710
20	1,820	2,020	9,930	5,360	4,000	57,900	2,020	1,100	6,000
21	1,670	1,890	8,520	5,900	3,900	62,100	1,670	1,120	5,050
22	1,610	2,860	12,400	6,320	3,100	52,900	1,560	762	3,210
23	1,590	2,240	9,620	5,930	3,000	48,000	1,500	814	3,300
24	1,540	3,250	13,500	5,660	2,800	42,800	1,430	854	3,300
25	1,800	2,760	13,400	5,170	2,450	34,200	1,380	1,540	5,740
26	1,760	2,400	11,400	5,070	2,400	32,900	1,070	984	2,840
27	2,220	4,000	24,000	5,170	2,300	32,100	1,060	1,300	3,720
28	2,600	4,700	33,000	4,920	2,200	29,200	898	875	2,120
29	2,300	4,200	26,100	4,790	1,950	25,200	861	591	1,370
30	2,080	2,500	14,000	5,530	2,350	35,100	806	676	1,470
31	--	--	--	5,830	2,080	32,700	--	--	--
Total	54,640	--	462,350	128,330	--	1,230,000	103,845	--	526,060

Day	July			August			September		
1	834	4,050	9,120	2,240	32,500	s237,000	125	400	135
2	991	19,000	s55,700	1,940	82,100	s490,000	109	355	104
3	1,380	6,500	24,200	1,180	34,200	109,000	118	410	131
4	1,200	3,900	12,600	778	17,800	37,400	105	315	89
5	1,110	2,000	5,990	620	9,000	15,100	71	161	31
6	920	900	2,240	424	4,500	5,150	51	112	15
7	796	594	1,280	313	2,200	1,860	39	83	9
8	630	500	a850	218	1,130	665	44	174	21
9	509	413	568	173	601	281	44	100	12
10	446	469	565	99	441	118	86	220	51
11	348	410	385	49	240	a32	94	310	79
12	325	237	208	46	203	25	53	110	16
13	265	229	164	42	83	9	37	99	10
14	202	70	38	29	63	5	29	111	9
15	163	65	29	22	153	9	29	188	15
16	145	56	22	58	14,200	2,220	19	35	2
17	140	61	23	1,560	57,100	s365,000	17	63	3
18	125	42	14	824	46,000	102,000	18	85	4
19	92	29	7	640	26,000	44,900	19	80	a4
20	107	54	16	593	16,600	26,600	15	72	3
21	90	25	6	369	10,500	10,500	15	79	3
22	85	35	8	350	5,200	4,910	16	136	6
23	158	13,400	s18,800	332	4,050	3,630	17	37	2
24	517	45,800	63,900	280	2,550	1,930	22	162	10
25	463	25,800	32,300	253	1,780	1,220	20	71	4
26	330	50,000	44,600	248	1,400	937	19	79	4
27	195	15,500	8,160	228	1,060	653	20	59	3
28	182	13,000	6,390	280	1,780	1,350	22	74	4
29	202	5,000	2,730	209	1,060	598	30	205	17
30	452	20,200	s28,100	142	600	230	30	150	a12
31	302	8,870	s10,100	118	400	127	--	--	--
Total	13,704	--	329,113	14,657	--	1,463,459	1,333	--	808

Total discharge for year (cfs-days) 433,623
Total load for year (tons) 5,094,168

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

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

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Feb. 29, 1956 ...	10:45 a.m.	522	37	2,410	4,840	42	50	54	57	58	61	78	88		97	100	VPWCM
Feb. 29	10:45 a.m.	522	37	2,410	6,320	0	2	5	56	58	61	78	88		97	100	VPN
Mar. 11	2:30 p.m.	960	45	4,130	2,510	--	21	--	38	--	60	84	95		100	--	VPWCM
Mar. 21	10:50 a.m.	1,540	50	8,840	3,830	--	28	--	44	--	68	90	98		100	--	VPWCM
Mar. 25	3:25 p.m.	1,560	57	8,380	3,120	--	22	--	41	--	65	90	100		--	--	VPWCM
Apr. 10	2:15 p.m.	1,780	56	2,550	2,280	--	12	--	19	--	46	76	97		100	--	VPWCM
Apr. 28	3:15 p.m.	2,860	57	4,920	3,140	--	9	--	22	--	49	78	99		100	--	VPWCM
May 23	11:00 a.m.	6,500	59	3,070	4,500	--	13	--	19	--	37	61	94		100	--	VPWCM
May 26	9:45 a.m.	5,410	59	2,730	3,960	--	8	--	12	--	24	50	93		100	--	VPWCM
June 3	9:25 a.m.	7,580	62	3,090	3,520	--	14	--	23	--	42	57	90		98	100	VPWCM
June 12	12:10 p.m.	4,390	70	1,830	2,040	--	7	--	10	--	19	36	90		100	--	VPWCM
July 2	7:15 p.m.	1,050	72	80,100	4,000	--	45	--	61	--	92	98	100		--	--	VPWCM
July 24	7:45 p.m.	871	75	32,700	3,760	--	57	--	82	--	94	95	99		100	--	VPWCM
July 27	9:55 a.m.	202	71	16,200	4,150	--	88	--	98	--	100	--	--		--	--	PWCM
Aug. 1	7:00 a.m.	4,500	67	43,200	3,960	--	50	--	72	--	92	95	98		100	--	VPWCM
Aug. 19	9:15 a.m.	593	76	26,400	4,600	59	73	84	88	91	95	97	99		100	--	VPWCM
Aug. 19	9:15 a.m.	593	76	26,400	5,360	2	7	25	90	92	95	97	99		100	--	VPN

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SAN JUAN RIVER BASIN--Continued

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 1956.
Water temperatures: May 1944 to September 1956.
Sediment records: August to September 1928, July 1929 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,780 ppm Aug. 3; minimum, 202 ppm June 1-10.
Hardness: Maximum, 620 ppm July 23-30; minimum, 126 ppm June 1-10.
Specific conductance: Maximum daily, 2,310 micromhos Aug. 3; minimum daily, 282 micromhos June 5.
Water temperatures: Maximum, 85°F July 26; minimum, 33°F Dec. 8, 9, 14, Feb. 2.
Sediment concentrations: Maximum daily, 143,000 ppm Aug. 18; minimum daily, 40 ppm July 20.
Sediment loads: Maximum daily, 691,000 tons Aug. 18; minimum daily, 9 tons Sept. 24.
EXTREMES, 1929-56.--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 (1941-56): Maximum daily, 2,310 micromhos Aug. 3, 1956; minimum daily, 208 micromhos June 17, 1952.
Water temperatures (1944-56): Maximum, 85°F July 21, 1945, July 5, 1953, July 26, 1956; 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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955	396	16		98	22	86	4.2	191	322	26		5.6	--	678	0.92	725	335	178	35	2.0	970	8.0
Oct. 11-20	374	15		110	28	101	4.2	200	392	33		5.4	0.12	794	1.08	802	390	226	36	2.2	1,110	7.9
Oct. 21-31	426	13		105	28	97	3.8	200	370	30		4.4	--	759	1.03	873	377	213	36	2.2	1,080	7.6
Nov. 1-10	441	13		116	32	105	3.9	211	420	34		5.9	--	849	1.15	1,010	421	248	35	2.2	1,180	7.9
Nov. 11-20	539	12		121	37	108	3.9	211	457	36		6.2	.12	910	1.24	1,320	454	281	34	2.2	1,240	7.9
Nov. 21-30	579	14		130	43	112	3.2	221	490	33		6.2	--	978	1.33	1,530	502	320	33	2.2	1,290	7.9
Dec. 1-10	590	14		132	43	117	4.6	219	509	37		7.1	--	996	1.35	1,590	506	327	33	2.3	1,330	7.9
Dec. 11-20	521	16		132	41	115	4.8	226	490	36		6.9	.14	987	1.34	1,390	498	313	33	2.2	1,320	7.6
Dec. 21-31	613	16		129	41	108	4.8	217	480	36		6.4	--	959	1.30	1,590	490	312	32	2.1	1,280	7.6
Jan. 1-10, 1956	599	14		120	39	105	4.6	207	456	34		6.6	--	908	1.23	1,470	460	290	33	2.1	1,230	7.9
Jan. 11-20	598	14		120	39	104	4.6	203	452	34		5.5	.13	900	1.22	1,450	460	294	33	2.1	1,220	7.8
Jan. 21-31	767	13		116	39	108	4.3	194	463	32		6.8	--	903	1.23	1,870	450	291	34	2.2	1,220	7.8
Feb. 1-10	589	16		120	41	115	4.1	198	496	36		8.3	--	968	1.32	1,540	468	306	35	2.3	1,290	7.9
Feb. 11-20	609	16		121	40	107	4.1	202	474	34		7.9	.12	932	1.27	1,530	466	301	33	2.2	1,250	8.2
Feb. 21-29	574	15		122	42	109	4.1	193	491	34		7.2	--	952	1.29	1,480	477	319	33	2.2	1,270	7.9

Mar. 1-10, 1956 ..	889	16		108	32	97	4.1	185	410	28		8.4	--	821	1.12	1,970	401	250	34	2.1	1,120	7.8
Mar. 11-20.....	883	15		98	29	71	3.7	170	333	23		6.5	.08	676	.92	1,610	364	224	30	1.6	945	7.9
Mar. 21-25.....	1,312	17		93	26	66	3.7	178	293	21		6.3	--	629	.86	2,230	339	193	29	1.6	884	7.8
Mar. 26-31.....	2,213	15		66	16	37	3.2	149	163	12		6.6	--	405	.55	2,420	230	108	26	1.1	593	7.7
Apr. 1-10.....	1,756	15		62	16	37	2.5	132	169	12		4.0	--	397	.54	1,880	220	112	26	1.1	580	7.7
Apr. 11-20.....	1,724	14		58	14	34	2.5	129	152	12		3.4	.05	364	.50	1,690	202	96	27	1.0	537	7.7
Apr. 21-30.....	1,895	14		58	14	34	2.4	131	149	11		3.4	--	358	.49	1,830	202	94	27	1.0	532	7.5
May 1-10.....	3,135	14		50	11	27	2.4	124	112	8.5		3.3	--	302	.41	2,560	170	68	25	.9	450	7.5
May 11-20.....	3,278	15		51	8.8	22	1.8	126	94	6.5		1.6	.05	270	.37	2,390	162	59	23	.8	408	7.6
May 21-31.....	5,212	14		44	7.5	18	1.6	106	80	5.2		2.5	--	232	.32	3,260	141	54	21	.7	355	7.7
June 1-10.....	5,829	13		40	6.1	15	1.6	102	65	4.8		1.8	--	202	.27	3,180	126	42	20	.6	316	7.5
June 11-20.....	3,141	13		44	7.5	21	1.6	98	90	7.0		1.9	.05	242	.33	2,050	140	60	24	.8	372	7.6
June 21-30.....	1,283	11		51	10	38	2.1	a98	148	12		1.1	--	332	.45	1,150	170	90	32	1.3	502	8.4
July 1-2, 4, 6-10..	889	17		91	12	61	4.0	168	236	20		2.9	--	528	.72	1,270	276	138	32	1.6	765	7.6
July 3-5.....	937	19		151	21	85	5.3	150	484	24		8.3	--	886	1.20	2,240	464	341	28	1.7	1,170	8.1
July 11-22.....	251	13		93	18	102	5.3	134	360	28		2.4	.10	684	.93	464	308	198	41	2.5	971	7.4
July 23-30.....	430	21		194	33	209	7.3	286	750	38		1.0	--	1,410	1.92	1,640	620	385	42	3.7	1,820	7.5
July 31, Aug. 1-2 4-10.....	758	20		117	18	138	5.7	276	404	22		2.6	--	872	1.19	1,780	368	142	44	3.1	1,210	7.6
Aug. 3.....	1,890	24		200	27	353	--	400	976	24		.4	--	b1,780	2.42	9,080	612	284	56	6.2	2,310	6.7
Aug. 11-20.....	525	18		135	25	147	6.2	261	486	30		3.0	.17	1,020	1.39	1,450	438	224	42	3.0	1,380	7.7
Aug. 21-31.....	327	16		114	17	121	5.2	221	384	27		5.2	--	830	1.13	733	354	173	42	2.8	1,150	7.6
Sept. 1-10.....	109	13		117	25	137	5.9	160	480	41		8.9	--	946	1.29	278	396	265	42	3.0	1,300	7.5
Sept. 11-20.....	57.4	9.7		123	36	187	6.0	131	656	59		7.2	.14	1,170	1.59	181	456	349	47	3.8	1,580	7.4
Sept. 21-30.....	27.0	7.0		142	50	225	6.0	143	796	77		9.4	--	1,430	1.94	104	560	443	46	4.1	1,890	7.5
Weighted average	1,187	14		72	17	52	2.8	145	214	15		3.7	--	475	0.65	1,520	250	130	31	1.4	674	--

a Includes 6 parts per million of carbonate (CO_3).
b Calculated from determined constituents.

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

SAN JUAN RIVER BASIN--Continued

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended sediment, water year October 1955 to September 1956

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.....	502	5,080	6,890	461	1,860	2,320	534	2,400	3,460
2.....	437	4,450	5,250	423	1,540	1,760	529	2,460	3,510
3.....	396	2,700	2,890	405	1,950	2,130	649	2,800	4,910
4.....	442	2,120	2,530	456	1,420	1,750	796	2,950	6,340
5.....	405	2,480	2,710	452	2,200	2,680	737	2,600	5,170
6.....	362	1,770	1,730	442	1,700	a2,000	643	2,300	3,990
7.....	362	1,580	1,540	456	1,510	1,860	492	1,860	2,470
8.....	319	1,230	1,060	432	1,450	1,690	482	1,400	1,820
9.....	350	1,600	a1,500	437	1,340	1,580	502	1,270	1,720
10.....	387	2,050	2,140	447	1,200	1,450	540	1,430	2,080
11.....	370	1,560	1,560	423	1,340	1,530	487	1,600	a2,100
12.....	447	2,660	3,210	437	1,060	1,250	456	1,480	1,820
13.....	400	1,670	1,800	466	1,140	1,430	551	1,400	a2,100
14.....	370	1,220	1,220	466	1,500	1,890	492	1,220	1,620
15.....	362	1,050	1,030	508	2,010	2,760	466	1,270	1,600
16.....	346	1,030	962	513	1,560	2,160	524	1,300	1,840
17.....	354	1,020	975	637	2,170	3,730	534	1,430	2,060
18.....	378	970	990	692	2,350	4,390	551	1,100	1,640
19.....	354	900	860	655	2,050	3,630	562	1,300	a2,000
20.....	354	900	860	590	2,000	3,190	590	1,650	2,630
21.....	366	900	889	590	1,770	2,820	602	1,940	3,150
22.....	387	1,000	a1,000	596	1,780	2,860	590	2,080	3,310
23.....	428	1,200	a1,400	643	1,880	3,260	556	2,000	a3,000
24.....	414	1,150	1,290	614	1,760	2,920	579	1,900	a3,000
25.....	418	1,200	1,350	602	1,920	3,120	562	1,650	2,500
26.....	418	1,070	1,210	608	1,850	3,040	614	1,840	3,050
27.....	471	1,480	1,880	579	1,770	2,770	614	1,750	2,900
28.....	423	1,480	1,690	513	1,600	2,220	602	1,950	3,170
29.....	428	1,300	a1,500	502	1,560	2,110	637	1,760	3,030
30.....	476	1,500	a1,900	540	1,810	2,640	674	2,000	3,640
31.....	461	1,520	1,890	--	--	--	718	1,730	3,350
Total.	12,387	--	57,706	15,585	--	72,940	17,865	--	88,980
	January			February			March		
1.....	711	1,840	3,530	776	3,050	6,390	573	2,450	3,790
2.....	711	1,700	a3,300	680	2,940	5,400	568	1,980	3,040
3.....	686	1,360	2,520	649	2,800	a4,900	766	4,100	s9,820
4.....	655	1,430	2,530	579	2,300	a3,600	1,010	5,840	s16,800
5.....	579	1,580	2,470	568	1,900	a2,900	1,100	8,070	s25,400
6.....	508	1,380	1,890	437	1,390	1,640	1,160	11,300	s36,600
7.....	487	1,280	1,680	471	1,580	2,010	1,110	10,000	s30,600
8.....	508	1,260	1,730	562	1,700	2,580	1,010	9,420	s26,600
9.....	556	1,720	2,580	579	1,710	2,670	858	7,300	16,900
10.....	590	1,570	2,500	590	1,880	2,990	737	6,250	12,400
11.....	614	2,100	3,480	681	1,870	3,440	743	6,000	12,000
12.....	596	1,300	2,090	585	2,280	3,600	937	5,500	13,900
13.....	551	1,460	2,170	534	1,760	2,540	1,170	5,500	17,400
14.....	568	1,250	1,920	562	1,730	2,630	1,120	5,200	15,700
15.....	568	1,360	2,090	524	2,000	2,830	997	4,800	12,900
16.....	573	1,290	2,000	649	3,720	6,520	858	9,700	22,500
17.....	619	1,380	2,310	692	4,600	8,590	769	3,800	7,890
18.....	649	1,750	3,070	637	3,200	5,500	750	2,600	5,260
19.....	637	1,720	2,960	643	2,790	4,840	756	2,700	5,510
20.....	608	1,830	3,000	631	2,400	a4,100	730	2,800	5,520
21.....	662	1,550	2,770	573	1,900	2,940	1,090	4,750	14,000
22.....	637	1,790	3,080	546	1,800	a2,700	1,200	5,900	19,100
23.....	619	1,650	2,760	546	1,460	2,150	1,260	6,700	22,800
24.....	730	2,500	4,930	518	800	1,120	1,410	7,200	27,400
25.....	730	3,240	6,390	556	1,280	1,920	1,600	7,700	33,300
26.....	649	1,990	3,490	614	1,440	2,390	1,890	10,600	54,100
27.....	655	1,710	3,020	625	1,640	2,770	2,380	12,700	81,800
28.....	698	2,600	4,900	596	1,730	2,780	2,600	12,200	85,600
29.....	951	5,100	13,100	596	1,850	2,980	2,510	10,600	71,800
30.....	1,180	6,380	20,300	--	--	--	2,000	6,400	34,600
31.....	922	4,220	10,500	--	--	--	1,900	6,000	30,800
Total.	20,407	--	125,060	17,149	--	101,420	37,562	--	775,630

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 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	2,110	5,800	a 33,000	2,030	4,300	23,600	5,670	5,300	81,100
2	2,360	6,400	a 41,000	1,780	3,800	18,300	6,270	5,400	91,400
3	2,420	6,300	a 41,000	1,640	3,000	13,300	6,650	5,500	98,800
4	2,000	4,800	25,900	1,900	3,600	18,500	6,970	5,500	104,000
5	1,710	4,500	20,800	2,650	6,200	44,400	6,530	4,900	86,400
6	1,500	4,600	18,600	3,470	7,300	68,400	5,930	4,800	76,900
7	1,330	4,200	15,100	4,020	9,800	106,000	5,930	4,400	70,400
8	1,310	3,700	13,100	4,420	10,500	125,000	5,320	3,800	54,600
9	1,320	4,000	14,300	4,720	9,250	118,000	4,720	3,450	44,000
10	1,500	4,000	16,200	4,720	8,200	105,000	4,300	3,300	38,300
11	1,560	4,200	17,700	4,280	6,800	78,600	4,060	3,000	32,900
12	1,560	4,500	19,000	3,260	5,500	48,400	3,970	3,050	32,700
13	1,730	4,800	22,400	2,660	4,800	34,500	3,720	2,500	25,100
14	1,660	3,700	16,600	2,820	4,200	32,000	3,530	2,630	25,100
15	1,830	5,250	25,900	3,000	4,500	36,400	3,260	2,420	21,300
16	1,920	5,800	30,100	3,160	4,750	40,500	3,140	2,400	20,300
17	1,840	4,400	21,900	2,590	3,400	23,800	2,920	2,300	18,100
18	1,710	3,700	17,100	2,420	3,400	22,200	2,500	1,900	12,800
19	1,690	3,500	16,000	3,750	6,000	60,800	2,300	2,050	12,700
20	1,740	3,400	16,000	4,840	7,250	94,700	2,010	2,400	13,000
21	1,760	3,600	17,100	5,430	8,700	128,000	1,830	1,900	9,390
22	1,580	3,300	14,100	5,850	8,400	133,000	1,660	1,500	6,720
23	1,530	3,100	12,800	6,010	7,600	123,000	1,540	1,400	5,820
24	1,500	3,300	13,400	5,690	7,200	111,000	1,420	1,800	6,900
25	1,600	4,200	a 18,000	5,300	5,500	78,700	1,410	3,500	13,300
26	1,810	3,800	18,600	4,940	5,200	69,400	1,200	2,420	7,840
27	1,710	3,500	16,200	4,860	4,750	62,300	1,040	2,350	6,600
28	2,270	6,400	39,200	4,780	4,600	59,400	981	1,500	3,970
29	2,750	7,300	54,200	4,670	3,900	49,200	951	1,120	2,880
30	2,440	5,800	38,200	4,660	4,500	56,600	796	1,000	2,150
31	--	--	--	5,140	4,700	65,200	--	--	--
Total	53,750	--	683,500	121,460	--	2,048,200	102,528	--	1,025,470

Day	July			August			September		
1	763	770	1,590	1,030	39,600	s 115,000	161	4,700	2,040
2	1,290	13,800	s 49,500	2,290	61,000	s 401,000	142	2,650	1,020
3	893	12,800	30,900	1,890	96,000	526,000	115	2,180	677
4	1,230	16,700	55,500	1,010	63,000	178,000	126	2,700	919
5	981	15,800	41,800	692	41,000	79,400	110	2,180	647
6	959	14,000	a 36,000	625	28,000	47,200	115	2,100	652
7	865	11,000	a 26,000	534	18,000	26,000	99	1,350	361
8	750	6,500	a 13,200	423	10,000	11,400	85	645	148
9	662	4,000	a 7,100	338	5,800	5,290	76	480	98
10	590	1,500	a 2,400	257	3,530	2,450	63	425	72
11	510	500	688	203	2,850	1,560	52	365	51
12	432	148	173	161	1,500	652	50	260	35
13	374	154	156	129	920	320	83	710	159
14	320	140	121	142	64,500	s 51,800	110	1,350	401
15	280	93	70	159	64,000	28,500	70	775	146
16	240	78	51	521	50,100	s 120,000	45	330	40
17	200	63	34	745	101,000	s 222,000	50	355	48
18	165	54	24	1,630	143,000	s 691,000	41	300	33
19	120	70	23	1,020	88,800	s 284,000	41	260	29
20	136	40	15	540	54,000	81,600	32	270	23
21	124	42	14	562	37,000	58,200	34	210	19
22	108	45	13	482	22,500	29,300	30	180	15
23	262	11,000	s a 32,200	409	20,000	22,100	26	160	11
24	649	14,000	a 25,000	348	15,000	14,000	23	140	9
25	568	17,000	a 26,000	334	10,900	9,830	26	150	11
26	476	11,000	14,100	280	8,000	6,050	28	235	18
27	529	24,500	35,000	232	6,100	3,820	26	260	a 18
28	414	36,500	43,800	206	4,800	2,670	32	240	21
29	257	58,000	41,700	209	4,850	2,740	26	230	16
30	283	48,500	38,400	319	7,700	6,630	19	265	14
31	381	49,000	s 50,500	215	7,900	4,590	--	--	--
Total	15,811	--	572,072	17,933	--	3,033,102	1,936	--	7,751

Total discharge for year (cfs-days) 434,373
Total load for year (tons) 8,591,831

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

SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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, 1955	9:05 a.m.	518	57	5,120	4,280		66		73	78	79	89	97		100	--	SPWCM
Oct. 27	9:20 a.m.	437	49	1,240	3,650		14		21	26	34	58	84		100	--	SPWCM
Nov. 19	10:00 a.m.	668	40	2,170	5,860		19		30	38	48	71	96		100	--	SPWCM
Dec. 9	8:55 a.m.	461	33	1,780	2,440		13		15	18	25	37	67		100	--	SPWCM
Jan. 13, 1956	9:15 a.m.	562	38	1,680	1,900		7		9	12	21	37	79		99	100	SPWCM
Jan. 29	11:05 a.m.	816	39	4,210	6,270		30		38	44	54	69	94		100	--	SPWCM
Feb. 16	10:40 a.m.	776	40	3,960	3,670		42		47	53	64	78	94		100	--	SPWCM
Mar. 5	8:45 a.m.	1,640	46	12,600	6,380		40		51	55	69	86	97		100	--	SPWCM
Mar. 17	10:10 a.m.	796	45	a7,090	3,380		28		45	55	69	85	96		99	100	SPWCM
Mar. 28	9:55 a.m.	2,420	44														
Apr. 18	8:15 a.m.	1,830	54	3,700	3,240		11		14	21	38	76	97		100	--	SPWCM
May 8	7:15 a.m.	4,270	59	10,800	3,640		16		26	40	60	83	96		100	--	SPWCM
May 15	9:10 a.m.	3,170	54	4,820	3,780		8		12	19	36	72	94		100	--	SPWCM
May 21	7:50 a.m.	5,150	63	7,810	4,780		12		19	30	50	80	96		100	--	SPWCM
May 26	7:50 a.m.	4,900	63	4,650	2,280		10		13	19	34	68	93		99	100	SPWCM
June 8	8:40 a.m.	5,260	66	3,880	5,740		8		11	16	26	54	88		99	100	SPWCM
June 28	8:35 a.m.	1,100	71	1,670	2,710		11		14	18	29	54	87		99	100	SPWCM
July 2	7:40 a.m.	1,400	69	3,940	3,480		49		60	71	78	91	99		100	--	SPWCM
July 29	8:55 a.m.	253	73	59,900	4,650		86		--	--	99	99	100		--	--	SPWCM
Aug. 2	6:35 p.m.	2,130	76	76,900	5,300		63		83	90	94	96	99		100	--	SPWCM
Aug. 3	6:40 p.m.	1,440	72	78,400	3,040		72		84	94	94	96	99		100	--	SPWCM
Aug. 6	8:00 a.m.	661	69	17,400	2,310		74		90	93	94	96	99		100	--	SPWCM
Aug. 12	9:00 a.m.	166	73	1,290	3,640		85		94	96	96	98	99		100	--	SPWCM
Aug. 16	9:20 a.m.	138	70	22,000	3,160		78		96	99	99	100	--		--	--	SPWCM
Aug. 18	6:15 p.m.	1,610	74	70,500	3,770		51		65	74	79	95	100		--	--	SPWCM
Aug. 30	7:10 p.m.	323	69	8,320	3,550		44		60	66	72	88	98		100	--	SPWCM

a Samples composited in the field.

COLORADO RIVER MAIN STEM

COLORADO RIVER AT LEES FERRY, ARIZ.

LOCATION (revised).--At gaging station at head of Marble Gorge at Lees Ferry, Coconino County, just upstream from Paria River, 16 miles downstream from site of Glen Canyon dam, 28 miles downstream from Utah-Arizona State line, 61.5 miles upstream from Little Colorado River, and 79 miles downstream from San Juan River.
DRAINAGE AREA.--107,900 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: January to July 1926, October 1926 to June 1927, October 1928 to September 1930, November 1942 to October 1945, October 1947 to September 1956.
Water temperatures: July 1949 to September 1956.
Sediment records: October 1928 to December 1933, November 1942 to September 1944, October 1947 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,300 ppm Nov. 1-10; minimum, 276 ppm June 11-20.
Hardness: Maximum, 624 ppm Nov. 1-10; minimum, 174 ppm June 11-20.
Specific conductance: Maximum daily, 1,960 micromhos Aug. 26; minimum daily, 403 micromhos June 12.
Water temperatures: Maximum, 81°F July 9, 20; minimum, 35°F Feb. 4.
Sediment concentrations: Maximum daily, 13,200 ppm Aug. 5; minimum daily, 200 ppm Sept. 26.
Sediment loads: Maximum daily, 1,440,000 tons June 6; minimum daily, 1,340 tons Sept. 26.
EXTREMES, 1928-33, 1942-45, 1947-56.--Dissolved solids (1928-30, 1942-45, 1947-56): Maximum, 1,410 ppm Oct. 11-20, 1928; minimum, 209 ppm June 11-20,1929.
Hardness (1928-30, 1942-45, 1947-56): Maximum, 720 ppm Oct. 11-20, 1928; minimum, 132 ppm June 11-20, 1944.
Specific conductance (1942-45, 1947-56): Maximum daily, 2,280 micromhos Oct. 15, 1945; minimum daily, 318 micromhos June 9, 1948.
Water temperatures (1949-56): Maximum, 84°F Aug. 3, 1952; minimum, freezing point many days during winter months.
Sediment concentrations (1928-33, 1942-44, 1947-56): Maximum daily, 83,300 ppm Aug. 11, 1930; minimum daily, 200 ppm Sept. 26, 1956.
Sediment loads (1928-33, 1942-44, 1947-56): Maximum daily, 9,450,000 tons Aug. 7, 1929; minimum daily, 1,220 tons Jan. 8, 1949.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ..	3,470	16	0.02	152	59	175	7.0	218	604	131	0.4	7.4	0.19	1,260	1.71	11,800	622	443	38	3.1	1,760	7.7
Oct. 11-20.....	3,444	12	.01	142	58	175	7.1	215	575	134	.4	6.5	.24	1,220	1.66	11,340	593	417	39	3.1	1,730	7.6
Oct. 21-31.....	3,506	13	.01	145	62	187	7.5	214	610	140	.4	7.0	.23	1,280	1.74	12,120	617	442	39	3.3	1,810	7.6
Nov. 1-10	3,930	13	.00	148	62	189	7.3	227	616	141	.4	7.0	.23	1,300	1.77	13,790	624	438	39	3.3	1,830	7.7
Nov. 11-20.....	4,694	14	.00	143	59	180	7.0	239	568	139	.4	7.1	.20	1,240	1.69	15,720	600	404	39	3.2	1,760	7.8
Nov. 21-30	5,272	14	.00	134	54	167	6.7	234	513	134	.4	7.1	.18	1,150	1.56	16,370	556	364	39	3.1	1,660	7.6
Dec. 1-10	5,798	14	.01	127	49	155	6.4	231	469	121	.4	6.8	.20	1,060	1.44	16,590	518	329	39	3.0	1,550	7.6
Dec. 11-20	4,533	16	.00	120	49	152	6.2	225	451	120	.4	6.2	.21	1,030	1.40	12,610	501	316	39	3.0	1,510	7.7
Dec. 21-31	5,571	16	.01	127	49	159	6.8	236	457	136	.4	6.9	.19	1,070	1.46	16,090	518	325	40	3.0	1,580	7.6
Jan. 1-10, 1956 ..	6,557	15	.00	108	45	138	5.6	221	402	106	.4	5.7	.18	935	1.27	16,550	454	274	39	2.8	1,380	7.6
Jan. 11-20	5,296	15	.01	112	41	145	5.8	217	399	116	.3	6.1	.18	947	1.29	13,540	448	270	41	3.0	1,420	7.8
Jan. 21-31.....	6,315	14	.01	110	41	145	5.6	222	390	118	.4	5.7	.18	939	1.28	16,010	443	261	41	3.0	1,410	7.7
Feb. 1-10	4,805	14	.01	110	44	150	5.7	216	412	118	.4	6.1	.17	966	1.31	12,530	456	278	41	3.1	1,450	8.0
Feb. 11-20	4,791	15	.01	125	46	170	6.8	237	449	146	.4	7.5	.24	1,080	1.47	13,970	501	307	42	3.3	1,610	7.6
Feb. 21-29.....	5,049	15	.01	116	41	156	6.2	226	413	130	.4	7.2	.22	996	1.35	13,580	458	273	42	3.2	1,490	7.7
Mar. 1-10	5,798	14	.01	114	40	153	6.1	223	408	120	.3	6.4	.20	972	1.32	14,980	449	266	42	3.1	1,460	7.8
Mar. 11-20	7,574	13	.01	104	36	134	5.6	215	361	102	.3	6.2	.23	868	1.18	17,750	408	232	41	2.9	1,310	7.7
Mar. 21-31	11,330	12	.02	98	32	122	5.7	214	320	92	.3	6.6	.17	794	1.08	24,290	376	200	41	2.7	1,210	7.7

Apr. 1-10, 1956.	13,860	15	.01	94	24	87	5.1	242	230	58	.6	7.1	0.09	640	.87	23,950	333	134	36	2.1	980	7.5
Apr. 11-24	12,850	14	.00	83	22	76	5.0	206	208	55	.5	4.4	.09	569	.77	19,740	298	128	35	1.9	880	7.7
Apr. 25-30	22,380	14	.00	70	17	55	4.5	187	153	38	.5	4.8	.08	449	.61	27,130	244	92	32	1.5	703	7.7
May 1-10	25,670	16	.01	68	17	40	3.8	201	117	28	.4	4.2	.15	394	.54	27,310	240	75	26	1.1	622	7.6
May 11-20	33,090	15	.01	67	14	30	3.8	201	92	21	.5	3.2	.12	346	.47	30,910	224	60	22	.9	554	7.6
May 21-31	46,960	15	.00	64	14	29	3.7	184	97	20	.6	3.0	.13	336	.46	42,600	217	66	22	.9	536	7.6
June 1-10	62,780	14	.03	53	12	24	3.3	161	79	16	.6	2.2	.12	283	.38	47,970	182	50	22	.8	450	7.7
June 11-20	45,110	15	.03	50	12	24	3.4	147	80	17	.5	1.8	.11	276	.38	33,620	174	54	23	.8	435	7.6
June 21-30	22,880	14	.02	55	14	34	3.6	151	106	26	.6	1.9	.14	329	.45	20,320	194	71	27	1.1	521	7.6
July 1-5	13,940	13	.02	62	18	44	4.1	163	136	33	.6	2.0	.17	393	.53	14,790	228	95	29	1.3	624	7.7
July 6-15	10,970	14	.03	87	23	68	6.2	182	224	50	.6	3.6	.16	566	.77	16,760	312	162	32	1.7	862	7.5
July 16-23	7,131	13	.03	79	25	71	4.9	171	221	58	.6	2.5	.16	559	.76	10,760	300	160	34	1.8	860	7.6
July 24-29	5,625	13	.03	91	33	93	5.7	184	291	72	.6	2.9	.20	692	.94	10,510	362	212	35	2.1	1,050	7.6
July 30-Aug. 20.	6,190	18	.50	133	37	115	7.0	257	389	80	.4	6.0	.17	912	1.24	15,240	484	274	34	2.3	1,320	7.6
Aug. 21-31.....	4,881	17	.00	155	47	147	8.4	235	527	105	.5	10	.17	1,130	1.54	14,890	580	388	35	2.7	1,610	7.5
Sept. 1-20	2,923	14	.01	129	51	140	7.0	203	479	115	.4	4.7	.21	1,040	1.41	8,210	532	365	36	2.6	1,500	7.6
Sept. 21-30	2,527	11	.01	137	64	171	7.2	191	583	144	.4	5.4	.20	1,220	1.66	8,320	605	448	38	3.0	1,740	7.6
Weighted average	12,040	15	0.03	81	24	70	4.6	192	212	53	0.5	4.0	0.14	558	0.76	18,140	300	143	33	1.8	846	--

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/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	63	54	41	44	37	44	53	60	66	75	76	70
2	64	50	41	40	38	47	48	62	67	75	76	71
3	63	50	40	39	37	49	47	62	70	72	74	73
4	64	46	--	--	35	43	--	--	--	--	76	--
5	--	--	--	--	--	--	--	--	--	--	73	--
6	63	51	38	39	--	42	53	62	65	75	--	74
7	58	48	39	39	40	44	52	64	66	75	75	71
8	57	48	39	39	38	44	54	63	69	77	74	74
9	58	47	39	39	38	47	54	62	68	81	76	76
10	63	50	38	39	39	48	54	60	69	78	74	74
11	62	50	37	38	40	46	55	61	71	78	74	74
12	63	50	36	37	38	42	57	60	70	76	73	75
13	62	50	38	38	39	41	54	58	69	77	75	73
14	62	--	38	40	43	42	54	57	69	78	75	74
15	60	--	37	41	43	42	55	59	69	76	75	74
16	65	--	38	42	40	--	57	61	68	76	74	74
17	65	--	39	--	--	--	57	61	--	78	74	73
18	60	44	38	--	40	46	56	63	70	78	75	71
19	60	46	38	39	39	48	57	--	71	79	74	70
20	63	46	--	41	43	48	58	65	70	81	75	71
21	64	44	--	42	42	50	59	66	69	80	--	--
22	63	44	38	42	44	52	63	66	71	80	--	--
23	63	43	42	42	45	53	64	67	73	78	--	68
24	57	42	43	44	44	54	63	69	73	79	76	68
25	57	42	44	43	43	54	63	67	74	80	75	68
26	57	41	43	43	42	55	63	67	72	79	72	68
27	55	44	44	44	42	52	61	66	74	79	73	69
28	54	40	42	44	42	53	59	66	75	80	73	69
29	55	41	42	44	40	53	59	62	77	78	69	70
30	55	41	44	41	--	53	62	65	75	77	70	68
31	54	--	44	39	--	52	--	66	--	76	70	--
Average	60	46	40	41	40	48	57	63	70	78	74	72

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956

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	3,740	2,280	23,000	3,620	930	9,090	5,490	1,860	27,600
2	3,680	2,290	22,800	3,700	1,040	10,400	5,180	1,690	23,600
3	3,530	2,030	19,300	3,790	1,070	10,900	6,120	2,660	44,000
4	3,450	1,630	15,200	3,830	1,160	12,000	5,840	2,300	a36,000
5	3,430	1,500	a14,000	3,830	1,100	a11,000	5,460	2,000	a29,000
6	3,430	1,390	12,900	3,880	1,080	11,300	5,660	2,070	31,600
7	3,380	1,310	12,000	4,100	1,220	13,500	6,080	2,240	36,800
8	3,340	1,180	10,600	4,130	1,360	15,200	6,340	2,270	38,900
9	3,340	1,030	9,290	4,170	1,280	14,400	6,120	1,990	32,900
10	3,380	1,020	9,310	4,250	1,340	15,400	5,690	1,610	24,700
11	3,450	1,060	9,870	4,200	1,360	15,400	5,230	1,370	19,300
12	3,380	960	8,760	4,170	1,340	15,100	4,720	1,250	15,900
13	3,430	990	9,170	4,340	1,360	15,900	4,460	1,220	14,700
14	3,470	1,090	10,200	4,620	1,500	a19,000	4,370	1,130	13,300
15	3,450	1,080	10,100	4,640	1,600	a20,000	4,290	1,020	11,800
16	3,510	1,060	10,000	4,720	1,600	a20,000	4,390	1,090	12,900
17	3,490	1,000	9,420	4,920	1,700	a23,000	4,420	1,100	13,100
18	3,430	801	7,420	4,990	1,840	24,800	4,340	1,110	13,000
19	3,450	873	8,130	5,050	1,780	24,300	4,490	1,180	14,300
20	3,380	802	7,320	5,290	1,960	28,000	4,620	1,300	a16,000
21	3,410	875	8,060	5,490	2,010	29,800	4,740	1,400	a18,000
22	3,510	899	8,520	5,460	1,830	27,000	5,070	1,450	19,800
23	3,570	912	8,790	5,120	1,630	22,500	5,490	1,720	25,500
24	3,550	875	8,390	5,100	1,860	25,600	5,430	1,910	28,000
25	3,510	815	7,720	4,940	1,590	21,200	5,460	1,710	25,200
26	3,510	806	7,650	5,050	1,480	20,200	5,520	1,720	25,600
27	3,530	996	9,490	5,230	1,710	24,100	5,520	1,580	23,500
28	3,490	905	8,530	5,150	1,420	19,700	5,550	1,520	22,800
29	3,470	833	7,800	5,490	1,710	25,300	5,750	1,590	24,700
30	3,470	804	7,530	5,690	1,900	29,200	6,150	1,970	32,700
31	3,550	875	8,390	--	--	--	6,600	2,280	40,600
Total	107,710	--	329,660	138,960	--	573,290	164,590	--	755,800

Day	January			February			March		
	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	6,610	2,360	42,100	6,280	2,130	36,100	5,700	1,480	22,800
2	6,740	2,330	42,400	6,320	2,560	43,700	5,730	1,410	21,800
3	6,970	2,620	49,300	6,060	2,240	36,700	5,440	1,200	17,600
4	7,380	2,800	a56,000	5,470	1,820	26,900	5,250	1,160	16,400
5	7,410	2,700	a54,000	4,830	1,400	a18,000	5,280	1,100	a16,000
6	7,070	2,410	46,000	3,900	1,100	a12,000	5,530	1,760	26,300
7	6,570	2,040	36,200	3,570	889	8,570	5,670	1,690	25,900
8	6,100	1,720	28,300	3,090	1,050	10,200	5,910	1,850	29,500
9	5,580	1,640	24,700	3,990	1,380	14,900	6,160	2,680	44,600
10	5,140	1,560	21,600	4,040	1,090	11,900	6,410	2,820	48,800
11	4,980	1,440	19,400	3,970	1,070	11,500	6,970	3,050	57,400
12	5,030	1,550	21,100	4,300	1,430	16,600	8,000	3,530	76,200
13	5,110	1,570	21,700	4,700	1,460	18,500	8,140	3,400	74,700
14	5,030	1,500	20,400	4,780	1,250	16,100	7.900	3,290	70,200
15	5,030	1,350	18,300	4,830	1,240	16,200	8,080	3,950	86,200
16	5,170	1,400	19,500	4,780	1,190	15,400	7,970	4,400	a95,000
17	5,330	1,500	a22,000	4,880	1,100	a14,000	7,760	4,400	a92,000
18	5,580	1,600	a24,000	4,980	1,190	16,000	7,280	4,060	79,800
19	5,790	1,610	25,200	5,220	1,200	16,900	6,970	3,460	65,100
20	5,910	1,740	27,800	5,470	1,270	18,800	6,670	3,840	51,100
21	6,060	1,660	27,200	5,640	1,620	24,700	6,410	2,380	41,200
22	6,250	1,580	26,700	5,530	1,420	21,200	6,160	2,050	34,100
23	6,350	1,690	29,000	5,330	1,140	16,400	6,060	2,010	32,900
24	6,410	1,820	31,500	4,980	1,130	15,200	6,380	2,110	36,300
25	6,510	1,940	34,100	4,720	1,090	13,900	6,840	2,220	41,000
26	6,350	1,710	29,300	4,620	1,060	13,200	7,720	2,500	52,100
27	6,610	1,880	33,600	4,650	1,040	13,100	13,200	5,550	198,000
28	6,480	2,780	48,600	4,800	950	12,300	16,100	7,630	332,000
29	6,380	2,380	41,000	5,170	1,160	16,200	18,400	10,400	517,000
30	6,100	1,910	31,500	--	--	--	19,000	12,400	636,000
31	5,970	1,730	27,900	--	--	--	18,400	12,200	606,000
Total	188,000	--	980,400	141,400	--	525,170	257,490	--	3,543,200

a Computed from estimated concentration graph.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	17,200	11,400	529,000	26,200	5,740	406,000	56,400	4,700	716,000
2	16,300	11,500	506,000	26,500	5,640	404,000	58,600	6,000	949,000
3	15,200	10,700	439,000	25,400	5,310	364,000	61,900	7,500	1,250,000
4	14,200	10,000	a380,000	23,300	5,000	a310,000	64,100	8,000	a1,400,000
5	13,700	8,800	a330,000	21,600	4,900	a290,000	66,300	8,000	a1,400,000
6	13,200	7,980	284,000	21,200	4,610	264,000	68,500	7,800	1,440,000
7	13,200	6,670	238,000	22,900	4,700	291,000	66,300	5,340	956,000
8	12,200	6,090	201,000	26,500	4,610	330,000	64,100	4,580	793,000
9	11,800	5,490	175,000	29,600	4,920	393,000	63,000	5,240	891,000
10	11,600	5,140	161,000	33,500	5,670	513,000	58,600	4,610	729,000
11	11,600	4,880	153,000	37,400	6,340	640,000	56,400	4,010	611,000
12	11,300	4,490	137,000	38,800	5,850	613,000	54,400	3,760	552,000
13	10,700	3,630	105,000	37,900	6,010	615,000	52,200	4,010	565,000
14	10,500	3,190	90,400	35,600	5,600	538,000	50,200	4,930	668,000
15	10,500	2.940	83,300	34,000	5,120	470,000	47,500	4,520	580,000
16	10,500	2,740	77,700	32,700	4,980	440,000	44,000	3,630	431,000
17	11,600	2,920	91,500	31,500	4,590	390,000	40,600	3,200	a350,000
18	12,500	2,890	97,500	29,200	4,000	315,000	37,900	3,000	307,000
19	12,900	3,730	130,000	27,300	3,500	a260,000	35,200	2,980	283,000
20	13,400	3,430	124,000	26,500	3,550	254,000	32,700	2,870	253,000
21	13,900	4,500	169,000	28,400	4,110	315,000	31,100	2,590	217,000
22	15,800	4,720	201,000	33,100	4,640	415,000	29,200	2,560	202,000
23	16,900	4,630	211,000	37,000	4,580	458,000	27,600	2,230	166,000
24	17,800	4,180	201,000	43,500	4,060	477,000	25,800	2,080	145,000
25	18,400	4,280	213,000	47,000	5,120	650,000	24,000	1,930	125,000
26	20,300	4,430	243,000	49,600	4,900	656,000	21,900	1,840	109,000
27	22,900	5,870	363,000	52,200	6,270	884,000	19,600	1,620	85,700
28	23,600	6,370	406,000	55,400	5,410	809,000	17,800	1,460	70,200
29	24,000	5,390	349,000	57,500	5,630	874,000	16,300	1,450	63,800
30	25,100	5,600	380,000	57,500	6,020	935,000	15,500	2,340	97,900
31	--	--	--	55,400	5,350	800,000	--	--	--
Total	452,800	--	7,068,400	1,104,200	--	15,173,000	1,307,700	--	16,405,600
	July			August			September		
1	14,400	1,460	56,800	5,200	4,050	56,900	3,590	2,240	21,700
2	14,200	1,600	61,300	5,090	4,200	57,700	3,550	1,660	15,900
3	15,200	1,770	72,600	6,000	4,600	74,500	3,500	1,470	13,900
4	13,700	1,700	a63,000	7,800	8,920	188,000	3,440	1,200	a11,000
5	12,200	1,400	a46,000	8,790	13,200	313,000	3,320	1,000	a9,000
6	12,900	4,520	157,000	7,380	13,000	a260,000	3,160	795	6,780
7	12,900	4,200	146,000	6,540	12,400	219,000	3,050	705	5,810
8	12,200	2,780	91,600	6,840	9,250	171,000	2,970	662	5,310
9	11,600	2,720	85,200	7,180	8,700	169,000	2,870	597	4,630
10	11,100	3,410	102,000	6,870	10,300	191,000	2,800	568	4,290
11	10,700	2,190	63,300	6,740	7,050	128,000	2,720	490	3,609
12	10,500	1,890	53,600	6,540	4,150	73,300	2,620	390	2,760
13	10,000	1,940	52,400	6,060	2,940	48,100	2,560	388	2,680
14	9,190	1,320	32,800	5,580	3,030	45,600	2,550	323	2,220
15	8,570	1,300	30,100	5,330	3,900	56,100	2,620	420	2,970
16	8,220	1,390	30,800	5,010	5,000	67,600	2,670	405	2,920
17	7,800	1,110	23,400	4,930	3,400	45,300	2,620	372	2,630
18	7,450	930	18,700	5,610	6,350	96,200	2,610	309	2,180
19	7,110	929	17,800	6,220	13,100	220,000	2,620	255	1,800
20	7,010	947	17,900	5,970	11,400	184,000	2,620	261	1,850
21	6,670	1,080	19,400	6,510	12,000	a210,000	2,580	290	a2,000
22	6,380	860	14,800	6,250	11,000	a190,000	2,550	250	a1,700
23	6,410	940	16,300	5,790	8,800	a140,000	2,510	240	1,630
24	6,160	930	15,500	5,470	7,560	112,000	2,520	236	1,610
25	5,910	978	15,600	5,060	6,780	92,600	2,480	208	1,390
26	5,550	900	13,500	4,680	9,600	121,000	2,490	200	1,340
27	5,330	705	10,100	4,320	7,100	82,800	2,520	225	1,530
28	5,300	597	8,540	4,110	4,240	47,100	2,520	237	1,610
29	5,500	2,320	34,500	4,040	4,000	43,600	2,540	259	1,780
30	5,280	3,600	51,300	3,810	3,660	37,700	2,560	280	1,940
31	5,220	4,400	62,000	3,650	2,730	26,900	--	--	--
Total	280,660	--	1,483,840	179,370	--	3,768,000	83,730	--	140,460

Total discharge for year (cfs-days) 4,406,610
Total load for year (tons) 50,946,820

a Computed from estimated concentration graph.

COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 16, 1955 ...	4:05 p.m.	3,510	65	1,010	3,860	--	39	--	54	--	75	93	100		--		VPWCM
Oct. 18	11:00 a.m.	3,430	60	795	2,990	--	38	--	55	--	80	95	100		--		VPWCM
Nov. 19	3:00 p.m.	5,070	46	1,590	4,110	--	27	--	43	--	67	88	100		--		VPWCM
Dec. 22	2:40 p.m.	5,150	38	1,320	3,620	--	24	--	40	--	67	88	99		100		VPWCM
Jan. 21, 1956 ...	12:40 p.m.	6,060	42	1,620	3,700	--	19	--	31	--	53	84	98		100		VPWCM
Feb. 23.....	11:40 a.m.	5,330	45	977	3,120	--	29	--	42	--	66	90	100		--		VPWCM
Mar. 21	11:15 a.m.	6,410	50	2,220	4,180	--	47	--	62	--	79	93	98		100		VPWCM
Mar. 31	11:15 a.m.	18,500	52	11,500	3,490	--	45	--	67	--	86	96	100		--		VPWCM
Apr. 14	12:30 p.m.	10,600	55	3,000	4,010	--	32	--	50	--	73	91	98		100		VPWCM
Apr. 16.....	11:45 a.m.	10,700	57	2,710	3,840	--	31	--	47	--	71	90	98		100		VPWCM
May 2	10:45 a.m.	26,500	62	5,590	4,880	1	5	19	37	49	67	88	98		100		VPN
May 2	10:45 a.m.	26,500	62	5,590	4,820	18	24	31	40	51	67	88	98		100		VPWCM
May 10.....	10:45 a.m.	33,500	60	5,390	4,000	--	20	--	37	--	66	87	99		100		VPWCM
May 20	11:50 a.m.	26,500	65	3,020	4,380	--	19	--	30	--	58	89	100		--		VPWCM
May 29	10:30 a.m.	51,500	62	5,200	3,640	--	22	--	36	--	59	79	94		100		VPWCM
June 3	10:45 a.m.	60,800	70	6,280	5,190	--	13	--	22	--	39	58	85		100		VPWCM
June 8	3:50 p.m.	63,600	69	4,130	4,840	--	13	--	22	--	44	66	92		100		VPWCM
June 20	10:00 a.m.	32,700	70	2,810	2,390	5	10	13	19	31	56	89	99		100		VPN
June 20	10:00 a.m.	32,700	70	2,810	2,080	14	16	16	21	33	56	89	99		100		VPWCM
June 28	9:50 a.m.	18,400	75	1,390	1,780	--	15	--	26	--	56	85	99		100		VPWCM
July 8	10:45 a.m.	12,200	77	2,580	4,280	--	43	--	67	--	83	94	99		100		VPWCM
July 17	10:10 a.m.	7,860	78	1,080	3,410	--	31	--	47	--	71	94	100		--		VPWCM
July 28	12:15 p.m.	5,300	80	631	4,410	--	34	--	49	--	75	95	100		--		VPWCM
Aug. 4	11:50 a.m.	8,110	76	10,000	4,900	1	4	13	83	87	92	98	100		--		VPN
Aug. 4	11:50 a.m.	8,110	76	10,000	5,160	51	63	74	83	87	92	98	100		--		VPWCM
Aug. 5	9:30 a.m.	9,160	73	13,400	4,430	--	70	--	92	--	97	99	100		--		VPWCM
Aug. 9	10:45 a.m.	7,160	76	8,260	4,220	--	75	--	90	--	97	99	100		--		VPWCM
Aug. 20	11:15 a.m.	5,790	75	11,100	5,530	--	69	--	90	--	99	100	--		--		SPWCM
Aug. 29	10:30 a.m.	4,040	69	3,980	4,050	--	81	--	93	--	96	99	100		--		VPWCM
Sept. 10.....	10:10 a.m.	2,800	74	565	4,290	--	61	--	74	--	87	97	100		--		VPWCM
Sept. 17	10:45 a.m.	2,640	73	371	2,880	--	51	--	67	--	83	98	100		--		VPWCM
Sept. 28.....	10:15 a.m.	22,540	69	247	1,800	--	40	--	59	--	78	96	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 1956.
EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 317,000 ppm July 30; minimum daily, 2 ppm Apr. 21-30.
Sediment loads: Maximum daily, 307,000 tons Aug. 17; minimum daily, less than 0.05 ton on several days in April.
EXTREMES, 1947-56.--Sediment concentrations: Maximum daily, 411,000 ppm Aug. 27, 1952; minumum 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 1955 to September 1956 given in WSP 1443. Flow affected by ice Feb. 2-5.

Suspended sediment, water year October 1955 to September 1956

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	4.8			6.4			20	305	16
2	5.2			6.4			85	38,700	s15,900
3	5.2	13	0.2	6.4	5	0.1	48	52,500	7,060
4	5.2			6.8			27	21,000	1,530
5	5.2			6.4			24	8,000	a520
6	4.5			7.2			22	2,900	172
7	4.8			8.0			20	980	53
8	5.2	10	.1	8.5	8	.2	24	1,040	67
9	5.2			8.5			20	630	34
10	5.6			8.5			15	320	13
11	5.2			8.5	19	.4	20	470	25
12	5.2			8.0			14	430	16
13	5.2	10	.1	8.0			14	500	19
14	5.2			10	--	b1	19	420	22
15	6.4			53	--	b9,700	20	560	30
16	6.4			33	--	b4,100	22	730	43
17	6.4			20	--	b800	20	430	23
18	6.4	11	.2	26	7,750	544	20	320	17
19	6.4			22	3,000	178	20	430	23
20	6.8			24	1,200	78	20	440	24
21	6.8			27	1,450	106	20	450	a24
22	7.2			22	1,300	77	22	400	24
23	7.6	10	.2	22	4,900	291	22	330	20
24	6.8			16	7,200	311	24	220	14
25	6.4			19	2,000	103	38	1,340	137
26	6.4			17	600	28	32	1,140	98
27	6.4			17	560	26	24	7,000	454
28	7.6	11	.2	20	530	29	20	5,450	294
29	7.2			19	395	20	20	3,700	200
30	6.4			19	255	13	19	580	30
31	6.4			--	--	--	19	351	18
Total	185.7	--	5.2	483.6	--	16,407.9	754	--	26,920

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

PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956--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.....	20	356	19	19	7,000	359	14	392	15
2.....	17	377	17	12	1,690	55	14	346	13
3.....	14	250	9.4	9.5	780	20	14	286	11
4.....	14	139	5.3	9.5	1,010	26	14	300	11
5.....	15	125	5.1	8.5	420	9.6	14	270	a10
6.....	16	224	9.7	23	770	a48	14	242	9.1
7.....	19	375	19	37	1,830	183	14	202	7.6
8.....	18	523	25	20	1,280	69	8.5	171	3.9
9.....	20	582	31	14	710	27	12	296	9.6
10.....	14	414	16	12	420	14	15	510	21
11.....	15	385	16	14	300	11	13	668	23
12.....	16	272	12	20	510	28	12	388	13
13.....	17	248	11	24	800	52	11	311	9.2
14.....	20	262	14	24	580	38	11	350	10
15.....	18	200	9.7	20	480	26	14	325	12
16.....	17	143	6.6	17	500	23	9.5	333	8.5
17.....	18	110	5.3	19	770	a40	12	278	9.0
18.....	14	80	a3.0	11	720	21	12		
19.....	14	143	5.4	12	510	17	12		
20.....	16	100	4.3	17	690	32	12	153	4.5
21.....	20	119	6.4	16	710	31	11		
22.....	19	171	8.8	20	580	31	8.0		
23.....	19	202	10	19	470	24	7.2		
24.....	22	168	10	17	380	17	6.8		
25.....	22	143	8.5	22	780	46	7.6	17	.3
26.....	20	102	5.5	16	720	31	6.8		
27.....	45	13,000	s5,080	16	760	33	5.6		
28.....	143	62,800	26,700	14	360	14	5.6		
29.....	45	40,800	5,140	18	520	25	6.0	13	.2
30.....	26	24,300	1,710	--	--	--	6.0		
31.....	19	10,700	549	--	--	--	5.6		
Total.	732	--	39,142	500.5	--	1,350.6	328.2	--	220.7

Day	April			May			June		
1.....	5.6			6.8			4.2		
2.....	7.6			6.4			4.2		
3.....	8.5	11	0.2	6.0	14	0.2	4.2	68	0.8
4.....	8.5			6.0			4.2		
5.....	8.0			5.6			4.5		
6.....	6.8			5.2			4.2		
7.....	6.4			4.8			4.2		
8.....	5.6	6	.1	4.8	4	.1	4.2	31	.3
9.....	5.6			4.8			3.6		
10.....	5.2			4.5			3.6		
11.....	4.8			4.5			3.6		
12.....	4.5			4.2			3.9		
13.....	4.5	5	.1	4.5	5	.1	3.9	24	.2
14.....	6.4			6.8			3.6		
15.....	6.4			6.0			3.6		
16.....	9.0			4.8			3.6		
17.....	9.0			4.8			4.2		
18.....	8.5	5	.1	4.8	16	.2	4.5	27	.3
19.....	6.8			5.2			4.2		
20.....	7.2			6.8			3.9		
21.....	11			17	37,000	s2,430	3.9		
22.....	8.0			7.6	30,500	626	4.5		
23.....	7.6	2	(t)	6.0	14,000	a230	4.2	59	.7
24.....	6.8			4.8	4,000	52	4.2		
25.....	6.4			4.5	670	8.1	3.9		
26.....	6.4			4.5	509	6.2	3.9		
27.....	6.4			4.8	329	4.3	3.9		
28.....	6.4	2	(t)	4.8	280	3.6	4.2	73	.8
29.....	6.0			5.2	159	2.2	4.2		
30.....	6.8			4.8	95	1.2	4.8		
31.....	--	--	--	4.8	75	1.0	--	--	--
Total.	206.7	--	2.8	176.1	--	3,367.4	121.8	--	15.5

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 1955 to September 1956--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.....	4.2			32	99,000	9,190	5.2	8,100	114
2.....	4.2			16	92,000	4,270	5.2	1,200	17
3.....	3.9	92	1.0	11	65,000	2,000	5.2	300	4.2
4.....	3.9			8.5	43,000	1,020	4.5	183	2.2
5.....	3.9			7.6	19,000	390	4.5	117	1.4
6.....	3.6			7.2	1,480	29	4.5		
7.....	3.6	116	1.2	6.0	600	9.7	4.5		
8.....	3.9			5.2	350	4.9	4.8	79	1.1
9.....	3.9			4.8	210	2.7	5.2		
10.....	3.9			4.5	125	1.5	5.2		
11.....	4.2	140	1.8	4.8	120	1.6	5.2		
12.....	6.0			5.6	50	.8	5.2		
13.....	6.4	380	6.6	5.6	20	.3	5.2	85	1.1
14.....	10	1,020	s 38	8.0	105	2.3	4.8		
15.....	18	17,800	s 1,030	7.6	150	3.1	4.5		
16.....	6.4	12,200	211	6.4	60	1.0	4.5		
17.....	4.5	4,500	55	291	173,000	s307,000	4.5		
18.....	4.2	1,300	15	56	155,000	s 28,400	4.5	46	.5
19.....	3.9	750	7.9	135	191,000	s 91,300	4.2		
20.....	3.9	600	6.3	50	192,000	29,800	3.9		
21.....	4.8	3,050	s 362	19	112,000	6,170	3.9		
22.....	23	197,000	s16,200	13	72,000	2,620	4.2		
23.....	9.0	108,000	2,820	11	41,000	1,260	4.2	19	.2
24.....	9.5	63,500	1,690	10	21,000	567	4.2		
25.....	9.5	48,000	1,280	8.0	6,000	130	4.5		
26.....	6.0	23,000	373	7.6	1,000	21	4.5		
27.....	10	18,200	s 532	7.2	400	7.8	4.8		
28.....	10	43,000	1,200	6.8	200	3.7	4.8	8	.1
29.....	77	203,000	s84,600	23	22,600	s 2,080	4.5		
30.....	231	317,000	s304,000	10	42,800	1,200	4.8		
31.....	87	179,000	s 51,400	6.0	31,700	514	--	--	--
Total.	583.3	--	465,831.2	794.4	--	488,000.4	139.7	--	153.4

Total discharge for year (cfs-days) 5,006.0
Total load for year (tons) 1,041,417.0

s Computed by subdividing day.

PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(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	0.500	1.000
July 29, 1956	3:20 p.m.	165	75	225,000	5,540		43		75		91	96	99	100			SPWCM
Aug. 17	5:00 p.m.	227	72	197,000	4,670		59		79		96	100					VPWCM

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 1956.
Water temperatures: June 1950 to September 1956.
Sediment records: June 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,560 ppm Feb. 6, 8, 19-27; minimum, 164 ppm July 31.
Hardness: Maximum, 532 ppm Feb. 6, 8, 19-27; minimum, 20 ppm Aug. 2.
Specific conductance: Maximum daily, 2,680 micromhos Feb. 21-22; minimum daily, 245 micromhos July 31.
Water temperatures: Maximum, 86°F July 19; minimum, freezing point Feb. 3, 4, 10.
Sediment concentrations: Maximum daily, 49,100 ppm Jan. 29; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 55,900 tons Aug. 16; minimum daily, 0 tons on many days.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 1,560 ppm Feb. 6, 8, 19-27, 1956; minimum, 129 ppm Mar. 29 to Apr. 2, 1954.
Hardness: Maximum, 532 ppm Feb. 6, 8, 19-27, 1956; minimum, 20 ppm Aug. 2, 1956.
Specific conductance: Maximum daily, 2,680 micromhos Feb. 21-22, 1956; minimum daily, 166 micromhos Mar. 30, 1952.
Water temperatures: Maximum, 90°F July 23, 1953; minimum, freezing point on several days in December 1953 and February 1956.
Sediment concentrations: Maximum daily, 66,400 ppm Aug. 4, 1951; minimum daily, no flow on many days each year.
Sediment loads: Maximum daily, 409,000 tons Aug. 28, 1951; minimum daily, 0 ton on many days.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. Flow affected by ice Feb. 3-5,8-12.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 3, 5-6, 1955	1.80	13		80	37	81		208	0	205	101		0.5		657	0.89	3.19	352	181	33	1.9	1,010	8.0
Oct. 2, 4, 7-10	1.88	24		44	22	29		190	5	65	22		.3		310	.42	1.57	200	36	24	.9	492	8.4
Oct. 11-20	2.60	27		44	22	30		196	4	65	22		.2		318	.43	2.23	200	34	24	.9	493	8.3
Oct. 21-31	2.42	23		44	22	29		194	5	63	22		.1		308	.42	2.01	200	34	24	.9	489	8.4
Nov. 1-10	2.89	21		43	24	29		202	4	63	22		.1		310	.42	2.42	206	34	23	.9	499	8.3
Nov. 11-20	4.97	23		48	22	28		212	0	65	22		.2		317	.43	4.25	210	37	23	.8	506	8.1
Nov. 21-30	6.53	20		45	24	26		213	2	60	20		.1		308	.42	5.43	211	33	21	.8	500	8.3
Dec. 1-10	6.95	21		49	23	28		213	9	58	20		.0		315	.43	5.91	217	28	22	.8	510	8.5
Dec. 11-21	6.08	20		46	25	26		212	4	63	20		.0		316	.43	5.19	218	38	20	.8	508	8.4
Dec. 22-31	7.45	17		89	41	142		201	3	297	156		.0		901	1.23	18.1	390	221	44	3.1	1,360	8.3
Jan. 1-10, 1956	7.87	17		103	39	190		195	0	365	206		1.1		1,040	1.41	22.1	418	258	50	4.0	1,600	8.1
Jan. 11-28	10.2	17		114	43	227		201	0	425	246		1.1		1,220	1.66	33.6	462	297	52	4.6	1,830	8.1
Jan. 29-31	99.3	17		11	1.2	203		204	10	154	90		2.7		596	.81	160	32	0	93	15	951	8.7
Feb. 1-5, 7, 9-10	21.4	15		83	25	219		196	0	328	200		2.4		979	1.33	56.6	310	150	61	5.4	1,540	8.0
Feb. 6, 8, 19-27	44.7	17		139	45	322		234	0	545	334		1.6		1,560	2.12	188	532	340	57	6.1	2,350	8.1
Feb. 11-14, 16-18	91.9	18		42	11	188		213	2	202	120		1.8		679	.92	168	150	0	73	6.7	1,120	8.3
Feb. 15	181	19		13	.5	181		215	9	128	73		1.5		523	.71	256	34	0	92	13	924	8.5
Feb. 28-29	17.0	23		90	35	200		245	0	314	194		1.2		984	1.34	45.2	368	168	54	4.5	1,550	8.2

Mar. 1-9, 1956	11.7	19		77	34	141		238	0	235	141		.3		777	1.06	24.5	332	137	48	3.4	1,230	8.2
Mar. 10-16	6.77	20		58	27	61		217	7	113	58		.1		456	.62	8.34	256	66	34	1.7	731	8.4
Mar. 17-31	3.21	21		50	23	30		220	6	61	22		.1		318	.43	2.76	220	30	23	.9	523	8.4
Apr. 1	a.1	19		25	19	39		115	9	73	28		.0		b268	.36	.07	140	32	37	1.4	435	8.7
May 12-14	a.50	17		43	25	47		192	6	93	34		.0		338	.46	.46	210	44	33	1.4	577	8.5
May 20	a1.0	16		45	24	45		204	0	93	32		.4		b355	.48	.96	211	44	32	1.4	582	8.1
May 21-23, 26-31	a.89	18		43	23	35		203	0	73	26		.3		310	.42	.74	202	36	28	1.1	523	8.2
June 1-6	1.28	17		43	22	32		199	0	67	25		.5		304	.41	1.05	198	35	26	1.0	508	8.0
June 29-30	213	--		66	12	5.0	--	162	0	--	--		--		310	.42	178	214	81	5	.2	430	7.4
July 1-3	a3.20	11		61	10	13		114	0	107	11		1.8		282	.38	2.44	193	100	13	.4	430	7.7
July 14	80	--		58	14	28	--	185	0	--	--		--		320	.44	69.1	202	50	23	.9	501	7.7
July 15-19	3.02	16		46	14	19		157	0	61	14		2.6		258	.35	2.10	172	44	19	.6	410	7.9
July 20	213	--		61	15	8.8	--	203	0	--	--		--		300	.41	173	214	47	8	.3	437	7.5
July 21-23	42.0	15		63	10	7.1		124	0	99	5.5		1.2		272	.37	30.8	198	96	7	.2	408	7.8
July 24	50	--		46	11	131	--	219	0	--	--		--		602	.82	81.3	160	0	64	4.5	887	7.6
July 25-27	9.53	19		48	11	58		182	0	83	38		3.0		348	.47	8.95	165	16	43	2.0	560	8.0
July 28	19	--		48	12	48	--	159	0	--	--		--		360	.49	18.5	170	39	38	1.6	536	7.7
July 29	81	--		61	14	18	--	249	0	--	--		--		302	.41	66.0	210	6	16	.5	461	7.4
July 30	94	--		50	11	6.7	--	203	0	--	--		--		231	.31	58.6	170	4	8	.2	346	7.5
July 31	12	--		36	6.2	5.7	--	121	0	--	--		--		164	.22	5.31	116	16	10	.2	245	7.7
Aug. 1	83	--		40	6.9	9.0	--	138	0	--	--		--		197	.27	44.1	128	16	13	.3	290	7.7
Aug. 2	36	--		7.5	.5	140	--	203	11	--	--		--		--	--	--	20	0	94	13	637	8.7
Aug. 3-7	4.62	17		23	4.3	123		170	0	79	85		1.4		415	.56	5.18	75	0	78	6.2	695	8.2
Aug. 8-13	4.13	20		46	13	47		184	0	80	24		2.0		320	.44	3.57	168	18	38	1.6	508	8.1
Aug. 14	85	--		44	10	115	--	257	0	--	--		--		514	.70	118	151	0	62	4.1	774	7.5
Aug. 15	69	--		36	7.8	77	--	184	0	--	--		--		382	.52	71.2	122	0	58	3.0	570	7.7
Aug. 16	503	--		15	1.9	72	--	188	0	--	--		--		--	--	--	46	0	77	4.6	373	8.0
Aug. 17-19	66.7	17		17	2.4	89		185	2	59	20		1.0		316	.43	56.9	52	0	79	5.3	464	8.3
Aug. 20-25	8.13	16		39	9.5	37		167	0	52	17		1.3		256	.35	5.62	136	0	37	1.4	410	8.2
Aug. 26-29	7.30	15		51	7.6	54		138	0	126	22		1.5		356	.48	7.02	158	46	43	1.9	535	7.9
Aug. 30-31	1.70	15		40	10	39		147	3	64	24		.7		274	.37	1.26	141	16	38	1.4	437	8.3
Sept. 1-30	.71	22		48	17	32		183	0	70	26		.4		309	.42	.59	190	40	27	1.0	497	8.1
Weighted average	c17.5	--		56	17	123		203	0	--	--		--		596	0.81	28.2	210	43	56	3.7	918	--

a No flow Apr. 2 to May 11, May 15-19, 24-25, June 7-28, July 4-13.

b Calculated from determined constituents.

c Mean for 287 days of flow.

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
(Once-daily measurement, generally between 11 a. m. and 6 p. m. No flow on many days)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	54	43	45	34	53	49	--	a 68	75	66	a 65
2	70	52	43	42	33	53		--	75	b 75	a 66	75
3	68	53	40	40	32	55		--	77	a 72	70	82
4	70	55	36	40	32	55		--	b 72	--	b 69	81
5	68	49	35	39	34	55		--	70	--	84	81
6	66	--	40	43	34	46		--	a 60	--	79	68
7	67	a 45	41	48	34	46		--	--	--	75	75
8	66	a 41	41	46	33	50		--	--	--	a 66	81
9	69	45	41	45	35	57		--	--	--	a 66	82
10	a 62	a 42	40	45	32	55		--	--	--	a 67	74
11	63	a 42	38	45	34	55		--	--	--	a 75	83
12	66	a 45	a 35	43	35	45		--	--	--	74	74
13	66	50	36	45	39	56		60	--	--	79	82
14	67	48	43	44	36	44		a 58	--	72	70	80
15	66	a 42	43	45	a 33	50		--	--	79	70	77
16	66	43	43	44	38	53		--	--	a 71	70	79
17	65	44	42	42	38	55		--	--	75	a 64	80
18	65	a 38	42	43	38	58		--	--	78	62	a 56
19	64	45	45	43	42	57		--	--	86	70	80
20	61	50	44	45	45	57		a 60	--	b 70	72	72
21	61	a 40	43	41	46	61		68	--	72	a 70	70
22	60	46	44	44	50	a 45		69	--	79	a 65	76
23	59	45	48	42	49	a 46		b 70	--	80	78	74
24	59	a 37	49	45	46	a 48		--	--	75	75	70
25	60	42	48	46	48	59		--	--	72	73	71
26	60	44	45	48	45	a 50		72	--	76	a 64	76
27	a 52	45	43	45	48	58		73	--	78	69	74
28	54	45	46	40	51	--		a 58	--	75	a 68	69
29	55	39	47	45	51	--		a 56	--	67	75	75
30	55	45	47	40	--	61		b 73	a 55	72	75	69
31	56	--	48	38	--	55		78	--	71	78	--
Average	63	45	43	43	39	53		--	--	--	71	75

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 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	0.9	144	0.3	2.7	67	0.5	7.4	29	0.6
2.....	1.8	94	.5	2.7	57	.4	7.9	26	.6
3.....	3.9	672	7.1	2.4	82	.5	6.8	74	1.4
4.....	2.4	117	.8	2.4	56	.4	7.4	11	.2
5.....	1.4	88	.3	3.0	51	.4	6.3	10	.2
6.....	1.0	6	(t)	3.6	54	.5	6.3	9	.2
7.....	.9	69	.2	3.3	61	.5	7.9	21	.4
8.....	1.0	64	.2	3.9	57	.6	7.4	33	.7
9.....	2.2	81	.5	2.2	46	.3	6.3	27	.5
10.....	3.0	118	1.0	2.7	56	.4	5.8	27	.4
11.....	2.4	103	.7	3.6	98	1.0	6.3	54	.9
12.....	2.4	8	.1	3.3	88	.8	6.3	46	.8
13.....	2.7	86	.6	3.0	81	.7	6.3	51	.9
14.....	2.7	82	.6	3.0	126	1.0	6.3	71	1.2
15.....	3.0	82	.7	2.7	53	.4	6.3	55	.9
16.....	3.0	86	.7	6.3	118	2.0	6.3	61	1.0
17.....	3.0	87	.7	7.9	48	1.0	5.8	56	.9
18.....	2.4	86	.6	6.8	27	.5	5.8	60	.9
19.....	2.2	92	.5	6.3	22	.4	5.8	36	.6
20.....	2.2	76	.5	6.8	84	1.5	5.4	38	.6
21.....	3.3	79	.7	6.3	28	.5	6.3	42	.7
22.....	3.3	72	.6	5.8	30	.5	6.3	43	.7
23.....	2.7	78	.6	5.8	21	.3	7.4	63	1.3
24.....	2.7	57	.4	5.8	13	.2	7.4	58	1.2
25.....	2.2	53	.3	5.8	16	.3	6.8	34	.6
26.....	2.2	67	.4	6.3	17	.3	7.4	23	.5
27.....	2.2	62	.4	6.8	16	.3	7.4	34	.7
28.....	2.2	51	.3	7.4	19	.4	8.5	27	.6
29.....	2.0	61	.3	7.9	21	.4	8.5	23	.5
30.....	1.8	56	.3	7.4	22	.4	7.4	35	.7
31.....	2.0	72	.4	--	--	--	7.4	51	1.0
Total.	71.1	--	21.3	143.9	--	17.4	210.9	--	22.4

	January			February			March		
1.....	7.4	36	0.7	29	13,800	1,080	16	124	5.4
2.....	7.4	24	.5	20	7,600	410	12	140	4.5
3.....	7.9	20	.4	18	628	31	10	333	9.0
4.....	6.8	21	.4	19	743	38	12	153	5.0
5.....	6.8	24	.4	19	490	a 25	12	158	5.1
6.....	7.9	13	.3	20	234	13	11	481	14
7.....	9.6	45	1.2	19	253	13	16	830	36
8.....	9.1	39	1.0	32	759	66	9.1	150	3.7
9.....	7.9	40	.9	27	762	56	7.4	64	1.3
10.....	7.9	37	.8	20	520	28	6.8	134	2.5
11.....	7.9	40	.9	19	2,100	108	8.5	127	2.9
12.....	7.9	39	.8	17	1,480	68	7.9	84	1.8
13.....	9.1	45	1.1	28	1,030	78	6.8	57	1.0
14.....	9.1	55	1.4	97	7,110	s 3,170	5.8	46	.7
15.....	8.5	46	1.1	181	23,900	11,700	5.8	39	.6
16.....	9.1	62	1.5	229	25,100	15,500	5.8	34	.5
17.....	9.1	75	1.8	166	22,100	9,910	4.6	52	.6
18.....	9.1	44	1.1	87	18,600	4,370	4.6	179	2.2
19.....	9.1	54	1.3	70	9,400	1,780	5.8	388	6.1
20.....	9.6	62	1.6	70	4,200	794	6.8	126	2.3
21.....	11	76	2.3	65	1,800	316	6.8	83	1.5
22.....	12	101	3.3	60	1,420	230	5.8	69	1.1
23.....	12	121	3.9	50	1,100	148	3.9	96	1.0
24.....	14	132	5.0	40	627	68	3.9	101	1.1
25.....	13	197	6.9	35	504	48	2.4	149	1.0
26.....	12	153	5.0	30	375	30	.3	41	(t)
27.....	11	110	3.3	20	216	12	.2	36	(t)
28.....	11	115	3.4	18	308	15	.1	--	(bt)
29.....	180	49,100	s31,400	16	204	8.8	.1	--	(bt)
30.....	78	35,600	7,780	--	--	--	1.6	127	.5
31.....	40	25,600	2,760	--	--	--	1.2	183	.6
Total.	561.2	--	41,992.3	1,521	--	50,113.8	201.0	--	112.1

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

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

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	0.1	266	0.1	0	--	0	2.4	162	1.0
2	0			0	--	0	.9	58	.1
3	0			0	--	0	1.0	59	.2
4	0			0	--	0	2.2	78	.5
5	0			0	--	0	1.0	77	.2
6	0			0	--	0	.2	42	(t)
7	0			0	--	0	0	--	0
8	0			0	--	0	0	--	0
9	0			0	--	0	0	--	0
10	0			0	--	0	0	--	0
11	0			0	--	0	0	--	0
12	0			1.0	--	b.3	0	--	0
13	0			.4	43	(t)	0	--	0
14	0			.1	39	(t)	0	--	0
15	0			0	--	0	0	--	0
16	0			0	--	0	0	--	0
17	0			0	--	0	0	--	0
18	0			0	--	0	0	--	0
19	0			0	--	0	0	--	0
20	0			1.0	48	.1	0	--	0
21	0			1.9	71	.4	0	--	0
22	0			1.0	73	.2	0	--	0
23	0			.3	28	(t)	0	--	0
24	0			0	--	0	0	--	0
25	0			0	--	0	0	--	0
26	0			.2	44	(t)	0	--	0
27	0			1.4	88	.3	0	--	0
28	0			1.2	78	.3	0	--	0
29	0			.8	60	.1	4.6	370	sa 220
30	0			.8	51	.1	422	10,700	s 24,000
31	--			.4	50	.1	--	--	--
Total	0.1		0.1	10.5	--	2.0	434.3	--	24,222.0

	July			August			September		
1	9	1,400	34	83	44,300	s16,700	2.0	148	0.8
2	.5	316	.4	36	42,800	4,310	2.4	141	.9
3	.1	96	(t)	7.9	17,800	380	2.0	119	.6
4	0	--	0	3.0	234	1.9	1.2	125	.4
5	0	--	0	1.4	113	.4	.9	152	.4
6	0	--	0	.8	46	.1	.9	260	.6
7	0	--	0	10	592	s48	.6	101	.2
8	0	--	0	10	294	7.9	.5	83	.1
9	0	--	0	2.4	270	a2	.4	86	.1
10	0	--	0	1.4	253	1.0	.4	74	.1
11	0	--	0	1.2	140	.5	.4	98	.1
12	0	--	0	5.2	175	s3.2	.4	107	.1
13	0	--	0	4.6	150	1.9	.3	89	.1
14	80	25,600	s8,340	85	43,800	s16,700	.3	70	.1
15	10	3,800	103	69	37,700	s8,990	.3	69	.1
16	2.7	479	3.5	503	36,400	s55,900	.3	93	.1
17	1.4	270	1.0	50	17,500	2,360	.3	138	.1
18	.6	180	.3	114	44,700	s17,900	.3	136	.1
19	.4	99	.1	36	22,000	2,140	.3	91	.1
20	213	9,760	s8,970	10	910	25	.4	317	.3
21	102	12,600	s4,310	6.3	195	3.3	.3	110	.1
22	10	1,900	51	4.2	113	1.3	.1	79	(t)
23	14	5,300	s 840	7.4	118	2.4	.1	62	(t)
24	50	24,400	s3,580	3.9	92	1.0	.2	81	(t)
25	19	13,100	672	17	8,300	s 1,880	.3	83	.1
26	4.6	1,100	14	18	15,000	729	.5	92	.1
27	5.0	1,200	16	5.8	500	7.8	1.0	103	.3
28	19	1,940	s 235	3.0	196	1.6	1.4	163	.6
29	81	5,920	s3,170	2.4	219	1.4	1.4	104	.4
30	94	11,100	s3,540	2.0	241	1.3	1.4	128	.5
31	12	1,800	58	1.4	136	.5	--	--	--
Total	728.3	--	33,938.3	1,105.3	--	128,101.5	21.3	--	7.6

Total discharge for year (cfs-days) 5,008.9
Total load for year (tons) 278,550.5

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

LITTLE COLORADO RIVER AT WOODRUFF, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Jan. 29, 1956....	4:30 p.m.	247	43	56,600	3,500	--	81	--	97	--	100	--	--				PWCM
Jan. 31.....	5:00 p.m.	32.4	38	22,900	3,160	--	94	--	98	--	100	--	--				PWCM
Feb. 14.....	6:00 p.m.	181	36	13,800	3,940	--	73	--	90	--	98	100	--				VPWCM
Mar. 31.....	4:00 p.m.	1.2	55	177	--	--	--	--	--	--	99	100	--				S
June 30.....	6:30 a.m.	14.0	55	13,000	4,130	--	63	--	93	--	99	100	--				VPWCM
July 14.....	6:30 a.m.	190	67	2,090	2,880	--	52	--	84	--	95	99	100				SPWCM
July 20.....	8:30 a.m.	475	55	15,600	3,370	--	58	--	86	--	92	98	100				VPWCM
July 30.....	8:30 a.m.	119	64	12,900	4,070	66	78	98	98	99	100	--	--				PWCM
July 30.....	8:30 a.m.	119	64	12,900	4,240	7	43	92	99	99	100	--	--				PN
Aug. 16.....	8:30 a.m.	1,060	64	38,800	3,130	--	55	--	77	--	87	95	100				VPWCM
Aug. 18.....	2:00 p.m.	148	69	67,800	3,250	--	76	--	99	--	100	--	--				PWCM
Sept. 30.....	6:00 p.m.	.9	69	126	--	--	--	--	--	--	100	--	--				S

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT CAMERON, ARIZ.

LOCATION (revised).--At bridge on U. S. Highway 89 at Cameron, Coconino County, 12 miles upstream from gaging station which is 3 miles downstream from Coconino damsite and 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 1956.
Water temperatures: October 1951 to September 1956.
REMARKS.--Records of specific conductance of daily samples available in district offices at Albuquerque, N. Mex. Records of discharge for gaging station near Cameron for water year October 1955 to September 1956 given in WSP 1443. 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 sizable contributors. No flow on many days.

Chemical analyses, in parts per million, February to September 1956

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. 18-19, 1956				64	14	329		283						1,120	1.52		217	0	77	9.8	1,890	8.0
Feb. 20-29				44	10	267		246						908	1.23		151	0	79	9.4	1,530	8.0
Mar. 1				103	29	373		216						1,450	1.97		376	199	68	8.4	2,400	7.9
Mar. 2-9				65	16	289		186						1,050	1.43		228	76	73	8.3	1,820	8.0
Mar. 10-11				32	5.7	177		171						596	.81		104	0	79	7.6	1,040	8.1
Mar. 12-31				27	6.2	111		140						400	.54		93	0	72	5.0	707	8.2
Apr. 1-10		15	0.01	34	6.2	110	3.4	128	51	137	0.4	0.8	0.18	424	.58		110	6	68	4.5	744	7.7
Apr. 11				43	8.8	133		138						534	.73		144	30	67	4.8	926	7.7
Apr. 16				71	14	243		154						922	1.25		234	108	69	6.9	1,630	7.6
Apr. 17-18				43	8.1	153		149						577	.78		141	19	70	5.6	1,010	7.9
Apr. 19-23				32	5.2	138		149						485	.66		102	0	75	6.0	860	7.9
Apr. 30-May 2				46	10	221		162						756	1.03		156	23	75	7.7	1,360	7.7
July 24				20	1.9	202		254						678	.92		58	0	88	12	992	8.0
July 27-28, 30-31				6.0	.9	153		a301						454	.62		18	0	95	15	676	8.7
Aug. 1-5				276	87	256		504						1,910	2.60		1,050	633	35	3.4	2,530	7.4
Aug. 6-9				114	36	160		613						1,210	1.65		432	0	45	3.4	1,950	7.6
Aug. 18				316	93	160		479						1,860	2.53		1,170	778	23	2.0	2,300	7.1
Aug. 19-29				40	12	233		380						734	1.00		150	0	77	8.3	1,230	7.9

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

LITTLE COLORADO RIVER BASIN--Continued

LITTLE COLORADO RIVER AT CAMERON, COLO.--Continued

Temperature (°F) of water, February to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					--	55	69	81		--	80	
2					--	53	71			--	80	
3					--	54	71			--	78	
4					--	53	73			--	84	
5					--	55	75			--	85	
6					--	44	72			--	80	
7					--	45	69			--	79	
8					--	56	65			--	80	
9					--	61	75			--	80	
10					--	61	73			--	--	
11					--	50	74			--	--	
12					--	39	--			--	--	
13					--	50	--			--	--	
14					--	41	--			--	--	
15					--	51	--			--	--	
16					--	56	74			--	--	
17					--	57	70			--	--	
18					37	67	62			--	a62	
19					44	63	70			--	81	
20					42	67	74			--	81	
21					45	67	75			--	79	
22					44	69	78			--	81	
23					49	75	80			--	86	
24					48	71	--			90	81	
25					48	74	--			--	82	
26					49	70	--			--	79	
27					44	69	--			85	80	
28					54	72	--			78	79	
29					49	74	--			--	82	
30					--	69	79			84	--	
31					--	71	--			74	--	
Average					--	60	--			--	--	

a Measurement before 12 m.

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 1956.
Water temperatures: October 1936 to October 1942, September 1943 to September 1956.
Sediment records: October 1925 to November 1942, September 1943 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,410 ppm Oct. 1-10; minimum, 309 ppm June 9-17.
Hardness: Maximum, 630 ppm Oct. 1-10; minimum, 188 ppm May 25-31.
Specific conductance: Maximum daily, 2,150 micromhos Oct. 3; minimum daily, 446 micromhos May 29.
Water temperatures: Maximum, 81°F July 21-25; minimum, 38 °F Feb. 6.
Sediment concentrations: Minimum daily, 71 ppm Sept. 17.
Sediment loads: Maximum daily, 3,100,000 (estimated) tons June 6; minimum daily, 554 tons Sept. 17.
EXTREMES, 1925-42, 1943-56.--Dissolved solids: Maximum, 1,890 ppm Sept. 21-30, 1934; minimum, 225 ppm June 11-30, 1942.
Hardness: Maximum, 792 ppm Sept. 1-10, 1940; minimum, 127 ppm June 11-17, 1926.
Specific conductance (1937-42, 1943-56): Maximum daily, 2,900 micromhos Sept. 6, 1940; minimum daily, 341 micromhos June 15, 1942.
Water temperatures (1936-42, 1943-56): 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, 71 ppm Sept. 17, 1956.
Sediment loads: Maximum daily, 27,600,000 tons Sept. 13, 1927; minimum daily, 497 tons July 22, 1934.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.
REVISION, (WSP 1353).--Sediment loads: June 1954, 2,294,600 tons; August 1954, 2,820,200 tons. Total load for water year 1953-54 (tons), 40,673,640.

Chemical analyses, in parts per million, October 1955, February 1956 to September 1956

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 (calculated)			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, 1955 ..	3,822	15	0.00	160	56	225	9.5	247	596	215	0.6	11	0.27	1,410	1.92	14,550	630	427	43	3.9	2,040	7.6
Oct. 11-20	3,838	11	.03	146	56	212	9.4	241	539	206	.6	7.7	.21	1,310	1.78	13,580	595	398	43	3.8	1,930	7.5
Oct. 21-31	3,875	12	.02	147	59	218	8.2	233	564	210	.6	9.4	.23	1,340	1.82	14,020	610	418	43	3.8	1,990	7.7
Feb. 1-10, 1956..	5,468	12	.02	106	42	164	6.2	225	370	150	.4	5.4	.17	967	1.32	14,280	437	252	44	3.4	1,480	7.8
Feb. 11-20.....	5,128	13	.01	106	39	161	6.2	225	363	148	.4	5.5	.18	953	1.30	13,190	425	240	45	3.4	1,470	7.9
Feb. 21-29.....	5,608	14	.02	103	40	161	5.9	226	356	148	.4	5.2	.19	945	1.29	14,310	422	236	45	3.4	1,460	7.8
Mar. 1-10	6,041	13	.01	102	40	160	5.8	225	350	149	.3	4.9	.19	936	1.27	15,270	419	234	45	3.4	1,440	7.9
Mar. 11-20	8,011	12	.02	100	38	152	6.0	222	337	137	.3	5.2	.18	897	1.22	19,400	406	224	44	3.3	1,390	7.8
Mar. 21-29	8,953	16	--	103	35	150	6.3	226	332	140	.4	5.7	.09	899	1.22	21,730	401	216	44	3.3	1,390	7.7
Mar. 30-Apr. 12	14,490	16	.00	91	26	100	5.6	235	234	79	.5	4.9	.10	673	.92	26,330	334	142	39	2.4	1,040	7.7
Apr. 13-23.....	11,990	17	.01	79	22	93	5.3	192	209	83	.5	4.5	.12	607	.83	19,650	288	130	41	2.4	952	7.7
Apr. 24-30.....	20,660	16	.01	74	21	71	4.9	202	174	58	.6	4.5	.10	523	.71	29,170	271	106	36	1.9	825	7.7
May 1-13	28,020	15	.02	67	17	48	4.5	199	118	40	.6	4.0	.08	412	.56	31,170	237	74	30	1.4	659	7.7
May 14-24	31,650	16	.03	58	15	37	3.5	171	95	30	.6	2.9	.06	342	.47	29,230	206	66	28	1.1	547	7.7
May 25-31	51,330	12	.03	54	13	33	4.0	152	93	26	.5	3.0	.08	314	.43	43,520	188	64	27	1.1	503	7.8

June 1-3, 6-7, 1956	59,960	17	.00	64	13	30	3.0	189	84	22	.5	2.4	.06	329	.45	53,260	213	58	23	.9	520	7.9
June 4-5	63,550	--	--	59	14	29	--	180	--	--	--	--	--	a 324	.44	55,590	204	57	24	.9	495	7.9
June 8	63,600	--	--	75	14	28	--	229	--	--	--	--	--	a 347	.47	59,590	244	57	20	.8	563	7.6
June 9-17	51,890	18	.02	58	12	29	3.2	176	77	22	.5	2.1	.06	309	.42	43,290	194	50	24	.9	489	7.7
June 18-28	28,340	16	.01	58	15	37	3.4	174	94	33	.5	1.5	.07	344	.47	26,320	206	64	28	1.1	550	7.7
June 29 - July 4	15,700	--	--	63	18	53	--	174	--	--	--	--	--	a 417	.57	17,680	231	88	33	1.5	668	7.5
July 5-29	9,133	14	.01	84	28	93	5.2	187	232	89	.5	2.4	.10	640	.87	15,780	324	172	38	2.2	1,000	7.7
July 30-Aug. 27	6,469	17	.28	124	38	138	8.6	240	374	122	.5	3.8	.18	944	1.28	16,500	466	270	39	2.8	1,410	7.7
Aug. 28-Sept. 9	3,896	--	--	125	46	168	--	235	--	--	--	--	--	a 1,100	1.50	11,570	501	308	42	3.3	1,620	7.3
Sept. 10-23	2,917	11	.02	122	50	193	8.0	208	441	206	.6	5.0	.20	1,140	1.55	8,980	510	340	45	3.7	1,740	7.7
Sept. 24-30	2,809	9.9	.02	133	60	221	8.2	205	530	235	.6	5.4	.22	1,300	1.77	9,860	578	410	45	4.0	1,960	7.8
Weighted average	b 14,370	15	.03	76	22	72	4.7	193	181	65	.5	3.5	.10	531	.72	20,610	280	122	35	1.9	824	--
Weighted average	c 12,210	15	.03	82	25	85	5.1	201	215	78	.5	3.9	.11	600	.82	19,780	308	143	37	2.1	927	--

a Residue on evaporation at 180° C.
b Represents 88 percent of runoff for water year October 1955 to September 1956. Average for 274 days of flow.
c Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
[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	57	56	44	44	45	45	46	44	46	45	56	54	65	63	71	70	76	75	78	77	72	72
2	68	68	56	55	44	44	45	45	44	42	47	46	55	53	65	64	72	71	75	74	77	77	74	72
3	69	67	56	54	44	44	45	44	42	40	48	47	53	52	66	65	72	71	75	74	77	76	74	74
4	68	67	55	53	44	44	44	43	41	40	49	48	52	51	66	65	72	72	74	74	76	76	74	74
5	67	67	54	52	44	42	43	42	40	39	50	49	53	52	66	65	72	71	74	74	76	75	74	74
6	68	65	53	52	43	42	42	42	39	38	50	50	55	53	66	65	71	71	74	74	76	75	75	74
7	66	64	53	51	42	42	42	42	39	39	50	48	56	55	67	66	71	71	75	74	76	75	74	74
8	65	63	52	51	42	41	42	42	40	39	49	48	56	56	67	66	71	71	76	75	75	75	74	74
9	64	63	52	51	42	42	42	42	41	40	48	47	57	56	67	66	72	71	77	76	75	75	75	74
10	64	63	52	50	42	42	42	42	42	41	48	47	57	57	66	64	72	71	78	77	75	75	76	75
11	63	63	52	50	42	41	42	42	42	42	48	48	57	57	65	63	72	72	78	77	75	74	77	76
12	64	63	52	51	42	40	42	42	42	42	49	48	57	57	64	62	73	72	78	78	75	74	77	77
13	65	64	52	51	41	40	42	42	43	42	49	48	57	57	63	62	74	73	78	78	75	74	77	76
14	66	65	52	51	40	39	42	42	43	42	48	47	57	57	62	61	75	73	78	78	74	74	77	76
15	66	65	51	50	41	39	43	42	44	43	47	45	57	57	63	61	74	73	79	78	74	74	78	77
16	66	65	50	49	40	39	43	42	44	44	46	46	58	57	64	62	--	--	80	78	75	74	78	77
17	66	65	50	48	40	40	43	43	45	44	47	46	59	58	65	63	--	--	80	79	75	75	77	76
18	66	65	48	46	41	40	44	43	44	44	49	47	60	59	66	64	--	--	79	79	75	75	77	76
19	66	65	47	45	41	40	44	43	44	43	50	48	60	60	66	66	--	--	79	79	75	75	77	76
20	65	65	46	45	41	40	43	43	44	43	51	50	61	60	66	66	75	74	80	79	75	75	76	75
21	65	65	47	46	41	40	43	43	44	43	52	51	62	61	67	66	75	74	81	80	75	75	75	74
22	65	64	47	46	41	40	43	43	44	44	53	52	64	62	69	67	75	74	81	81	75	75	74	73
23	65	63	47	46	43	40	44	43	45	44	55	53	65	64	70	68	75	74	81	81	75	75	75	74
24	64	62	46	45	43	42	45	44	47	45	56	55	65	65	70	68	76	74	81	80	76	75	75	74
25	63	62	46	44	43	42	46	45	47	46	57	56	65	64	--	--	76	74	81	80	76	76	75	74
26	62	61	45	44	45	43	46	46	47	47	58	57	65	64	--	--	76	75	80	80	76	76	75	74
27	62	59	45	44	45	45	47	46	47	46	58	58	65	63	--	--	76	75	80	80	76	75	75	74
28	60	58	45	43	46	45	47	47	46	46	58	57	64	63	--	--	76	75	80	80	75	74	74	74
29	59	58	44	43	46	45	47	47	46	45	57	56	63	62	71	70	76	76	80	80	74	73	74	74
30	59	57	44	44	46	45	47	46	--	--	56	55	64	62	70	69	76	76	80	79	73	71	74	74
31	58	56	--	--	45	44	46	46	--	--	56	55	--	--	71	70	--	--	79	78	72	71	--	--
Average	66	63	50	49	43	42	44	44	44	43	51	50	59	58	67	66	74	73	78	78	75	75	75	75

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956

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.....	3,940	1,420	15,100	3,930	390	4,140	6,110	1,520	25,100
2.....	4,020	1,400	15,200	3,950	410	4,370	5,930	1,700	a27,000
3.....	3,960	1,500	16,000	4,080	420	4,630	5,760	1,100	a17,000
4.....	3,870	1,590	16,600	4,190	760	a8,600	6,660	1,900	a34,000
5.....	3,810	1,500	15,400	4,280	790	9,130	6,230	1,480	24,900
6.....	3,780	1,100	a11,000	4,300	820	9,520	5,930	1,460	23,400
7.....	3,770	600	a6,100	4,370	820	9,680	6,140	1,470	24,400
8.....	3,730	570	5,740	4,540	1,130	13,900	6,570	1,490	26,400
9.....	3,670	580	5,750	4,560	1,990	24,500	6,800	1,450	26,600
10.....	3,670	520	5,150	4,590	1,980	24,500	6,490	1,420	24,900
11.....	3,770	560	5,700	4,690	2,000	25,300	6,140	1,430	23,700
12.....	3,820	510	5,260	4,630	1,840	23,000	5,710	1,590	24,500
13.....	3,790	430	4,400	4,610	1,370	17,100	5,220	1,620	22,800
14.....	3,810	400	4,110	4,820	1,220	15,900	4,940	1,600	21,300
15.....	3,850	340	3,530	5,120	1,240	17,100	4,860	1,660	21,800
16.....	3,840	360	3,730	5,190	1,230	17,200	4,810	1,880	24,400
17.....	3,900	370	3,900	5,330	2,480	35,700	4,890	1,800	a24,000
18.....	3,900	400	4,210	5,410	1,940	28,300	4,930	1,700	a23,000
19.....	3,850	400	4,160	5,450	1,400	a21,000	4,840	1,700	a22,000
20.....	3,850	375	3,900	5,510	1,290	19,200	4,950	1,800	a24,000
21.....	3,820	350	3,610	5,600	1,130	17,100	5,080	1,800	a25,000
22.....	3,820	320	3,300	5,930	560	8,970	5,240	1,930	27,300
23.....	3,900	300	3,160	5,860	530	8,390	5,600	1,840	27,800
24.....	3,940	310	3,300	5,600	530	8,010	5,900	1,850	29,500
25.....	3,910	320	3,380	5,470	530	7,830	5,880	1,700	27,000
26.....	3,890	340	3,570	5,370	520	7,540	5,940	1,670	26,800
27.....	3,880	280	2,930	5,450	520	7,650	5,980	1,710	27,600
28.....	3,900	310	3,260	5,600	540	8,160	5,970	1,720	27,700
29.....	3,890	300	3,150	5,630	550	8,360	5,990	1,630	26,400
30.....	3,840	310	3,210	5,970	590	9,510	6,190	1,650	27,600
31.....	3,830	340	3,520	--	--	--	6,520	1,540	27,100
Total.	119,220	--	191,330	150,030	--	424,290	178,200	--	785,000
	January			February			March		
1.....	6,910	1,310	24,400	6,450	1,300	22,600	5,640	2,800	42,600
2.....	7,010	1,280	24,200	6,740	1,120	24,400	6,210	2,940	49,300
3.....	7,100	1,300	24,900	6,740	1,260	22,900	6,210	2,890	48,500
4.....	7,360	1,220	24,200	6,600	1,250	22,300	5,930	2,870	46,000
5.....	7,600	1,070	22,000	5,930	900	a14,000	5,720	2,760	42,600
6.....	7,580	1,080	22,100	5,260	610	8,660	5,770	2,740	42,700
7.....	7,290	1,060	20,900	4,390	940	11,100	5,950	2,710	43,500
8.....	6,880	1,140	21,200	4,080	980	10,800	6,080	2,640	43,300
9.....	6,370	1,180	20,300	4,050	914	9,990	6,340	2,620	44,800
10.....	5,850	1,100	a17,000	4,440	921	11,000	6,560	2,770	49,100
11.....	5,470	1,100	16,200	4,470	882	10,600	7,050	2,700	51,400
12.....	5,320	1,130	16,100	4,410	895	10,700	7,500	2,680	54,300
13.....	5,450	1,160	17,100	4,760	954	12,300	8,530	2,750	63,300
14.....	5,500	1,450	21,500	5,190	1,090	15,300	8,430	2,840	64,600
15.....	5,470	1,570	23,200	5,290	992	14,200	8,300	3,050	68,400
16.....	5,480	1,480	21,900	5,290	992	14,200	8,530	3,040	70,000
17.....	5,670	1,740	26,600	5,240	1,010	14,300	8,410	3,480	79,000
18.....	5,820	3,360	52,800	5,330	1,100	16,000	8,290	4,780	107,000
19.....	6,070	3,370	55,200	5,450	1,060	15,600	7,800	4,210	88,700
20.....	6,250	3,310	55,900	5,850	1,110	17,500	7,270	3,560	69,900
21.....	6,430	3,290	57,100	6,060	1,070	17,500	6,980	2,860	53,900
22.....	6,520	3,110	54,700	6,250	1,070	18,100	6,740	2,420	44,000
23.....	6,660	2,960	53,200	6,100	1,070	17,600	6,540	1,900	33,600
24.....	6,670	3,040	54,700	5,840	1,050	16,600	6,410	1,570	27,200
25.....	6,850	2,890	53,500	5,470	1,030	15,200	6,740	1,480	26,900
26.....	6,950	2,270	42,600	5,240	1,050	14,900	7,100	1,830	35,100
27.....	6,880	2,300	42,700	5,110	1,060	14,600	8,870	2,820	s72,800
28.....	7,080	2,310	44,200	5,120	1,080	14,900	14,400	9,060	352,000
29.....	7,080	2,340	44,700	5,290	1,300	18,600	16,800	11,200	508,000
30.....	6,800	2,280	41,900	--	--	--	18,300	14,100	697,000
31.....	6,520	1,800	a32,000	--	--	--	18,400	15,200	755,000
Total.	200,890	--	1049,100	156,440	--	442,450	257,800	--	3,774,500

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

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	17,600	16,000	760,000	25,700	9,200	638,000	54,000	8,300	1,210,000
2	16,700	13,300	600,000	26,700	9,860	711,000	56,100		
3	15,600	12,400	522,000	26,200	8,450	598,000	58,400		
4	14,700	10,600	421,000	24,600	7,180	477,000	62,400		
5	14,000	9,900	a370,000	22,900	6,200	a380,000	64,700		
6	13,300	9,520	342,000	22,000	5,500	a330,000	66,600		
7	13,400	8,400	304,000	22,400	5,610	339,000	64,700		
8	13,100	7,750	274,000	24,600	6,510	432,000	63,600		
9	12,200	6,240	206,000	27,700	7,620	570,000	63,600		
10	12,000	5,400	175,000	30,900	9,900	826,000	59,500		
11	11,900	5,200	167,000	35,700	12,500	1,200,000	56,100		
12	11,600	4,710	148,000	37,800	12,900	1,320,000	54,000		
13	11,200	4,200	127,000	37,000	10,900	1,090,000	51,800		
14	10,600	3,690	106,000	35,700	9,450	911,000	49,800		
15	10,500	3,180	90,200	33,200	8,200	735,000	47,200		
16	10,500	3,000	85,000	32,100	8,240	714,000	43,800		
17	10,700	2,830	81,800	31,300	7,600	642,000	41,000		
18	11,400	3,090	95,100	29,600	5,800	464,000	39,200		
19	12,100	3,250	106,000	27,900	4,820	363,000	36,100		
20	12,600	3,500	119,000	26,200	4,540	321,000	33,200		
21	12,900	3,410	119,000	27,200	5,000	367,000	31,300		
22	14,000	3,940	149,000	29,500	5,470	436,000	29,600		
23	15,400	4,710	196,000	35,300	6,290	599,000	27,900		
24	16,600	5,360	240,000	40,100	8,100	877,000	26,400		
25	17,600	5,750	273,000	45,800	9,410	1,160,000	24,800		
26	18,800	5,830	296,000	46,700	9,620	1,210,000	22,900		
27	21,100	8,620	491,000	49,800	10,100	1,360,000	21,000		
28	23,000	9,750	605,000	52,900	9,500	1,360,000	19,300		
29	23,200	9,400	589,000	54,500	8,350	1,230,000	17,300		
30	24,300	9,190	603,000	55,600	8,850	1,330,000	16,300		
31	--	--	--	54,000	8,890	1,300,000	--		
Total	442,600	--	8,660,100	1,071,600	--	24,290,000	1,302,600	--	e30,000,000

Day	July			August			September		
1	15,300			5,870			3,920		
2	14,900			5,830			3,850		
3	15,300			5,790			3,790		
4	15,100			6,460			3,740		
5	13,600			8,350			3,700	--	e 9,600
6	12,800			8,710			3,600		
7	13,500			7,330			3,490		
8	13,200			6,710			3,340		
9	12,600			6,970			3,250	628	5,510
10	12,200			7,110			3,180	488	4,190
11	11,600			6,850			3,060	406	3,350
12	11,100			6,840			2,980	363	2,920
13	11,000			6,840			2,920	338	2,660
14	10,300			6,320			2,870	340	2,630
15	9,470			5,800			2,770	227	1,700
16	8,800			5,660			2,840	88	675
17	8,390			5,620			2,890	71	554
18	7,960			6,210			2,890	90	702
19	7,570			6,900			2,890	87	679
20	7,260			6,850			2,880	211	1,640
21	7,180			6,580			2,930	190	1,500
22	6,910			6,780			2,900	134	1,050
23	6,730			6,320			2,840	111	851
24	6,690			6,050			2,810	131	994
25	6,500			5,750			2,780	144	1,080
26	5,950			5,450			2,770	132	987
27	5,870			5,200			2,780	137	1,030
28	5,580			4,900			2,800	168	1,270
29	5,570			4,600			2,860	134	1,030
30	6,220			4,340			2,860	133	1,030
31	6,220			4,130			--	--	--
Total	301,370		e1,500,000	193,120		e4,900,000	93,180	--	114,832

Total discharge for year (cfs - days) 4,467,050

Total load for year (tons) 76,131,602

e Estimated.

a Computed from estimated concentration curve.

COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Particle - size analyses of suspended sediment, water year October 1955 to September 1956
(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	
Apr. 9, 1956	8:45 a.m.	12,400	55	6,160	4,210		49		66		82	94	100		--		VPWCM
Apr. 12	1:50 p.m.	11,500	59	4,570	3,910		44		60		78	92	100		--		VPWCM
Apr. 25	8:30 a.m.	17,200	64	5,570	3,640		18		30		60	90	100		--		VPWCM
May 10	8:25 a.m.	29,500	63	9,260	3,920		12		20		39	71	97		100		VPWCM
May 28	2:30 p.m.	52,900	68	8,860	4,140		14		22		40	72	93		100		VPWCM
May 31	8:50 a.m.	54,400	68	8,990	5,160		15		24		42	64	90		99	100	SPWCM
June 1	10:30 a.m.	54,300	70	8,350	3,820		15		25		38	62	89		100		VPWCM
Sept. 27	9:30 a.m.	2,830	74	86	2,020		66		94		99	100	--		--		SPWCM

BRIGHT ANGEL CREEK BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN BRIGHT ANGEL CREEK BASIN IN ARIZONA

Chemical analyses, in parts per million, water years October 1952 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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				
BRIGHT ANGEL CREEK NEAR GRAND CANYON																						
Oct. 16, 1952	22			--	--	--	222	--	5.5		--		--	--	--	--	--	--	--	--	356	--
Nov. 17	23			--	--	--	226	--	6.0		--		--	--	--	--	--	--	--	--	362	--
Dec. 16	22			41	21	4.6	224	7.4	5.5		0.2		190	0.26	11.3	189	6	5	0.1	360	7.6
Jan. 17, 1953	21			--	--	--	227	--	7.0		--		--	--	--	--	--	--	--	--	367	--
Feb. 17	18			--	--	--	229	--	4.0		--		--	--	--	--	--	--	--	--	--	--
Mar. 14	21			--	--	--	232	--	5.0		--		--	--	--	--	--	--	--	--	376	--
Apr. 17	23			--	--	--	205	--	4.0		--		--	--	--	--	--	--	--	--	338	--
May 16	23			--	--	--	180	--	4.5		--		--	--	--	--	--	--	--	--	326	--
June 15	18			--	--	--	212	10	4		.3		--	--	--	--	--	--	--	--	338	7.7
July 16	24			--	--	--	256	--	5.0		--		--	--	--	--	--	--	--	--	408	--
Aug. 16	17			--	--	--	203	--	5.5		--		--	--	--	--	--	--	--	--	334	--
Sept. 16	17			--	--	--	213	--	6.0		--		--	--	--	--	--	--	--	--	352	--
Oct. 16	17			--	--	--	216	--	5.5		--		--	--	--	--	--	--	--	--	359	--
Nov. 17	17			--	--	--	226	--	6.5		--		--	--	--	--	--	--	--	--	341	--
Dec. 12	17	9.8		44	22	2.5	231	7.8	5.5	0.2	.2		206	.28	9.46	200	11	3	.1	373	--
Jan. 15, 1954	18			--	--	--	228	--	6		--		--	--	--	--	--	--	--	--	365	--
Feb. 18	18			--	--	--	232	--	5.5		--		--	--	--	--	--	--	--	--	367	--
Mar. 17	20			--	--	--	224	--	6.5		--		--	--	--	--	--	--	--	--	367	--
Apr. 16	53			--	--	--	196	--	2.5		--		--	--	--	--	--	--	--	--	311	--
May 17	39			--	--	--	176	--	5.0		--		--	--	--	--	--	--	--	--	281	--
June 16	18			40	20	5.5	217	8.2	5		.8		186	.25	9.04	182	4	6	.2	349	--
July 16	18			--	--	--	211	--	5.0		--		--	--	--	--	--	--	--	--	331	--
Aug. 16	16			--	--	--	204	--	6.5		--		--	--	--	--	--	--	--	--	354	--
Sept. 16	15			--	--	--	208	--	6.0		--		--	--	--	--	--	--	--	--	328	--
Oct. 16	17			--	--	--	226	--	7.5		--		--	--	--	--	--	--	--	--	370	7.9
Dec. 15	17			41	26	5.8	238	15	8		.1		213	.29	9.78	210	14	6	.2	390	7.7
Jan. 15, 1955	19			--	--	--	227	--	6.5		--		--	--	--	--	--	--	--	--	366	7.9
Feb. 15	17			--	--	--	225	--	6.5		--		--	--	--	--	--	--	--	--	366	7.9
Mar. 14	18			--	--	--	226	--	6.0		--		--	--	--	--	--	--	--	--	365	7.8
Apr. 15	22			--	--	--	197	--	6.5		--		--	--	--	176	14	--	--	--	322	6.8
Mar. 18, 1956	18			--	--	--	a 201	--	4.5		--		--	--	--	--	--	--	--	--	356	8.5
Apr. 16	38			--	--	--	180	--	5.8		--		--	--	--	--	--	--	--	--	306	7.4
Sept. 16	16			--	--	--	212	--	3.8		--		--	--	--	--	--	--	--	--	336	7.7

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

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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 1956.
Water temperatures: October 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,100 ppm July 24, 28; minimum, 395 ppm May 1-10.
Hardness: Maximum, 1,490 ppm July 24, 28; minimum, 258 ppm May 1-10.
Specific conductance: Maximum daily, 2,510 micromhos July 28; minimum daily, 549 micromhos May 6.
Water temperatures: Maximum, 86°F June 11; minimum, 36°F Feb. 1.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 2,710 ppm Aug. 4, 1954; minimum, 245 ppm May 1-10, 1952.
Hardness (1955-56): Maximum, 1,490 ppm July 24, 28, 1956; minimum, 258 ppm May 1-10, 1956.
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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. No discharge records available for this station during 1955-56 water year.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..		18		85	30	55	4.6	188	205	63		2.4	--	566	0.77		366	182	26	1.3	871	7.9
Oct. 11-20.....		15		88	31	56	5.9	210	201	65		2.5	0.07	579	.79		347	175	26	1.3	887	7.6
Oct. 21-31.....		16		87	32	58	4.6	209	194	68		2.1	--	576	.78		348	177	26	1.3	883	7.7
Nov. 1-10.....		16		82	32	58	4.8	205	192	66		2.3	--	567	.77		336	168	27	1.4	865	7.9
Nov. 11-20.....		15		78	29	51	4.8	206	176	57		2.3	.08	522	.71		314	144	26	1.3	808	7.9
Nov. 21-30.....		17		67	32	47	3.5	198	153	56		1.3	--	486	.66		298	136	25	1.2	768	8.1
Dec. 1-10.....		15		79	31	49	3.8	219	162	60		1.3	--	522	.71		324	145	24	1.2	819	7.9
Dec. 11-20.....		16		77	32	52	3.8	227	157	61		1.4	.07	516	.70		324	138	26	1.3	823	7.8
Dec. 21-31.....		15		76	32	47	3.8	222	151	59		1.6	--	497	.68		321	139	24	1.1	792	8.0
Jan. 1-10, 1956..		15		78	32	49	3.9	234	148	61		1.1	--	507	.69		326	134	24	1.2	809	7.9
Jan. 11-20.....		14		76	32	51	3.9	228	148	61		1.6	--	504	.69		321	134	25	1.2	804	8.0
Jan. 21-31.....		15		70	29	46	3.6	190	161	51		2.7	--	482	.66		294	138	25	1.2	752	7.5
Feb. 1-10.....		16		73	32	51	4.3	202	162	62		2.7	--	516	.70		314	148	26	1.3	808	7.9
Feb. 11-20.....		16		68	31	53	4.3	208	146	66		2.7	.08	498	.68		297	126	28	1.3	788	7.9
Feb. 21-29.....		15		72	31	53	4.3	223	140	65		2.7	--	499	.68		307	124	27	1.3	803	7.8
Mar. 1-10.....		15		66	31	41	3.6	217	133	51		2.7	--	455	.62		292	114	23	1.0	731	7.8
Mar. 11-20.....		15		67	30	42	3.6	207	140	53		2.5	.07	469	.64		290	121	24	1.1	741	7.9
Mar. 21-31.....		14		75	28	36	3.6	213	141	44		2.7	--	466	.63		302	128	20	.9	723	7.8

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT VIRGIN, UTAH--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956..		13		76	27	37	3.6	213	141	45		2.2	--	465	0.63		300	126	21	0.9	726	7.7
Apr. 11-20		11		78	26	38	3.6	202	147	46		2.4	0.05	470	.64		302	136	21	1.0	731	7.7
Apr. 21-30		12		75	21	33	3.0	200	120	38		3.1	--	409	.56		274	110	21	.9	648	7.8
May 1-10		12		71	20	32	2.9	194	111	38		2.8	--	395	.54		258	99	21	.9	625	7.6
May 11-20		12		72	25	40	3.1	192	145	50		1.9	.08	455	.62		282	125	23	1.0	719	7.5
May 21-31		13		70	27	50	4.0	183	162	59		1.7	--	493	.67		288	138	27	1.3	773	7.7
June 1-10.....		14		72	29	52	4.1	193	168	64		2.1	--	517	.70		298	140	27	1.3	806	7.5
June 11-20.....		14		73	29	54	4.4	192	170	68		2.4	.12	523	.71		302	145	28	1.4	823	7.5
June 21-30.....		14		71	30	56	4.4	184	176	68		2.5	--	531	.72		299	148	29	1.4	822	7.6
July 1-10.....		14		64	30	56	4.5	171	168	68		2.8	--	506	.69		283	143	30	1.4	795	7.4
July 11-20.....		14		74	31	57	5.3	197	176	70		3.0	.13	549	.75		310	148	28	1.4	849	7.6
July 21-23, 25-26, 29-31.....		14		101	28	51	6.3	222	210	60		1.9	--	605	.82		366	184	23	1.2	901	7.4
July 24, 28		21		512	51	66		345	1,220	55		1.3	--	a2,100	2.86		1,490	1,210	9	.7	2,460	7.0
July 27.....		19		281	51	80		277	725	71		1.3	--	a1,360	1.85		908	681	16	1.2	1,790	7.1
Aug. 1-10		13		85	30	54	4.3	200	192	62		1.5	--	572	.78		335	171	26	1.3	852	7.6
Aug. 11-20		13		71	29	54	4.3	187	166	63		1.1	.11	524	.71		294	141	28	1.4	791	7.5
Aug. 21-31.....		10		66	30	54	4.3	177	166	63		.9	--	514	.70		288	143	29	1.4	775	7.9
Sept. 1-10.....		11		69	30	54	4.3	177	173	63		.9	--	526	.72		295	150	28	1.4	789	7.7
Sept. 11-20.....		12		71	30	56	3.5	184	173	64		1.9	.11	518	.70		300	149	29	1.4	821	7.6
Sept. 21-30.....		11		72	31	56	3.5	194	173	62		1.5	--	526	.72		308	149	28	1.4	821	7.7

a Calculated from determined constituents.

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT VIRGIN, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	55	49	49	36	53	53	68	74	77	83	77
2	68	55	47	56	38	52	53	68	75	78	78	79
3	68	55	44	56	44	--	58	65	76	80	79	78
4	68	56	42	49	44	54	61	59	--	80	78	76
5	65	55	44	56	44	54	61	69	74	80	75	76
6	65	--	44	49	46	44	61	67	76	82	75	74
7	66	52	49	48	47	--	62	68	78	85	81	79
8	66	57	45	50	44	52	60	65	79	84	80	77
9	68	55	46	48	43	56	62	66	80	81	80	78
10	69	55	46	51	45	54	61	67	81	84	80	78
11	68	54	46	51	47	48	58	67	86	77	79	74
12	68	53	45	49	48	45	58	64	83	81	78	76
13	68	53	47	48	53	56	52	63	80	83	80	78
14	69	54	46	48	54	--	53	65	78	80	80	77
15	68	44	47	52	47	52	64	71	76	82	78	75
16	68	46	44	49	45	55	62	74	76	80	79	75
17	69	45	45	47	43	54	60	76	77	76	80	74
18	66	48	46	48	43	58	62	74	81	81	80	75
19	64	52	48	45	48	--	63	72	78	78	78	74
20	65	54	49	45	50	58	68	73	78	84	81	70
21	66	52	48	49	51	61	70	73	82	84	80	71
22	67	49	47	50	50	60	68	75	81	81	81	71
23	65	47	55	47	52	61	67	77	80	80	79	70
24	61	48	53	49	51	61	61	70	81	78	80	71
25	65	49	52	45	51	58	62	75	81	84	79	70
26	63	48	52	47	46	60	65	75	82	82	78	70
27	--	49	51	48	48	55	58	70	84	83	76	70
28	55	50	52	45	52	61	64	72	82	78	77	71
29	56	49	48	45	52	61	65	77	84	76	78	72
30	60	52	49	43	--	60	66	76	84	80	78	70
31	60	--	48	46	--	58	--	78	--	80	78	--
Average	66	51	48	49	47	56	61	70	80	81	79	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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 10, 17, 28, 1955		27		263	54	350		249	728	468		7.0	0.78	2,020	2.75		880	676	46	5.1	3,000	7.3
Nov. 8, 22, 28		21		156	38	233		263	399	300		7.5	.48	1,280	1.74		554	338	48	4.3	2,010	7.5
Dec. 8		--		--	--	--		--	--	--		--	--	a1,070	1.46		--	--	--	--	1,660	--
Jan. 4, 9, 31, 1956		18		160	35	223		278	378	300		4.7	.46	1,260	1.71		545	317	47	4.2	1,990	7.6
Jan. 27		8.8.		106	7.8	27		172	14	--		1.1	--	428	.58		296	155	16	.7	683	7.2
Feb. 7, 13, 20, 27		16		151	39	204		282	354	286		2.8	.26	1,190	1.62		540	309	45	3.8	1,940	7.7
Mar. 20, 27		22		135	44	205		246	368	280		3.6	.49	1,180	1.60		516	314	46	3.9	1,890	7.5
Apr. 3, 9, 16, 26		17		128	39	189		246	326	265		3.2	.47	1,090	1.48		482	280	46	3.8	1,790	7.3
May 1, 8, 15, 22		21		148	39	245		254	350	335		3.5	.56	1,270	1.73		530	322	50	4.6	2,070	7.5
June 1, 11, 18, 25		28		160	71	462		180	610	645		4.6	1.0	2,070	2.82		690	542	59	7.7	3,240	7.5
July 3, 11, 19, 24, 30		24		192	66	451		228	650	632		4.6	.94	2,130	2.90		750	563	57	7.2	3,340	7.5
Aug. 7, 14, 23		22		194	62	490		216	672	690		5.5	1.1	2,240	3.05		740	563	59	7.8	3,530	7.4
Sept. 10, 18, 24		21		180	67	500		218	652	695		5.2	.98	2,230	3.03		725	546	60	8.1	3,480	7.5

a Residue on evaporation at 180°C.

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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. 4, 11, 17, 1955	5.7	40		66	14	19		237	36	22		1.3	0.09	314	0.43	4.83	220	26	16	0.6	492	7.7
Nov. 8, 15, 22, 28	11.6	40		69	16	20		249	36	25		2.2	.09	332	.45	10.4	237	33	16	.6	516	7.8
Dec. 7.....	14.0	--		45	18	--		210	37	24		2.2	--	--	--	--	189	17	--	--	452	8.1
Jan. 6, 9, 18, 27, 31, 1956	30.2	41		54	16	19		219	34	27		1.5	.12	299	.41	24.4	199	19	17	.6	457	7.8
Feb. 7, 13, 21, 28	11.8	42		46	16	19		197	32	20		1.6	.09	282	.38	8.98	182	20	19	.6	432	8.0
Mar. 6, 19, 27..	12.0	34		61	17	19		238	35	25		1.4	.08	310	.42	10.0	221	26	16	.6	495	7.9
Apr. 3, 19, 17, 25	9.9	47		61	18	22		244	40	26		2.0	.94	332	.45	8.87	224	24	18	.6	508	7.6
May 1, 7, 14, 21, 30	10.0	37		56	17	20		226	36	26		1.4	.13	301	.41	8.13	208	23	17	.6	483	7.5
June 11, 18	6.2	34		50	17	19		204	36	24		1.4	.09	278	.38	4.65	192	25	18	.6	444	7.8
July 2, 10, 19, 24	4.7	35		56	15	19		210	38	27		1.4	.07	297	.40	3.77	202	30	17	.6	470	7.6
July 30, Aug. 6, 13, 23, 29	14.0	31		69	14	21		232	60	25		1.0	.08	338	.46	12.8	230	40	17	.6	520	8.1
Sept. 11, 18, 25..	4.1	31		60	16	21		230	44	25		1.6	.07	313	.43	3.46	216	27	17	.6	487	7.5

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.
DRAINAGE AREA.--540 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 10, 17, 1955	0.3	47		378	97	143		432	1,100	94		1.8	0.46	2,070	2.82	1.68	1,340	991	19	1.7	2,520	7.7
Nov. 7, 22, 28 ...	1.8	44		298	65	110		399	779	74		1.8	.36	1,570	2.14	7.63	1,010	687	19	1.5	1,980	7.7
Dec. 7	6.5	37		150	43	57		310	365	42		1.8	--	849	1.15	14.9	555	301	18	1.1	1,200	7.9
Jan. 4, 9, 18, 31, 1956	5.9	34		224	51	86		316	602	56		2.4	.32	1,210	1.65	19.3	770	511	20	1.3	1,620	8.0
Jan. 27.....	99	25		78	9.8	15		198	84	9.8		2.2	--	322	.44	86.1	236	74	12	.4	497	7.4
Feb. 7, 14.....	12.4	30		117	35	53		326	379	43		2.8	.32	881	1.20	29.5	585	318	16	1.0	1,240	8.0
Feb. 20, 28	4.4	34		281	68	106		386	770	68		1.5	.37	1,520	2.07	18.1	980	663	19	1.5	1,940	7.6
Mar. 5, 20, 27...	2.8	41		250	80	118		294	837	76		1.1	.38	1,550	2.11	11.7	955	714	21	1.7	1,960	7.8
Apr. 3, 9, 16, 26.	1.8	36		308	94	134		385	978	85		.9	.45	1,830	2 49	8.89	1,160	839	20	1.7	2,240	7.4
May 2, 8, 15, 21-22	7.1	33		385	92	113		364	1,100	76		.8	.39	1,980	2.69	38.0	1,340	1,040	16	1.3	2,390	7.5
June 1, 13, 18, 27	.2	40		353	114	142		396	1,140	88		.8	.49	2,070	2.82	1.12	1,350	1,030	19	1.7	2,520	7.4
July 2, 11	.4	45		449	105	131		350	1,400	82		2.8	.38	2,390	3 25	2.58	1,550	1,260	16	1.4	2,700	7.6
July 29, 31	19.5	26		114	18	22		230	204	13		1.2	.17	511	.69	26.9	360	171	12	.5	764	7.6
July 30	37	31		253	46	36		302	612	3.0		1.5	.31	1,130	1.54	11.3	820	572	9	.5	1,450	7.4
Aug. 14.....	a.1	35		377	102	143		324	1,420	76		2.4	.41	2,320	3.16	.626	1,360	1,090	19	1.7	2,460	7.2
Sept. 11	a1.0	39		357	113	146		494	1,160	92		1.1	.43	2,150	2.92	5.80	1,360	950	19	1.7	2,510	7.4

a A major portion of this flow is attributed to ground water that was pumped into the river one fourth mile upstream from sampling point.

VIRGIN RIVER NEAR ST. GEORGE, UTAH

LOCATION.--At gaging station, 8 miles southwest of St. George, Washington County.
DRAINAGE AREA.--3,820 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to July 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, October 1955 to July 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	8.2	29		521	121	555		252	1,660	760		9.6	1.0	3,780	5.14	83.7	1,800	1,590	40	5.7	4,960	7.9
Nov. 7, 28.....	106	23		304	65	343		274	854	452		9.6	.67	2,190	2.98	627	1,030	805	42	4.7	3,110	7.5
Dec. 7	170	17		212	52	235		166	649	320		6.4	--	1,570	2.14	721	745	609	41	3.7	2,320	7.8
Jan. 12, 20, 1956	111	20		229	57	249		274	640	352		5.9	.59	1,690	2.30	506	805	580	40	3.8	2,570	7.6
Jan. 27.....	1,580	13		175	14	48		176	383	48		1.3	--	769	1.05	3,280	495	351	17	.9	1,080	7.5
Feb. 2, 13, 20, 28	138	17		209	49	227		278	559	315		5.0	.59	1,520	2.07	566	725	497	41	3.7	2,310	7.7
Mar. 5, 20	78.5	23		181	64	279		226	606	368		5.4	.65	1,640	2.23	348	715	530	46	4.5	2,480	7.4
Apr. 3, 9, 16, 26	77.2	20		217	70	297		255	705	392		5.5	.67	1,830	2.49	381	830	621	44	4.5	2,710	7.6
May 2, 8, 15.....	27.7	11		240	78	319		232	820	442		3.5	.72	2,030	2.76	152	920	730	43	4.6	2,940	7.5
July 29-30	588	11		497	54	118		242	1,270	152		1.9	.39	2,220	3.02	3,520	1,460	1,260	15	1.3	2,650	7.4

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.

LOCATION.--At gaging station, three-eighths of a mile downstream from Beaverdam Wash, 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 1956.
Water temperatures: October 1947 to September 1956.
Sediment records: October 1947 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,660 ppm July 21-31; minimum, 1,700 ppm Jan. 21-31.
Hardness: Maximum, 1,600 ppm July 21-31; minimum, 891 ppm Jan. 21-31.
Specific conductance: Maximum daily, 4,090 micromhos Oct. 5; minimum daily, 1,520 micromhos Jan. 28.
Water temperatures: Maximum, 85°F Aug. 12; minimum, 36°F Feb. 2.
Sediment concentrations: Maximum daily, 59,600 ppm July 15; minimum daily, 110 ppm June 24.
Sediment loads: Maximum daily, 136,000 tons Jan. 27; minimum daily, 18 tons June 24.
EXTREMES, 1947-56.--Dissolved solids (1949-50, 1953-56): Maximum, 2,780 ppm Aug. 1-10,1955; minimum, 1,030 ppm Apr. 19-30, 1954.
Hardness (1949-50, 1953-56): Maximum, 1,720 ppm Aug. 1-10, 1955; minimum, 588 ppm Apr. 19-30, 1954.
Specific conductance (1949-56): Maximum daily, 4,090 micromhos Oct. 5, 1955; 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: Maximum daily, 150,000 ppm Oct. 9, 1954; minimum daily, 110 ppm June 24, 1956.
Sediment loads: Maximum daily, 1,740,000 tons Aug. 25, 1955; minimum daily, 18 tons June 24, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955..	88.9	27		408	114	249	47	324	1,220	365		2.3	0.95	2,590	3.52	622	1,490	1,220	26	2.8	3,340	7.7
Oct. 11-20.....	78.0	28		368	116	264	39	290	1,170	385		1.6	1.0	2,520	3.43	531	1,400	1,160	28	3.1	3,310	7.6
Oct. 21-31	97.4	28		360	117	312	38	262	1,200	435		2.1	1.1	2,620	3.56	689	1,380	1,160	32	3.7	3,490	7.6
Nov. 1-10	115	26		364	108	312	39	301	1,140	445		2.7	.98	2,590	3.52	804	1,350	1,110	33	3.7	3,460	7.7
Nov. 11-16, 18-20	218	21		348	84	245	29	277	1,010	340		3.1	.63	2,220	3.02	1,310	1,210	987	30	3.1	2,970	7.7
Nov. 21-30	182	24		304	85	244	25	300	879	345		2.8	.71	2,060	2.80	1,010	1,110	862	32	3.2	2,060	7.8
Dec. 1-10.....	240	23		286	80	230	22	290	823	318		2.5	.69	1,930	2.62	1,250	1,040	805	32	3.1	2,690	7.8
Dec. 11-20	204	24		272	81	234	23	305	780	328		2.5	.69	1,900	2.58	1,050	1,010	762	33	3.2	2,660	7.8
Dec. 21-31	204	25		272	87	234	24	293	807	328		2.5	.69	1,920	2.61	1,060	1,040	796	32	3.2	2,690	7.8
Jan. 1-10, 1956..	166	24		283	90	252	24	290	882	352		5.3	.80	2,060	2.80	923	1,080	838	33	3.3	2,820	7.6
Jan. 11-20	155	24		275	93	260	24	263	912	370		5.3	.82	2,090	2.84	875	1,070	853	34	3.5	2,890	7.6
Jan. 21-31	392	21		240	71	210	19	211	747	282		5.6	.61	1,700	2.31	1,800	891	718	33	3.1	2,360	7.7
Feb. 1-10.....	230	22		254	80	232	21	294	783	325		5.0	.69	1,870	2.54	1,160	962	722	34	3.3	2,610	7.6
Feb. 11-20	190	22		252	84	245	22	262	812	338		4.8	.70	1,910	2.60	980	974	760	35	3.4	2,680	7.6
Feb. 21-29	170	21		263	88	245	22	277	833	342		4.8	.73	1,960	2.67	900	1,020	791	34	3.3	2,740	7.4
Mar. 1-10.....	137	21		271	94	254	23	268	899	360		4.3	.78	2,050	2.79	758	1,060	843	34	3.4	2,840	7.5
Mar. 11-20.....	152	21		264	90	258	23	279	846	362		4.4	.70	2,010	2.73	825	1,030	800	35	3.5	2,830	7.5
Mar. 21-31.....	92.5	22		326	110	267	27	308	1,050	375		4.0	.81	2,330	3.17	582	1,270	1,010	31	3.3	3,150	7.4

Apr. 1-10, 1956..	103	23		314	109	267	27	275	1,030	372		4.7	.84	2,280	3.10	634	1,230	1,010	31	3.3	3,120	7.4
Apr. 11-20	90.7	27		311	105	274	27	248	1,070	390		3.0	.89	2,330	3.17	571	1,200	997	32	3.4	3,180	7.5
Apr. 21-30	96.3	26		301	108	270	27	244	1,050	380		3.1	.88	2,290	3.11	595	1,200	1,000	32	3.4	3,130	7.7
May 1-10.....	86.2	27		309	112	270	27	233	1,090	380		3.3	.91	2,330	3.17	542	1,230	1,040	32	3.3	3,170	7.6
May 11-20.....	71.3	25		317	114	263	28	209	1,130	385		2.3	.96	2,370	3.22	456	1,260	1,090	31	3 2	3,200	7.5
May 21-31.....	64.0	24		341	117	257	28	248	1,170	375		2.2	1.0	2,440	3.32	422	1,330	1,130	29	3.1	3,230	7.6
June 1-10.....	63.6	25		333	118	257	29	231	1,170	370		2.1	1.0	2,420	3.29	416	1,320	1,130	29	3.1	3,240	7.5
June 11-20	62.3	24		341	119	257	29	256	1,160	375		2.2	1.0	2,430	3.30	409	1,340	1,130	29	3.1	3,240	7.5
June 21-30	97.0	22		361	120	260	29	311	1,180	375		1.8	.98	2,500	3.40	655	1,400	1,140	28	3.0	3,310	7.5
July 1-10	67.5	26		379	116	256	28	244	1,220	365		3.5	1.3	2,510	3.41	457	1,420	1,220	28	3.0	3,330	7.5
July 11-20	71.8	26		373	108	255	28	211	1,190	370		3.6	1.4	2,460	3.35	477	1,380	1,200	28	3.0	3,270	7.5
July 21-31	221	24		487	95	220	25	274	1,350	322		2.6	1.2	2,660	3.62	1,590	1,600	1,380	23	2.4	3,350	7.3
Aug. 1-10.....	78.9	26		391	107	255	28	264	1,220	350		2.8	.92	2,510	3.41	535	1,420	1,200	28	2.8	3,220	7.8
Aug. 11-20.....	58.4	26		337	118	270	29	217	1,170	375		2.2	.99	2,440	3.32	385	1,320	1,150	30	3.2	3,190	7.7
Aug. 21-31.....	60.1	25		339	118	273	29	219	1,170	375		2.2	1.0	2,440,	3.32	396	1,330	1,150	30	3.3	3,180	7.4
Sept. 1-10	62.6	26		337	117	269	29	232	1,170	375		1.5	1.1	2,440	3.32	412	1,320	1,130	30	3.2	3,190	7.5
Sept. 11-20.....	57.6	23		353	117	269	29	280	1,170	370		1.5	1.0	2,470	3.36	384	1,360	1,130	30	3.2	3,220	7.4
Sept. 21-30.....	59.6	22		361	114	269	29	300	1,160	370		1.5	.98	2,480	3.37	399	1,370	1,120	29	3.2	3,220	7.5
Weighted average	128	24		312	95.	249	26	269	978	350		3.5	0.83	2,170	2.95	750	1,170	948	31	3.2	2,940	--

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	58	55	50	46	63	55	64	66	74	72	67
2	60	58	54	50	36	52	57	77	70	74	70	70
3	60	58	46	49	41	53	55	65	70	67	80	75
4	67	58	46	48	45	63	70	70	68	66	69	82
5	64	58	46	55	46	60	72	65	66	67	66	66
6	60	59	50	56	51	57	76	64	65	70	81	68
7	56	58	50	58	47	53	72	75	65	67	64	69
8	58	58	48	50	50	51	62	74	66	68	65	70
9	61	58	55	50	52	54	58	62	67	68	66	70
10	63	58	50	49	53	64	61	79	65	72	67	70
11	64	58	47	51	51	54	79	74	66	72	70	72
12	63	59	48	51	57	53	62	65	66	70	85	68
13	64	60	54	58	50	47	60	63	67	74	76	77
14	63	58	49	52	50	60	60	77	66	74	71	65
15	65	49	49	54	50	51	60	61	65	70	70	82
16	66	45	49	62	50	52	62	73	66	69	71	80
17	63	--	47	52	45	55	72	65	66	71	71	80
18	62	50	48	57	48	53	61	69	69	70	71	65
19	64	52	48	54	50	66	72	66	67	70	68	71
20	64	56	49	52	46	70	63	66	67	72	69	65
21	64	56	50	54	60	66	64	67	72	75	68	77
22	64	54	50	51	52	58	80	66	68	74	69	68
23	63	48	56	56	60	59	80	74	68	72	70	63
24	60	50	56	52	53	60	64	69	70	73	70	62
25	58	48	57	51	48	61	74	68	69	71	69	63
26	60	50	57	56	50	74	73	70	68	72	67	65
27	58	50	57	55	48	66	67	70	74	72	66	66
28	58	52	54	45	49	55	63	69	70	75	66	68
29	58	53	50	46	50	70	65	66	73	72	66	66
30	59	54	56	46	--	58	63	65	70	74	68	68
31	59	--	50	50	--	59	--	66	--	73	75	--
Average	62	55	51	52	49	58	66	68	68	71	70	70

VIRGIN RIVER BASIN--Continued

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Suspended sediment, water year October 1955 to September 1956

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.....	68	470	86	100	935	252	168	1,270	576
2.....	71	390	75	103	900	250	383	11,900	s19,400
3.....	74	610	122	106	1,130	323	310	8,610	s7,670
4.....	76	470	96	103	1,430	398	239	3,550	2,290
5.....	183	15,800	7,810	106	1,340	384	223	2,450	1,480
6.....	95	5,300	1,360	119	1,160	373	210	1,990	1,130
7.....	81	1,290	282	122	1,420	468	226	2,510	1,530
8.....	81	825	180	131	1,830	647	226	2,100	1,280
9.....	81	680	149	131	1,890	668	214	1,880	1,090
10.....	79	740	158	131	1,420	502	201	1,680	912
11.....	81	660	144	133	1,460	524	204	1,380	760
12.....	76	500	103	131	1,370	485	183	1,380	682
13.....	76	650	133	125	1,170	395	217	2,630	1,540
14.....	76	735	151	237	5,330	s7,880	214	2,390	1,380
15.....	66	490	87	564	17,800	s30,200	210	1,940	1,100
16.....	74	450	90	220	5,250	3,120	204	2,070	1,140
17.....	79	640	137	198	4,100	a2,200	204	2,210	1,220
18.....	79	625	133	207	2,300	1,290	192	1,730	897
19.....	89	635	153	177	2,300	1,100	207	1,660	928
20.....	84	625	142	186	2,300	1,160	204	2,190	1,210
21.....	84	510	116	183	1,800	889	210	1,880	1,070
22.....	98	560	148	186	1,850	929	214	2,300	1,330
23.....	95	575	147	201	3,000	1,630	223	2,350	1,410
24.....	87	590	139	174	1,600	752	198	2,080	1,110
25.....	100	865	234	168	1,290	585	220	2,780	1,650
26.....	100	1,120	302	180	1,400	680	220	2,470	1,470
27.....	92	950	236	183	1,620	800	210	2,060	1,170
28.....	103	790	220	183	1,300	642	201	1,780	966
29.....	106	980	280	174	1,250	587	195	1,760	927
30.....	103	900	250	192	1,210	627	189	1,680	857
31.....	103	800	222	--	--	--	168	1,620	735
Total.	2,740	--	13,885	5,154	--	60,740	6,687	--	60,910
	January			February			March		
1.....	168	1,530	694	266	2,200	1,580	146	1,520	599
2.....	171	1,210	559	249	1,980	1,330	146	1,340	528
3.....	159	1,160	498	219	1,660	982	143	1,350	521
4.....	159	1,110	477	225	1,770	1,080	156	1,600	674
5.....	165	1,570	699	232	2,070	1,300	151	2,080	848
6.....	162	1,400	612	245	2,120	1,400	132	1,680	599
7.....	165	1,310	584	238	1,780	1,140	132	1,060	378
8.....	171	1,260	582	219	1,740	1,030	125	1,050	354
9.....	171	1,570	725	213	1,570	903	117	1,000	316
10.....	171	1,620	748	194	1,840	964	119	980	315
11.....	159	1,510	648	197	1,680	894	170	2,790	s1,320
12.....	156	1,350	569	194	1,540	807	171	2,440	1,130
13.....	156	1,280	539	203	1,590	871	166	1,990	892
14.....	154	1,330	553	191	1,710	882	153	1,860	768
15.....	154	1,350	561	183	1,440	712	164	1,780	788
16.....	151	1,310	534	186	1,400	a700	164	1,750	775
17.....	148	1,060	424	191	1,650	851	148	1,410	563
18.....	154	1,100	457	186	1,440	723	141	1,240	472
19.....	162	1,230	538	186	1,710	859	127	1,010	346
20.....	156	1,230	518	183	1,570	776	115	960	298
21.....	217	3,410	2,000	174	1,650	775	95	710	182
22.....	189	2,600	1,330	183	1,650	815	82	650	144
23.....	195	2,310	1,220	191	1,880	970	72	450	87
24.....	220	2,760	s1,690	194	1,840	964	72	465	90
25.....	245	5,100	3,370	180	1,700	826	72	350	68
26.....	210	2,400	1,360	158	1,680	717	95	678	s206
27.....	1,330	26,700	s136,000	164	1,450	642	119	1,160	373
28.....	808	17,800	s43,100	146	1,230	485	119	1,150	s389
29.....	339	7,000	6,410	143	1,220	471	103	900	250
30.....	283	3,700	2,830	--	--	--	95	700	180
31.....	272	2,700	1,980	--	--	--	93	530	133
Total.	7,520	--	212,809	5,733	--	26,449	3,903	--	14,586

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 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	109	712	s 221	87	725	170	63	290	49
2.....	171	1,750	s 821	76	580	119	63	240	41
3.....	148	1,350	539	90	725	176	63	265	45
4.....	109	765	225	107	1,130	326	63	230	39
5.....	84	350	79	100	880	238	64	320	55
6.....	84	325	74	91	1,110	273	65	320	56
7.....	76	280	57	83	950	213	64	330	57
8.....	76	340	70	79	710	151	64	250	43
9.....	83	375	84	74	550	110	64	245	42
10.....	90	560	136	75	580	117	63	230	39
11.....	87	650	153	72	570	111	63	250	43
12.....	102	690	190	68	400	73	63	240	41
13.....	87	565	133	74	585	117	63	195	33
14.....	82	420	93	78	650	137	63	200	34
15.....	90	430	104	73	430	85	62	220	37
16.....	96	500	130	78	518	s131	63	190	32
17.....	102	675	186	70	725	137	62	160	27
18.....	90	410	100	63	200	34	62	185	31
19.....	87	375	88	63	160	27	61	175	29
20.....	84	370	84	74	769	s171	61	190	31
21.....	78	225	47	64	700	121	61	185	30
22.....	75	140	28	78	748	s164	61	160	26
23.....	73	150	30	66	765	136	61	185	30
24.....	85	350	80	62	310	52	60	110	18
25.....	103	768	s 221	62	240	40	61	125	21
26.....	103	855	238	62	225	38	61	150	25
27.....	105	890	252	62	200	33	60	155	25
28.....	115	1,030	s 332	62	195	33	60	160	26
29.....	123	1,170	389	62	205	34	60	165	27
30.....	103	870	242	62	215	36	425	37,300	s77,000
31.....	--	--	--	62	220	37	--	--	--
Total.	2,900	--	5,426	2,279	--	3,640	2,229	--	78,032
	July			August			September		
1.....	104	14,400	s 5,040	171	23,000	s11,200	63	465	79
2.....	66	785	140	72	4,000	778	63	390	66
3.....	64	490	85	63	940	160	63	400	68
4.....	63	505	86	68	965	177	63	385	65
5.....	63	485	82	72	940	183	63	360	61
6.....	63	475	81	70	875	165	63	480	82
7.....	63	520	88	70	870	164	63	495	84
8.....	63	625	106	70	700	132	63	415	71
9.....	63	480	82	68	650	119	63	430	73
10.....	63	520	88	65	830	146	59	425	68
11.....	63	595	101	61	825	136	59	400	64
12.....	82	16,400	s 5,680	59	760	121	59	435	69
13.....	72	11,000	2,140	57	875	135	59	390	62
14.....	63	900	153	57	750	115	57	360	55
15.....	116	59,600	s 26,000	57	735	113	57	380	58
16.....	75	31,500	6,380	57	700	108	57	285	44
17.....	63	2,500	425	59	1,100	175	57	300	46
18.....	61	850	140	59	635	101	57	330	51
19.....	61	850	140	59	635	101	57	300	46
20.....	62	750	126	59	540	86	57	370	57
21.....	63	580	99	59	625	100	57	285	44
22.....	63	610	104	61	450	74	59	330	53
23.....	63	550	94	59	430	68	57	370	57
24.....	63	470	80	59	470	75	59	365	58
25.....	73	6,340	s 1,820	57	420	65	59	360	57
26.....	70	8,000	1,510	59	535	85	59	360	57
27.....	228	33,200	s53,200	59	590	94	61	340	56
28.....	254	49,200	s37,600	61	460	76	61	275	45
29.....	435	50,100	s75,900	61	465	77	63	295	50
30.....	516	45,000	s82,100	63	375	64	61	410	68
31.....	607	41,500	s75,900	63	330	56	--	--	--
Total.	3,828	--	375,570	2,034	--	15,249	1,798	--	1,814

Total discharge for year (cfs-days) 46,805
Total load for year (tons) 869,110

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

VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 5, 1955	6:30 a.m.	223	64	18,200	3,690	--	31	--	87	91	96	98	100		--		SPWCM
Oct. 31	6:45 a.m.	100	59	804	2,250	--	30	--	40	41	46	59	90		100		SPWCM
Nov. 15	7:00 a.m.	716	49	22,800	3,940	--	34	--	57	72	88	94	99		100		SPWCM
Nov. 16	7:00 a.m.	229	45	5,440	3,580	--	47	--	68	79	87	93	99		100		SPWCM
Nov. 29	7:30 a.m.	171	53	1,180	4,170	--	27	--	48	60	72	79	96		100		SPWCM
Nov. 30	7:30 a.m.	186	54	1,320	3,960	--	23	--	39	49	63	70	89		100		SPWCM
Dec. 2	4:00 p.m.	766	50	30,700	3,000	--	13	--	25	53	86	94	100		--		SPWCM
Dec. 3	8:00 a.m.	307	46	8,840	4,940	--	46	--	64	73	86	94	99		100		SPWCM
Dec. 4	8:00 a.m.	239	46	3,260	3,410	--	32	--	49	61	74	87	97		100		SPWCM
Dec. 30	12:00 m.	189	56	2,070	6,360	--	17	--	28	36	54	82	95		100		SPWCM
Dec. 31	8:00 a.m.	165	50	1,270	2,560	--	16	--	26	32	46	74	90		100		SPWCM
Jan. 27, 1956	10:00 a.m.	2,360	50	47,600	4,620	--	5	--	6	26	59	87	96		100		SPWCM
Jan. 28	8:00 a.m.	950	45	20,000	4,780	--	39	--	55	66	75	90	99		100		SPWCM
Jan. 29	8:00 a.m.	336	46	7,440	4,350	--	43	--	59	66	76	91	99		100		SPWCM
Jan. 30	8:30 a.m.	283	46	3,670	4,480	--	40	--	53	61	69	87	99		100		SPWCM
Jan. 31	10:00 a.m.	280	50	2,480	3,040	--	26	--	40	45	55	77	96		100		SPWCM
Feb. 28	8:00 a.m.	132	49	1,190	4,510	--	17	--	25	30	41	70	91		100		SPWCM
Feb. 29	8:30 a.m.	127	50	1,270	5,000	--	17	--	25	31	44	74	95		100		SPWCM
Mar. 30	7:30 a.m.	85	58	499	3,460	--	49	--	66	71	78	88	96		100		SPWCM
Mar. 31	7:30 a.m.	88	59	495	3,490	--	47	--	64	71	76	87	96		100		SPWCM
Apr. 29	8:30 a.m.	127	65	1,370	6,380	--	18	--	28	37	54	88	97		100		SPWCM
Apr. 30	6:00 a.m.	95	63	863	4,880	--	26	--	39	47	62	88	97		100		SPWCM
June 29	8:00 a.m.	60	73	166	530	6	17	27	32	36	46	78	96		100		SBWCM
June 30	7:00 a.m.	60	70	185	625	10	23	32	36	40	50	78	95		100		SBWCM
June 30	12:30 p.m.	1,530	77	118,000	3,340	--	20	--	53	60	81	92	98		100		SPWCM
July 1	7:00 a.m.	117	74	14,200	3,320	--	59	--	95	97	97	99	100		--		SPWCM
July 27	7:00 p.m.	707	85	157,000	5,140	--	32	--	63	77	84	94	99		100		SPWCM
July 28	6:00 a.m.	235	75	46,700	3,530	--	48	--	82	92	96	99	100		--		SPWCM
July 29	7:00 a.m.	662	72	83,000	3,160	--	33	--	57	75	87	95	99		100		SPWCM
July 30	8:00 p.m.	955	73	73,200	5,060	--	30	--	54	70	84	95	100		--		SPWCM
July 31	6:00 a.m.	666	73	43,800	4,210	--	38	--	65	79	87	95	100		--		SPWCM
Sept. 22	9:00 a.m.	57	68	264	5,540	--	17	--	39	44	47	56	88		99	100	SPWCM

COLORADO RIVER BASIN

COLORADO RIVER MAIN STEM

LAKE MEAD NEAR BOULDER CITY, NEV.

Chemical analyses, in parts per million, water year October 1955 to September 1956

/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												
Apr. 9, 1956 ...	0	1,084	58.0	9.5	76	18	174	228	76	6.8	264	933
Aug. 7	0	1,114	83.0	18	106	31	202	324	114	3.2	392	1,220
ICEBERG CANYON, MILE 287.5												
Apr. 10, 1956 ..	5	1,079	59.6	8.8	77	28	a174	271	93	6.2	308	1,070
Apr. 10	40	1,044	58.1	--	--	--	174	--	--	--	--	985
Apr. 10	50	1,034	57.6	--	--	--	194	--	--	--	--	1,000
Apr. 10	55	1,029	58.3	21	93	35	357	222	81	2.6	378	1,150
Aug. 8	5	1,109	82.6	10	85	20	165	220	84	2.4	294	935
Aug. 8	25	1,089	80.9	--	--	--	181	--	--	--	--	1,100
Aug. 8	50	1,064	80.1	11	93	30	182	286	102	5.2	356	1,130
Aug. 8	75	1,039	79.0	--	--	--	182	--	--	--	--	1,090
Aug. 8	80	1,034	70.6	--	--	--	458	--	--	--	--	1,310
SANDY POINT, MILE 293.5												
Apr. 10, 1956 ..	5	1,079	60.7	--	--	--	181	--	--	--	--	1,150
Apr. 10	50	1,034	56.6	19	81	29	187	288	97	5.4	322	1,110
Apr. 10	100	984	56.4	--	--	--	189	--	--	--	--	1,200
Apr. 10	127	957	55.8	--	--	--	189	--	--	--	--	1,190
Apr. 10	128	956	56.2	16	84	26	200	268	91	4.4	318	1,080
Aug. 8	5	1,109	83.7	--	--	--	163	--	--	--	--	878
Aug. 8	50	1,064	78.6	11	86	27	178	250	96	2.5	328	1,040
Aug. 8	75	1,039	71.2	9.7	55	18	137	138	42	2.4	212	627
Aug. 8	100	1,014	66.5	--	--	--	149	--	--	--	--	772
Aug. 8	150	964	57.6	--	--	--	197	--	--	--	--	1,120
Aug. 8	152.5	961	60.0	--	--	--	399	--	--	--	--	1,090
VIRGIN CANYON, MILE 305.5												
Apr. 10, 1956 ..	5	1,079	61.7	9.1	98	33	186	347	116	5.6	380	1,270
Apr. 10	50	1,034	57.6	--	--	--	188	--	--	--	--	1,260
Apr. 10	100	984	54.9	--	--	--	183	--	--	--	--	1,260
Apr. 10	150	934	53.6	--	--	--	185	--	--	--	--	1,270
Apr. 10	200	884	53.6	--	--	--	192	--	--	--	--	1,290
Apr. 10	225	859	53.6	11	104	32	b195	347	118	5.9	392	1,280
Apr. 10	230	854	--	--	--	--	226	--	--	--	--	1,270
Aug. 8	5	1,109	83.0	--	--	--	162	--	--	--	--	840
Aug. 8	50	1,064	79.3	11	65	20	150	168	54	2.8	245	734
Aug. 8	100	1,014	67.3	--	--	--	150	--	--	--	--	809
Aug. 8	150	964	57.8	--	--	--	180	--	--	--	--	1,170
Aug. 8	200	914	54.5	11	99	32	191	322	103	3.0	380	1,210
Aug. 8	254	860	53.6	9.8	97	30	180	310	98	3.6	365	1,160
Aug. 8	260	854	55.1	--	--	--	312	--	--	--	--	1,310
OVERTON ARM OF LAKE AT LINE OF DEMARCATION BETWEEN TURBID AND CLEAR WATER, 27 MILES ABOVE MOUTH OF VIRGIN RIVER												
Apr. 11, 1956 ..	0	1,084	58.0	13	124	40	187	449	135	4.3	474	1,500
OVERTON ARM OF LAKE, 9.3 MILES ABOVE MOUTH OF VIRGIN RIVER (LOWER VIRGIN NARROWS)												
Apr. 11, 1956 ...	5	1,079	56.4	9.8	106	33	176	360	103	4.1	402	1,270
Apr. 11	50	1,034	56.1	--	--	--	174	--	--	--	--	1,250
Apr. 11	100	984	55.7	28	105	31	178	364	105	4.0	390	1,250
Apr. 11	150	934	53.9	--	--	--	179	--	--	--	--	1,260
Apr. 11	183	901	53.5	--	--	--	176	--	--	--	--	1,250

a Includes equivalent of 6 parts per million of carbonate (CO_3).
b Includes equivalent of 7 parts per million of carbonate (CO_3).

COLORADO RIVER MAIN STEM--Continued

LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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)
BOULDER CANYON, MILE 334												
Nov. 30, 1955 ...	5	1,088	62.9	--	--	--	154	--	--	--	--	1,110
Nov. 30	50	1,043	62.8	15	97	27	154	321	89	2.0	352	1,110
Nov. 30	100	993	62.8	--	--	--	160	--	--	--	--	1,120
Nov. 30	150	943	60.9	12	103	28	158	334	94	2.1	372	1,160
Nov. 30	200	893	55.0	--	--	--	172	--	--	--	--	1,220
Nov. 30	250	843	53.7	12	110	28	172	349	100	2.3	392	1,210
Nov. 30	300	793	53.0	--	--	--	171	--	--	-	--	1,200
Nov. 30	350	743	52.8	13	106	29	173	342	99	2.4	384	1,200
Nov. 30	368	725	52.8	12	106	31	172	345	98	2.0	392	1,220
Nov. 30	369.5	723	52.3	--	--	--	258	--	--	--	--	1,220
Jan. 4, 1956....	5	1,086	57.9	--	--	--	159	--	--	--	--	1,150
Jan. 4	50	1,041	57.9	12	100	28	159	328	93	2.0	364	1,150
Jan. 4	100	991	57.9	--	--	--	158	--	--	--	--	1,130
Jan. 4	150	941	57.9	11	100	28	158	330	93	2.1	364	1,140
Jan. 4	200	891	55.3	--	--	--	176	--	--	--	--	1,230
Jan. 4	250	841	54.2	12	106	31	172	351	100	2.7	392	1,230
Jan. 4	300	791	53.7	15	106	31	173	348	100	2.5	392	1,210
Jan. 4	350	741	53.2	--	--	--	176	--	--	--	--	1,230
Jan. 4	367	724	53.2	12	105	31	177	343	101	2.5	392	1,210
Jan. 4	368	723	53.7	--	--	--	266	--	--	--	--	1,250
Apr. 11	5	1,079	59.6	14	105	31	176	369	103	3.9	388	1,240
Apr. 11	50	1,034	58.9	--	--	--	177	--	--	--	--	1,240
Apr. 11	100	984	54.9	--	--	--	175	--	--	--	--	1,230
Apr. 11	150	934	53.7	--	--	--	180	--	--	--	--	1,260
Apr. 11	200	884	52.9	--	--	--	184	--	--	--	--	1,260
Apr. 11	250	834	52.8	10	108	30	180	358	107	4.4	396	1,250
Apr. 11	300	784	52.7	--	--	--	184	--	--	--	--	1,270
Apr. 11	318	766	52.5	--	--	--	184	--	--	--	--	1,280
Apr. 11	320	764	--	16	128	37	338	337	100	6.2	474	1,380
Aug. 9	5	1,109	82.9	--	--	--	122	--	--	--	--	616
Aug. 9	50	1,064	76.3	9.3	62	16	133	160	42	2.1	221	656
Aug. 9	100	1,014	67.5	--	--	--	155	--	--	--	--	940
Aug. 9	150	964	58.3	9.3	98	31	168	314	92	2.9	370	1,140
Aug. 9	200	914	54.2	--	--	--	178	--	--	--	--	1,220
Aug. 9	250	864	53.5	--	--	--	163	--	--	--	--	1,140
Aug. 9	300	814	53.3	9.7	108	33	181	344	104	3.3	403	1,250
Aug. 9	349	765	53.1	--	--	--	173	--	--	--	--	1,160
Aug. 9	350	764	53.1	--	--	--	355	--	--	--	--	1,360
NEAR INTAKE TOWERS, MILE 354.7												
Oct. 31, 1955...	5	1,090	70.9	--	--	--	146	--	--	--	--	1,080
Oct. 31	50	1,045	70.8	11	92	24	146	307	87	1.9	330	1,080
Oct. 31	100	995	66.9	--	--	--	162	--	--	--	--	1,160
Oct. 31	150	945	61.1	11	104	27	144	339	95	1.9	372	1,170
Oct. 31	200	895	55.3	12	111	27	196	358	101	3.1	390	1,230
Oct. 31	250	845	53.8	--	--	--	170	--	--	--	--	1,200
Oct. 31	300	795	53.0	--	--	--	176	--	--	--	--	1,230
Oct. 31	350	745	52.9	11	108	28	173	346	102	2.7	384	1,210
Oct. 31	370	725	52.8	--	--	--	175	--	--	--	--	1,210
Oct. 31	372	723	--	13	112	28	211	334	100	3.5	396	1,230
Jan. 31, 1956...	5	1,084	56.0	12	104	29	162	345	95	3.5	380	1,170
Jan. 31	50	1,039	55.8	--	--	--	162	--	--	--	--	1,170
Jan. 31	100	989	55.8	--	--	--	162	--	--	--	--	1,170
Jan. 31	150	939	55.7	20	105	29	168	347	96	3.4	382	1,180
Jan. 31	200	889	54.4	19	111	30	180	354	101	3.8	400	1,230
Jan. 31	250	839	53.7	29	109	30	187	361	102	7.9	398	1,230
Jan. 31	300	789	53.4	--	--	--	180	--	--	--	--	1,230
Jan. 31	350	739	53.3	--	--	--	182	--	--	--	--	1,230
Jan. 31	365	724	53.3	17	111	34	190	348	105	3.5	416	1,250
Jan. 31	366	723	53.6	13	114	32	238	327	101	4.8	414	1,250

COLORADO RIVER MAIN STEM--Continued

LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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												
Feb. 29, 1956 ..	5	1,082	54.3	10	107	29	169	366	99	3.3	388	1,210
Feb. 29	50	1,037	53.6	--	--	--	170	--	--	--	--	1,200
Feb. 29	100	987	53.6	--	--	--	171	--	--	--	--	1,200
Feb. 29	150	937	53.6	--	--	--	169	--	--	--	--	1,200
Feb. 29	200	887	53.5	13	109	28	172	363	101	4.6	386	1,210
Feb. 29	250	837	53.5	--	--	--	179	--	--	--	--	1,250
Feb. 29	300	787	53.4	13	113	29	188	367	106	5.5	402	1,260
Feb. 29	350	737	53.4	--	--	--	179	--	--	--	--	1,260
Feb. 29	363	724	53.4	--	--	--	187	--	--	--	--	1,260
Feb. 29	364	723	54.3	19	113	29	227	332	105	4.1	402	1,250
Apr. 3	5	1,079	57.3	--	--	--	184	--	--	--	--	1,240
Apr. 3	50	1,034	56.6	12	103	33	176	334	102	2.6	392	1,220
Apr. 3	100	984	54.2	--	--	--	172	--	--	--	--	1,220
Apr. 3	150	934	53.8	--	--	--	176	--	--	--	--	1,230
Apr. 3	200	884	53.3	--	--	--	180	--	--	--	--	1,240
Apr. 3	250	834	53.1	11	108	31	182	340	104	3.0	398	1,240
Apr. 3	300	784	53.1	--	--	--	184	--	--	--	--	1,250
Apr. 3	359	725	53.0	10	107	33	182	348	107	2.9	402	1,250
Apr. 3	361	723	--	--	--	--	271	--	--	--	--	1,270
Apr. 30	5	1,079	62.6	--	--	--	174	--	--	--	--	1,240
Apr. 30	50	1,034	59.4	10	105	29	176	352	103	2.8	382	1,240
Apr. 30	100	984	54.7	--	--	--	178	--	--	--	--	1,240
Apr. 30	150	934	53.1	--	--	--	180	--	--	--	--	1,250
Apr. 30	200	884	52.8	15	108	32	186	356	108	2.5	402	1,260
Apr. 30	250	834	52.8	--	--	--	186	--	--	--	--	1,260
Apr. 30	300	784	52.8	--	--	--	186	--	--	--	--	1,260
Apr. 30	359	725	52.8	9.2	105	32	172	352	104	2.5	394	1,230
Apr. 30	360.2	724	53.1	--	--	--	244	--	--	--	--	1,290
June 1	5	1,093	68.8	--	--	--	168	--	--	--	--	1,240
June 1	50	1,048	66.5	--	--	--	170	--	--	--	--	1,250
June 1	100	998	56.8	12	106	32	170	356	104	2.5	394	1,250
June 1	150	948	53.7	--	--	--	176	--	--	--	--	1,250
June 1	200	898	53.2	--	--	--	182	--	--	--	--	1,270
June 1	250	848	52.8	9.1	107	33	182	356	107	3.6	400	1,270
June 1	300	798	52.8	--	--	--	182	--	--	--	--	1,270
June 1	350	748	52.8	--	--	--	182	--	--	--	--	1,270
June 1	373	725	52.8	21	111	31	188	360	108	3.2	404	1,270
June 1	375	723	52.8	--	--	--	226	--	--	--	--	1,310
July 3	5	1,112	73.6	--	--	--	154	--	--	--	--	1,060
July 3	50	1,067	73.1	11	87	29	154	296	88	2.5	334	1,060
July 3	100	1,017	64.0	--	--	--	168	--	--	--	--	1,230
July 3	150	967	55.2	--	--	--	174	--	--	--	--	1,230
July 3	200	917	53.1	--	--	--	174	--	--	--	--	1,230
July 3	250	867	53.0	11	109	31	c182	360	108	2.5	398	1,240
July 3	300	817	52.9	--	--	--	182	--	--	--	--	1,250
July 3	350	767	52.9	9.9	108	32	180	352	110	3.4	400	1,260
July 3	392	725	52.9	--	--	--	180	--	--	--	--	1,250
July 3	394	723	53.2	--	--	--	294	--	--	--	--	1,270
July 31.....	5	1,110	81.5	--	--	--	136	--	--	--	--	1,000
July 31.....	50	1,065	75.4	11	83	26	146	272	80	2.7	314	1,000
July 31.....	100	1,015	66.6	--	--	--	166	--	--	--	--	1,170
July 31.....	150	965	58.6	--	--	--	170	--	--	--	--	1,190
July 31.....	200	915	53.4	11	103	31	174	336	102	3.8	386	1,210
July 31.....	250	865	53.0	--	--	--	176	--	--	--	--	1,230
July 31.....	300	815	53.0	--	--	--	178	--	--	--	--	1,220
July 31.....	350	765	52.8	--	--	--	176	--	--	--	--	1,210
July 31.....	390	725	52.8	10	106	32	180	340	104	3.4	394	1,230
July 31.....	392	723	--	--	--	--	258	--	--	--	--	1,250
Aug. 31	5	1,106	77.3	--	--	--	144	--	--	--	--	930
Aug. 31	50	1,061	76.2	15	79	26	146	280	76	2.4	304	955
Aug. 31	100	1,011	71.9	--	--	--	156	--	--	--	--	1,080
Aug. 31	150	961	59.0	10	103	32	172	336	102	3.2	386	1,200
Aug. 31	200	911	53.7	--	--	--	172	--	--	--	--	1,200
Aug. 31	250	861	53.7	--	--	--	178	--	--	--	--	1,210
Aug. 31	300	811	53.4	10	107	33	184	352	106	3.6	400	1,250
Aug. 31	350	761	53.2	--	--	--	176	--	--	--	--	1,200
Aug. 31	386	725	53.2	--	--	--	176	--	--	--	--	1,200
Aug. 31	388	723	--	--	--	--	292	--	--	--	--	1,240

c Includes equivalent of 12 parts per million of carbonate (CO_3).

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COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.

LOCATION.--At Hoover Dam, state line between Mohave County, Ariz., and Clark County, Nev., about 1 mile upstream from gaging station.
DRAINAGE AREA.--167,800 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1939 to September 1956.
Water temperatures: October 1941 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 884 ppm July 21-31; minimum, 795 ppm Jan. 11-20.
Hardness: Maximum, 410 ppm July 21-31; minimum, 364 ppm Mar. 1-10.
Specific conductance: Maximum daily, 1,270 micromhos Sept. 24; minimum daily, 1,160 micromhos Jan. 17, Mar. 2, 5, 7, Apr. 4.
EXTREMES, 1939-56.--Dissolved solids: Maximum, 884 ppm July 21-31, 1956; minimum, 477 ppm Nov. 21, 24-26, 28, 1952.
Hardness (1939-44, 1950-56): 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 residue 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 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	7,834	--	--	109	28	113	--	171	--	--	--	--	--	836	1.14	17,680	386	246	39	2.5	1,220	7.9
Oct. 11-20.....	9,509	14	0.00	102	33	113	4.9	170	351	100	0.3	4.0	0.17	806	1.10	20,690	390	250	38	2.5	1,210	8.0
Oct. 21-31.....	8,345	--	--	110	27	113	--	173	--	--	--	--	--	830	1.13	18,700	388	246	39	2.5	1,210	8.0
Nov. 1-10.....	7,917	--	--	109	28	110	--	172	--	--	--	--	--	832	1.13	17,780	390	249	38	2.4	1,220	7.9
Nov. 11-20.....	7,643	--	--	109	28	114	--	172	--	--	--	--	--	827	1.12	17,070	388	247	39	2.5	1,220	7.9
Nov. 21-30.....	9,009	--	--	108	30	115	--	171	--	--	--	--	--	817	1.11	19,870	392	252	39	2.5	1,200	8.2
Dec. 1-10.....	8,402	--	--	108	30	112	--	170	--	--	--	--	--	804	1.09	18,240	392	253	38	2.5	1,190	7.8
Dec. 11-20.....	7,606	--	--	106	31	112	--	168	--	--	--	--	--	796	1.08	16,350	392	254	38	2.5	1,190	8.1
Dec. 21-31.....	8,016	--	--	107	29	112	--	168	--	--	--	--	--	803	1.09	17,380	388	250	39	2.5	1,190	8.1
Jan. 1-10, 1956 ..	8,947	--	--	108	28	112	--	168	--	--	--	--	--	801	1.09	19,350	384	246	39	2.5	1,190	8.2
Jan. 11-20.....	10,360	13	.03	100	33	108	4.8	168	340	99	.3	3.2	.18	795	1.08	22,240	385	248	38	2.4	1,180	7.5
Jan. 21-31.....	9,167	--	--	110	30	113	--	172	--	--	--	--	--	818	1.11	20,250	400	259	38	2.5	1,210	8.2
Feb. 1-10.....	9,578	--	--	107	27	112	--	167	--	--	--	--	--	799	1.09	20,660	380	243	39	2.5	1,190	7.8
Feb. 11-20.....	7,314	--	--	110	27	113	--	170	--	--	--	--	--	803	1.09	15,860	384	245	39	2.5	1,200	7.8
Feb. 21-29.....	9,163	--	--	109	29	113	--	171	--	--	--	--	--	819	1.11	20,260	392	252	39	2.5	1,210	7.9
Mar. 1-10	9,451	--	--	91	33	115	--	144	--	--	--	--	--	810	1.10	20,670	364	246	41	2.6	1,200	8.2
Mar. 11-20	12,720	--	--	100	33	115	--	164	--	--	--	--	--	828	1.13	28,440	384	250	39	2.5	1,210	8.0
Mar. 21-31	15,100	--	--	101	33	116	--	166	--	--	--	--	--	834	1.13	34,000	388	252	39	2.6	1,230	7.7
Apr. 1-10.....	13,870	--	--	95	33	116	--	152	--	--	--	--	--	827	1.12	30,970	374	249	40	2.6	1,220	7.8
Apr. 11-20.....	13,930	12	.00	103	33	120	5.5	169	354	108	.3	3.7	.17	843	1.15	31,710	393	254	39	2.6	1,240	7.5
Apr. 21-30.....	14,560	--	--	100	33	117	--	168	--	--	--	--	--	844	1.15	33,180	386	248	40	2.6	1,240	7.7

COLORADO RIVER MAIN STEM--Continued

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

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956...	12,960	--	--	100	34	117	--	168	--	--	--	--	--	841	1.14	29,430	390	252	39	2.6	1,240	8.0
May 11-20	11,080	--	--	99	33	117	--	158	--	--	--	--	--	833	1.13	24,920	382	252	40	2.6	1,230	7.6
May 21-31	12,440	--	--	103	31	117	--	164	--	--	--	--	--	860	1.17	28,890	384	250	40	2.6	1,240	8.0
June 1-10.....	12,140	--	--	106	32	117	--	172	---	--	--	--	--	871	1.18	28,550	394	253	39	2.6	1,250	7.6
June 11-20.....	13,930	--	--	104	34	117	--	174	--	--	--	--	--	846	1.15	31,820	398	255	39	2.5	1,250	7.6
June 21-30.....	13,460	--	--	106	33	117	--	176	--	--	--	--	--	876	1.19	31,840	398	254	39	2.5	1,260	--
July 1-10	12,050	--	--	106	33	117	--	176	--	--	--	--	--	879	1.20	28,600	400	256	39	2.5	1,250	7.6
July 11-20	13,660	12	0.00	107	32	120	5.4	177	352	106	0.3	4.1	0.22	854	1.16	31,500	397	252	39	2.6	1,260	7.2
July 21-31	12,480	--	--	108	34	117	--	178	--	--	--	--	--	884	1.20	29,790	410	264	38	2.5	1,260	7.4
Aug. 1-10.....	10,310	--	--	102	35	126	--	180	--	--	--	--	--	867	1.18	24,130	396	248	41	2.8	1,250	7.7
Aug. 11-20.....	10,440	--	--	111	30	126	--	180	--	--	--	--	--	851	1.16	23,990	398	250	41	2.7	1,250	7.8
Aug. 21-31.....	13,020	--	--	109	31	126	--	178	--	--	--	--	--	850	1.16	29,880	400	254	41	2.7	1,250	7.8
Sept. 1-10	10,940	--	--	99	37	121	--	178	--	--	--	--	--	846	1.15	24,990	399	253	40	2.6	1,240	7.8
Sept. 11-19.....	10,670	--	--	97	39	123	--	180	--	--	--	--	--	849	1.15	24,460	403	255	40	2.7	1,250	7.6
Sept. 20-30.....	9,290	--	--	105	32	120	--	176	--	--	--	--	--	848	1.15	21,270	394	250	40	2.6	1,270	8.0
Weighted average	10,770	--	--	104	32	117	--	170	--	--	--	--	--	837	1.14	24,340	391	252	39	2.6	1,230	--

COLORADO RIVER MAIN STEM--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	58	58	--	56	56	--	53	54	--	55	--
2	--	58	59	--	56	54	53	53	--	55	55	--
3	--	58	--	57	55	--	53	53	--	55	55	--
4	58	58	--	57	--	--	53	53	54	--	--	56
5	58	--	58	57	--	54	53	--	54	55	--	56
6	58	--	58	57	55	54	54	--	54	55	55	56
7	58	58	58	--	55	54	--	53	54	--	55	56
8	--	58	58	--	55	54	--	53	54	--	55	--
9	--	58	58	57	55	54	54	53	--	55	55	--
10	58	58	--	57	56	--	53	53	--	55	55	56
11	58	--	--	57	--	--	53	53	54	55	--	56
12	--	--	58	57	--	54	53	--	54	55	--	56
13	58	--	58	57	55	54	--	--	54	55	55	56
14	58	58	58	--	54	54	--	53	55	--	55	56
15	--	58	58	--	54	54	--	53	55	--	55	--
16	--	58	58	56	54	54	53	53	--	55	55	--
17	58	58	--	57	54	--	53	53	--	55	55	56
18	58	58	--	56	--	--	53	53	55	55	--	56
19	58	--	58	56	--	54	53	--	55	55	--	56
20	58	--	58	56	54	54	53	--	55	55	55	56
21	58	58	58	--	54	54	--	53	55	--	55	56
22	--	58	58	--	--	54	--	53	55	--	55	--
23	--	58	57	56	54	54	53	53	--	55	55	--
24	58	--	--	56	53	--	53	53	--	55	55	56
25	58	59	--	56	--	--	53	54	55	55	--	56
26	58	--	--	56	--	54	53	--	55	55	--	58
27	58	--	57	56	54	54	53	--	55	55	--	57
28	58	59	57	--	54	--	--	54	55	--	55	57
29	--	59	57	--	54	53	--	--	55	--	55	--
30	--	59	57	56	--	53	53	54	--	55	55	--
31	58	--	--	56	--	--	--	54	--	55	55	--
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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 78°F July 25; minimum, 46°F Feb. 3, 4.
EXTREMES, 1952-56.--Water temperatures: Maximum, 78°F July 25, 1956; minimum, 46°F Feb. 3, 4, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Temperature (°F) of water, water year October 1955 to September 1956

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	69	69	65	64	59	58	54	54	55	51	55	54	58	56	65	63	70	68	73	68	74	70	73	70
2	70	69	64	62	57	55	54	53	51	47	55	54	56	55	65	63	69	68	71	68	73	70	73	71
3	70	69	62	61	55	54	54	54	47	46	55	54	58	57	65	64	71	69	70	67	72	69	74	73
4	71	70	62	62	54	54	54	54	49	46	57	56	59	57	65	64	72	69	70	68	71	69	73	72
5	71	68	63	62	54	53	54	53	52	49	57	56	59	58	65	64	69	67	72	69	71	70	72	71
6	68	66	64	63	54	53	55	54	52	52	56	52	60	59	65	63	69	67	73	71	73	71	73	71
7	67	65	63	62	55	54	54	54	52	51	52	52	60	59	65	62	70	68	74	71	73	71	73	71
8	68	67	62	61	55	53	54	54	53	52	53	52	61	60	64	61	71	69	74	72	74	71	74	72
9	69	68	61	61	53	53	54	54	52	50	55	53	61	60	62	62	72	70	76	73	74	71	74	72
10	70	69	63	61	53	53	55	54	51	49	56	54	61	60	63	62	72	69	74	72	74	71	74	73
11	70	69	63	63	53	53	55	54	53	51	56	54	61	60	64	62	72	70	74	73	73	71	73	72
12	69	69	63	62	52	52	55	54	53	53	54	49	60	60	63	62	72	69	74	70	74	71	72	71
13	69	68	62	61	53	52	55	52	55	53	51	49	60	60	64	62	71	69	73	70	74	71	72	70
14	69	69	61	60	54	53	57	52	54	54	54	51	60	58	63	62	72	69	73	70	73	71	71	70
15	70	69	59	59	54	53	57	56	54	54	54	53	60	59	65	63	70	68	73	71	74	72	71	70
16	70	69	59	59	54	54	57	56	54	51	53	53	61	60	66	65	70	68	75	72	74	73	73	71
17	69	69	59	59	54	54	57	51	52	51	55	53	61	61	69	66	71	69	75	72	74	71	72	71
18	69	68	59	59	54	54	55	54	52	50	55	54	63	61	69	68	72	70	74	71	73	71	71	70
19	68	67	60	59	54	54	55	54	53	51	56	55	63	61	70	68	72	69	75	72	73	71	72	70
20	67	67	60	60	55	54	54	54	53	52	56	55	63	62	69	67	71	69	76	73	74	72	72	70
21	67	66	60	60	56	55	55	54	53	53	57	56	64	63	68	67	71	68	76	72	74	72	70	68
22	66	66	59	59	56	55	55	55	53	53	58	56	65	63	70	68	71	69	75	73	74	72	72	69
23	66	65	59	58	57	56	56	55	55	53	58	57	66	64	72	70	72	70	76	73	75	72	73	71
24	66	64	57	57	57	57	56	55	55	54	59	57	65	64	72	69	73	70	77	72	76	73	72	70
25	66	65	57	57	57	57	56	56	55	53	59	58	64	63	70	68	72	69	78	73	75	73	73	71
26	66	66	57	56	57	57	56	56	55	53	59	58	63	62	69	68	72	69	76	72	74	70	72	70
27	66	63	57	57	57	57	57	56	54	53	59	55	62	61	69	68	73	70	77	72	72	70	72	70
28	63	62	57	57	57	56	57	56	54	53	55	54	62	62	69	68	75	73	73	70	71	69	71	70
29	64	63	58	58	55	54	56	55	55	54	56	55	63	62	69	67	75	74	75	72	71	70	71	70
30	65	64	59	58	55	54	55	54	--	--	58	56	65	62	69	68	73	71	77	73	72	70	71	70
31	65	65	--	--	55	54	55	54	--	--	59	57	--	--	70	68	--	--	76	72	73	71	--	--
Average	68	67	61	60	55	54	55	54	53	51	56	54	62	60	67	65	72	69	74	71	73	71	72	71

COLORADO RIVER BELOW PARKER DAM, ARIZ-CALIF.

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 81°F July 23, 24; minimum, 50°F Feb. 17-19.
EXTREMES, 1954-56.--Water temperatures: Maximum, 83°F Aug. 12, 13, 18, 1955; minimum, 48°F Jan. 10 to Feb. 15, Feb. 23-25, 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Temperature (°F) of water, water year October 1955 to September 1956

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	76	76	66	67	61	60	55	55	54	54	54	53	60	59	67	66	73	72	76	75	79	79	79	78
2	76	76	67	67	60	60	54	54	54	53	54	54	60	59	67	66	74	73	76	75	80	79	79	78
3	76	74	67	66	60	59	54	54	53	52	54	54	60	60	68	67	75	74	76	75	79	79	79	78
4	75	73	67	66	59	59	54	54	52	52	54	54	60	60	68	68	74	74	76	76	80	79	78	78
5	75	74	66	66	59	58	54	54	52	52	54	54	62	61	68	67	73	73	77	76	79	79	78	78
6	75	74	66	66	59	58	54	54	52	52	54	54	62	61	68	68	73	73	77	76	79	79	78	78
7	75	75	66	65	59	59	54	54	52	52	54	54	62	62	69	68	74	73	77	77	80	79	78	78
8	75	74	66	65	59	58	54	54	52	52	54	54	63	62	69	68	74	74	78	76	80	79	78	78
9	75	74	65	65	58	58	54	54	52	51	55	54	63	63	69	68	75	74	78	78	79	79	78	78
10	75	74	65	65	58	58	54	54	51	51	55	55	64	63	69	67	75	75	78	77	79	79	78	78
11	74	72	65	64	58	57	54	54	51	51	55	55	63	63	69	69	75	75	77	77	79	79	78	77
12	73	72	64	64	57	57	54	54	51	51	55	55	63	63	70	69	75	75	77	77	79	79	77	77
13	73	72	64	64	57	57	--	--	51	51	55	55	63	63	71	70	75	75	77	76	79	79	77	77
14	73	72	64	63	57	57	--	--	51	51	55	55	63	63	71	70	75	75	77	76	79	78	78	77
15	73	72	63	63	57	57	--	--	51	51	55	55	63	63	71	70	77	74	77	77	79	79	78	78
16	73	72	63	63	57	57	--	--	51	51	55	55	63	63	71	70	76	76	77	77	79	78	78	78
17	73	72	63	63	57	57	--	--	51	50	56	55	63	63	71	70	76	75	77	77	79	78	79	78
18	73	72	63	62	57	56	--	--	51	50	56	56	64	63	71	70	76	75	78	77	79	79	79	79
19	72	72	63	62	56	56	--	--	51	50	56	56	65	64	70	70	75	75	78	78	79	78	79	77
20	72	71	62	62	56	56	--	--	51	51	57	57	65	65	70	69	76	75	78	78	79	79	77	77
21	71	71	62	62	56	56	--	--	51	51	57	57	65	65	71	70	76	75	79	78	79	79	79	77
22	71	71	62	62	56	56	--	--	51	51	58	57	66	65	71	71	76	76	79	78	79	79	79	79
23	71	71	62	61	56	56	--	--	51	51	58	57	66	64	71	70	75	75	81	79	80	79	79	79
24	71	71	61	61	56	56	55	55	51	51	58	58	65	64	71	70	75	75	81	79	79	79	79	79
25	71	71	61	61	56	56	55	54	52	51	58	58	65	64	71	70	75	75	79	79	79	79	78	78
26	71	71	61	61	56	56	54	54	52	52	58	58	64	64	71	69	76	75	79	78	79	78	78	78
27	71	70	61	61	56	56	54	54	52	52	59	58	65	64	71	70	76	75	80	79	78	78	78	77
28	70	69	61	61	56	55	54	54	53	53	59	59	66	65	71	69	76	76	80	79	79	78	79	78
29	69	69	61	61	55	55	54	54	53	53	59	59	66	66	72	71	75	75	80	79	78	78	78	77
30	69	68	61	61	55	55	54	54	--	--	60	59	66	66	72	71	76	75	80	79	78	78	78	77
31	69	68	--	--	55	55	54	54	--	--	60	59	--	--	72	72	--	--	79	79	79	78	--	--
Average	73	72	64	63	57	57	54	54	52	52	56	56	64	63	70	69	75	75	78	77	79	79	78	78

GILA RIVER BASIN

SAN SIMON CREEK NEAR SOLOMON, ARIZ.

LOCATION.--At gaging station, 1 mile southwest of Solomon, Graham County, and 2½ miles upstream from mouth.
DRAINAGE AREA.--2,192 square miles.
RECORDS AVAILABLE.--Sediment records: June to September 1956.
EXTREMES, June to September 1956.--Sediment loads: Maximum daily, 40,000 tons Aug. 17; minimum daily, 0 tons on many days.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. No flow during June, tabulation omitted for that period. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Suspended sediment, June to September 1956

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 a		Mean concentration (ppm)	Tons per day a		Mean concentration (ppm)	Tons per day a
1.....	10		2,800	10		1,700	0		0
2.....	8.7		1,800	0		0	0		0
3.....	0		0	0		0	0		0
4.....	0		0	0		0	0		0
5.....	0		0	0		0	0		0
6.....	0		0	0		0	15		3,600
7.....	0		0	0		0	0		0
8.....	0		0	0		0	0		0
9.....	0		0	0		0	0		0
10.....	0		0	0		0	0		0
11.....	0		0	0		0	0		0
12.....	93		30,000	0		0	0		0
13.....	0		0	0		0	0		0
14.....	0		0	0		0	0		0
15.....	0		0	4.9		700	0		0
16.....	0		0	43		13,000	0		0
17.....	29		3,800	145		40,000	0		0
18.....	12		970	56		5,800	0		0
19.....	11		2,000	9.2		720	0		0
20.....	0		0	2.2		130	0		0
21.....	0		0	6		3	0		0
22.....	0		0	2		1	0		0
23.....	0		0	0		0	0		0
24.....	0		0	0		0	0		0
25.....	66		18,000	0		0	0		0
26.....	0		0	0		0	0		0
27.....	0		0	3.6		670	0		0
28.....	23		5,600	0		0	0		0
29.....	0		0	0		0	0		0
30.....	0		0	0		0	0		0
31.....	79		16,000	0		0	--		--
Total.	331.7		80,970	274.7		62,724	15		3,600

Total discharge for June to September 1956 (cfs-days)..... 621.4
Total load for June to September 1956 (tons)..... 147,294

a Computed from water-sediment discharge curve.

SAN SIMON CREEK NEAR SOLOMON, ARIZ.--Continued

Particle-size analyses of suspended sediment, June to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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 18, 1956	10:00 p.m.	38	75	61,700	5,070		49		85		98	99	100				VPWCM
July 18	10:20 p.m.	24	75	55,400	5,200		52		87		98	99	100				VPWCM
July 18	10:40 p.m.	16	75	51,200	3,800		55		88		99	100	--				VPWCM
July 28	6:00 a.m.	102	71	86,900	4,020		60		90		98	99	100				VPWCM
Aug. 17	6:00 a.m.	117	65	66,700	4,030		53		80		94	97	99		100		VPWCM
Aug. 17	6:20 a.m.	107	65	66,100	3,920		54		82		95	98	100				VPWCM
Aug. 17	6:45 a.m.	95	65	63,500	3,600		56		84		96	99	100				VPWCM
Aug. 27	9:30 a.m.	3.6	74	54,800	5,200		86		100		--	--	--				PWCM

GILA RIVER BASIN--Continued

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 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,830 ppm July 11-18; minimum, 431 ppm Aug. 17-18.
Hardness: Maximum, 1,940 ppm July 11-18; minimum, 202 ppm Oct. 21-31.
Specific conductance: Maximum daily, 3,020 micromhos Sept. 27; minimum daily, 650 micromhos Aug. 18.
Water temperatures: Maximum, 93°F June 29; minimum, 46°F Dec. 27.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 2,830 ppm July 11-18, 1956; minimum, 294 ppm Sept. 24. 1954.
Hardness: Maximum, 1,940 ppm July 11-18, 1956; 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.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443. 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 1955 to September 1956

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, 1955..	212	22	0.09	71	15	85	6.2	227	133	71	1.0	1.9	0.17	527	0.72	302	238	52	43	2.4	830	7.7
Oct. 11-20.....	172	--	--	60	13	93	--	201	--	--	--	--	--	498	.68	231	203	38	50	2.8	790	7.7
Oct. 21-31.....	151	--	--	58	14	96	--	211	--	--	--	--	--	489	.67	199	202	29	51	2.9	797	7.9
Nov. 1-10	177	--	--	60	14	94	--	207	--	--	--	--	--	498	.68	238	207	38	50	2.9	797	7.8
Nov. 11-20	201	--	--	62	12	93	--	211	--	--	--	--	--	500	.68	271	204	31	50	2.8	791	7.8
Nov. 21-22	80.0	--	--	105	23	136	--	262	--	--	--	--	--	796	1.08	172	356	142	45	3.1	1,230	8.2
Nov. 23-30	172	--	--	67	16	100	--	227	--	--	--	--	--	--	--	--	233	47	48	2.8	867	7.9
Dec. 1-10	161	--	--	80	17	106	--	239	--	--	--	--	--	617	.84	268	270	74	46	2.8	971	7.9
Dec. 11-20	178	--	--	70	15	99	--	231	--	--	--	--	--	549	.75	264	236	46	48	2.8	897	7.9
Dec. 21-31.....	247	--	--	64	13	95	--	221	--	--	--	--	--	503	.68	335	213	32	49	2.8	833	7.8
Jan. 1-10, 1956 ..	42.6	33	.00	133	34	176	10	282	377	167	1.3	1.5	.23	1,090	1.48	125	472	241	44	3.5	1,600	8.2
Jan. 11-20	33.7	--	.--	137	34	200	--	266	--	--	--	--	--	1,140	1.55	104	482	264	47	4.0	1,670	8.0
Jan. 21-28, 30-31	59.8	--	--	129	33	181	--	283	--	--	--	--	--	1,050	1.43	170	458	262	46	3.7	1,530	8.0
Jan. 29.....	645	--	--	88	20	83	--	256	--	--	--	--	--	598	.81	1,040	302	92	37	2.1	880	7.5
Feb. 1-10	61.0	--	--	132	35	182	--	272	--	--	--	--	--	1,050	1.43	173	474	250	46	3.6	1,550	8.1
Feb. 11-20.....	135	--	--	91	22	138	--	248	--	--	--	--	--	700	.95	255	318	114	49	3.4	1,120	8.1
Feb. 21-29	152	--	--	76	26	129	--	236	--	--	--	--	--	646	.88	265	296	103	49	3.3	1,050	8.2
Mar. 1-10	249	--	--	68	17	113	--	223	--	--	--	--	--	586	.80	394	240	57	51	3.2	945	8.0
Mar. 11-20	352	--	--	62	17	113	--	220	--	--	--	---	--	538	.73	511	224	44	52	3.3	905	8.0
Mar. 21-31	500	--	--	63	17	113	--	223	--	--	--	--	--	550	.75	742	227	44	52	3.3	925	8.0

Apr. 1-10, 1956..	423	13	.01	67	16	118	6.9	232	102	139	.9	.8	.18	578	.79	660	233	43	51	3.4	991	7.9
Apr. 11-20	351	--	--	70	19	130	--	235	--	--	--	--	--	623	.85	590	252	60	53	3.6	1,050	8.2
Apr. 21-30	214	--	--	74	19	136	--	239	--	--	--	--	--	676	.92	391	262	66	53	3.7	1,120	8.0
May 1-31	238	--	--	71	22	145	--	242	--	--	--	--	--	710	.97	456	268	69	54	3.8	1,160	8.0
June 1-30	227	--	--	78	29	180	--	240	--	--	--	--	--	858	1.17	526	314	117	56	4.4	1,390	7.8
July 1-10	4.27	33	.01	276	75	192	11	187	909	224	.9	1.6	.24	1,930	2.62	22.3	997	844	29	2.6	2,420	8.0
July 11-18	1.64	--	--	550	137	90	--	298	--	--	--	--	--	2,830	3.85	12.5	1,940	1,690	9	.9	2,920	7.5
July 19-22	164	--	--	98	27	89	--	429	--	--	--	--	--	636	.86	282	356	4	35	2.1	961	7.7
July 23-27	45.9	--	--	152	38	130	--	401	--	--	--	--	--	1,020	1.39	126	536	207	35	2.4	1,440	7.8
July 28-31	266	--	--	91	22	58	--	417	--	--	--	--	--	498	.68	358	318	0	28	1.4	768	7.7
Aug. 1	137	--	--	371	46	54	--	181	--	--	--	--	--	1,630	2.22	603	1,110	966	10	.7	1,850	7.2
Aug. 2-3	50.0	--	--	145	26	134	--	256	--	--	--	--	--	952	1.29	129	469	259	38	2.7	1,400	7.6
Aug. 4-11	15.0	--	--	206	37	218	--	201	--	--	--	--	--	1,460	1.99	59.1	666	502	42	3.7	2,070	7.5
Aug. 12-14	24.3	--	--	142	26	98	--	328	--	--	--	--	--	834	1.13	54.7	462	192	32	2.0	1,210	7.4
Aug. 15	68	--	--	157	25	289	--	219	--	--	--	--	--	1,360	1.85	250	494	315	56	5.7	2,250	7.3
Aug. 16.....	64	--	--	143	26	169	--	194	--	--	--	--	--	1,050	1.43	181	464	305	44	3.4	1,610	7.3
Aug. 17-18.....	171	--	--	71	13	48	--	199	--	--	--	--	--	431	.59	199	230	68	31	1.4	650	7.4
Aug. 19-20	64.0	--	--	106	25	75	--	405	--	--	--	--	--	617	.84	107	368	36	31	1.7	964	7.6
Aug. 21-28	27.7	--	--	133	32	183	--	251	--	--	--	--	--	1,100	1.50	82.3	464	258	46	3.7	1,660	7.7
Aug. 29	48	--	--	112	26	73	--	473	--	--	--	--	--	560	.76	72.6	386	0	29	1.6	972	7.3
Aug. 30-31	18.0	--	--	131	32	109	--	335	--	--	--	--	--	857	1.17	41.7	458	184	34	2.2	1,250	7.7
Sept. 1-3	6.03	--	--	198	40	197	--	241	--	--	--	--	--	1,390	1.89	22.6	658	461	39	3.3	1,970	7.8
Sept. 4-7	3.32	--	--	333	82	201	--	258	--	--	--	--	--	2,100	2.86	18.8	1,170	956	27	2.6	2,640	7.7
Sept. 8	5.8	--	--	274	49	132	--	164	--	--	--	--	--	1,520	2.07	223.8	885	750	24	1.9	1,940	7.4
Sept. 9	4.0	--	--	405	90	136	--	238	--	--	--	--	--	2,190	2.98	23.7	1,380	1,190	18	1.6	2,540	7.2
Sept. 10-30	.99	--	--	546	134	92	--	254	--	--	--	--	--	2,790	3.79	7.46	1,910	1,710	9	.9	2,910	7.7
Weighted average	167	--	--	75	20	124	--	237	--	--	--	--	--	644	0.88	290	269	75	50	3.3	1,040	--

GILA RIVER BASIN--Continued

GILA RIVER AT KELVIN, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement, generally in the p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	66	59	56	a52	57	62	73	78	a77	88	77
2	84	66	--	52	49	60	58	80	84	92	81	86
3	84	67	47	53	51	62	62	78	86	89	81	78
4	78	70	50	56	53	--	--	--	a80	a66	83	78
5	77	68	54	53	--	--	65	--	85	a66	84	80
6	74	69	56	55	52	48	68	--	71	85	86	87
7	72	63	58	57	51	--	69	--	86	78	89	80
8	76	59	55	59	55	58	66	75	84	a78	77	79
9	78	59	52	56	49	61	69	74	a79	--	84	81
10	78	--	55	58	55	61	69	73	86	--	84	87
11	80	a54	52	56	54	--	69	74	a74	84	--	84
12	79	61	53	58	56	59	69	75	92	a74	84	82
13	79	60	52	54	57	55	70	--	88	a72	85	82
14	78	57	53	54	57	56	64	76	85	76	87	76
15	74	58	54	57	56	60	--	74	83	76	83	--
16	77	56	53	--	54	59	66	78	83	78	82	79
17	76	56	54	56	51	63	64	82	84	76	79	--
18	75	56	52	56	53	64	72	81	89	78	87	87
19	76	59	52	53	--	62	69	--	86	83	84	80
20	76	61	52	54	53	62	71	--	88	83	85	77
21	74	60	51	51	62	64	74	82	85	83	88	78
22	73	58	51	55	61	64	76	79	89	84	87	78
23	71	56	51	55	61	64	75	81	88	88	84	79
24	66	57	50	59	60	65	74	82	74	91	84	82
25	74	52	--	59	59	65	74	82	89	82	87	78
26	72	57	a48	60	61	65	a69	a67	88	--	88	--
27	70	56	a46	55	60	a60	70	79	88	--	80	80
28	60	57	a47	52	57	--	71	68	90	91	77	86
29	--	54	a49	53	58	65	72	81	93	87	78	87
30	--	58	a49	56	--	61	73	80	a79	81	77	86
31	67	--	59	55	--	61	--	a68	--	78	78	--
Average	75	60	52	55	56	61	69	--	84	81	83	81

a Measurement made in the morning.

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.--June 1954 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 83°F July 5; minimum, 43°F Feb. 3, 4.
EXTREMES, 1954-56.--Water temperatures: Maximum, 90°F July 28, 1954; minimum, 37°F Feb. 21, 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Temperature (°F) of water, water year October 1955 to September 1956
[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	73	64	62	58	54	53	53	49	50	47	57	50	63	58	72	61	73	67	79	71	79	71	78	68
2	74	66	62	57	54	48	50	48	47	44	57	51	59	55	74	63	77	67	79	72	79	72	78	69
3	70	68	61	56	49	46	51	48	46	43	58	52	61	53	74	65	76	70	79	69	78	69	79	69
4	73	66	61	56	47	46	49	47	48	43	59	53	63	54	74	65	74	70	80	69	77	68	79	69
5	74	68	60	56	48	46	49	47	49	45	58	52	66	57	73	64	76	69	79	69	79	69	79	70
6	72	66	60	56	48	47	50	48	49	46	56	51	69	60	74	64	67	66	81	69	79	70	76	71
7	70	63	59	56	52	48	51	49	50	46	53	47	70	61	74	64	79	67	82	69	79	70	75	70
8	71	64	58	54	51	50	52	49	50	50	56	49	70	62	72	63	79	68	83	70	79	69	79	70
9	72	66	57	53	50	48	52	50	52	48	58	52	69	62	68	63	80	68	82	71	80	69	79	71
10	72	67	58	54	51	48	52	49	52	48	60	53	67	61	72	61	80	69	76	72	79	71	79	71
11	72	66	58	54	51	48	52	49	52	48	61	55	63	59	69	63	81	69	74	71	79	71	79	70
12	71	65	57	55	51	48	51	50	54	49	59	55	63	58	71	62	82	70	81	71	79	71	77	69
13	71	65	57	56	51	49	52	50	55	50	58	51	62	58	72	61	82	70	81	73	75	72	78	69
14	71	65	57	55	52	49	51	50	55	50	56	51	59	54	72	61	79	69	79	73	79	70	78	69
15	70	65	54	52	51	49	52	49	55	51	57	49	57	54	74	62	77	69	81	73	76	72	78	69
16	70	64	52	49	51	48	52	50	54	51	60	51	62	56	76	63	78	67	81	74	77	72	78	69
17	71	65	52	50	50	48	50	47	52	47	60	55	63	57	77	66	79	68	77	74	76	69	78	69
18	70	64	52	48	50	48	50	47	51	48	64	56	61	57	76	67	80	69	79	71	77	67	77	68
19	68	64	54	50	51	49	50	47	54	49	64	57	63	57	75	68	78	69	81	73	79	70	77	68
20	69	64	55	51	51	49	51	48	55	49	65	57	60	56	76	68	77	68	81	73	79	71	75	68
21	67	63	54	52	51	49	51	50	56	50	67	58	60	55	74	65	77	67	79	73	78	71	75	66
22	67	62	55	52	50	52	51	48	57	52	67	60	67	58	75	67	77	67	79	72	77	70	75	66
23	66	61	53	50	52	50	51	51	56	55	68	59	69	61	74	67	77	67	77	72	79	68	75	66
24	66	61	52	49	55	52	53	51	55	52	68	60	71	62	75	66	78	69	82	71	79	71	75	67
25	67	62	52	49	54	51	53	52	54	48	66	61	68	62	75	66	79	69	78	73	79	71	75	67
26	66	61	53	50	53	50	53	53	54	50	69	60	69	61	76	65	81	69	79	70	78	70	75	67
27	64	60	53	50	52	52	53	52	54	48	67	60	63	59	75	65	81	69	81	72	76	69	72	66
28	63	58	54	51	54	51	52	50	55	49	67	58	61	57	75	65	80	70	80	72	77	69	73	68
29	64	58	55	52	53	52	50	47	55	49	68	59	67	58	77	65	79	70	80	73	77	68	74	66
30	63	58	54	52	55	52	50	46	--	--	68	60	71	60	78	65	76	70	76	73	77	67	71	68
31	63	58	--	--	55	52	49	49	--	--	66	58	--	--	77	66	--	--	78	72	77	68	--	--
Average	69	63	56	53	52	49	51	49	53	48	62	55	65	58	74	64	78	69	79	72	78	70	77	68

GILA RIVER BASIN--Continued

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 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56--Dissolved solids: Maximum, 894 ppm June 1-30; minimum, 700 ppm Oct. 11-20.
Hardness: Maximum, 230 ppm July 11-31; minimum, 197 ppm Oct. 11-20.
Specific conductance: Maximum daily, 1,630 micromhos Sept. 29; minimum daily, 1,360 micromhos Oct. 28, 29, Nov. 1.
Water temperatures: Maximum, 76°F on several days in September; minimum, 53°F Jan. 21.
EXTREMES, 1950-56--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.--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 1955 to September 1956 given in WSP 1443. No inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ...	600	20	0.01	56	17	212	6.0	177	56	328	0.3	1.4	0.20	788	1.07	1,280	210	64	68	6.4	1,420	7.6
Oct. 11-20.....	492	--	--	51	17	205	--	176	--	--	--	--	--	700	.95	930	197	53	69	6.4	1,400	7.6
Oct. 21-28.....	250	--	--	52	18	198	--	180	--	--	--	--	--	739	1.01	499	204	56	68	6.0	1,380	7.4
Oct. 29-Nov. 11 ...	a4.20	--	--	54	17	210	--	194	--	--	--	--	--	777	1.06	8.81	204	46	69	6.4	1,410	7.8
Dec. 10-16	a26.5	--	--	55	17	218	--	b198	--	--	--	--	--	844	1.15	60.4	207	44	70	6.6	1,440	8.4
Jan. 17-31, 1956 ..	167	--	--	58	19	216	--	183	--	--	--	--	--	821	1.12	370	222	72	68	6.3	1,450	8.0
Feb. 1-12, 20-29 ..	188	--	--	61	18	216	--	181	--	--	--	--	--	816	1.11	414	226	78	68	6.3	1,460	8.0
Mar. 1-10	1,052	--	--	60	18	216	--	181	--	--	--	--	--	812	1.10	2,310	224	75	68	6.3	1,450	7.9
Mar. 11-20	963	--	--	57	20	216	--	181	--	--	--	--	--	820	1.12	2,130	224	76	68	6.3	1,470	7.9
Mar. 21-31	1,018	--	--	59	20	220	--	180	--	--	--	--	--	827	1.12	2,270	229	82	68	6.3	1,480	7.9
Apr. 1-10	1,060	15	.01	60	17	218	6.7	179	60	346	.4	1.7	.21	825	1.12	2,360	220	73	68	6.4	1,490	7.7
Apr. 11-20.....	797	--	--	58	19	228	--	181	--	--	--	--	--	868	1.18	1,870	222	74	69	6.7	1,530	7.7
May 1-31	801	--	--	57	19	231	--	182	--	--	--	--	--	880	1.20	1,900	220	71	70	6.8	1,550	7.8
June 1-30.....	1,441	--	--	57	20	233	--	178	--	--	--	--	--	894	1.22	3,480	224	78	69	6.8	1,550	8.0
July 1-10	1,712	14	.01	60	19	232	6.8	184	64	374	.5	1.4	.18	886	1.20	4,100	228	76	68	6.7	1,580	7.8
July 11-31	1,626	--	--	61	19	233	--	183	--	--	--	--	--	882	1.20	3,870	230	80	69	6.7	1,590	7.7
Aug. 1-31.....	1,495	--	--	59	19	231	--	179	--	--	--	--	--	877	1.19	3,540	225	78	69	6.7	1,580	7.7
Sept. 1-30	1,460	--	--	55	19	233	--	169	--	--	--	--	--	867	1.18	3,420	215	76	70	6.9	1,570	7.6
Weighted average	c950	--	--	58	19	228	--	179	--	--	--	--	--	863	1.17	2,230	222	76	69	6.7	1,540	--

a No flow Nov. 12 to Dec. 9, Dec. 17 to Jan. 16, Feb. 13-19.
b Includes 8 parts per million of carbonate (CO_3).
c Average for 300 days of flow.

GILA RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956
(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	70	76	--	--	--	55	57	58	63	67	71	73
2	70	70	--	--	--	56	57	56	63	67	72	73
3	70	70	--	--	--	55	56	59	63	67	72	--
4	70	70	--	--	--	55	56	60	63	68	70	73
5	70	--	--	--	--	55	56	60	63	65	70	73
6	70	70	--	--	--	55	57	60	64	68	70	73
7	70	70	--	--	--	55	57	60	64	68	70	73
8	70	--	--	--	--	55	56	60	63	68	70	74
9	70	65	--	--	--	55	57	59	63	69	70	74
10	70	65	56	--	--	56	57	59	63	69	70	74
11	70	65	56	--	--	54	56	60	64	70	70	74
12	70	--	59	--	--	54	57	60	64	70	70	74
13	70	--	--	--	--	--	57	--	64	70	70	74
14	71	--	--	--	--	--	57	60	64	68	70	74
15	71	--	--	--	--	54	57	60	64	68	70	75
16	72	--	--	--	--	54	57	60	64	68	70	75
17	72	--	--	--	--	56	58	60	64	69	70	76
18	72	--	--	55	--	56	58	60	65	69	70	76
19	72	--	-	--	--	56	58	60	64	69	71	76
20	73	--	--	55	--	57	58	62	64	69	71	76
21	72	--	--	53	54	57	58	60	64	70	72	76
22	72	--	--	55	54	56	57	60	64	70	72	75
23	72	--	--	55	55	56	58	--	66	70	71	76
24	73	--	--	55	54	56	58	60	66	70	72	75
25	72	--	--	61	55	56	58	61	67	71	72	76
26	73	--	--	61	55	56	58	63	65	71	72	75
27	72	--	--	--	55	56	58	62	72	71	73	75
28	72	--	--	55	55	56	59	62	67	70	73	75
29	72	--	--	55	a 55	56	58	62	67	70	72	75
30	70	--	--	55	--	56	58	62	67	71	72	76
31	69	--	--	--	--	57	--	62	--	71	72	--
Average	71	b 69	--	--	b 55	56	57	60	65	69	71	75

a Measurement after 9 a.m.
b Average of measurements during period of flow.

GILA RIVER BASIN--Continued

VERDE RIVER BELOW BARTLETT DAM, ARIZ.

LOCATION.--At gaging station 2½ 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 1956.
Water temperatures: December 1950 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 444 ppm Sept. 18-30; minimum, 288 ppm Nov. 11-20.
Hardness: Maximum, 276 ppm Sept. 18-30; minimum, 198 ppm Oct. 1-10.
Specific conductance: Maximum daily, 808 micromhos Oct. 28; minimum daily, 494 micromhos Nov. 11.
Water temperatures: Maximum, 83°F Aug. 1-3; minimum, 46°F Feb. 11.
EXTREMES, 1950-56.--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, 808 micromhos Oct. 28, 1955; minimum daily, 234 micromhos Jan. 13, 15, 1952.
Water temperatures: Maximum, 90°F July 18, Aug. 14, 1951; minimum, 41°F Jan. 30, 1952.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, 2ater year October 1955 to September 1956

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, 1955.	122	23	0.01	40	24	32	4.4	221	60	22	0.4	1.3	0.20	314	0.43	103	198	18	25	1.0	511	7.8
Oct. 11-20	91.8	--	--	40	27	36	--	241	--	--	--	--	--	325	.44	80.6	211	14	27	1.1	542	7.8
Oct. 21-31	137	--	--	49	29	37	--	289	--	--	--	--	--	352	.48	130	242	4	25	1.0	600	7.7
Nov. 1-10	276	--	--	45	25	29	--	245	--	--	--	--	--	294	.40	219	216	14	23	.9	520	7.9
Nov. 11-20	228	--	--	46	25	28	--	254	--	--	--	--	--	288	.39	177	218	10	22	.8	522	8.2
Nov. 21-30	17.6	--	--	54	29	30	--	289	--	--	--	--	--	348	..47	16.5	254	16	20	.8	592	8.0
Dec. 1-10	36.6	--	--	54	31	34	--	289	--	--	--	--	--	360	.49	35.6	262	25	22	.9	608	8.0
Dec. 11-20	498	--	--	52	29	30	--	282	--	--	--	--	--	338	.46	454	248	18	21	.8	571	7.9
Dec. 21-31	582	--	--	54	30	32	--	288	--	--	--	--	--	354	.48	556	258	22	21	.9	594	8.0
Jan. 1-10, 1956.	155	15	.00	51	31	32	4.2	280	60	23	.4	.9	.21	352	.48	147	254	25	21	.9	588	8.2
Jan. 11-20	135	--	--	52	34	35	--	286	--	--	--	--	--	353	.48	129	270	35	22	.9	613	8.2
Jan. 21-31	40.3	--	--	55	31	35	--	292	--	--	--	--	--	354	.48	38.5	264	25	22	.9	619	8.1
Feb. 1-10	114	--	--	53	32	33	--	282	--	--	--	--	--	345	.47	106	264	32	21	.9	599	--
Feb. 11-20	126	--	--	54	34	34	--	a294	--	--	--	--	--	356	.48	121	274	34	21	.9	612	8.8
Feb. 21-29	28.2	--	--	54	34	35	--	295	--	--	--	--	--	363	.49	27.6	274	32	22	.9	619	8.2
Mar. 1-31.....	499	--	--	52	32	35	--	286	--	--	--	--	--	366	.50	493	261	26	23	.9	606	8.2

Apr. 1-10, 1956	355	16	.01	54	30	33	4.1	285	60	21	.5	.6	.20	360	.49	345	258	24	21	.9	603	8.1
Apr. 11-20	203	--	--	52	32	35	--	288	--	--	--	--	--	375	.52	206	261	25	23	.9	598	8.2
May 1-31	267	--	--	51	34	36	--	292	--	--	--	--	--	380	.52	274	267	28	23	1.0	614	8.2
June 1-30	479	--	--	47	36	39	--	b 288	--	--	--	--	--	392	.53	507	266	30	24	1.0	632	8.3
July 1-10	398	20	.01	48	37	43	4.0	298	78	30	.5	.5	.26	410	.56	441	272	28	25	1.1	667	8.2
July 11-Aug. 1	478	--	--	42	38	47	--	279	--	--	--	--	--	404	.55	521	262	33	28	1.3	671	8.0
Aug. 2-8	386	--	--	43	25	33	--	228	--	--	--	--	--	336	.46	350	210	24	25	1.0	538	8.0
Aug. 9-31	283	--	--	44	33	43	--	268	--	--	--	--	--	387	.53	296	246	26	28	1.2	632	8.1
Sept. 1-17	162	--	--	46	36	47	--	287	--	--	--	--	--	414	.56	181	263	28	28	1.3	673	8.0
Sept. 18-30	113	--	--	46	39	53	--	296	--	--	--	--	--	444	.60	135	276	33	30	1.4	725	8.1
Weighted average	274	--	--	49	33	37	--	281	--	--	--	--	--	372	0.51	275	258	28	24	1.0	614	--

a Includes 4 parts per million of carbonate (CO_3).
b Includes 3 parts per million of carbonate (CO_3).

GILA RIVER BASIN--Continued

VERDE RIVER BELOW BARTLETT DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
(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	67	60	53	49	53	58	61	64	72	83	80
2	75	67	60	53	48	53	58	61	65	72	83	80
3	75	67	50	52	48	53	58	61	64	72	83	79
4	74	68	50	53	48	53	59	60	64	72	82	79
5	72	67	50	53	48	54	59	60	63	68	82	80
6	72	67	49	54	49	53	59	60	63	68	80	81
7	72	67	49	54	50	53	58	61	62	57	81	80
8	72	67	49	54	50	53	58	61	62	57	--	80
9	72	66	48	54	49	53	59	61	63	58	80	80
10	71	67	56	53	48	53	59	60	62	68	80	80
11	72	66	56	53	46	54	60	60	62	69	79	79
12	72	68	56	53	47	54	60	60	63	--	79	80
13	72	66	56	54	47	55	60	58	62	73	80	80
14	72	66	56	55	47	55	60	58	66	73	81	80
15	72	65	56	55	47	54	60	58	66	76	81	80
16	71	65	55	54	47	56	60	58	66	76	80	80
17	70	64	55	54	48	56	60	68	67	78	80	80
18	70	64	55	53	49	57	60	68	67	77	81	79
19	70	64	55	53	50	57	59	68	67	77	81	79
20	69	62	55	53	49	57	58	69	67	77	81	79
21	69	60	55	52	50	57	58	63	67	77	82	78
22	69	58	55	52	51	57	58	65	67	77	81	79
23	68	55	56	52	53	57	60	62	68	77	81	78
24	69	54	46	52	55	57	61	61	67	77	82	78
25	68	54	56	52	55	57	61	61	68	77	80	77
26	68	57	56	52	54	57	60	60	68	77	80	78
27	67	58	55	54	53	57	--	60	68	80	80	77
28	67	57	55	53	52	57	59	60	70	81	80	78
29	67	58	55	51	53	57	60	61	70	82	80	78
30	67	60	55	51	--	57	60	60	71	80	80	78
31	67	--	55	50	--	--	--	62	--	79	80	--
Average	71	63	54	53	50	55	59	62	66	73	81	79

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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).
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 400 ppm Oct. 14-20; minimum, 229 ppm Oct. 1-13.
Hardness: Maximum, 246 ppm Oct. 14-20; minimum, 136 ppm July 1-10.
Specific conductance: Maximum daily, 698 micromhos Oct. 19; minimum daily, 353 micromhos Oct. 1.
Water temperatures: Maximum, 80°F on several days during July and August.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 400 ppm Oct. 14-20, 1955; minimum, 168 ppm Jan. 29 to Feb. 10, 1952.
Hardness: Maximum, 246 ppm Oct. 14-20, 1955; minimum, 108 ppm June 21-30, 1952.
Specific conductance: Maximum daily, 698 micromhos Oct. 19, 1955; minimum daily, 241 micromhos Jan. 29, 1952.
Water temperatures: Maximum, 85°F Aug. 12, 15-16, 1955.
REMARKS.--Samples collected from diversion canal when there is flow. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 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 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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. 1-13, 1955...	33.8	24	0.17	30	16	23	5.0	178	24	18	0.2	1.2	0.25	229	0.31	20.9	141	0	25	0.8	378	7.2
Oct. 14-20	6.99	--	--	54	27	51	--	326	--	--	--	--	--	400	.54	7.55	246	0	31	1.4	636	7.7
Oct. 21-Nov. 3 ...	a6.26	--	--	44	30	60	--	338	--	--	--	--	--	387	.53	6.54	234	0	36	1.7	672	7.5
June 10-22, 1956..	89.8	--	--	34	19	33	--	188	--	--	--	--	--	263	.36	63.8	163	9	31	1.1	446	7.2
June 23-30	111	--	--	30	16	27	--	162	--	--	--	--	--	234	.32	70.1	141	8	29	1.0	387	7.3
July 1-10.....	89.1	15	.01	28	16	27	5.3	163	31	23	.5	2.4	.15	232	.32	55.8	136	2	29	1.0	380	7.5
July 11-31.....	98.3	--	--	33	17	28	--	188	--	--	--	--	--	244	.33	64.8	152	0	29	1.0	420	7.2
Aug. 1-18, 23-31..	a95.9	--	--	38	18	27	--	189	--	--	--	--	--	263	.36	68.1	169	14	26	.9	428	7.4
Sept. 1-20.....	a68.2	--	--	38	19	32	--	198	--	--	--	--	--	251	.34	46.2	173	10	29	1.1	455	7.6
Weighted average	b71.7	--	--	35	18	29	--	187	--	--	--	--	--	252	0.34	48.8	162	8	28	1.0	425	--

a No flow Nov. 4 to June 9, Aug. 19-22, Sept. 21-30.
b Average for 133 days of flow.

GILA RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement generally at 7:30 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73								--	72	78	77
2	72								--	72	79	77
3	74								--	73	78	78
4	73								--	73	78	78
5	74								--	73	78	78
6	74								--	73	78	78
7	73								--	74	78	78
8	73								--	75	79	78
9	73								--	75	80	78
10	73								56	75	80	79
11	72								74	76	80	79
12	72								76	76	87	78
13	71								75	77	80	79
14	71								73	76	80	79
15	71								70	77	80	79
16	70								70	77	80	79
17	70								70	77	--	79
18	70								70	78	--	78
19	69								70	78	--	77
20	69								70	78	--	77
21	68								69	78	--	78
22	68								69	79	--	--
23	68								70	79	80	--
24	68								70	79	80	--
25	67								70	79	80	--
26	66								71	79	80	--
27	66								71	79	79	--
28	--								70	80	78	--
29	65								71	80	78	--
30	64								71	80	78	--
31	62								--	79	77	--
Average	70								70	77	79	78

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 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 6,390 ppm Nov. 11-20; minimum, 3,010 ppm Nov. 26-29.
Hardness: Maximum, 1,750 ppm Nov. 1-20; minimum, 806 ppm Nov. 26-29.
Specific conductance: Maximum daily, 9,750 micromhos Oct. 2, 22; minimum daily, 4,990 micromhos Nov. 26-29.
Water temperatures: Maximum, 94°F June 10; minimum, 46°F Feb. 8.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 6,510 ppm Sept. 21-30, 1956; minimum, 227 ppm Aug. 2, 1955.
Hardness: Maximum, 1,940 ppm Oct. 11-20, 1951; minimum, 95 ppm Aug. 2, 1955.
Specific conductance: Maximum daily, 10,200 micromhos Oct. 3, 1951; minimum daily, 370 micromhos Aug. 2, 1955.
Water temperatures: Maximum, 95°F July 19, 1951; minimum, 35°F Jan. 1, 1951.
REMARKS.--Samples from canal are believed to be representative of total flow passing Gillespie Dam, including spill and amounts diverted into Gila Bend and Enterprise Canals. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of separate and combined discharge for the river and canals for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ..	49.8	32		389	176	1,510		370	1,320	2,270		44	3.0	5,930	8.06	797	1,690	1,390	66	16	8,890	7.4
Oct. 11-20	37.5	37		403	168	1,590		373	1,370	2,340		43	2.8	6,140	8.35	622	1,700	1,390	67	17	9,200	7.6
Oct. 21-31.....	32.2	34		401	176	1,580		351	1,390	2,400		45	3.6	6,200	8.43	539	1,720	1,440	67	17	9,300	7.5
Nov. 1-10	32.2	33		411	177	1,640		379	1,430	2,410		51	3.8	6,340	8.62	551	1,750	1,440	67	17	9,420	7.6
Nov. 11-20	29.5	32		399	184	1,660		349	1,430	2,460		51	3.7	6,390	8.69	509	1,750	1,470	67	17	9,430	7.6
Nov. 21-25, 30...	34.7	36		405	176	1,590		355	1,440	2,380		56	3.8	6,260	8.51	586	1,730	1,440	67	17	9,380	7.6
Nov. 26-29.....	39.2	32		175	90	774		151	629	1,200		32	1.3	3,010	4.09	319	806	683	68	12	4,990	7.9
Dec. 1-10	32.8	34		365	181	1,560		354	1,360	2,270		54	3.1	6,000	8.16	531	1,660	1,360	67	17	9,040	7.5
Dec. 11-20.....	33.6	34		405	176	1,260		352	1,430	2,380		50	3.2	6,270	8.53	569	1,730	1,450	67	17	9,300	7.6
Dec. 21-31	35.4	33		405	174	1,580		373	1,410	2,320		50	3.2	6,160	8.38	589	1,730	1,420	67	17	9,180	7.6
Jan. 1-10, 1956 ..	32.6	34		405	174	1,620		363	1,420	2,360		56	3.1	6,250	8.50	550	1,730	1,430	67	17	9,300	7.6
Jan. 11-31	38.3	37		397	171	1,530		358	1,400	2,290		36	3.4	6,040	8.21	625	1,890	1,400	66	16	9,220	7.7
Feb. 1, 6-29	39.9	37		389	181	1,490		364	1,380	2,280		37	3.5	5,980	8.13	644	1,720	1,420	65	16	9,130	7.6
Feb. 2-3.....	57.0	22		238	100	830		276	798	1,220		24	2.8	3,370	4.58	519	1,000	779	64	11	5,370	7.4
Feb. 4	48	37		308	132	1,120		328	1,060	1,660		28	2.9	4,510	6.13	584	1,310	1,030	65	13	7,000	7.5
Feb. 5	47	38		339	144	1,270		356	1,210	1,840		35	3.3	5,050	6.87	641	1,440	1,150	66	15	7,890	7.6
Mar. 1-31	37.2	32		381	181	1,540		356	1,380	2,270		37	3.7	6,000	8.16	603	1,700	1,400	66	16	9,080	7.8
Apr. 1-30	38.0	33		369	169	1,480		386	1,320	2,150		29	3.6	5,740	7.81	589	1,620	1,300	67	16	8,800	7.7

GILA RIVER BASIN--Continued

GILA RIVER BELOW GILLESPIE DAM, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 (calculated)			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 1-31, 1956..	24.9	--		341	181	1,560		274	--	--		--	--	a6,060	8.24	407	1,600	1,370	68	17	9,000	7.7
June 1-30	16.5	--		308	177	1,550		192	--	--		--	--	a5,940	8.08	265	1,500	1,340	69	17	8,870	7.6
July 1-2, 4-10 ..	12.9	17	0.00	314	169	1,510	13	144	1,400	2,260	2.5	24	3.1	5,780	8.09	207	1,480	1,360	69	17	8,740	7.4
July 3	15	--		230	105	885		184	--	--		--	--	a3,620	4.92	147	1,010	855	66	12	5,630	7.2
July 11-23	11.5	--		308	163	1,450		114	--	--		--	--	a5,760	7.83	179	1,440	1,350	69	17	8,500	7.3
July 24-26	24.3	--		200	109	990		120	--	--		--	--	a3,920	5.33	257	947	848	69	14	5,970	7.2
July 27-31	19.4	--		262	153	1,360		133	--	--		--	--	a5,310	7.22	278	1,280	1,170	70	17	7,900	7.3
Aug. 1-31.....	15.4	--		306	164	1,420		178	--	--		--	--	a5,720	7.78	238	1,440	1,290	68	16	8,380	7.6
Sept. 1-30	15.3	--		318	166	1,400		241	--	--		--	--	a5,690	7.74	235	1,480	1,280	67	16	8,310	7.8
Weighted average	28.8	--		365	172	1,500		322	--	--		--	--	6,020	8.19	468	1,620	1,350	67	16	8,860	--

a Residue on evaporation at 180°C.

GILA RIVER BASIN--Continued

GILA RIVER BELOW GILLESPIE DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
(Once-daily measurement, generally between 6 a. m. and 10 a. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	60	57	52	a54	61	62	68	66	80	77	74
2	72	61	52	49	a55	60	a64	67	63	80	78	73
3	79	60	53	49	a49	55	63	70	79	80	79	72
4	74	60	52	52	48	55	59	72	75	79	80	72
5	70	60	56	52	49	57	--	a81	76	80	80	71
6	69	60	52	53	48	60	63	70	70	81	80	72
7	65	60	57	55	49	59	a70	a77	71	80	81	77
8	67	56	52	55	46	57	a71	77	90	82	80	a88
9	70	53	53	56	50	55	a71	68	a92	81	80	80
10	70	52	52	61	a53	a69	65	65	a94	79	80	80
11	71	57	53	a61	54	60	67	70	91	80	80	a90
12	68	58	52	a61	54	56	63	a79	a92	80	80	77
13	67	53	51	a60	52	58	a68	67	74	76	78	78
14	70	56	51	a61	50	59	a67	65	80	80	80	78
15	69	54	53	a61	a63	57	a68	64	76	81	82	80
16	68	53	53	57	51	a60	a68	66	75	80	83	85
17	66	54	54	a58	55	59	72	69	74	80	82	80
18	70	a57	49	a57	54	61	65	67	71	81	81	72
19	70	52	52	52	57	60	65	63	71	80	82	77
20	69	54	a56	a55	53	61	a73	65	75	80	81	75
21	67	55	a59	56	55	62	a77	69	75	82	82	70
22	a75	55	55	55	57	63	a71	65	74	79	82	75
23	65	56	53	51	a70	63	68	70	a89	80	83	75
24	64	54	54	a57	60	64	68	67	84	78	81	73
25	65	53	57	a64	60	67	72	71	72	81	79	74
26	65	55	56	58	61	a71	70	75	71	79	78	72
27	60	52	54	58	60	a73	66	62	75	82	79	73
28	58	53	a57	60	59	61	64	62	72	81	80	71
29	59	54	a57	58	58	62	67	67	76	79	71	72
30	a67	53	57	57	--	64	a76	63	74	80	72	77
31	65	--	58	a58	--	63	--	65	--	79	73	--
Average	68	56	54	56	55	61	68	69	77	80	79	76

a Measurement after 10 a. m.

GILA RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN GILA RIVER BASIN IN ARIZONA

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 (calculated)			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				
MINERAL CREEK AT KELVIN																						
June 1, 1956				643	159	18	264	1,970	22		0.2			2,940	4.00		2,260	2,040	2	0.2	3,090	7.5
July 2				655	164	28	281	2,030	18		.1			3,030	4.12		2,310	2,080	3	.3	3,140	7.7
July 31				659	157	26	265	2,020	19		.1			3,010	4.09		2,290	2,070	2	.2	3,140	7.9

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
TURKEY CREEK NEAR FORT APACHE			
Nov. 22, 1955	0.14	1	(t)
Dec. 16	.23	8	(t)
Jan. 20, 1956	.24	3	(t)
Mar. 2	4.43	79	0.94
Mar. 27	2.53	19	.13
May 27	.16	8	(t)
June 27	.03	5	(t)
ROCK CREEK NEAR FORT APACHE			
Nov. 22, 1955	0.80	1	(t)
Dec. 16	.70	8	0.02
Jan. 20, 1956	.86	2	(t)
Mar. 3	6.91	2	.04
Mar. 27	17.3	8	.37
Apr. 27	4.09	6	.07
May 27	.63	2	(t)
June 27	.16	4	(t)

t Less than 0.005 ton.

COLORADO RIVER AT YUMA, ARIZ.

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 boundry.
RECORDS AVAILABLE.--Chemical analyses: September 1926 to September 1928, October 1942 to February 1943, June 1947 to July 1952, November 1952 to September 1956.
Water temperatures: February 1954 to January 1956 (discontinued).
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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)	Chlorides (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (Calculated)			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, 1955	563			106	40	166		196	386	160		1.4		955	1.30	1,450	429	268	46	3.5	1,480	7.8
Nov. 7	465			111	41	170		208	391	168		2.0		985	1.34	1,240	446	275	45	3.5	1,530	7.8
Dec. 6	520			110	44	169		214	391	169		1.9		990	1.35	1,390	456	280	45	3.4	1,540	7.8
Jan. 9, 1956	621			99	39	164		162	389	160		.1		931	1.27	1,560	408	274	47	3.5	1,470	7.6
Feb. 2	510			99	39	171		165	394	165		.1		950	1.29	1,310	408	272	48	3.7	1,490	8.0
Mar. 5	428			121	38	165		216	389	166		.9		986	1.34	1,140	458	282	44	3.3	1,560	8.1
Apr. 6	2,510			110	36	136		186	374	124		1.6		873	1.19	5,920	422	270	41	2.9	1,360	7.3
May 7	445			100	41	167		166	389	170		.1		949	1.29	1,140	418	282	46	3.5	1,500	8.0
June 8	1,720			106	36	139		176	374	128		1.7		872	1.19	4,050	412	268	42	3.0	1,370	7.6
July 6	3,470			104	38	136		171	378	126		1.3		867	1.18	8,120	416	276	42	2.9	1,350	8.2
Aug. 6	2,540			102	42	131		168	378	127		1.1		864	1.18	5,930	427	290	40	2.8	1,350	7.8
Sept. 7	2,160			102	43	133		168	379	133		1.8		875	1.19	5,100	432	294	40	2.8	1,380	7.8

COLORADO RIVER MAIN STEM--Continued

COLORADO RIVER AT YUMA, ARIZ.--Continued

Temperature (°F) of water, October 1955 to January 1956

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	75	73	66	61	58	--	--																
2	80	74	70	66	59	54	--	--																
3	84	77	68	64	57	53	62	56																
4	84	78	70	63	57	55	56	50																
5	82	75	70	63	58	54	53	50																
6	80	75	69	64	59	53	53	50																
7	78	71	67	64	59	55	54	51																
8	80	72	66	61	57	53	56	52																
9	83	75	65	60	56	53	59	53																
10	83	76	67	60	57	53	61	55																
11	83	74	68	62	57	53	62	55																
12	82	74	68	63	58	53	62	57																
13	81	74	68	63	58	53	60	56																
14	82	74	66	63	57	53	59	56																
15	79	73	60	54	56	53	61	55																
16	80	72	61	56	58	53	61	58																
17	80	73	59	56	58	53	59	54																
18	80	74	61	55	59	54	58	53																
19	81	74	62	56	57	54	58	53																
20	79	74	62	57	58	54	59	55																
21	77	72	60	58	59	54	60	55																
22	77	71	61	56	61	56	60	54																
23	77	70	61	56	64	58	--	57																
24	77	70	59	55	61	57	--	--																
25	76	70	56	55	61	57	--	--																
26	74	69	59	55	--	--	--	--																
27	71	68	59	54	--	--	--	--																
28	70	64	59	54	--	--	--	--																
29	71	65	60	56	--	--	--	--																
30	73	66	61	57	--	--	--	--																
31	73	65	--	--	--	--	--	--																
Average	79	72	64	59	58	54	--	--																

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, 3½ 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 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 964 ppm Jan. 21-31; minimum, 881 ppm Oct. 1-10.
Hardness: Maximum, 414 ppm Feb. 21-29; minimum, 388 ppm Oct. 11-20.
Specific conductance: Maximum daily, 1,410 micromhos Jan. 25-26, Feb. 13; minimum daily, 1,280 micromhos Oct. 5-6.
EXTREMES, 1943-56.--Dissolved solids: Maximum, 964 ppm Jan. 21-31, 1956; minimum, 532 ppm Jan. 1-10, 1953.
Hardness: Maximum, 414 ppm Feb. 21-29, 1956; minimum, 260 ppm Jan. 1-10, 1953.
Specific conductance: Maximum daily, 1,410 micromhos Jan. 25-26, Feb. 13, 1956; minimum daily, 795 micromhos Jan. 5, 1953.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1443.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	500	16	0.01	99	35	134	5.5	166	362	119	0.4	1.3	0.21	881	1.20	1,190	391	255	42	3.0	1,290	--
Oct. 11-20	483	14	.00	98	35	135	5.5	163	364	120	.3	1.2	.20	884	1.20	1,150	388	255	43	3.0	1,300	7.9
Oct. 21-31	385	14	.02	99	36	136	5.4	168	366	120	.4	1.5	.22	889	1.21	924	395	258	42	3.0	1,300	8.0
Nov. 1-10	453	14	.01	101	37	137	5.5	173	368	123	.4	1.2	.22	899	1.22	1,100	404	262	42	3.0	1,320	8.0
Nov. 11-20	372	13	.03	102	37	136	5.4	173	370	122	.3	1.2	.21	912	1.24	916	406	264	42	2.9	1,320	8.1
Nov. 21-30	309	14	.01	105	36	138	5.5	179	373	126	.3	1.2	.20	923	1.26	770	410	264	42	3.0	1,340	8.1
Dec. 1-10	199	16	.01	106	36	141	5.4	185	378	132	.4	1.3	.24	947	1.29	509	412	261	42	3.0	1,380	8.1
Dec. 11-20	242	15	.01	106	35	143	5.2	184	380	134	.4	1.5	.24	949	1.29	620	408	258	43	3.1	1,380	8.1
Dec. 21-31	291	16	.01	105	35	141	5.3	183	378	133	.4	1.3	.26	946	1.29	743	406	256	43	3.0	1,380	8.1
Jan. 1, 6-20, 1956	a 280	17	.01	105	34	144	5.3	184	379	134	.4	1.5	.27	962	1.31	727	402	251	43	3.1	1,380	8.2
Jan. 21-31	366	15	.01	108	34	145	5.3	186	379	137	.4	1.4	.26	964	1.31	953	410	257	43	3.1	1,400	8.2
Feb. 1-10	261	19	.01	106	34	141	5.3	174	379	131	.4	1.6	.26	949	1.29	669	404	262	43	3.0	1,370	8.2
Feb. 11-20	406	18	.01	107	34	143	5.3	186	379	132	.4	1.6	.25	957	1.30	1,050	407	254	43	3.1	1,380	8.2
Feb. 21-29	465	16	.01	108	35	140	5.3	185	377	132	.4	1.7	.25	947	1.29	1,190	414	262	42	3.0	1,380	8.2
Mar. 1-10	441	16	.01	110	33	139	5.8	178	382	125	.5	2.2	.23	914	1.24	1,090	410	264	42	3.0	1,360	8.1
Mar. 11-20	502	15	.01	112	32	138	5.6	180	380	123	.5	2.2	.22	917	1.25	1,240	411	264	42	3.0	1,350	8.0
Mar. 21-31	516	16	.01	110	33	136	5.7	179	377	122	.4	2.0	.23	909	1.24	1,270	410	264	41	2.9	1,340	8.0
Apr. 1-10	393	12	.01	110	33	134	5.6	176	375	120	.4	2.0	.22	894	1.22	949	410	266	41	2.9	1,330	8.1
Apr. 11-20	457	14	.01	109	33	135	5.7	177	374	120	.4	2.2	.22	897	1.22	1,110	408	262	41	2.9	1,330	8.2
Apr. 21-30	455	14	.01	109	34	132	5.6	180	372	123	.2	2.0	.28	922	1.25	1,130	412	264	41	2.8	1,330	7.9
May 1-31	527	15	.00	109	33	133	5.7	177	373	125	.3	1.7	.27	928	1.26	1,320	408	262	41	2.9	1,340	7.9
June 1-30	542	15	.00	106	33	134	5.8	169	375	126	.4	1.8	.24	917	1.25	1,340	400	262	42	2.9	1,340	7.8
July 1-31	526	15	.00	104	34	133	5.8	167	375	124	.4	1.7	.27	920	1.25	1,310	400	262	42	2.9	1,330	7.9
Aug. 1-31	491	17	.00	102	36	138	5.8	168	378	126	.4	1.7	.30	897	1.22	1,190	402	265	42	3.0	1,340	7.7
Sept. 1-30	598	14	.00	105	35	141	5.8	166	381	130	.4	1.7	.30	909	1.24	1,470	406	270	43	3.0	1,360	7.7
Weighted average	b 449	15	0.01	106	34	137	5.6	173	375	126	0.4	1.7	0.26	917	1.20	1,110	404	262	42	3.0	1,340	--

a No flow Jan. 2-5.

b Average for 362 days of flow.

PART 10. THE GREAT BASIN

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 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,760 ppm Oct. 22-31; minimum, 676 ppm Apr. 17-20.
Hardness: Maximum, 1,000 ppm Feb. 1-10; minimum, 366 ppm July 24-25.
Specific conductance: Maximum daily, 4,530 micromhos Oct. 28; minimum daily, 1,140 micromhos Apr. 17, 19.
Water temperatures: Maximum, 85°F July 21-23; minimum, 33°F Nov. 14-15, Jan. 27-29.
EXTREMES, 1951-56.--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, 85°F July 21-23, 1956; minimum, 33°F on many days during winter months.
REMARKS. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1444.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ..	53.7	20		78	88	253	6.0	290	318	375		3.5	0.27	1,280	1.74	186	556	319	49	4.7	2,120	8.1
Oct. 11-21	37.6	22		89	99	298	6.1	294	380	442		3.1	.32	1,480	2.01	150	629	388	50	5.2	2,410	8.1
Oct. 22-31	19.6	33		128	157	616	8.7	309	773	885		4.2	.58	2,760	3.75	146	965	712	58	8.6	4,230	7.9
Nov. 1-10	20.7	28		122	138	529	7.8	314	662	745		2.4	.55	2,390	3.25	134	872	614	57	7.8	3,750	8.0
Nov. 11-15	19.8	26		130	139	519	7.5	338	670	760		3.4	.52	2,420	3.29	129	896	619	55	7.5	3,760	7.9
Nov. 16-20	44.0	20		85	83	188	4.6	289	275	305		3.7	.22	1,110	1.51	132	554	316	42	3.5	1,860	8.1
Nov. 21-30.....	42.7	19		94	95	233	5.1	297	344	370		4.4	.25	1,310	1.78	151	625	382	45	4.1	2,120	8.0
Dec. 1-5	33.2	20		89	93	231	5.1	272	337	368		4.9	.24	1,280	1.74	115	604	382	45	4.1	2,080	8.0
Dec. 6-10	16.8	26		146	146	561	7.6	368	730	790		4.3	.52	2,590	3.52	117	965	664	56	7.9	4,000	7.9
Dec. 11-20	13.2	25		143	148	566	8.0	350	735	820		3.7	.53	2,620	3.56	93.4	966	678	56	7.9	4,070	7.9
Dec. 21-31	12.3	24		142	149	581	8.0	352	733	820		3.7	.52	2,630	3.58	87.3	967	678	56	8.1	4,090	7.9
Jan. 1-10, 1956 ..	14.0	30		119	143	541	7.6	283	706	780		4.1	.53	2,470	3.36	93.4	885	653	57	7.9	3,880	7.7
Jan. 11-20.....	15.4	28		126	139	525	7.6	309	672	753		4.4	.53	2,410	3.28	100	886	633	56	7.7	3,780	7.8
Jan. 21-31.....	17.7	25		132	141	525	7.6	321	707	765		3.3	.51	2,460	3.35	118	910	646	55	7.6	3,870	7.9
Feb. 1-10	19.0	25		150	153	557	8.0	357	746	818		3.7	.51	2,640	3.59	135	1,000	710	54	7.6	4,110	7.8
Feb. 11-20.....	19.6	25		122	128	476	6.7	310	606	690		3.8	.49	2,210	3.01	117	831	577	55	7.2	3,490	7.8
Feb. 21-28	20.8	23		128	141	507	7.6	312	684	748		3.7	.50	2,400	3.26	135	900	644	55	7.3	3,780	7.9
Feb. 29, Mar. 1-10	24.0	19		109	106	298	6.3	309	424	478		3.0	.34	1,600	2.18	104	708	455	48	4.9	2,590	7.9
Mar. 11-20	34.3	17		90	96	253	5.2	288	351	398		2.8	.28	1,360	1.85	126	620	384	47	4.4	2,240	7.8
Mar. 21-31	23.9	18		103	108	323	6.7	307	436	495		2.5	.35	1,640	2.23	106	701	450	50	5.3	2,680	7.7

Apr. 1-10, 1956.	15.5	21		125	135	479	8.1	330	615	702		1.8	.49	2,250	3.06	94.2	867	596	54	7.1	3,570	7.7
Apr. 11-16	20.7	21		104	111	363	6.8	312	470	535		2.9	.40	1,770	2.41	98.9	716	460	52	5.9	2,840	8.0
Apr. 17-20	110	24		57	59	94	4.0	250	133	170		3.6	.14	676	.92	201	384	166	34	2.1	1,160	8.3
Apr. 21-30	343	28		82	78	289	6.3	298	347	385		8.7	.37	1,370	1.86	1,270	525	281	54	5.5	2,220	8.1
May 1-10	363	28		79	76	289	6.3	298	341	378		11	.37	1,360	1.85	1,330	510	266	55	5.6	2,210	8.0
May 11-20	566	27		78	75	290	6.3	297	339	375		12	.36	1,350	1.84	2,060	503	260	55	5.6	2,190	8.0
May 21-31	342	25		80	80	306	6.8	296	363	398		9.7	.37	1,410	1.92	1,300	528	286	55	5.8	2,290	8.0
June 1-10	251	26		69	80	299	6.6	260	368	409		10	.38	1,390	1.89	942	502	289	56	5.8	2,300	7.9
June 11-20	288	27		76	79	304	6.9	286	365	412		10	.38	1,420	1.93	1,100	514	279	56	5.8	2,320	7.7
June 21-30	424	27		77	84	321	6.9	296	379	432		11	.39	1,480	2.01	1,690	536	293	56	6.0	2,420	7.8
July 1-10	395	26		75	86	332	7.0	290	391	455		11	.43	1,530	2.08	1,630	540	302	57	6.2	2,500	7.8
July 11-13, 17-20	204	22		81	94	359	7.8	291	428	502		7.4	.43	1,640	2.23	903	588	349	57	6.4	2,690	7.6
July 14-16	79.0	26		96	124	507	9.5	305	610	692		7.7	.54	2,220	3.02	474	748	498	59	8.1	3,510	8.0
July 21-23, 26-31	140	21		77	92	359	8.6	280	429	502		6.5	.43	1,640	2.23	620	572	342	57	6.5	2,680	7.7
July 24-25	168	16		51	58	121	4.1	266	139	188		2.1	--	710	.97	322	366	148	41	2.8	1,240	7.8
Aug. 1-10	107	20		72	100	367	7.3	288	428	525		4.5	--	1,670	2.27	482	592	356	57	6.6	2,730	8.0
Aug. 11-20	163	19		67	101	389	7.3	279	440	535		2.7	.53	1,700	2.31	748	584	355	59	7.0	2,770	7.9
Aug. 21-31.....	126	18		67	100	397	7.3	268	456	525		1.3	.49	1,700	2.31	578	578	358	60	7.2	2,750	7.6
Sept. 1-6, 9-10 .	52.8	13		71	106	402	7.3	275	470	545		1.4	.46	1,750	2.38	249	612	386	58	7.1	2,840	7.9
Sept. 7-8	46.5	14		56	71	176	4.7	257	224	270		1.9	.21	945	1.29	119	430	219	47	3.7	1,600	8.2
Sept. 11-21	70.1	15		64	104	408	7.1	262	468	545		1.4	.47	1,740	2.37	329	588	373	60	7.3	2,830	7.8
Sept. 22-30	30.0	14		74	83	237	4.9	292	302	350		2.4	.29	1,210	1.65	98.0	526	287	49	4.5	1,990	7.5
Weighted average	121	25		79	87	323	6.7	291	387	440		8.4	0.39	1,500	2.04	490	554	316	56	6.0	2,440	--

SEVIER LAKE BASIN--Continued

SEVIER RIVER NEAR LYNNDYL, UTAH--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	44	43	38	34	54	49	68	72	72	76	73
2	66	47	41	38	34	54	58	65	72	72	74	73
3	65	49	41	38	34	54	58	63	72	72	74	74
4	65	51	43	43	34	54	60	63	71	74	76	74
5	62	51	43	44	34	50	61	63	71	74	76	74
6	61	51	36	45	34	48	56	63	74	74	76	73
7	61	47	36	45	34	48	58	63	74	76	76	73
8	61	47	36	45	34	54	58	61	79	76	76	73
9	64	49	36	45	34	54	58	58	79	76	76	73
10	64	49	36	45	34	54	58	58	76	76	76	73
11	64	49	36	45	36	46	58	53	76	70	76	73
12	64	37	36	45	36	46	60	53	73	78	76	73
13	64	37	36	50	36	45	60	54	72	78	76	73
14	64	33	36	50	36	45	62	54	72	82	77	73
15	64	33	36	50	40	50	64	60	72	82	76	73
16	65	36	36	44	40	55	68	64	72	82	76	73
17	63	36	40	44	40	55	64	64	72	82	75	73
18	63	36	40	44	45	58	64	64	72	82	75	73
19	63	44	40	42	45	58	64	67	72	84	75	73
20	63	44	45	42	45	58	64	67	72	84	75	73
21	63	43	49	42	48	60	63	69	72	85	75	67
22	62	43	49	42	48	60	63	69	72	85	77	67
23	59	43	49	42	48	66	63	69	76	85	76	67
24	59	43	49	44	50	66	60	69	76	80	76	69
25	59	46	49	40	50	66	60	71	74	80	73	67
26	54	46	49	40	50	56	54	69	74	76	70	69
27	54	46	59	33	50	56	54	67	74	76	72	69
28	52	46	59	33	50	56	54	64	74	78	74	67
29	52	46	44	33	--	56	64	70	74	78	74	67
30	52	43	38	35	--	52	65	76	74	78	74	62
31	52	--	38	35	--	52	--	78	--	78	73	--
Average	61	44	42	42	40	54	60	64	74	78	75	71

EAST FORK CARSON RIVER NEAR GARDNERVILLE, NEV.

LOCATION.--Temperature recorder at gaging station, 3 miles downstream from Leviathan Creek, and 7 miles southeast of Gardnerville, Douglas County.
DRAINAGE AREA.--344 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1956.
EXTREMES, July 1955 to September 1956.--Water temperatures: Maximum, 79°F Aug. 4, 1955; minimum, freezing point Dec. 30, 1955.
REMARKS.--Temperature records for May 1953 to September 1953 published in WSP 1293 and October 1953 to September 1954 published in WSP 1353, are deemed to be unreliable and should not be used. Records of discharge for water years October 1954 to September 1956 given in WSP 1394 and 1444.

Temperature (°F) of water, July to September 1955

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

CARSON RIVER BASIN--Continued

EAST FORK CARSON RIVER NEAR GARDNERVILLE, NEV.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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	64	50	49	39	43	41	37	34	38	36	43	38	43	39	51	42	54	45	59	51	66	59	72	59
2	64	50	48	40	40	38	37	35	38	36	44	39	47	38	50	43	56	45	59	51	65	55	71	60
3	61	50	50	41	38	36	38	35	38	36	46	40	46	40	52	42	55	48	60	51	66	56	70	59
4	60	48	48	44	38	36	37	36	38	36	45	39	48	42	48	43	52	46	61	52	67	57	70	58
5	60	47	53	47	39	36	37	37	38	36	43	38	50	44	49	41	53	43	62	53	67	56	69	58
6	59	47	54	47	44	39	37	35	37	36	40	37	50	44	47	43	55	45	62	52	67	56	67	59
7	59	47	52	44	40	36	37	36	38	34	42	36	51	45	50	43	56	46	64	54	70	58	66	57
8	61	49	50	42	40	37	37	35	39	35	45	39	51	42	49	41	57	46	65	56	72	60	66	55
9	61	49	49	42	43	40	36	34	38	35	46	40	51	42	48	43	57	47	65	58	72	60	66	56
10	60	50	50	42	42	39	38	36	38	35	46	40	50	44	49	43	57	48	64	55	73	61	69	59
11	60	47	48	43	43	38	38	38	40	35	45	39	46	40	51	44	56	46	63	54	72	61	67	58
12	61	49	42	37	43	41	39	38	41	36	43	37	44	39	47	43	57	46	62	54	72	59	66	56
13	63	50	39	37	43	39	40	39	42	36	44	38	40	36	50	43	56	47	63	54	73	60	65	54
14	64	52	37	36	42	39	42	40	42	37	46	41	43	36	54	42	53	48	64	54	73	61	65	53
15	62	50	39	36	42	39	43	39	40	36	47	40	46	39	56	46	54	45	65	56	71	60	66	54
16	62	51	37	36	42	39	40	38	38	35	49	41	48	41	55	46	56	46	66	58	72	59	67	55
17	59	50	41	36	42	40	40	37	38	35	50	43	50	43	52	46	57	48	67	59	71	60	66	54
18	60	51	46	38	42	39	43	39	39	35	48	43	48	42	49	46	58	49	65	60	67	57	66	57
19	61	51	50	43	41	40	43	40	39	36	48	45	52	42	53	44	55	50	64	59	65	57	62	56
20	59	49	47	44	43	40	44	41	40	36	47	43	52	42	56	44	56	47	62	55	67	56	64	52
21	57	47	45	42	44	41	43	40	42	35	48	44	50	43	56	45	58	48	65	56	71	58	66	57
22	57	46	41	38	44	42	43	42	42	36	49	44	52	42	52	44	59	50	65	60	72	60	65	54
23	56	46	39	36	42	39	43	39	42	36	52	44	48	42	54	44	59	50	64	58	71	60	66	54
24	55	44	38	35	39	37	39	38	40	36	51	43	51	43	52	45	59	50	67	58	71	60	67	55
25	55	45	40	35	38	37	39	37	39	36	51	42	48	41	52	45	59	49	66	60	70	59	67	57
26	54	47	43	38	38	37	39	37	40	35	49	42	45	42	52	45	61	51	64	59	70	59	65	57
27	51	42	44	38	37	35	38	36	41	36	47	39	45	40	50	44	60	52	69	58	70	59	64	56
28	53	42	43	38	35	34	38	36	42	36	48	39	50	40	54	44	62	52	70	63	67	58	66	55
29	55	45	45	39	33	33	37	35	42	37	51	42	51	42	52	45	61	53	69	60	66	58	66	54
30	55	45	42	39	34	32	37	36	--	--	50	43	52	42	55	46	60	51	69	60	70	57	65	54
31	52	44	--	--	34	33	38	37	--	--	46	41	--	--	54	44	--	--	69	59	71	59	--	--
Average	59	48	45	40	40	38	39	37	40	36	47	41	48	41	52	44	57	48	64	56	70	59	67	56

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 1956.
Water temperatures: December 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 818 ppm Apr. 6-10; minimum, 253 ppm June 24.
Hardness: Maximum, 212 ppm Apr. 6-10; minimum, 168 ppm May 11-20.
Specific conductance: Maximum daily, 1,430 micromhos Apr. 6; minimum daily, 384 micromhos June 24.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 2,190 ppm Sept. 1-5, 1954; minimum, 253 ppm June 24, 1956.
Hardness: Maximum, 482 ppm Sept. 1-5, 1954; minimum, 168 ppm May 11-20, 1956.
Specific conductance: Maximum daily, 4,010 micromhos Sept. 2, 1954; minimum daily, 384 micromhos June 24, 1956.
Water temperatures, (1951-54): Maximum, 76°F July 31, Aug. 1, 1952; minimum, 35°F Dec. 24, 1952.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1444. No appreciable inflow between gaging station and sampling point except during periods of local rains.

Chemical analyses, in parts per million, April to September 1956

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				
Apr. 6-10, 1956	151	36		52	20	203	18	281	0	102	247		2.1	0.86	818	1.11	333	212	0	65	6.1	1,400	8.1
Apr. 11-20	253	35		50	19	193	17	262	8	97	221		2.1	.77	769	1.05	525	203	0	65	5.9	1,310	8.3
Apr. 21-30	422	35		47	17	161	16	273	0	90	176		2.5	.69	679	.92	774	188	0	63	5.1	1,140	8.2
May 1-10	689	33		44	15	124	13	237	10	80	113		1.7	.51	548	.75	1,020	172	0	59	4.1	898	8.3
May 11-20	681	35		44	14	93	12	250	0	76	75		1.9	.41	479	.65	881	168	0	53	3.1	764	8.0
May 21-31	640	40		50	14	83	11	264	0	72	56		1.3	--	464	.63	802	182	0	48	2.7	714	8.2
June 1-10	421	36		49	14	81	11	266	0	72	54		1.5	--	457	.62	519	180	0	48	2.6	708	7.9
June 11-20	277	39		50	15	87	11	277	0	74	54		1.2	.32	470	.64	352	186	0	49	2.8	732	7.9
June 21-23, 25-30 ...	395	39		51	15	90	11	288	0	74	55		1.1	--	478	.65	510	188	0	49	2.9	744	7.9
June 24.....	322	43		41	13	19	2.0	182	0	31	14		.3	--	a 253	.34	220	194	45	21	.7	384	--
July 1-10	633	36		53	16	90	12	304	0	75	55		1.3	--	498	.68	851	196	0	48	2.8	758	8.1
July 11-22	546	43		53	17	103	13	304	10	76	57		1.3	.42	530	.72	781	202	0	51	3.2	803	8.4
July 23-31	377	42		53	17	103	13	336	0	76	56		.9	--	535	.73	545	200	0	51	3.2	815	7.8
Aug. 1-10	224	40		53	17	103	13	340	0	74	55		.9	--	529	.72	320	200	0	51	3.2	811	7.9
Aug. 11-20	206	40		51	17	103	14	339	0	71	55		.9	.56	527	.72	293	196	0	51	3.2	807	8.1
Aug. 21-31	273	38		49	17	100	14	340	0	67	53		.4	.44	532	.72	392	193	0	51	3.1	798	8.2
Sept. 1-10.....	342	39		49	17	102	14	341	0	68	57		.3	.48	533	.72	492	192	0	51	3.2	795	--
Sept. 11-20.....	206	40		49	16	105	15	340	0	76	59		.6	.44	530	.72	295	193	0	52	3.3	803	8.1
Sept. 21-30.....	80.7	40		47	18	111	15	316	12	76	62		.6	.49	537	.73	117	192	0	53	3.5	816	8.4
Weighted average ..	b 388	38		49	16	106	13	293	0	76	79		1.3	--	528	0.72	553	188	0	53	3.4	828	--

a Calculated from determined constituents.
b Represents 99 percent of runoff for water year October 1955 to September 1956.

HUMBOLDT RIVER BASIN--Continued

HUMBOLDT RIVER NEAR RYE PATCH, NEV.--Continued

Temperature °F of water, June to September 1956

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	62	68	70	69	8	63	68	69	66	16	64	78	70	63	24	65	70	70	61
2	64	67	69	68	9	64	69	69	66	17	65	69	70	62	25	65	70	70	61
3	65	67	70	68	10	64	68	69	65	18	65	69	70	62	26	66	70	70	60
4	64	67	69	68	11	64	68	69	65	19	65	70	70	62	27	66	70	70	60
5	63	69	69	68	12	65	68	70	65	20	65	70	70	62	28	66	70	69	60
6	64	67	69	68	13	63	68	70	65	21	65	70	70	62	29	66	71	69	60
7	64	68	69	68	14	63	68	70	63	22	65	70	70	62	30	65	71	69	60
					15	64	68	70	63	23	65	70	70	62	31	--	71	69	--
Average																64	69	70	64

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

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 10, 1955		--	--	8.9	2.8	5.8	1.8	57	--	1.7	--	--	0.25	--	--		34	0	26	0.4	91.0	8.0
Nov. 14		--	--	9.4	1.8	5.9	1.7	53	--	.4	--	--	.00	--	--		31	0	28	.5	93.3	7.5
May 11, 1956		12	0.00	8.4	2.4	5.6	1.9	52	1.0	1.9	0.1	0.0	.05	59	0.08		31	0	27	.4	84.6	7.6
June 15		--	--	9.2	2.0	5.8	1.8	53	--	1.0	--	--	.00	--	--		31	0	27	.5	89.3	7.5
July 20		--	--	9.3	2.2	6.0	1.8	54	--	1.5	--	--	.14	--	--		32	0	27	.5	90.2	7.4
Aug. 17		--	--	8.5	2.6	6.0	1.8	55	--	1.3	--	--	.00	--	--		32	0	28	.5	90.8	7.3
Sept. 21		14	.00	8.8	2.2	6.1	1.8	55	.0	1.5	.1	.0	.00	62	.08		31	0	28	.5	91.3	7.4
LAKE TAHOE (NORTH END) TAHOE VISTA (SEC. 14, T. 16 N., R. 17 E.)																						
Oct. 10, 1955		--	--	8.6	2.8	6.0	1.9	56	--	1.7	--	--	0.05	--	--		33	0	27	0.5	96.6	7.8
Nov. 14		--	--	9.3	2.6	6.8	1.8	57	--	.8	--	--	.01	--	--		34	0	29	.5	97.0	7.8
May 11, 1956		13	0.00	8.8	3.2	6.3	1.8	56	2.0	2.2	0.1	0.0	.01	65	0.09		35	0	27	.5	91.7	7.8
June 15		--	--	10	2.0	5.9	1.8	56	--	.2	--	--	.05	--	--		33	0	27	.4	92.3	7.5
July 20		--	--	10	1.8	5.9	1.8	56	--	.5	--	--	.06	--	--		32	0	27	.5	91.7	7.5
Aug. 16		--	--	8.8	2.7	6.1	1.8	57	--	1.3	--	--	.00	--	--		33	0	27	.5	93.1	7.0
Sept. 21		14	.00	9.6	2.1	6.1	1.9	56	.0	1.3	.1	.0	.00	63	.09		32	0	28	.5	93.2	7.2
LAKE TAHOE (WEST SIDE) TAHOE CITY (SEC. 7, T. 15 N., R. 17 E.)																						
Oct. 10, 1955		--	--	8.3	2.7	5.9	1.8	52	--	1.2	--	--	0.04	--	--		32	0	27	0.5	94.7	7.3
Nov. 14		--	--	9.2	1.9	5.8	1.8	50	--	.1	--	--	.00	--	--		31	0	28	.5	92.7	7.8
May 10, 1956		12	0.00	8.9	2.9	6.1	1.7	56	2.0	1.8	0.1	0.0	.00	64	0.09		34	0	27	.5	91.4	7.7
June 14		--	--	10	2.0	5.9	1.8	56	--	1.0	--	--	.06	--	--		33	0	27	.4	92.1	7.5
July 19		--	--	10	1.8	5.8	1.8	56	--	.7	--	--	.04	--	--		32	0	27	.4	91.8	7.5
Aug. 16		--	--	8.9	2.4	6.0	1.8	55	--	1.5	--	--	.00	--	--		32	0	28	.5	91.6	7.0
Sept. 20		35	.00	10	2.7	9.8	1.9	a 69	.0	1.7	.1	.0	.00	95	.13		36	0	36	.7	112	8.5
TRUCKEE RIVER NEAR TRUCKEE (SEC. 28, T. 17 N., R. 16 E.)																						
Oct. 10, 1955	224	--	--	9.1	2.5	5.7	1.8	56	--	1.2	--	--	0.00	--	--		33	0	26	0.4	96.4	7.8
Nov. 14	146	--	--	9.8	2.3	6.1	1.8	55	--	3.0	--	--	.08	--	--		34	0	27	.5	97.6	7.9
May 10, 1956	316	19	0.00	6.8	2.1	2.8	.8	36	2.0	.5	0.1	0.0	.01	52	0.07		26	0	19	.5	64.3	7.1
June 14	387	--	--	6.9	.9	2.4	.9	33	--	.0	--	--	.05	--	--		21	0	19	.2	53.4	7.4
July 19	114	--	--	6.5	2.1	3.8	1.2	39	--	.4	--	--	.00	--	--		25	0	24	.3	65.7	7.4
Aug. 16	96	--	--	9.3	2.7	5.9	1.8	56	--	1.5	--	--	.00	--	--		34	0	26	.4	96.3	7.3
Sept. 20	86	16	.01	10	2.9	6.5	2.0	59	3.8	2.0	.1	.0	.05	72	.10		37	0	26	.5	102	7.5

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

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 1955 to September 1956--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 (calculated)			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 AT FARAD (SEC. 29, T. 18 N., R. 18 E.)																						
Oct. 10, 1955	359	--	--	9.9	2.9	6.0	1.8	56	--	2.0	--	--	0.00	--	--		37	0	25	0.4	104	7.3
Nov. 15	--	--	--	9.6	2.8	5.6	1.6	55	--	1.0	--	--	.04	--	--		35	0	25	.4	98.3	7.7
May 10, 1956.....	2,088	21	0.00	6.9	2.4	3.1	.9	38	2.0	.5	0.1	0.0	.00	56	0.08		27	0	19	.3	62.3	7.1
June 14	1,197	--	--	6.8	1.0	2.6	1.0	34	--	.0	--	--	.06	--	--		21	0	20	.2	53.9	7.3
July 19	515	--	--	6.4	2.3	3.4	1.2	41	--	.5	--	--	.09	--	--		25	0	22	.3	66.1	7.1
Aug. 16	539	--	--	7.3	2.3	3.3	1.2	43	--	.5	--	--	.00	--	--		28	0	20	.3	71.1	6.9
Sept. 20	531	20	.06	8.8	2.4	4.1	1.4	49	1.0	2.0	.1	.1	.00	64	.09		32	0	21	.3	82.2	7.1

HONEY LAKE BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN HONEY LAKE BASIN IN CALIFORNIA

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

Oct. 11, 1955	5.5	--	--	17	8.9	6.2	2.5	116	--	0.3	--	--	0.00	--	--		79	0	14	0.3	178	7.9
Nov. 15	6.2	--	--	17	8.7	6.0	2.1	113	--	.0	--	--	.00	--	--		78	0	14	.3	178	7.7
May 10, 1956.....	798	17	0.00	6.4	2.4	2.4	.6	36	2.0	.8	0.0	0.1	.00	50	0.07		26	0	16	.2	55.5	7.2
June 13.....	131	--	--	8.7	2.9	2.8	.9	51	--	.4	--	--	.05	--	--		34	0	15	.2	77.4	7.4
July 18	104	--	--	6.6	3.3	2.6	.9	44	--	.1	--	--	.01	--	--		30	0	16	.2	67.0	7.8
Aug. 15	54	--	--	8.2	3.3	2.6	.9	50	--	.0	--	--	.00	--	--		34	0	14	.2	75.0	7.4
Sept. 19	30	37	.06	14	8.3	5.4	2.1	98	2.9	.2	.1	.0	.02	118	.16		69	0	14	.3	149	7.4

SANTA CLARA RIVER BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN THE SANTA CLARA RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Time	Discharge (cfs)	Suspended sediment	
			Mean concentration (ppm)	Discharge (tons per day)
SESPE CREEK NEAR WHEELER SPRINGS				
Dec. 25, 1955	4:20 p. m.	29	2,440	191
Dec. 27	10:30 a. m.	9.2	267	6.6
Dec. 28	11:15 a. m.	3.9	165	1.7
Jan. 25, 1956	10:45 a. m.	7.1	81	1.6
Jan. 25	3:20 p. m.	22	2,020	120
Jan. 26	10:20 a. m.	268	2,020	1,460
Jan. 26	2:30 p. m.	371	4,480	4,490
Jan. 27	9:50 a. m.	68	2,250	413
Jan. 27	3:00 p. m.	49	669	89
SESPE CREEK NEAR FILIMORE				
Jan. 25, 1956	4:45 p. m.	448	1,740	2,100
Jan. 26	9:15 a. m.	2,950	4,500	35,800
Jan. 30	--	a150	22	9

a Approximate discharge.

SANTA CLARA RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN THE SANTA CLARA RIVER BASIN IN CALIFORNIA--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
SESPE CREEK NEAR WHEELER SPRINGS																	
Dec. 25, 1955 ...	4:20 p.m.	29		2,440	3,680	27	34	49	63	78	95	100					VPWCM
Jan. 26, 1956 ...	2:30 p.m.	371		4,480	3,900	25	33	47	59	70	83	94	99		100		VPWCM
SESPE CREEK NEAR FILLMORE																	
Jan. 25, 1956....	4:45 p.m.	448	50	1,740	3,410	18	25	37	50	68	87	97	99		100		VPWCM
Jan. 26	9:15 a.m.	2,950		4,500	3,300	13	18	26	35	47	61	73	87		96	100	VPWCM

MISCELLANEOUS ANALYSES OF STREAMS IN THE VENTURA RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Time	Discharge (cfs)	Suspended sediment	
			Mean concentration (ppm)	Discharge (tons per day)
NORTH FORK MATILIJA CREEK AT MATILIJA HOT SPRINGS				
Dec. 25, 1955	3:15 p.m.	47	793	101
Dec. 27	9:45 a.m.	6.6	24	.4
Jan. 25, 1956	11:30 a.m.	12	119	3.9
Jan. 25	4:00 p.m.	20	372	20
Jan. 26	11:00 a.m.	252	2,440	1,660
Jan. 26	3:10 p.m.	340	3,430	3,150
Jan. 27	10:30 a.m.	59	876	140
Jan. 27	3:30 p.m.	46	588	73
VENTURA RIVER, HALF A MILE BELOW ROBES DIVERSION DAMSITE, AND 1 MILE SOUTHEAST OF MATILIJA HOT SPRINGS				
Dec. 27, 1955	9:20 a.m.	a 8.1	17	3.7
Jan. 25, 1956	4:20 p.m.	a 24	131	8.5
Jan. 26	3:30 p.m.	a 347	2,280	2,140
Jan. 27	11:00 a.m.	a 59	541	86
Jan. 27	11:30 a.m.	a 57	1,960	302
Jan. 27	4:00 p.m.	a 48	347	45

a Discharges computed by adding the discharges at Matilija Creek at Matilija Hot Springs and North Fork Matilija Creek at Matilija Hot Springs.

VENTURA RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN THE VENTURA RIVER BASIN IN CALIFORNIA--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
		NORTH FORK MATILIJA CREEK AT MATILIJA HOT SPRINGS															
Dec. 25, 1955 ...	3:15 p. m.	47		793	3,290	32	48	63	79	92	97	98	99		99	100	SPWCM
Jan. 26, 1956....	3:10 p. m.	340		3,430	3,480	22	29	44	59	73	87	95	97		100	--	VPWCM
Jan. 27.....	3:30 p. m.	46		588	3,140	30	42	57	73	84	94	97	99		99	100	SPWCM
	VENTURA RIVER, HALF A MILE BELOW ROBLES DIVERSION DAMSITE, AND 1.8 MILE SOUTH EAST OF MATILIJA HOT SPRINGS																
Jan. 26, 1956....	3:30 p. m.	a347		2,280	3,950	31	43	59	77	87	94	97	99		100		VPWCM
Jan. 27.....	4:00 p. m.	a48		347	2,020	45	62	84	93	99	100						SPWCM

a Discharges computed by adding the discharges at Matilija Creek at Matilija Hot Springs and North Fork Matilija Creek at Matilija Hot Springs.

MISCELLANEOUS ANALYSES OF STREAMS IN THE SANTA YNEZ RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
SALSIPUEDES CREEK NEAR LOMPOC			
Jan. 26, 1956.....	1,330	6,180	22,200

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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
SALSIPUEDES CREEK NEAR LOMPOC																
Jan. 26, 1956...	9:30 a.m.	1,330	53	6,180	4,920	28	34	43	53	63	81	94	99		100		VPWCM

SANTA MARIA RIVER BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN THE SANTA MARIA RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
CUYAMA RIVER NEAR SANTA MARIA			
Jan. 26, 1956	240	555	360

Particle-size analyses of suspended sediment , water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
	CUYAMA RIVER NEAR SANTA MARIA																
Jan. 26, 1956....	12:55 p.m.	240	54	555							84	86	91		97	100	S

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 23, 1955....		--	--	65	19	53	4.0	194	--	62	--	--	0.06	--	--		240	81	32	1.5	678	8.2
Dec. 19		--	--	52	16	40	3.5	162	--	47	--	--	.24	--	--		196	63	30	1.2	556	8.1
Jan. 23, 1956		--	--	22	7.3	15	2.2	90	--	16	--	--	.05	--	--		85	11	27	.7	243	7.7
Feb. 14		--	--	26	8.5	17	2.0	102	--	16	--	--	.03	--	--		100	16	27	.7	275	8.2
Mar. 19		--	--	26	9.8	18	2.5	111	--	14	--	--	.03	--	--		105	14	27	.8	288	7.6
Apr. 17		--	--	28	11	19	2.3	126	--	18	--	--	.05	--	--		117	14	26	.8	325	7.8
May 16		21	0.01	34	13	23	2.6	130	48	23	0.4	0.0	.09	229	0.31		138	31	26	.9	362	8.2
June 20.....		--	--	39	14	28	3.0	143	--	30	--	--	.00	--	--		156	39	28	1.0	424	8.0
July 26		--	--	51	19	38	3.5	168	--	43	--	--	.12	--	--		204	66	28	1.2	555	7.8
Aug. 22		--	--	58	16	42	3.7	a 159	--	51	--	--	.02	--	--		212	82	30	1.3	586	8.4
Sept. 13		24	.00	58	21	46	3.7	172	102	57	.3	.2	.00	397	.54		229	88	30	1.3	613	7.8

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

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....	0.2	--	--	49	21	15	0.9	238	--	6.6	--	--	0.14	--	--		207	12	14	0.5	441	7.6
Nov. 22.....	1.9	--	--	50	21	15	1.2	227	--	7.6	--	--	.13	--	--		210	24	13	.5	438	8.0
Dec. 19	252	--	--	24	10	9.0	3.7	98	--	6.5	--	--	.27	--	--		102	22	16	.4	252	7.3
Jan. 23, 1956 ...	112	--	--	30	15	7.9	.8	a153	--	6.5	--	--	.10	--	--		135	10	11	.3	291	8.5
Feb. 14.....	63	--	--	36	18	9.9	.7	a185	--	5.6	--	--	.22	--	--		164	12	12	.3	343	8.5
Mar. 20	28	--	--	38	20	12	.8	201	--	4.5	--	--	.09	--	--		176	11	13	.4	365	8.0
Apr. 17	26	--	--	39	20	12	.9	198	--	6.6	--	--	.09	--	--		180	18	13	.4	374	7.9
May 16	17	22	0.01	40	18	13	1.0	198	34	5.4	0.2	0.3	.07	229	0.31		172	14	14	.4	361	8.1
June 20	4.0	--	--	38	20	14	1.2	205	--	6.4	--	--	.14	--	--		179	11	14	.5	374	8.2
July 25	1.5	--	--	42	19	14	1.1	213	--	6.9	--	--	.10	--	--		184	9	14	.4	380	8.0
Aug. 22.....	.7	--	--	46	18	14	.9	220	--	4.8	--	--	.10	--	--		189	9	14	.4	392	8.2
Sept. 13	.0	23	.02	46	19	16	1.0	221	33	8.8	.0	.7	.22	257	.35		191	10	15	.5	406	8.1

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

PAJARO RIVER AT CHITTENDEN, CALIF.

LOCATION.--At gaging station on State Highway bridge in Salsipuedes Grant, 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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	0.8	--	--	81	77	217	4.4	a 604	--	194	--	--	1.1	--	--		520	25	47	4.1	1,820	8.3
Nov. 22	.8	--	--	81	66	228	4.4	b 604	--	209	--	--	1.1	--	--		472	0	51	4.6	1,720	8.5
Dec. 19.....	3.5	--	--	90	71	244	5.6	563	--	285	--	--	1.9	--	--		516	54	50	4.7	1,940	8.2
Jan. 23, 1956	1,440	--	--	28	17	29	2.6	158	--	23	--	--	.35	--	--		140	10	31	1.1	422	8.1
Feb. 14	192	--	--	54	25	42	2.0	c 228	--	35	--	--	.26	--	--		236	49	28	1.2	628	8.4
Mar. 20	56	--	--	67	46	63	2.6	292	--	60	--	--	.56	--	--		357	118	28	1.4	904	8.2
Apr. 17.....	24	--	--	75	56	92	3.5	152	--	80	--	--	.63	--	--		416	291	32	2.0	1,130	7.8
May 16	18	20	0.00	93	70	111	3.1	378	304	88	0.0	2.9	.68	879	1.20		520	210	32	2.1	1,310	8.1
June 20.....	2.1	--	--	70	84	164	4.0	459	--	144	--	--	.96	--	--		518	142	41	3.1	1,540	8.1
July 25	6.5	--	--	91	88	181	5.0	580	--	155	--	--	1.1	--	--		590	114	40	3.2	1,700	8.2
Aug. 22.....	4.3	--	--	83	77	168	5.6	550	--	156	--	--	.83	--	--		524	73	41	3.2	1,570	8.0
Sept. 13	3.1	24	.01	86	82	195	5.8	569	230	175	.6	.9	.93	1,080	1.47		552	85	43	3.6	1,680	7.9

a Includes equivalent of 7 parts per million of carbonate (CO_3).
b Includes equivalent of 19 parts per million of carbonate (CO_3).
c Includes equivalent of 4 parts per million of carbonate (CO_3).

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	3.3	--	--	76	21	50	6.8	251	--	72	--	--	0.09	--	--		276	70	28	1.3	776	7.8
Nov. 23	4.5	--	--	83	28	73	5.8	a 264	--	102	--	--	.32	--	--		324	108	32	1.8	908	8.3
Dec. 20	344	--	--	28	7.3	15	2.8	78	--	12	--	--	.18	--	--		100	36	24	.7	278	7.6
Jan. 24, 1956	163	--	--	45	13	20	2.2	136	--	13	--	--	.10	--	--		165	53	21	.7	409	7.9
Feb. 15	49	--	--	62	17	30	2.8	b 188	--	21	--	--	.09	--	--		224	70	20	.9	543	8.4
Mar. 19	44	--	--	65	18	30	3.2	209	--	24	--	--	.16	--	--		235	64	21	.9	565	8.2
Apr. 16	28	--	--	63	19	34	3.4	219	--	25	--	--	.08	--	--		236	56	24	1.0	595	8.0
May 17	30	24	0.00	66	20	30	3.6	216	98	29	0.0	0.1	.08	377	0.51		247	70	21	.8	588	8.1
June 21	9.0	--	--	69	27	43	4.3	c 251	--	44	--	--	.12	--	--		285	79	24	1.1	682	8.4
July 26	8.0	--	--	76	25	45	4.8	258	--	54	--	--	.13	--	--		290	78	25	1.1	722	8.0
Aug. 23	13	--	--	62	34	46	5.0	262	--	60	--	--	.06	--	--		295	80	25	1.2	743	7.9
Sept. 14	4.5	36	.01	83	27	48	4.7	263	100	65	.3	.1	.10	494	.67		318	102	24	1.2	755	7.7

a Includes equivalent of 3 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).
c Includes equivalent of 12 parts per million of carbonate (CO_3).

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	17	--	--	40	8.4	23	1.9	141	--	26	--	--	0.08	--	--		134	18	27	0.9	369	7.9
Nov. 23	21	--	--	41	8.7	25	2.1	138	--	27	--	--	.16	--	--		138	25	28	.9	379	8.0
Dec. 20	1,320	--	--	19	3.1	11	2.5	48	--	10	--	--	.21	--	--		60	21	27	.6	173	7.2
Jan. 24, 1956	603	--	--	31	6.0	12	2.1	93	--	10	--	--	.09	--	--		102	26	20	.5	274	8.2
Feb. 15	203	--	--	37	8.2	16	1.7	119	--	14	--	--	.05	--	--		126	28	21	.6	320	8.2
Mar. 19	158	--	--	38	9.5	17	2.5	125	--	14	--	--	.16	--	--		134	32	21	.6	339	8.2
Apr. 16	97	--	--	38	8.6	18	1.9	138	--	15	--	--	.07	--	--		130	17	23	.7	344	7.9
May 17	76	24	0.01	41	9.9	19	2.0	139	47	18	0.2	0.1	.10	229	0.31		143	29	22	.7	352	8.0
June 21	50	--	--	41	9.4	20	2.0	144	--	18	--	--	.00	--	--		141	23	23	.7	357	7.9
July 26	33	--	--	42	8.1	21	2.2	147	--	20	--	--	.18	--	--		138	17	25	.8	351	8.0
Aug. 23	24	--	--	40	8.6	21	2.3	145	--	21	--	--	.00	--	--		135	16	25	.8	349	7.6
Sept. 14	21	26	.00	42	6.4	20	2.0	144	33	21	.2	.3	.09	222	.30		131	13	25	.8	343	7.8

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	0.9	--	--	70	28	27	2.3	a292	--	16	--	--	0.18	--	--		290	51	17	0.7	621	8.4
Nov. 23	1.1	--	--	47	19	15	1.8	206	--	9.0	--	--	.24	--	--		194	25	14	.5	416	7.7
Dec. 20	24	--	--	26	8.5	8.6	1.7	101	--	7.0	--	--	.15	--	--		100	17	15	.4	236	7.9
Jan. 24, 1956	120	--	--	24	8.0	6.9	1.9	93	--	6.0	--	--	.11	--	--		93	17	14	.3	221	8.0
Feb. 15.....	38	--	--	29	11	9.8	1.4	119	--	5.9	--	--	.09	--	--		116	18	15	.4	267	8.2
Mar. 19	37	--	--	25	10	8.7	1.7	107	--	6.0	--	--	.22	--	--		104	16	15	.4	241	8.1
Apr. 16	124	--	--	26	10	9.3	1.6	118	--	4.0	--	--	.19	--	--		107	10	16	.4	245	7.8
May 17	60	13	0.12	28	11	9.4	1.8	116	31	6.2	0.3	0.8	.04	159	0.22		116	21	15	.4	253	7.5
June 21.....	57	--	--	28	13	9.5	1.7	125	--	5.5	--	--	.08	--	--		123	21	14	.4	266	7.8
July 26	47	--	--	33	12	10	1.6	138	--	6.1	--	--	.08	--	--		131	18	14	.4	283	8.1
Aug. 23	32	--	--	32	13	11	2.1	149	--	6.3	--	--	.03	--	--		135	13	15	.4	301	7.4
Sept. 14	53	18	.00	37	12	11	2.0	156	28	7.5	.2	1.6	.06	194	.28		141	13	14	.4	308	7.9

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

COYOTE CREEK NEAR MADRONE, CALIF.

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	70	--	--	50	23	22	2.7	241	--	15	--	--	0.16	--	--		220	22	18	0.6	502	8.2
Nov. 22	17	--	--	53	26	24	3.1	a 249	--	17	--	--	.22	--	--		237	33	18	.7	524	8.3
Dec. 19	5.6	--	--	51	26	24	3.0	243	--	18	--	--	.29	--	--		235	36	18	.7	527	8.2
Jan. 23, 1956	1.8	--	--	38	21	14	2.0	131	--	9.0	--	--	.14	--	--		183	76	14	.4	416	8.1
Feb. 14	1.8	--	--	45	25	18	1.8	b 173	--	13	--	--	.12	--	--		214	72	15	.5	475	8.5
Mar. 20	3.0	--	--	31	19	13	1.9	c 150	--	9.5	--	--	.16	--	--		156	33	15	.5	344	8.5
Apr. 17	31	--	--	24	13	13	2.3	128	--	7.0	--	--	.05	--	--		115	10	19	.5	280	7.5
May 16	93	11	0.18	26	13	13	2.3	122	31	8.5	0.1	4.4	.16	170	0.23		118	18	19	.5	269	7.5
June 20	70	--	--	28	12	15	2.5	122	--	9.2	--	--	.00	--	--		120	20	21	.6	293	7.9
July 25	64	--	--	26	12	13	2.2	126	--	8.6	--	--	.14	--	--		115	12	19	.5	273	8.0
Aug. 22	62	--	--	26	12	13	1.9	125	--	8.0	--	--	.06	--	--		115	13	19	.5	274	7.7
Sept. 13	58	15	.03	27	12	13	1.8	127	28	8.2	.2	2.6	.08	171	.23		118	14	19	.5	272	7.9

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Includes equivalent of 6 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 1956.
Water temperatures: July to September 1956.
REMARKS.--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 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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. 19, 1955	0.2	--	--	80	49	104	5.4	441	--	112	--	--	1.3	--	--		399	37	36	2.3	1,170	8.1
Nov. 22	1.2	--	--	88	51	100	7.4	448	--	124	--	--	1.1	--	--		430	63	33	2.1	1,180	8.2
Dec. 19	32	--	--	43	22	41	6.7	184	--	48	--	--	.55	--	--		197	46	30	1.3	567	7.6
Jan. 23, 1956	1,480	--	--	26	12	18	2.0	133	--	13	--	--	.24	--	--		114	5	25	.7	305	8.2
Feb. 14	285	--	--	45	16	26	2.0	a 190	--	22	--	--	.26	--	--		180	24	24	.8	448	8.4
Mar. 20	94	--	--	50	21	31	2.3	b 219	--	28	--	--	.39	--	--		213	33	24	.9	532	8.4
Apr. 10	29	16	--	58	34	51	3.4	291	90	46	0.4	2.8	.58	c 445	0.61		285	46	28	1.3	719	8.0
Apr. 18	53	--	--	48	23	37	2.7	237	--	29	--	--	.41	--	--		216	22	27	1.1	549	8.0
May 17	6.8	9.3	0.00	76	41	60	4.0	349	113	60	.1	1.0	.82	c 537	.73		360	74	26	1.4	899	8.1
June 21.....	5.2	--	--	73	48	77	4.4	367	--	80	--	--	1.1	--	--		380	79	30	1.7	971	8.1
July 1-10	2.9	14	.07	93	40	77	4.6	392	111	85	.3	.9	1.0	645	.88		396	75	29	1.7	1,020	7.8
July 11-20	2.0	15	.07	82	42	65	4.2	374	97	76	.4	.9	1.0	616	.84		379	72	27	1.4	985	7.7
July 21-31	1.6	16	.06	77	40	72	4.1	362	108	69	.4	.8	1.1	575	.78		356	59	30	1.7	929	7.6
July 25	1.4	--	--	52	53	76	4.2	356	--	68	--	--	.92	--	--		347	55	32	1.8	918	8.1
July 30	1.7	12	.01	55	44	74	3.8	305	121	69	.2	.6	.93	517	.70		316	66	33	1.8	874	8.1
Aug. 1-10.....	1.4	15	.06	74	40	73	3.8	352	97	74	.4	.6	1.2	574	.78		350	61	31	1.7	932	7.7
Aug. 11-20.....	1.0	15	.03	76	40	77	4.0	357	107	82	.3	.6	1.1	593	.81		356	63	32	1.8	962	7.7
Aug. 21-31.....	.8	15	.01	75	36	78	3.7	320	111	86	.4	.5	1.2	600	.82		337	75	33	1.8	956	7.7
Aug. 23.....	.8	--	--	50	55	80	1.9	343	--	88	--	--	1.2	--	--		350	69	33	1.9	965	7.7
Sept. 1-10	.5	15	.01	49	42	78	3.8	272	112	85	.4	.5	1.1	556	.76		296	73	36	2.0	893	7.7
Sept. 11-20	.5	15	.01	62	40	77	4.2	314	106	86	.4	.8	1.2	570	.78		320	63	34	1.9	924	7.9
Sept. 14	.6	15	.00	69	45	88	3.7	330	142	82	.4	.4	1.0	c 610	.83		358	87	35	2.0	966	7.9
Sept. 21-30	.6	14	.01	78	41	76	3.7	371	108	83	.4	.4	1.2	616	.84		364	60	31	1.7	985	7.6

a Includes equivalent of 3 parts per million of carbonate (CO_3).
b Includes equivalent of 6 parts per million of carbonate (CO_3).
c Calculated from determined constituents.

ALAMEDA CREEK BASIN--Continued

ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Temperature (°F) of water, July to September 1956
/Once-daily measurement at approximately 6 p.m. to 8 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										67	68	64
2										64	71	72
3										65	65	65
4										64	66	74
5										65	59	72
6										66	65	71
7										66	67	64
8										67	74	72
9										68	65	66
10										72	68	--
11										68	65	67
12										67	65	63
13										74	66	65
14										65	68	65
15										67	66	70
16										68	66	60
17										69	67	71
18										70	71	70
19										68	72	65
20										68	67	68
21										69	76	71
22										69	68	62
23										70	65	70
24										70	66	70
25										70	71	64
26										70	66	63
27										70	74	68
28										70	72	63
29										70	71	70
30										68	73	63
31										70	65	--
Average										68	68	67

KERN RIVER BASIN

KERN RIVER NEAR KERNVILLE, CALIF. .

LOCATION.--At gaging station 3 miles upstream from Salmon Creek and 13 miles north of Kernville, Kern County.
DRAINAGE AREA.--865 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	132	--	--	14	2.6	17	1.8	73	--	6.9	--	--	0.19	--	--		46	0	43	1.1	167	7.9
Nov. 28	202	--	--	15	1.8	17	1.8	72	--	7.5	--	--	.19	--	--		45	0	44	1.1	168	7.9
Jan. 12, 1956	680	--	--	9.4	2.0	8.8	1.2	52	--	2.5	--	--	.03	--	--		32	0	36	.7	106	7.4
Feb. 25	625	--	--	11	2.1	11	1.2	58	--	4.5	--	--	.04	--	--		36	0	39	.8	117	7.9
Mar. 21	908	--	--	6.4	3.9	9.0	1.3	56	--	2.5	--	--	.11	--	--		32	0	37	.7	101	7.5
Apr. 19	1,220	--	--	7.8	1.1	7.5	1.2	44	--	1.6	--	--	.06	--	--		24	0	39	.7	83.2	7.4
May 14	1,530	16	0.05	7.0	1.5	5.4	1.0	38	3.6	1.1	0.0	0.1	.03	55	0.07		23	0	32	.5	64.8	7.3
June 22	2,410	--	--	4.5	.3	2.9	.7	23	--	.3	--	--	.10	--	--		12	0	32	.4	40.2	6.8
July 20	1,410	--	--	5.6	.6	4.0	.7	--	--	1.0	--	--	.07	--	--		16	0	33	.4	50.5	7.0
Aug. 15	545	--	--	8.0	.5	6.2	1.3	34	--	2.0	--	--	.06	--	--		22	0	36	.6	75.3	6.7
Sept. 17	258	15	.01	9.6	1.6	11	1.2	53	7.7	3.6	.0	.1	.06	76	.10		31	0	43	.9	112	7.1

KERN RIVER BELOW ISABELLA DAM, CALIF.

LOCATION.--On right bank 500 feet below Isabella Dam, Kern County, about 0.6 mile above gaging station, and 1 mile southwest of Isabella.
DRAINAGE AREA.--2,094 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical anlayses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955.....	16	--	--	24	3.8	18	3.6	121	--	4.7	--	--	0.26	--	--		75	0	33	0.9	233	7.7
Nov. 28.....	13	--	--	29	5.0	24	4.0	148	--	9.0	--	--	.32	--	--		93	0	35	1.1	277	7.8
Jan. 5, 1956	3.2	--	--	9.1	1.8	8.4	1.1	49	--	2.0	--	--	.12	--	--		30	0	37	.7	101	7.5
Feb. 25.....	202	--	--	11	2.6	9.4	2.0	57	--	4.0	--	--	.12	--	--		38	0	34	.7	116	7.9
Mar. 21.....	389	--	--	16	.3	11	2.2	71	--	4.0	--	--	.19	--	--		41	0	35	.7	154	7.7
Apr. 19.....	111	--	--	12	2.0	10	1.9	63	--	3.5	--	--	.09	--	--		38	0	35	.7	127	7.4
May 14.....	896	17	0.05	9.9	2.1	8.7	1.5	56	6.0	2.7	0.0	0.3	.11	76	0.10		33	0	35	.7	103	7.3
June 22.....	1,590	--	--	8.4	.7	6.0	1.3	41	--	1.2	--	--	.11	--	--		24	0	34	.5	76.6	6.9
July 20.....	1,340	--	--	7.6	.6	5.0	1.1	36	--	.7	--	--	.09	--	--		22	0	32	.5	66.4	7.1
Aug. 15.....	1,440	--	--	8.8	.7	6.2	1.3	42	--	2.0	--	--	.06	--	--		25	0	34	.5	80.6	6.9
Sept. 17.....	294	10	.03	11	.9	7.9	1.9	53	1.9	2.4	.4	1.3	.02	64	.09		31	0	34	.6	98.9	7.2

KERN RIVER BASIN--Continued

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	144	--	--	18	3.3	26	2.3	86	--	15	--	--	0.23	--	--		59	0	48	1.5	243	7.9
Nov. 15	281	--	--	22	3.4	25	3.2	106	--	14	--	--	.24	--	--		69	0	43	1.3	251	7.8
Dec. 8	348	--	--	17	3.6	17	2.3	84	--	7.2	--	--	.20	--	--		57	0	38	1.0	189	7.5
Jan. 10, 1956	618	--	--	11	2.0	11	1.4	56	--	5.8	--	--	.11	--	--		36	0	39	.8	125	7.7
Feb. 7	608	--	--	14	1.9	12	2.3	66	--	5.1	--	--	.16	--	--		43	0	36	.8	145	7.9
Mar. 13	1,176	--	--	13	2.3	12	2.1	65	--	5.5	--	--	.30	--	--		42	0	37	.8	139	7.9
Apr. 10	711	--	--	14	2.1	13	2.0	72	--	6.0	--	--	.21	--	--		44	0	38	.9	146	7.8
May 8	1,396	16	0.09	11	2.0	10	1.7	62	3.6	4.4	0.0	0.3	.08	80	0.11		36	0	37	.7	119	7.8
June 12	1,683	--	--	9.7	.7	7.8	1.5	47	--	2.5	--	--	.15	--	--		27	0	37	.7	91.1	7.4
July 17	1,974	--	--	8.6	.9	6.8	1.3	43	--	2.1	--	--	.10	--	--		25	0	35	.6	82.8	7.2
Aug. 14	2,002	--	--	8.6	1.5	7.6	1.6	47	--	2.5	--	--	.00	--	--		28	0	36	.6	89.8	6.8
Sept. 18	835	10	.00	11	1.8	10	1.9	59	.0	5.0	.4	1.1	.02	70	.10		35	0	37	.7	116	7.1

TULE RIVER NEAR PORTERVILLE, CALIF.

LOCATION.--At gaging station on downstream side of highway bridge, 1 mile upstream from South Fork, and 6 miles east of Porterville, Tulare County.
DRAINAGE AREA.--261 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	0.4	--	--	52	9.9	26	3.2	a242	--	16	--	--	0.14	--	--		170	0	24	0.9	421	8.3
Nov. 15.....	28	--	--	59	9.3	30	5.0	b274	--	20	--	--	.14	--	--		186	0	25	1.0	465	8.7
Dec. 13.....	102	--	--	35	5.8	15	2.5	154	--	9.2	--	--	.07	--	--		111	0	22	.6	271	8.1
Jan. 10, 1956....	188	--	--	26	3.2	9.4	2.2	111	--	5.0	--	--	.06	--	--		78	0	20	.5	198	8.1
Feb. 7.....	345	--	--	21	3.3	8.9	1.7	c 98	--	3.6	--	--	.03	--	--		66	0	22	.5	170	8.3
Mar. 13	193	--	--	25	3.8	9.6	1.8	d113	--	5.5	--	--	.22	--	--		78	0	21	.5	194	8.3
Apr. 10.....	208	--	--	22	2.8	8.9	1.8	102	--	2.8	--	--	.06	--	--		66	0	22	.5	167	7.9
May 8	377	19	0.05	16	2.4	6.8	1.4	77	1.0	2.4	0.1	0.2	.09	87	0.12		50	0	22	.4	123	7.8
June 12	159	--	--	23	2.6	7.8	1.6	100	--	3.5	--	--	.00	--	--		68	0	19	.4	160	7.8
July 17	34	--	--	33	14	15	3.0	200	--	7.6	--	--	.22	--	--		139	0	19	.6	318	8.2
Aug. 14.....	10	--	--	52	7.4	19	3.3	225	--	9.0	--	--	.11	--	--		160	0	20	.7	363	8.2
Sept. 18.....	6.8	35	.00	51	12	22	3.6	251	5.8	11	.2	.6	.14	265	.36		176	0	21	.7	401	7.8

a Includes equivalent of 3 parts per million of carbonate (CO_3).
b Includes equivalent of 12 parts per million of carbonate (CO_3).
c Includes equivalent of 1 part per million of carbonate (CO_3).
d Includes equivalent of 2 parts per million of carbonate (CO_3).

TULARE LAKE BASIN--Continued

KAWEAH RIVER NEAR THREE RIVERS, CALIF.

LOCATION.--Just below gaging station 2.5 miles downstream from South Fork and 3 miles southwest of Three Rivers Post Office, Tulare County.
DRAINAGE AREA.--520 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	21	--	--	17	2.5	8.8	1.8	71	--	10	--	--	0.03	--	--		53	0	26	0.5	152	8.0
Nov. 15	74	--	--	19	2.4	8.9	1.9	80	--	9.0	--	--	.01	--	--		57	0	24	.5	164	7.7
Dec. 13	247	--	--	12	1.4	5.4	1.2	48	--	4.0	--	--	.03	--	--		36	0	24	.4	95.9	7.6
Jan. 10, 1956	1,070	--	--	9.8	1.3	3.4	1.4	42	--	1.8	--	--	.02	--	--		34	0	19	.3	78.1	7.7
Feb. 7	924	--	--	13	.6	4.4	1.4	50	--	1.2	--	--	.05	--	--		35	0	21	.3	92.1	8.0
Mar. 13	635	--	--	11	1.3	3.8	1.5	46	--	1.8	--	--	.05	--	--		33	0	19	.3	81.9	7.8
Apr. 10	1,180	--	--	6.8	.7	2.8	1.2	33	--	.7	--	--	.04	--	--		20	0	22	.3	51.0	7.5
May 8	1,580	13	0.03	5.9	.8	2.5	.8	30	0.0	.3	0.0	0.0	.00	38	0.05		18	0	22	.3	46.0	7.7
June 12	1,790	--	--	4.6	.6	1.4	.7	21	--	.1	--	--	.06	--	--		14	0	17	.2	32.3	7.3
July 17	478	--	--	8.0	.4	3.1	1.2	33	--	.2	--	--	.04	--	--		22	0	23	.3	57.4	7.2
Aug. 14	154	--	--	11	1.1	4.1	1.8	49	--	1.8	--	--	.00	--	--		32	0	21	.3	84.4	7.2
Sept. 18	54	15	.00	16	1.8	6.1	2.4	66	1.9	4.7	.2	.4	.00	82	.11		47	0	21	.4	123	7.4

KINGS RIVER BELOW NORTH FORK, CALIF.

LOCATION.--At gaging station 0.8 mile downstream from North Fork, Fresno County, 2.4 miles southwest of Balch Camp, and 8.5 miles southeast of Trimmer.
DRAINAGE AREA.--1,350 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....	136	--	--	6.7	1.2	4.4	1.1	28	--	1.3	--	--	0.04	--	--		22	0	29	0.4	68.1	7.3
Nov. 9	132	--	--	7.6	.5	4.5	1.2	30	--	3.8	--	--	.00	--	--		21	0	30	.4	71.7	7.5
Dec. 9	1,470	--	--	6.0	1.0	2.7	1.0	23	--	.5	--	--	.04	--	--		19	0	22	.3	51.2	7.0
Jan. 11, 1956 ...	1,860	--	--	5.4	.1	2.8	.9	22	--	.0	--	--	.08	--	--		14	0	29	.3	44.0	7.6
Feb. 10	1,500	--	--	5.6	1.0	3.1	.9	27	--	1.5	--	--	.01	--	--		18	0	26	.3	50.3	7.7
Mar. 9.....	1,360	--	--	6.0	.5	3.1	1.0	28	--	.2		--	.00	--	--		17	0	27	.3	48.4	7.5
Apr. 13	3,200	--	--	3.8	.5	2.2	.8	20	--	.4	--	--	.01	--	--		12	0	28	.3	33.7	7.0
May 11	4,590	11	0.02	3.0	.9	2.3	1.3	20	1.4	.2	0.0	0.2	.00	30	0.04		11	0	28	.3	29.1	7.1
June 7	9,270	--	--	2.1	.3	1.0	.5	12	--	.0	--	--	.09	--	--		6	0	24	.2	18.2	6.9
July 11	4,070	--	--	2.2	.2	1.0	.7	11	--	.1	--	--	.00	--	--		6	0	23	.2	19.1	6.5
Aug. 8	1,380	--	--	3.2	.5	1.6	.8	17	--	.1	--	--	.00	--	--		10	0	24	.2	30.0	6.6
Sept. 18	343	10	.00	6.4	.5	2.7	1.0	26	1.9	1.0	.3	.3	.00	37	.05		18	0	23	.4	49.5	7.2

TULARE LAKE BASIN--Continued

KINGS RIVER BELOW PINE FLAT DAM, CALIF.

LOCATION.--At gaging station, 0.7 mile downstream from Pine Flat Dam, Fresno County, and 2.9 miles northeast of Piedra.
DRAINAGE AREA.--1,542 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....	62	10	0.06	6.4	1.6	3.3	1.1	29	3.2	1.0	--	--	0.03	--	--		23	0	23	0.3	62.9	7.3
Nov. 9.....	11	--	--	6.6	1.1	3.3	1.1	28	--	2.2	--	--	.02	--	--		21	0	24	.3	62.3	7.5
Dec. 9.....	54	--	--	6.6	1.3	3.8	1.3	28	--	2.5	--	--	.00	--	--		22	0	26	.4	62.0	7.2
Jan. 11, 1956 ...	70	--	--	6.4	.7	1.8	2.1	25	--	.0	--	--	.06	--	--		19	0	15	.2	50.8	6.7
Feb. 10.....	3,010	--	--	6.1	.7	2.4	1.4	26	--	.0	--	--	.05	--	--		18	0	21	.2	49.9	7.6
Mar. 9	2,870	--	--	6.3	1.3	2.8	1.6	31	--	.0	--	--	.00	--	--		21	0	21	.3	53.8	7.4
Apr. 15.....	1,820	--	--	6.0	1.3	2.8	1.4	32	--	.6	--	--	.03	--	--		20	0	22	.3	55.4	7.2
May 8	1,920	12	.08	5.4	1.6	2.6	1.2	29	3.2	.4	0.0	0.5	.00	41	0.06		20	0	21	.3	49.5	7.4
June 13	8,360	--	--	3.6	.4	1.5	.8	18	--	.0	--	--	.12	--	--		11	0	22	.2	28.8	7.0
July 13.....	7,650	--	--	2.1	.3	1.7	1.1	14	--	.1	--	--	.00	--	--		6	0	32	.3	19.5	6.8
Aug. 10.....	5,960	--	--	2.4	.2	1.7	.8	14	--	.1	--	--	.00	--	--		7	0	32	.3	21.6	6.5
Sept. 18	1,640	5.2	.01	2.5	.2	1.0	.4	12	.0	.0	.0	.0	.00	15	.02		7	0	22	.2	21.6	6.7

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 1956.
REMARKS.--Gaging station maintained and operated by the Kings River Water Association. Discharge data for water year October 1955 to September 1956 furnished by the State of California Department of Water Resources.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ..	13	--	--	9.9	4.6	6.5	1.5	56	--	2.3	--	--	0.04	--	--		44	0	24	0.4	106	7.8
Nov. 15	69	--	--	20	6.7	16	3.2	118	--	8.0	--	--	.00	--	--		78	0	30	.8	234	7.8
Dec. 13	53	--	--	21	7.5	14	3.8	112	--	6.4	--	--	.04	--	--		83	0	26	.7	228	7.9
Jan. 11, 1956 ..	54	--	--	21	8.7	14	3.0	119	--	5.2	--	--	.00	--	--		88	0	25	.6	232	7.6
Feb. 7	850	--	--	8.0	1.4	3.7	1.7	36	--	.1	--	--	.07	--	--		26	0	22	.3	71.5	7.7
Mar. 14	1,500	--	--	7.6	1.2	2.8	1.6	34	--	.8	--	--	.02	--	--		24	0	19	.2	64.5	7.5
Apr. 11.....	380	--	--	10	2.9	6.2	1.8	59	--	1.9	--	--	.06	--	--		37	0	26	.4	104	7.7
May 9	805	11	0.06	6.4	2.2	3.5	1.3	35	4.0	1.2	0.0	0.3	.00	47	0.06		25	0	22	.3	61.5	7.0
June 12	2,775	--	--	4.5	.7	2.0	.9	22	--	.1	--	--	.12	--	--		14	0	22	.2	35.3	7.1
July 17	2,520	--	--	4.5	.6	2.0	.8	22	--	.1	--	--	.06	--	--		14	0	23	.2	37.1	6.9
Aug. 14	2,650	--	--	3.0	.5	1.5	.8	16	--	.1	--	--	.00	--	--		10	0	24	.2	27.5	6.5
Sept. 18	610	9.0	.00	6.0	1.0	2.8	.8	29	.0	1.0	.3	.8	.00	36	.05		19	0	23	.3	51.4	6.9

SAN JOAQUIN RIVER BASIN

SAN JOAQUIN RIVER BELOW FRIANT, CALIF.

LOCATION.--At gaging station 0.5 mile west of Friant, Fresno County, 1.5 miles downstream from Cottonwood Creek, and 2 miles downstream from Friant Dam.
DRAINAGE AREA.--1,675 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	a 119	11	--	4.2	0.5	4.6	0.7	21	0.0	3.5	0.2	0.4	0.03	35	0.05		12	0	43	0.6	49.3	7.0
Oct. 12	119	--	--	3.9	1.0	5.1	1.0	22	--	4.2	--	--	.05	--	--		14	0	42	.6	53.0	7.0
Nov. 16.....	61	--	--	4.2	.4	4.3	.7	20	--	4.2	--	--	.00	--	--		12	0	42	.5	55.5	7.1
Dec. 14	808	--	--	4.9	.4	4.2	.7	20	--	3.2	--	--	.01	--	--		14	0	38	.5	47.3	7.0
Jan. 10, 1956	5,140	--	--	3.8	.5	2.8	1.1	20	--	1.8	--	--	.01	--	--		12	0	32	.4	40.2	7.2
Feb. 8	6,040	--	--	4.5	.4	3.4	1.0	22	--	.9	--	--	.07	--	--		13	0	34	.4	44.1	7.5
Mar. 13	1,570	--	--	4.6	.4	3.7	.9	23	--	2.0	--	--	.01	--	--		13	0	36	.4	44.7	7.6
Apr. 10	1,570	--	--	4.0	.7	3.9	1.1	25	--	1.9	--	--	.11	--	--		13	0	37	.5	43.4	7.4
May 8	1,190	13	0.00	4.8	1.2	3.2	.7	23	2.0	2.5	.0	.3	.02	39	.05		17	0	28	.3	38.1	6.9
June 12.....	4,180	--	--	3.2	.2	2.1	.7	18	--	.6	--	--	.02	--	--		9	0	31	.3	28.6	7.0
July 18	126	--	--	2.4	.6	2.1	.8	16	--	.6	--	--	.05	--	--		8	0	33	.3	26.6	7.2
Aug. 3	a 202	10	.02	2.4	.4	2.1	.4	18	1.0	1.0	.0	.3	.02	26	.04		8	0	35	.3	27.8	7.0
Aug. 15.....	177	--	--	2.6	.3	2.1	.8	16	--	.0	--	--	.00	--	--		8	0	34	.3	27.3	6.8
Sept. 18	146	10	.00	2.4	1.2	2.0	.8	16	1.9	.5	.0	.3	.02	27	.04		11	0	27	.3	25.8	7.0

a Daily mean discharge.

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 1956.
Water temperatures: November 1952 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 86 ppm Jan. 26; minimum, 26 ppm May 30.
Hardness: Maximum, 34 ppm Dec. 24-25; minimum, 10 ppm June 1-10, 11-20.
Specific conductance: Maximum daily, 116 micromhos Dec. 24; minimum daily, 32.7 micromhos June 18.
Water temperatures: Maximum, 91°F July 23; minimum, 44°F Feb. 7.
EXTREMES, 1952-56.--Dissolved solids: Maximum, 117 ppm Jan. 3-10, 1953; minimum, 26 ppm May 30, 1956.
Hardness: Maximum, 53 ppm Jan. 11-13, 1953; minimum, 10 ppm Nov. 1-5, 7-10, 1952, June 1-10, 11-20, 1956.
Specific conductance: Maximum daily, 170 micromhos Jan. 3, 1953; minimum daily, 32.7 micromhos June 18, 1956.
Water temperatures: Maximum, 94°F June 8, 1955; minimum, 36°F Feb. 23-24, 28, Mar. 1-2, 1953.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445. No appreciable inflow between sampling point and gaging station except during periods of heavy runoff.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	85.5	12	0.03	6.8	1.5	8.0	1.3	38	3.4	4.9	0.2	0.7	0.14	56	0.08	13	23	0	41	0.7	82.5	7.4
Oct. 11-20.....	78.4	12	.03	7.2	1.5	8.4	1.3	40	2.0	6.0	.2	.5	.10	62	.08	13	24	0	42	.7	93.3	7.5
Oct. 21-31.....	75.9	12	.04	6.8	1.5	8.0	1.3	40	2.0	5.2	.3	.4	.09	60	.08	12	23	0	41	.7	88.2	7.1
Nov. 1-10.....	68.3	12	.04	7.2	1.5	8.2	1.6	42	2.0	5.2	.3	.5	.09	62	.08	11	24	0	41	.7	91.1	6.9
Nov. 11-20	73.2	11	.04	7.2	1.3	7.9	1.5	40	2.0	5.2	.3	.8	.08	62	.08	12	24	0	40	.7	88.5	7.3
Nov. 21-30	56.0	12	.03	8.0	1.7	9.3	1.4	45	4.0	5.5	.2	.3	.04	68	.09	10	27	0	41	.8	98.8	7.5
Dec. 1-9.....	78.8	14	.03	7.8	2.0	8.7	1.3	46	2.0	5.5	.3	1.1	.06	80	.11	17	28	0	39	.7	98.8	7.5
Dec. 10-23	428	12	.02	5.8	1.0	6.1	1.4	30	1.0	4.8	.3	.9	.11	64	.09	74	18	0	39	.6	71.7	7.0
Dec. 24-25	3,095	--	--	10	2.2	7.2	3.9	44	5.0	3.5	--	5.3	.12	--	--	--	34	0	29	.5	110	7.7
Dec. 26-31	6,732	11	.21	4.8	1.0	3.6	1.9	23	2.0	2.0	.3	2.0	.15	60	.08	1,090	16	0	29	.4	54.3	7.2
Jan. 1-10, 1956 ..	5,735	11	.12	4.4	.5	3.3	1.4	21	1.0	2.0	.3	1.0	.09	44	.06	681	13	0	32	.4	45.8	7.2
Jan. 11-25.....	4,624	12	.07	4.4	.6	4.0	1.3	22	1.0	2.8	.3	.7	.08	55	.07	687	14	0	36	.5	50.2	7.2
Jan. 26.....	6,120	--	--	8.0	2.0	5.0	1.5	29	--	--	--	2.6	.11	86	.12	1,420	28	4	27	.4	86.6	7.5
Jan. 27-31.....	6,204	13	.07	5.6	1.0	4.2	1.3	27	1.0	3.0	.3	.8	.11	62	.08	1,040	18	0	32	.4	60.9	7.1
Feb. 1-10	5,674	12	.08	5.2	.9	4.1	1.2	28	.0	1.3	.3	1.1	.14	48	.07	735	16	0	33	.4	49.4	7.2
Feb. 11-20.....	3,494	14	.05	5.7	1.0	5.0	1.2	30	1.8	1.9	.3	1.0	.13	50	.07	472	18	0	36	.5	58.4	7.2
Feb. 21-29	2,372	13	.06	6.0	.8	5.1	1.2	31	2.2	2.0	.3	.5	.10	50	.07	320	18	0	36	.5	58.9	7.1
Mar. 2-3, 5-7, 9-10	472	14	.04	7.6	.5	7.4	1.3	38	2.6	3.0	.3	.8	.11	59	.08	75	21	0	41	.7	76.2	7.2
Mar. 11-20	2,028	12	.05	5.2	.8	4.3	1.0	27	2.0	1.5	.3	.4	.09	46	.06	252	16	0	35	.5	50.7	6.9
Mar. 21, 25-26, 28-30	2,168	12	.04	5.4	1.0	4.6	1.9	28	2.4	1.8	.3	.3	.12	45	.06	263	17	0	35	.5	50.7	6.9

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR BIOLA, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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. 1-13, 1956..	1,569	17	0.02	5.2	1.0	4.8	1.1	30	0.8	3.0	0.3	0.3	0.09	54	0.07	229	17	0	36	0.5	65.1	6.9
Apr. 14-19	463	19	.01	8.0	1.4	7.4	1.6	42	.2	4.8	.3	1.1	.15	76	.10	95	26	0	37	.6	86.4	6.9
Apr. 21-30	1,514	13	.01	4.8	.9	4.3	1.2	27	.6	2.5	.3	.8	.01	49	.07	200	16	0	35	.5	53.9	6.5
May 1-10	1,578	13	.03	4.3	1.4	4.1	1.5	25	2.6	2.2	.3	.5	.03	39	.05	166	16	0	33	.4	55.8	6.8
May 11-19	2,253	15	.03	4.0	.8	3.7	1.1	23	1.0	2.0	.3	.3	.08	36	.05	219	13	0	35	.4	43.4	6.7
May 20-29, 31 ...	3,995	14	.04	3.6	1.0	3.1	1.0	22	.6	1.4	.2	.2	.01	34	.05	367	13	0	32	.4	36.3	6.8
May 30	4,690	13	--	5.1	.1	3.2	1.2	21	--	2.8	--	.3	.06	26	.04	329	13	0	32	.4	38.7	6.9
June 1-10.....	4,213	14	.05	3.6	.2	4.0	1.0	22	.6	2.0	.1	.6	.02	35	.05	398	10	0	44	.6	43.0	6.7
June 11-20.....	2,808	14	.05	3.2	.5	3.6	1.0	21	.5	1.5	.1	.7	.04	34	.05	258	10	0	41	.5	38.1	6.9
June 21-30.....	827	11	.05	4.4	.2	3.6	1.0	25	.5	1.5	.1	1.1	.05	34	.05	76	12	0	37	.5	44.7	6.6
July 1-10	222	12	.04	5.2	2.0	5.4	1.1	35	1.0	2.2	.0	.4	.11	54	.07	32	21	0	34	.5	65.4	7.3
July 11-20	144	12	.04	5.6	2.7	6.2	.9	46	.0	1.8	.1	.3	.04	56	.08	22	25	0	34	.5	72.4	7.4
July 21-28	138	12	.04	5.6	1.2	5.3	1.1	34	.0	1.8	.0	.4	.04	50	.07	19	19	0	36	.5	62.8	7.3
Aug. 7-19	143	12	.00	4.8	1.2	5.5	1.3	32	2.5	2.0	.0	1.0	.00	50	.06	19	17	0	39	.6	60.9	6.9
Aug. 20-31	132	12	.00	5.2	1.1	5.6	1.3	33	1.9	2.3	.0	.7	.00	48	.06	17	18	0	39	.6	62.4	7.0
Sept. 1-10	118	11	.02	5.4	.9	5.6	1.0	31	1.2	2.4	.2	.6	.01	51	.07	16	17	0	39	.6	65.7	6.7
Sept. 11-20, 29 ..	164	12	.03	5.0	.9	6.5	1.0	32	.2	2.6	.2	.5	.05	52	.07	23	16	0	44	.7	66.9	7.0
Sept. 21-28, 30...	532	12	.02	3.6	.7	3.6	.7	18	1.0	2.6	.2	.4	.09	40	.05	57	12	0	38	.5	42.6	6.8
Weighted average[a]	1,692	b13	b0.07	4.8	0.8	4.1	1.3	25	b1.1	b2.1	b0.3	0.8	0.08	b48	0.07	b219	16	0	35	0.5	51.7	--
Weighted average[c]	1,652	13	0.07	4.8	0.8	4.2	1.3	25	4.2	2.2	0.3	0.8	0.08	48	0.07	214	16	0	35	0.5	51.8	--

a Represents 92 percent of runoff for water year October 1955 to September 1956.
b Includes estimated data for missing periods.
c Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR BIOLA, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
(Once-daily measurement at approximately 3 p. m. to 5 p. m.)

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

SAN JOAQUIN RIVER BASIN--Continued

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 1956.
REMARKS.--No discharge records available. Gaging station discontinued in October 1954.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	26	16	69	3.3	122	--	96	--	--	0.21	--	--		129	29	53	2.6	591	7.9
Nov. 16		--	--	46	21	99	4.4	158	--	152	--	--	.38	--	--		200	70	51	3.0	899	8.0
Dec. 12		--	--	36	18	90	3.9	142	--	125	--	--	.25	--	--		166	50	53	3.0	741	8.0
Jan. 9, 1956		--	--	4.6	.7	4.0	1.2	21	--	3.0	--	--	.13	--	--		14	0	35	.5	53.5	7.1
Feb. 6		--	--	5.4	.4	4.5	1.1	24	--	1.0	--	--	.09	--	--		15	0	37	.5	53.0	7.4
Mar. 12		--	--	6.0	.7	5.1	1.0	29	--	2.9	--	--	.03	--	--		18	0	37	.5	61.0	7.5
Apr. 9		--	--	5.2	.6	5.4	1.0	29	--	3.0	--	--	.04	--	--		16	0	41	9.6	56.0	7.5
May 9		12	0.05	4.8	1.5	4.8	.9	28	1.0	3.8	0.0	0.4	.08	43	0.06		18	0	35	.5	51.9	7.6
June 13		--	--	3.6	.5	2.7	.7	21	--	1.4	--	--	.01	--	--		11	0	33	.4	35.4	7.2
July 16		--	--	24	10	46	2.5	88	--	67	--	--	.22	--	--		103	31	49	2.0	435	7.2
Aug. 15		--	--	21	8.3	35	2.2	80	--	49	--	--	.01	--	--		86	20	46	1.6	350	7.1
Sept. 17		16	.04	29	13	57	2.6	112	46	84	.2	1.3	.20	304	.41		126	34	49	2.2	529	7.7

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 1956.
REMARKS.--No discharge records available. Gaging station discontinued in October 1954.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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 (calculated)			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, 1955 ...		--	--	30	14	78	3.5	115	--	112	--	--	0.16	--	--		133	39	55	2.9	646	7.6
Nov. 16.....		--	--	34	15	73	3.7	129	--	111	--	--	.13	--	--		149	43	51	2.6	653	8.0
Jan. 9, 1956		--	--	4.6	.9	4.3	1.4	21	--	.0	--	--	.03	--	--		15	0	35	.5	57.7	6.9
Feb. 6.....		--	--	5.8	.5	5.0	1.1	26	--	1.1	--	--	.09	--	--		17	0	38	.5	61.9	7.5
Mar. 12		--	--	17	7.3	39	1.9	72	--	43	--	--	.31	--	--		72	13	53	2.0	332	7.9
Apr. 9.....		--	--	12	2.7	16	1.5	55	--	18	--	--	.12	--	--		41	0	45	1.1	166	7.1
May 9		14	0.11	10	2.7	15	1.5	51	8.0	15	0.2	0.5	.09	92	0.13		36	0	46	1.1	147	7.5
June 13		--	--	4.0	.8	3.8	.8	23	--	2.8	--	--	.03	--	--		13	0	37	.5	45.5	6.9
July 16		--	--	24	7.3	41	2.1	80	--	57	--	--	.48	--	--		90	24	49	1.9	386	7.5
Aug. 13.....		--	--	21	8.4	36	2.2	79	--	50	--	--	.09	--	--		87	22	47	1.7	358	7.1
Sept. 17		17	.04	31	12	61	2.9	115	47	85	.2	.9	.18	314	.43		128	34	50	2.3	547	7.3

SAN JOAQUIN RIVER BASIN--Continued

BEAR CREEK NEAR STEVINSON, CALIF.

LOCATION.--At site of former 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 1956.
REMARKS.--No discharge records available. Gaging station discontinued in October 1954.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....		--	--	45	22	289	3.5	a354	--	311	--	--	0.16	--	--		205	0	75	8.8	1,710	8.4
Jan. 11, 1956 ...		--	--	11	3.7	11	2.5	64	--	5.3	--	--	.06	--	--		43	0	34	.7	137	7.3
Feb. 8.....		--	--	10	4.2	12	1.9	66	--	5.6	--	--	.09	--	--		42	0	37	.8	144	7.9
Mar. 14		--	--	21	7.9	27	2.1	99	--	28	--	--	.17	--	--		85	4	40	1.3	308	7.7
Apr. 11		--	--	23	9.1	27	2.9	128	--	26	--	--	.38	--	--		95	0	37	1.2	314	7.6
May 10		0.21	0.22	17	5.2	17	2.0	95	8.6	8.4	0.5	1.8	.04	129	0.18		64	0	36	.9	193	7.3
June 13		--	--	8.8	3.4	10	1.3	54	--	4.5	--	--	.11	--	--		36	0	37	.7	104	7.2
July 18		--	--	24	7.6	48	2.6	130	--	45	--	--	.07	--	--		91	0	53	2.2	399	8.0
Aug. 13.....		--	--	36	12	141	2.8	188	--	172	--	--	.10	--	--		141	0	68	5.2	940	8.0
Sept. 19		27	.03	19	7.8	32	2.3	144	11	16	.0	1.7	.03	188	.26		80	0	46	1.6	293	7.6

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

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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 1955 to September 1956.
Water temperatures: July 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 3,350 ppm Oct. 30-31; minimum, 93 ppm June 1-8.
Hardness: Maximum, 1,240 ppm Oct. 30-31; minimum, 32 ppm June 1-8.
Specific conductance: Maximum daily, 7,730 micromhos Nov. 4; minimum daily, 121 micromhos June 5.
Water temperatures: Maximum, 83°F July 23; minimum, 40°F Feb. 17.
REMARKS.--Values reported for dissolved solids concentrations less than 1,000 ppm are residue on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents. 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 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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			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, 1955 .	66.8	28	0.01	78	39	231	5.6	200	172	358	0.3	4.9	0.39	1,020	1.39	184	356	192	58	5.3	1,740	8.2
Oct. 11-22	44.6	28	.02	104	56	311	5.6	a205	240	526	.3	3.7	.43	1,380	1.88	166	490	322	58	6.1	2,390	8.3
Oct. 23-29	32.9	24	.02	134	76	420	6.5	208	355	730	.3	4.2	.64	1,850	2.52	164	648	477	58	7.2	3,140	8.2
Oct. 30-31	26.5	26	.02	248	150	730	8.0	192	760	1,330	.2	6.0	1.2	3,350	4.56	240	1,240	1,080	56	9.0	5,410	7.9
Nov. 1-9	29.1	26	.00	220	137	648	6.0	184	704	1,190	.2	6.9	1.2	3,030	4.12	238	1,110	959	56	8.5	4,990	8.2
Nov. 10-20	53.5	28	.00	85	49	311	5.2	b230	240	470	.3	6.7	.64	1,310	1.78	189	412	223	62	6.7	2,250	8.5
Nov. 21-30	57.2	25	.01	89	53	292	5.2	c210	252	478	.3	6.3	.56	1,300	1.77	201	438	266	59	6.1	2,280	8.3
Dec. 1-11.....	45.4	26	.01	103	55	356	5.6	202	280	542	.3	6.6	.64	1,480	2.01	181	484	318	61	7.0	2,510	8.2
Dec. 12-24	124	24	.01	88	50	292	4.8	201	246	462	.3	7.2	.69	1,270	1.73	425	426	261	60	6.2	2,240	7.5
Dec. 25-31.....	3,953	17	.17	11	2.6	10	3.0	54	6.0	5.8	3	3.2	.11	99	.13	1,060	38	0	34	.7	147	7.0
Jan. 1-15, 1956..	4,159	17	.12	11	3.5	12	2.7	58	9.0	9.8	.2	2.6	.13	113	.15	1,270	42	0	36	.8	143	7.6
Jan. 16-31	4,111	15	.09	12	3.3	15	2.2	62	10	13	.2	1.3	.08	112	.15	1,240	44	0	41	1.0	158	7.7
Feb. 1-15.....	4,073	13	.07	11	3.4	14	2.0	57	10	12	.2	1.2	.07	102	.14	1,120	42	0	41	.9	153	7.3
Feb. 16-21	3,758	15	.09	13	4.0	19	2.2	60	18	19	.2	1.3	.14	131	.18	1,330	49	0	44	1.2	196	7.5
Feb. 22-25	3,688	15	.07	20	6.6	36	2.5	68	45	40	.2	1.5	.24	215	.29	2,140	77	21	49	1.8	340	7.5
Feb. 26-29	3,785	14	.11	13	3.8	16	1.8	59	10	16	.2	1.1	.17	121	.16	1,240	48	0	41	1.0	175	7.4
Mar. 1-11	2,668	18	.08	17	4.7	23	2.2	69	21	25	.1	1.7	.12	153	.21	1,100	62	5	44	1.3	237	7.4
Mar. 12-20	1,075	24	.03	33	13	68	3.0	106	65	97	.1	2.2	.33	366	.50	1,060	137	50	51	2.5	618	7.3
Mar. 21-31.....	435	22	.01	50	21	111	3.6	130	90	185	.1	1.9	.24	585	.80	687	211	104	53	3.3	979	7.1

a Includes equivalent of 4 parts per million of carbonate (CO_3).
b Includes equivalent of 8 parts per million of carbonate (CO_3).
c Includes equivalent of 5 parts per million of carbonate (CO_3).

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodinm (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids			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. 1-15, 1956	580	26	0.01	38	15	77	3.4	122	60	121	0.1	2.6	0.15	413	0.56	647	157	57	51	2.7	700	7.1
Apr. 16-18	932	24	.03	29	11	48	2.9	110	38	69	.1	1.9	.13	295	.40	742	119	29	46	1.9	474	7.7
Apr. 19-30	695	23	.02	38	18	80	3.2	124	63	128	.1	2.0	.12	438	.60	822	167	65	50	2.7	740	7.1
May 1-10	821	24	.05	26	9.5	44	2.7	112	31	57	.2	.5	.15	262	.36	581	104	12	47	1.9	415	6.7
May 11-20	650	28	.02	28	11	52	2.5	108	35	71	.3	1.9	.11	289	.39	507	113	24	49	2.1	473	7.5
May 21-31	1,188	19	.03	14	4.9	25	1.8	62	17	30	.3	1.7	.15	152	.21	488	55	4	49	1.5	237	7.1
June 1-8	2,116	17	.06	9.2	2.3	12	1.6	46	6.7	11	.2	1.5	.01	93	.13	531	32	0	43	.9	128	7.0
June 9-15	1,389	18	.07	11	3.5	16	1.6	54	12	15	.3	1.5	.09	116	.16	435	42	0	44	1.1	169	6.9
June 16-21	543	21	.03	22	7.0	42	2.2	88	27	50	.3	2.0	.14	222	.30	325	84	12	51	2.0	367	7.1
June 22-30	252	27	.01	40	15	90	3.4	125	61	136	.3	1.6	.16	442	.60	301	161	59	54	3.1	760	7.6
July 1-4	216	31	.00	51	21	130	3.5	143	77	205	.2	2.8	.15	635	.86	370	214	97	56	3.9	1,060	7.5
July 5-22	256	29	.00	42	18	96	3.4	135	56	158	.2	2.4	.15	490	.67	339	177	66	53	3.1	827	7.3
July 23-31	197	29	.01	53	22	130	4.0	161	89	200	.1	2.6	.08	676	.92	360	221	89	56	3.8	1,060	7.3
Aug. 1-5	178	29	.02	52	23	123	3.6	160	87	200	.4	1.9	.29	634	.86	305	223	92	54	3.6	1,070	7.4
Aug. 6-15	189	28	.01	45	19	104	3.4	151	70	162	.4	1.8	.29	536	.73	274	189	65	54	3.3	901	7.6
Aug. 16-31	203	24	.02	41	17	94	3.4	150	64	140	.4	2.0	.15	480	.65	263	173	50	54	3.1	815	7.6
Sept. 1-9	204	28	.01	46	19	108	3.6	168	76	154	.3	2.6	.33	522	.71	288	194	56	54	3.4	893	7.5
Sept. 10-26	272	29	.01	36	16	78	3.4	158	53	104	.3	2.6	.22	395	.54	290	154	24	52	2.7	690	7.2
Sept. 27-30	208	24	.01	44	18	103	3.6	164	71	145	.3	2.9	.28	498	.68	280	186	52	54	3.3	863	7.4
Weighted average[d]	1,144	18	0.08	18	6.3	31	2.4	73	24	39	0.2	1.8	0.13	187	0.25	578	71	11	48	1.4	292	--

d Represents 100 percent of runoff for water year October 1955 to September 1956.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 10 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	58	50	48	--	54	59	70	68	74	75	74
2	65	57	50	50	--	54	56	70	70	70	73	74
3	66	58	50	50	45	56	57	70	72	73	72	75
4	64	59	48	50	47	57	59	71	70	74	71	74
5	63	61	50	51	48	57	61	69	68	75	71	74
6	63	62	50	50	48	54	62	69	68	74	73	74
7	64	62	50	49	49	50	64	67	69	76	74	72
8	65	62	51	49	49	52	64	62	70	78	75	70
9	67	62	53	50	49	54	65	68	73	76	75	71
10	65	58	51	51	49	55	65	61	69	75	76	72
11	65	55	50	50	50	55	60	68	73	76	78	71
12	64	50	50	50	50	51	65	65	73	76	72	68
13	68	47	51	50	51	52	56	65	74	73	75	68
14	69	41	51	51	51	52	54	66	73	73	73	68
15	68	48	51	52	49	55	55	69	70	75	73	69
16	69	--	52	52	44	57	57	73	71	75	73	69
17	67	--	52	50	40	59	61	74	75	76	74	70
18	65	50	52	48	43	61	65	75	74	79	74	72
19	64	52	53	49	45	61	68	75	74	80	74	71
20	65	53	55	50	47	59	70	74	73	80	74	70
21	65	54	57	50	49	60	72	74	74	80	74	69
22	64	50	59	52	51	61	70	75	74	80	75	68
23	66	49	60	52	52	62	70	74	70	83	76	69
24	65	49	55	51	52	62	69	73	74	82	75	71
25	66	47	54	50	52	63	69	72	74	80	75	71
26	65	47	55	52	50	60	64	73	77	80	75	71
27	--	48	54	51	51	55	62	69	80	78	74	70
28	61	50	51	50	52	56	--	68	81	76	73	68
29	62	50	47	48	54	59	--	69	82	76	73	69
30	64	50	45	--	--	61	--	69	79	76	72	69
31	58	--	45	--	--	62	--	69	--	75	73	--
Average	65	53	52	50	49	57	63	70	73	77	74	71

SAN JOAQUIN RIVER BASIN--Continued

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	50	--	--	27	5.5	5.5	1.9	104	--	5.2	--	--	0.02	--	--		90	5	11	0.3	204	7.8
Nov. 17	45	--	--	29	4.5	6.2	1.9	110	--	7.0	--	--	.02	--	--		91	1	13	.3	207	8.2
Dec. 14	52	--	--	24	4.7	5.3	1.6	82	--	4.8	--	--	.02	--	--		79	12	12	.3	181	7.4
Jan. 12, 1956	1,520	--	--	7.8	1.8	2.8	1.1	33	--	1.2	--	--	.05	--	--		27	0	18	.2	68.3	7.4
Feb. 8	1,540	--	--	9.4	1.6	2.8	.9	38	--	.0	--	--	.01	--	--		30	0	16	.2	76.1	7.7
Mar. 15	1,560	--	--	8.2	2.6	2.3	1.0	37	--	1.2	--	--	.02	--	--		31	1	13	.2	72.0	7.5
Apr. 12	1,610	--	--	8.5	1.4	2.5	1.1	40	--	.0	--	--	.01	--	--		27	0	16	.2	67.5	7.4
May 7	3,790	9.1	0.02	6.0	2.0	2.1	.9	31	1.0	1.0	0.0	0.2	.00	37	0.05		23	0	16	.2	52.4	7.3
June 14	5,100	--	--	3.6	.2	1.0	.5	17	--	.0	--	--	.04	--	--		10	0	17	.1	23.7	7.4
July 19	1,800	--	--	3.2	.2	1.0	.5	16	--	.0	--	--	.06	--	--		9	0	19	.1	22.9	6.8
Aug. 16	1,540	--	--	2.4	.4	1.0	.5	12	--	.2	--	--	.00	--	--		8	0	21	.2	21.0	6.6
Sept. 19	1,210	5.9	.00	4.0	.2	1.5	.6	18	.0	.0	.0	.4	.00	22	.03		11	0	22	.2	27.1	6.8

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	116	--	--	21	7.4	36	2.5	143	--	23	--	--	0.06	--	--		83	0	48	1.7	323	8.1
Nov. 13.....	a 100	38	--	19	5.9	28	2.5	b 131	11	11	0.2	4.3	.05	185	0.25		72	0	45	1.4	271	8.5
Nov. 16.....	110	--	--	21	6.9	34	2.6	141	--	22	--	--	.05	--	--		81	0	47	1.6	312	7.9
Dec. 14.....	141	--	--	21	6.9	33	3.0	132	--	17	--	--	.01	--	--		81	0	46	1.6	288	7.8
Jan. 11, 1956	2,140	--	--	10	2.8	4.7	1.4	47	--	2.5	--	--	.05	--	--		36	0	21	.3	98.2	7.4
Feb. 8.....	2,260	--	--	12	1.5	4.7	1.1	48	--	2.0	--	--	.05	--	--		36	0	21	.3	96.4	7.8
Mar. 14.....	1,440	--	--	11	3.3	5.6	1.1	52	--	3.5	--	--	.01	--	--		41	0	22	.4	104	7.6
Apr. 11.....	483	--	--	16	3.6	17	1.7	87	--	11	--	--	.01	--	--		55	0	39	1.0	186	7.6
May 10	3,120	10	0.02	7.2	2.2	2.6	1.0	33	5.0	.5	.0	.2	.01	45	.06		27	0	17	.2	58.1	7.5
June 13	4,390	--	--	4.8	.3	1.6	.7	22	--	.0	--	--	.08	--	--		13	0	20	.2	33.6	7.0
July 18.....	342	--	--	16	4.8	23	1.7	95	--	16	--	--	.05	--	--		60	0	45	1.3	221	7.7
Aug. 13.....	223	--	--	17	4.3	24	1.9	96	--	18	--	--	.00	--	--		60	0	46	1.3	224	6.8
Sept. 19.....	224	26	.02	17	4.5	24	1.9	100	5.2	17	.2	2.4	.03	147	.20		61	0	45	1.3	228	7.6

a Daily mean discharge.
b Includes equivalent of 4 parts per million of carbonate (CO_3).

SAN JOAQUIN RIVER BASIN--Continued

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 1955 to November 1956 (discontinued).
Water temperatures: July 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 988 ppm Apr. 26; minimum, 257 ppm Mar. 27 to Apr. 2.
Hardness: Maximum, 217 ppm Apr. 26; minimum, 67 ppm July 10-14.
Specific conductance: Maximum daily, 1,660 micromhos Apr. 26; minimum daily, 249 micromhos Dec. 24.
Water temperatures: Maximum, 88°F July 6; minimum, 50°F Dec. 20, 29.
EXTREMES, July 1955 to November 1956.--Dissolved solids: Maximum, 988 ppm Apr. 26, 1956; minimum, 214 ppm Aug. 7-8, 1955.
Hardness: Maximum, 217 ppm Apr. 26, 1956; minimum, 59 ppm Aug. 7-8, 1955.
Specific conductance: Maximum daily, 1,660 micromhos Apr. 26, 1956; minimum daily, 249 micromhos Dec. 24, 1955.
Water temperatures: Maximum, 88°F July 6, 1956; minimum, 50°F Dec. 20, 29, 1955.
REMARKS.--Daily samples for chemical analysis 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. Gaging station discontinued October 1956.

Chemical analyses, in parts per million, October 1955 to November 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	30.3	36	0.03	27	7.4	96	3.8	205	0	9.0	88	0.3	2.1	0.20	387	0.53	32	98	0	67	4.2	623	8.2
Oct. 8	16.0	40	.08	37	9.6	182	2.6	328	22	16	136	.4	1.3	.18	618	.84	27	132	0	75	6.9	997	8.7
Oct. 9-26	16.3	38	.02	27	7.7	98	3.2	206	4	10	88	.3	2.6	.22	401	.55	18	99	0	67	4.3	641	8.4
Oct. 27-31	6.0	44	.00	30	8.0	68	3.8	196	0	10	58	.2	6.5	.08	331	.45	5.4	108	0	57	2.8	522	8.0
Nov. 1-2	13.0	45	.02	32	8.8	84	2.8	195	2	9.0	83	.4	5.3	.17	374	.51	13	116	0	60	3.4	601	8.3
Nov. 3-6	13.0	48	.01	37	9.6	176	2.6	379	5	13	132	.5	2.8	.21	622	.85	22	132	0	74	6.7	1,020	8.3
Nov. 7-15	13.0	53	.01	33	9.1	89	3.1	204	0	9.0	97	.3	5.5	.07	404	.55	14	120	0	61	3.5	660	7.9
Nov. 16-30	13.0	49	.01	32	9.7	88	2.8	190	6	7.0	98	.3	5.2	.11	402	.55	14	120	0	61	3.5	655	8.4
Dec. 1-10	18.0	51	.02	32	9.7	86	3.3	195	4	10	92	.3	6.6	.09	402	.55	20	120	0	60	3.4	645	8.3
Dec. 18-20	18.0	49	.05	30	8.5	70	4.4	196	0	11	64	.3	8.0	.22	352	.48	17	110	0	57	2.9	546	8.2
Dec. 21-31	18.0	39	.06	25	7.7	63	4.9	165	0	9.0	62	.3	6.5	.13	312	.42	15	94	0	58	2.8	490	8.0
Jan. 1-10, 1956	50.0	61	.03	34	11	92	3.3	230	0	14	87	.4	7.3	.17	428	.58	58	130	0	60	3.5	656	8.2
Jan. 11-24	50.0	51	.04	34	10	92	3.6	217	0	14	91	.4	6.7	.11	420	.57	57	126	0	61	3.6	667	7.9
Feb. 7-15	39.0	46	.00	36	10	109	3.6	225	0	11	116	.1	4.8	.19	461	.63	49	133	0	63	4.1	753	7.7
Feb. 16-23	39.0	45	.00	38	12	120	3.6	256	0	12	124	.2	5.5	.19	502	.68	53	143	0	64	4.4	822	7.5
Mar. 1-2, 4-9	49.0	33	.03	28	8.1	98	3.4	210	0	15	92	.2	2.8	.13	388	.53	51	103	0	66	4.2	638	8.1
Mar. 3, 10	49.0	51	.04	48	13	185	4.4	325	17	22	177	.6	6.1	.32	678	.92	90	176	0	69	6.1	1,120	8.4
Mar. 11-12, 15-20	24.6	39	.03	31	9.7	119	3.8	244	0	17	109	.2	3.3	.20	454	.62	30	118	0	68	4.8	748	8.2
Mar. 13-14	49.0	31	.03	24	5.9	69	3.2	149	0	10	67	.6	3.0	.20	288	.39	38	84	0	63	3.3	478	7.7
Mar. 21-26	13.5	34	.01	29	8.6	98	3.4	223	0	11	88	.2	2.7	.15	385	.52	14	108	0	65	4.1	645	7.8
Mar. 27, Apr. 2	26.0	39	.01	22	7.2	54	2.3	141	0	8.6	52	.2	3.6	.17	257	.35	18	85	0	57	2.6	413	8.0

Apr. 3-10, 1956.....	22.4	41	.01	27	8.8	87	2.8	200	0	11	80	.4	3.8	.12	362	.49	22	104	0	64	3.7	588	7.7
Apr. 11-18	62.1	35	.01	24	7.0	62	2.6	150	0	9.0	62	.2	4.2	.07	286	.39	48	89	0	59	2.9	461	7.8
Apr. 19-25, 27-30...	44.2	35	.01	31	9.4	104	3.6	231	0	12	98	.2	3.3	.16	418	.57	50	116	0	65	4.2	698	7.5
Apr. 26	91.0	34	--	60	16	276	3.6	281	0	180	277	.2	.7	1.4	988	1.34	243	217	0	73	8.2	1,660	7.8
May 1-9	31.8	28	.04	24	6.8	75	4.6	174	0	12	71	.3	1.8	.09	318	.43	27	88	0	63	3.5	524	7.2
May 10.....	47.0	27	--	30	6.4	119	4.0	257	0	12	99	--	1.9	.06	446	.61	57	102	0	71	5.1	714	7.2
May 11-20.....	22.7	29	.07	23	6.0	75	4.8	167	0	7.7	70	.2	1.8	.15	308	.42	19	82	0	65	3.6	511	7.2
May 21-31.....	20.2	26	.07	23	8.9	80	5.3	179	0	27	77	.1	1.5	.12	323	.44	18	94	0	63	3.6	546	7.0
June 1-12.....	25.7	28	.09	23	9.4	77	5.3	174	0	14	73	.1	2.0	.13	314	.43	22	96	0	62	3.4	524	7.4
June 13-18.....	19.0	31	.05	22	8.8	75	4.6	158	0	19	76	.1	2.2	.12	308	.42	16	91	0	63	3.4	511	7.6
June 19-30.....	19.3	29	.07	23	6.1	80	4.7	176	0	8.3	79	.0	2.2	.13	330	.45	17	83	0	66	3.8	532	7.4
July 1-9.....	24.1	28	.07	23	7.4	90	4.2	188	0	8.4	88	.0	1.3	.07	355	.48	23	88	0	68	4.2	581	7.6
July 10-14.....	41.4	24	.04	18	5.3	62	4.0	134	0	6.9	62	.2	1.7	.03	258	.35	29	67	0	65	3.3	424	7.2
July 15-17.....	29.0	32	.03	26	7.7	107	4.0	233	3	8.6	90	.3	2.1	.11	410	.56	32	96	0	70	4.7	660	8.3
July 18-26.....	20.2	31	.04	25	6.4	92	4.1	171	0	8.8	95	.2	2.8	.20	368	.50	20	89	0	68	4.2	600	7.7
Aug. 14-23	26.2	31	.03	24	5.8	83	3.5	178	0	7.5	81	.3	2.3	.06	322	.44	23	84	0	67	3.9	545	7.7
Aug. 24-31	34.9	30	.01	24	6.8	88	3.2	183	0	5.8	88	.2	2.4	.03	347	.47	33	88	0	68	4.1	577	7.6
Sept. 1.....	33.0	37	--	28	7.5	96	2.8	207	0	10	93	--	2.9	.08	396	.54	35	101	0	67	4.2	633	8.2
Sept. 20-30.....	39.1	31	.04	26	6.8	94	3.0	208	0	6.7	84	.2	2.3	.13	370	.50	39	93	0	68	4.2	607	7.2

SAN JOAQUIN RIVER BASIN--Continued

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

Chemical analyses, in parts per million, October 1955 to November 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 1-12, 1956 a	--	38	0.03	29	7.7	93	2.8	209	0	7.1	84	0.2	4.5	0.22	380	0.52	--	104	0	65	4.0	614	7.5
Oct. 13-16 a	--	49	.02	39	10	143	2.8	269	0	18	147	.4	4.4	.18	564	.77	--	140	0	68	5.3	908	8.0
Oct. 17-30 a	--	50	.00	34	10	86	3.4	234	0	12	76	.4	8.5	.09	404	.55	--	128	0	59	3.3	625	7.8
Nov. 1-8 a	--	51	.00	37	13	99	3.4	229	0	11	102	.3	8.2	.18	454	.62	--	144	0	59	3.6	715	7.4
Nov. 9-17 a	--	49	.00	44	15	120	3.2	254	0	13	146	.2	6.6	.17	541	.74	--	170	0	60	4.0	885	7.5
Weighted average b	28.5	38	c 0.03	29	8.5	92	3.7	201	1	13	89	c 0.2	3.7	0.15	384	0.52	30	108	0	64	3.9	625	--
Weighted average d	29.4	38	0.03	29	8.4	92	3.6	201	1	12	90	0.2	3.8	0.14	385	0.52	30	107	0	64	3.9	627	--

a Not included for computation of weighted averages.
b Represents 80 percent of runoff for water year October 1955 to September 1956.
c Includes estimated data for missing periods.
d Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

SAN JOAQUIN RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 5 p.m. to 7 p.m./

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

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 1956.
REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources, Modesto Irrigation District, and Turlock Irrigation District. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956 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 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	a300	29	--	58	31	172	3.6	209	149	227	0.3	5.5	0.41	779	1.06		271	100	58	4.5	1,330	8.2
Oct. 15	285	--	--	62	32	174	3.6	209	--	234	--	--	.38	--	--		285	114	57	4.5	1,370	8.0
Nov. 17	290	--	--	58	31	165	4.0	202	--	222	--	--	.35	--	--		273	107	56	4.3	1,310	8.2
Dec. 15	340	--	--	54	27	154	3.8	184	--	191	--	--	.30	--	--		243	92	57	4.3	1,150	7.6
Jan. 12, 1956	10,600	--	--	14	4.5	20	2.3	64	--	17	--	--	.13	--	--		54	2	43	1.2	205	7.4
Feb. 9	9,580	--	--	15	5.4	25	1.8	69	--	25	--	--	.13	--	--		60	3	47	1.4	244	7.9
Mar. 15	2,890	--	--	25	12	61	2.2	93	--	78	--	--	.24	--	--		114	38	53	2.5	518	8.0
Apr. 12	1,340	--	--	36	18	89	2.9	142	--	120	--	--	.23	--	--		163	47	54	3.0	771	7.8
May 10	4,120	14	0.04	13	6.2	22	1.8	58	18	28	.3	1.0	.06	133	.18		58	10	44	1.3	220	7.5
June 14	4,560	--	--	8.1	2.1	11	1.1	39	--	12	--	--	.01	--	--		29	0	44	.9	113	7.1
July 18	860	--	--	42	21	103	2.8	146	--	132	--	--	.32	--	--		190	70	54	3.2	850	7.4
Aug. 2	a620	26	.03	46	27	120	3.4	173	116	162	.3	1.0	.40	b598	.81		228	86	53	3.5	1,000	7.5
Aug. 15	565	--	--	48	23	120	3.8	175	--	154	--	--	.49	--	--		216	72	54	3.6	988	7.1
Sept. 20	680	21	.03	41	18	99	3.1	162	82	122	.1	2.9	.23	469	.64		176	43	54	3.2	799	7.1

a Daily mean discharge (cfs).
b Residue on evaporation at 180°C.

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 June 1956 (discontinued).
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, October 1955 to June 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	23	--	--	3.8	1.9	1.8	0.6	24	--	0.8	--	--	0.00	--	--		17	0	18	0.2	49.4	7.3
Oct. 13	17	6.8	--	3.7	2.0	2.0	.6	24	2.8	.3	0.0	0.3	.02	31	0.04		17	0	19	.2	47.4	7.9
Nov. 17.....	556	--	--	3.0	.5	1.8	.5	16	--	1.0	--	--	.00	--	--		10	0	26	.2	27.1	7.6
Dec. 14.....	587	--	--	4.9	1.3	2.2	.8	22	--	1.0	--	--	.07	--	--		18	0	20	.2	50.7	6.9
Jan. 12, 1956.....	7,940	--	--	5.6	2.0	2.2	1.0	29	--	.5	--	--	.00	--	--		22	0	17	.2	56.1	7.5
Feb. 8.....	2,210	--	--	7.1	2.0	2.6	.9	34	--	.0	--	--	.07	--	--		26	0	17	.2	65.4	7.7
Mar. 15.....	1,490	--	--	6.6	2.6	2.2	.9	34	--	.8	--	--	.00	--	--		27	0	15	.2	63.9	7.5
Apr. 12.....	1,500	--	--	4.9	.7	1.8	.8	24	--	.0	--	--	.00	--	--		15	0	20	.2	40.1	7.5
May 7	5,920	9.0	0.01	4.0	1.0	1.7	.7	21	1.0	.5	.0	.1	.00	28	04		14	0	20	.2	34.3	6.9
June 14	2,180	--	--	2.5	.2	2.0	.5	14	--	.0	--	--	.08	--	--		7	0	36	.3	21.1	6.9

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956 as Tuolumne River at Hickman Bridge.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	102	--	--	30	12	61	5.6	109	--	111	--	--	0.08	--	--		123	34	50	2.4	553	8.1
Nov. 17.....	1,558	--	--	7.6	2.4	11	1.3	32	--	19	--	--	.00	--	--		29	3	44	.9	123	7.3
Dec. 15	645	--	--	8.7	3.0	8.9	1.4	35	--	15	--	--	.00	--	--		34	5	35	.7	119	7.1
Jan. 12, 1956 ...	7,700	--	--	5.8	2.2	2.2	1.0	29	--	.0	--	--	.04	--	--		24	0	16	.2	60.2	7.2
Feb. 8	3,600	--	--	8.1	2.0	3.3	1.0	38	--	.0	--	--	.07	--	--		29	0	19	.3	77.2	7.7
Mar. 15	1,880	--	--	7.8	3.8	3.8	1.1	40	--	4.8	--	--	.01	--	--		335	2	18	.3	84.5	7.6
Apr. 12	1,340	--	--	5.6	2.2	5.1	1.1	34	--	5.8	--	--	.03	--	--		23	0	31	.5	74.3	7.4
May 7	5,600	9.2	0.04	4.4	1.5	2.4	.8	25	0.0	2.0	0.0	0.3	.04	33	0.04		17	0	22	.3	41.9	7.3
June 14	2,040	--	--	4.4	1.2	2.4	.7	21	--	2.2	--	--	.09	--	--		16	0	24	.3	38.3	7.2
July 19	127	--	--	26	10	46	4.7	102	--	87	--	--	.09	--	--		107	23	47	1.9	455	7.5
Aug. 16	335	--	--	9.0	2.9	14	1.7	37	--	24	--	--	.00	--	--		34	4	46	1.0	146	7.0
Aug. 29.....	270	18	--	7.2	2.9	5.9	1.6	41	.0	7.9	.0	.5	.00	64	.09		30	0	29	.5	94.7	7.2
Sept. 19	549	14	.01	7.9	2.7	12	1.4	34	1.5	22	.0	.5	.01	79	.11		31	3	44	.9	124	7.1

TUOLUMNE RIVER AT TUOLUMNE CITY, CALIF.

LOCATION.--At gaging station on downstream side of bridge at Tuolumne City, Stanislaus County, and 3.4 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	295	--	--	47	14	86	5.9	162	--	155	--	--	0.12	--	--		176	43	50	2.8	786	7.9
Nov. 17	650	--	--	34	10	60	6.1	102	--	121	--	--	.04	--	--		127	43	49	2.3	572	7.6
Dec. 15	525	--	--	23	7.2	39	3.4	66	--	74	--	--	.00	--	--		87	33	48	1.8	366	7.3
Jan. 12, 1956	7,960	--	--	7.3	2.7	4.7	1.4	32	--	6.9	--	--	.01	--	--		29	3	25	.4	86.0	7.1
Feb. 9	4,100	--	--	11	4.9	12	1.5	49	--	20	--	--	.07	--	--		47	7	35	.8	160	7.8
Mar. 15	2,055	--	--	12	4.9	15	1.7	53	--	28	--	--	.19	--	--		50	7	38	.9	184	7.7
Apr. 12	1,610	--	--	14	3.8	20	1.9	52	--	38	--	--	.06	--	--		50	7	45	1.2	212	7.5
May 10	4,225	9.6	0.00	6.0	1.5	6.2	1.1	26	0.0	11	0.1	0.2	.05	49	0.07		21	0	38	.6	74.5	7.0
June 14	1,675	--	--	30	5.7	42	3.3	93	--	79	--	--	.18	--	--		98	22	47	1.8	418	7.8
July 18	680	--	--	48	13	85	5.7	154	--	56	--	--	.14	--	--		173	47	51	2.8	767	7.3
Aug. 2	a 1,359	17	.02	16	5.1	26	2.2	56	3.8	50	.1	1.3	.11	b 157	.21		61	15	47	1.4	257	7.9
Aug. 15	770	--	--	29	8.5	50	4.0	100	--	95	--	--	.07	--	--		107	25	49	2.1	486	6.9
Sept. 20	910	20	.01	23	6.0	38	3.0	75	4.2	73	.1	1.8	.06	206	.28		82	20	49	1.8	366	6.9

a Daily mean discharge.
b Residue on evaporation at 180°C.

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 1956.
REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources. Discharge records for gaging station at Hetch Hetchy Crossing for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	540	--	--	56	25	138	5.0	185	--	206	--	--	0.36	--	--		243	91	55	3.9	1,120	7.9
Oct. 14	a550	33	--	58	26	142	5.2	b192	93	218	0.2	5.6	.38	676	0.92		250	93	55	3.9	1,180	8.4
Nov. 17	865	--	--	45	20	104	6.0	148	--	174	--	--	.18	--	--		194	73	53	3.2	912	7.7
Dec. 15	730	--	--	35	15	82	3.8	108	--	124	--	--	.14	--	--		148	60	54	2.9	687	7.5
Jan. 12, 1956	18,520	--	--	12	5.4	15	2.2	56	--	18	--	--	.08	--	--		52	6	37	.9	186	7.6
Feb. 8	13,770	--	--	14	5.4	22	1.8	64	--	23	--	--	.12	--	--		57	5	45	1.3	228	8.0
Mar. 15	--	--	--	21	8.6	40	2.0	76	--	56	--	--	.15	--	--		88	26	49	1.9	381	7.8
Apr. 12	--	--	--	24	11	51	2.5	92	--	76	--	--	.15	--	--		105	30	51	2.2	469	7.7
May 10	11,200	12	0.02	10	3.2	15	1.2	41	7.0	19	.6	.6	.09	89	.12		38	4	45	1.1	145	7.3
June 14	8,030	--	--	11	2.8	14	1.3	46	--	20	--	--	.06	--	--		39	1	43	1.0	153	7.0
July 18	1,960	--	--	47	18	98	4.0	146	--	154	--	--	.26	--	--		192	72	52	3.1	850	7.4
Aug. 15	1,440	--	--	38	16	79	3.8	129	--	127	--	--	.11	--	--		159	53	51	2.7	709	7.1
Sept. 20	1,705	20	.02	30	11	64	3.0	112	36	91	.0	2.1	.15	312	.42		122	30	53	2.5	546	6.9

a Daily mean discharge.
b Includes equivalent of 4 parts per million of carbonate (CO_3).

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	116	--	--	25	12	16	2.7	155	--	8.0	--	--	0.00	--	--		111	0	23	0.7	283	8.0
Oct. 14	a 99	36	--	26	11	17	2.7	158	8.0	7.7	0.1	2.3	.10	189	0.26		109	0	25	.7	289	8.2
Nov. 17	171	--	--	23	9.8	14	3.0	134	--	8.0	--	--	.00	--	--		98	0	23	.6	255	7.9
Dec. 15	502	--	--	18	5.9	8.1	1.9	84	--	4.8	--	--	.00	--	--		69	0	20	.4	169	7.5
Mar. 15, 1956	--	--	--	11	4.6	5.0	1.1	62	--	1.8	--	--	.04	--	--		46	0	19	.3	117	7.9
Apr. 12	--	--	--	6.4	2.4	3.1	1.1	40	--	.8	--	--	.09	--	--		26	0	20	.3	63.4	7.5
May 10	--	12	0.04	6.0	2.0	2.3	.9	33	.0	.8	.0	.4	.01	40	.05		23	0	17	.2	54.7	7.0
June 14	--	--	--	6.8	1.2	2.0	.9	33	--	.0	--	--	.10	--	--		22	0	16	.2	52.5	7.3
July 16	900	--	--	16	3.2	6.9	1.4	73	--	2.1	--	--	.08	--	--		53	0	21	.4	134	7.5
Aug. 2	--	29	.02	23	9.3	13	1.8	126	12	8.4	.0	2.6	.11	b 159	.22		96	0	22	.6	229	8.0
Aug. 15	157	--	--	30	12	18	2.6	165	--	9.0	--	--	.00	--	--		123	0	24	.7	310	7.5
Sept. 21	229	31	.01	24	8.1	15	2.6	131	8.6	7.4	.2	2.2	.03	164	.22		93	0	25	.7	239	7.6

a Daily mean discharge.
b Residue on evaporation at 180°C.

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 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 640 ppm Nov. 11-17; minimum, 60 ppm May 23-31.
Hardness: Maximum, 230 ppm Nov. 11-17; minimum, 26 ppm May 23-31.
Specific conductance: Maximum daily, 1,150 micromhos Nov. 14; minimum daily, 62.7 micromhos Dec. 26.
Water temperatures: Maximum, 78°F July 23, 26; minimum, 45°F Feb. 1-3, 17-19.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 640 ppm Nov. 11-17, 1955; minimum, 54 ppm June 1-10, 1952.
Hardness: Maximum, 244 ppm Aug. 1-10, 1954; minimum, 23 ppm June 1-10, 1952.
Specific conductance: Maximum daily, 1,150 micromhos Nov. 14, 1955; minimum daily, 60.0 micromhos June 21, 1953.
Water temperatures: Maximum, 78°F July 19, 1951, June 22, July 29, 1954, July 23, 26, 1956; minimum, 39°F Jan. 10, 1952.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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	Non-carbonate				
Oct. 1-10, 1955	668	39	0.00	53	22	119	5.0	190	68	172	0.2	5.4	0.22	593	0.81	1,070	221	65	53	3.5	988	8.2
Oct. 11-20	808	39	.00	49	20	109	5.0	178	65	158	.2	4.4	.27	552	.75	1,200	206	60	53	3.3	918	8.0
Oct. 13 a	718	36	.01	14	43	107	5.4	181	63	164	.3	4.6	.18	b 526	.72	--	213	65	51	--	946	8.0
Oct. 14 a	685	35	--	53	23	120	4.6	c 191	70	181	.1	5.2	.31	b 586	.80	--	226	69	53	--	1,020	8.3
Oct. 21-31	911	33	.01	43	18	93	4.4	148	60	143	.2	2.2	.18	495	.67	1,220	182	61	52	3.0	819	8.2
Nov. 1-10	1,015	32	.01	41	17	80	3.8	130	51	139	.2	2.4	.13	465	.63	1,270	171	64	50	2.7	773	8.1
Nov. 11-17	813	40	.02	54	23	116	5.2	d 170	70	195	.2	5.7	.23	640	.87	1,400	230	91	52	3.3	1,040	8.4
Nov. 17 a	1,090	41	.00	44	18	92	5.6	149	52	154	.3	2.5	.16	b 483	.66	--	185	63	51	--	882	8.1
Nov. 18-30	1,252	31	.02	37	15	76	3.6	126	46	120	.2	2.8	.19	418	.57	1,410	153	50	51	2.7	698	7.6
Dec. 1-10	1,542	26	.02	31	13	62	3.5	105	40	100	.2	2.7	.12	352	.48	1,470	133	47	50	2.3	591	7.3
Dec. 11-23	1,881	25	.03	26	11	47	3.1	91	31	76	.2	1.9	.12	288	.39	1,460	110	35	47	1.9	472	7.9
Dec. 15 a	1,660	23	.02	28	12	57	3.0	97	39	85	.3	2.8	.17	b 298	.41	--	119	39	50	--	516	7.5
Dec. 24-28	37,020	12	.11	8.0	2.9	5.9	2.2	36	5.0	8.0	.2	2.2	.09	71	.10	7,100	32	2	27	.5	105	7.4
Dec. 29-31	37,700	12	.18	8.4	3.4	9.0	2.3	40	9.0	9.5	.2	1.9	.12	86	.12	8,750	35	2	34	.7	125	7.1
Jan. 1-13, 1956	28,400	16	.09	11	3.5	11	2.1	48	9.0	12	.3	2.0	.06	101	.14	7,740	42	3	35	.7	142	7.6
Jan. 12 a	24,400	15	--	10	4.4	12	2.0	50	12	13	.4	1.7	.16	b 96	.13	--	43	2	36	--	151	7.5
Jan. 14-16	20,900	18	.09	13	4.3	15	2.2	58	12	16	.3	1.8	.17	119	.16	6,720	50	2	38	.9	177	7.6
Jan. 17-31	27,100	16	.06	11	4.3	12	1.8	53	9.0	14	.3	1.4	.03	103	.14	7,540	45	2	36	.8	154	7.7

Feb. 1-9, 1956..	24,370	18	.08	14	4.4	17	1.9	67	13	18	.2	1.4	.10	128	.17	8,420	53	0	40	1.0	205	7.4
Feb. 9 a.....	17,800	17	--	14	5.1	19	1.7	66	17	21	.2	1.1	.10	129	.18	--	56	2	42	--	221	7.7
Feb. 10-23	14,500	17	.06	16	4.9	22	1.9	70	18	26	.1	1.4	.07	149	.20	5,830	60	3	43	1.2	235	7.5
Feb. 24-26.....	12,900	15	.07	18	6.6	29	2.0	71	33	35	.1	1.2	.18	184	.25	6,410	72	14	46	1.5	298	7.2
Feb. 27-29.....	13,370	12	.06	15	6.1	26	1.9	67	23	29	.4	1.2	.27	152	.21	5,490	62	7	47	1.4	247	7.1
Mar. 1-13	11,110	16	.03	16	5.9	21	1.9	70	14	26	.1	1.2	.16	152	.21	4,560	64	7	41	1.1	234	6.8
Mar. 14-24	5,621	19	.00	22	12	44	2.3	99	35	59	.1	1.4	.16	248	.34	3,760	104	23	47	1.9	400	6.9
Mar. 15 a	7,866	17	--	20	6.8	28	2.1	74	21	44	.2	1.2	.20	b176	.24	--	78	17	43	--	225	7.5
Mar. 25-27	3,387	24	.04	32	18	64	3.0	117	52	99	.1	2.0	.28	378	.51	3,460	152	56	47	2.3	627	6.9
Mar. 28-Apr. 12	4,243	22	.01	23	10	42	2.3	87	32	64	.2	1.5	.21	248	.34	2,840	99	28	47	1.8	415	7.1
Apr. 12 a	5,880	16	--	16	7.4	30	1.8	69	20	42	.3	1.1	.03	b169	.23	--	70	13	47	--	290	7.3
Apr. 13-24	6,722	19	.01	16	5.4	24	1.7	67	17	32	.2	1.5	.17	150	.20	2,720	62	10	45	1.3	252	6.9
Apr. 25-30	9,165	17	.01	13	3.8	18	1.4	50	13	24	.2	1.0	.09	116	.16	2,870	48	7	44	1.1	189	6.8
May 1-5	9,698	17	.03	11	4.3	14	1.7	52	10	18	.3	1.0	.11	95	.13	2,490	45	2	39	.9	161	6.8
May 6-13	15,920	17	.05	8.8	2.7	9.8	1.5	40	7.4	12	.3	.5	.07	76	.10	3,270	33	0	38	.7	114	6.9
May 10 a	15,900	12	.02	8.8	3.4	11	1.1	42	6.0	14	.4	.8	.05	b79	.11	--	36	2	39	--	120	7.4
May 14-22	10,150	18	.02	11	3.0	14	1.5	47	7.2	18	.3	.8	.05	94	.13	2,580	40	1	42	1.0	150	7.1
May 23-31	18,440	15	.05	7.0	2.2	7.0	1.4	33	3.8	8.8	.3	.6	.05	60	.08	2,990	26	0	35	.6	96.9	6.7
June 1-13	15,970	15	.00	7.2	2.6	8.3	1.2	35	5.0	9.9	.2	.4	.01	71	.10	3,060	29	0	37	.7	95.8	6.9
June 11 a	11,500	15	.06	8.4	2.3	8.7	1.2	41	4.2	9.5	.2	.9	.00	b70	.10	--	30	0	37	--	104	7.1
June 14-21.....	9,865	16	.00	9.6	3.4	12	1.4	40	6.6	18	.3	.4	.02	90	.12	2,400	38	5	40	.8	135	7.0
June 22-24.....	10,570	13	.09	7.2	2.7	10	1.4	31	7.0	13	.3	.8	.01	76	.10	2,170	29	4	41	.8	105	7.2
June 25-30.....	8,220	15	.05	9.6	3.9	14	1.4	41	10	20	.2	.4	.09	98	.13	2,180	40	6	42	1.0	153	6.9

a Not included in weighted average computation.
b Calculated from determined constituents.
c Includes equivalent of 2 parts per million of carbonate (CO_3).
d Includes equivalent of 3 parts per million of carbonate (CO_3).

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SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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				
July 1-4, 1956...	7,780	16	0.04	12	3 7	18	1.4	48	13	26	0.1	1.0	0.05	124	0.17	2,600	45	6	46	1.2	181	6.6
July 5-14	3,744	24	.02	25	8.7	44	2.2	90	29	66	.1	1.7	.11	241	.33	2,440	98	24	49	1.9	413	7.5
July 15-27	1,946	23	.05	40	19	75	3.5	139	48	121	.1	2.5	.15	421	.57	2,210	180	66	47	2.4	719	7.7
July 16 a	2,650	23	--	32	13	59	3.0	122	38	93	.3	1.9	.14	b323	.44	--	135	35	48	--	555	7.4
July 28-31	3,528	17	.03	14	5.4	24	1.7	55	17	34	.1	1.5	.05	150	.20	1,430	57	12	47	1.4	231	7.3
Aug. 1-10	2,463	19	.03	21	10	41	2.2	96	23	58	.0	1.2	.17	237	.32	1,580	94	15	48	1.8	389	7.8
Aug. 2 a	2,240	21	.02	23	10	41	2.3	91	27	62	.1	1.6	.21	235	.32	--	100	25	46	--	397	7.7
Aug. 11-20.....	1,662	28	.03	36	16	73	4.2	c142	46	116	.1	1.7	.19	398	.54	1,790	157	41	49	2.5	672	8.3
Aug. 15 a.....	16,000	24	--	38	15	73	3.5	135	40	115	.2	2.6	.20	b378	.51	--	155	44	50	--	659	7.9
Aug. 21-31	1,610	25	.03	30	18	70	3.3	142	31	111	.1	1.6	.20	389	.53	1,690	151	35	50	2.5	657	7.8
Sept. 1-10	1,707	32	.00	36	13	67	3.2	132	33	104	.2	2.0	.13	376	.51	1,730	143	35	50	2.4	620	7.5
Sept. 11-20	1,878	28	.00	32	12	59	3.0	126	29	89	.3	2.2	.13	336	.46	1,700	128	25	49	2.3	558	7.4
Sept. 20 a.....	2,000	23	.02	30	11	57	3.0	119	32	81	.0	2.7	.13	b299	.41	--	122	24	50	--	515	7.4
Sept. 21-30	2,070	28	.03	29	12	57	2.9	128	30	84	.1	1.6	.11	310	.42	1,730	123	18	50	2.2	528	6.9
Weighted average[e]	8,685	17	0.06	14	5.1	19	1.9	59	14	26	0.2	1.4	0.09	134	0.18	3,140	56	8	42	1.0	210	--

a Not included in weighted average computation.
b Calculated from determined constituents.
c Includes equivalent of 2 parts per million of carbonate (CO_3).
e Represents 100 percent of runoff for water year October 1955 to September 1956.

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at 7:30 a. m./

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

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 1956.
REMARKS.--Tital gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	45	18	92	4.0	160	--	141	--	--	0.24	--	--		186	55	51	2.9	827	7.9
Nov. 22		--	--	37	15	79	3.5	123	--	120	--	--	.14	--	--		153	52	52	2.8	696	8.1
Dec. 20		--	--	26	11	53	2.7	89	--	84	--	--	.14	--	--		110	37	50	2.2	497	7.9
Jan. 17, 1956		--	--	10	4.5	10	2.0	51	--	9.3	--	--	.03	--	--		43	1	32	.7	145	7.1
Feb. 15		--	--	14	6.2	22	1.6	67	--	27	--	--	.09	--	--		60	5	43	1.2	235	7.9
Mar. 20		--	--	24	11	40	2.1	91	--	62	--	--	.26	--	--		106	31	44	1.7	430	7.8
Apr. 17		--	--	13	5.8	21	1.5	62	--	26	--	--	.09	--	--		56	5	44	1.2	214	7.5
May 15		15	0.07	12	2.2	13	1.3	48	10	14	0.3	0.7	.09	93	0.13		39	0	41	.9	143	7.6
June 15		--	--	10	5.1	12	1.3	45	--	17	--	--	.09	--	--		46	9	35	.8	135	7.0
July 25		--	--	47	22	94	4.4	159	--	158	--	--	.28	--	--		206	76	49	2.8	866	8.0
Aug. 21		--	--	39	13	71	3.5	139	--	108	--	--	.12	--	--		150	36	50	2.5	647	8.0
Sept. 14		24	.01	32	13	64	3.0	128	34	92	.1	2.1	.19	327	.44		132	27	51	2.4	572	7.4

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 1956.
REMARKS.--Tidal gaging station maintained and operated by U. S. Bureau of Reclamation. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955 ..		--	--	54	22	119	6.2	199	--	179	--	--	0.30	--	--		227	64	52	3.4	1,020	7.8
Nov. 21		--	--	52	22	114	5.6	170	--	182	--	--	.19	--	--		220	8	52	3.3	1,000	7.9
Dec. 19		--	--	30	12	61	3.5	105	--	92	--	--	.26	--	--		124	38	51	2.4	548	7.6
Jan. 16, 1956 ..		--	--	12	5.6	15	2.1	57	--	15	--	--	.12	--	--		53	6	37	.9	181	7.3
Feb. 14		--	--	16	6.3	24	1.7	71	--	30	--	--	.11	--	--		66	8	38	1.5	243	8.0
Mar. 20		--	--	26	10	41	2.3	99	--	68	--	--	.28	--	--		108	27	45	1.7	446	8.0
Apr. 17		--	--	13	5.7	20	1.7	62	--	26	--	--	.07	--	--		56	5	43	1.2	214	7.3
May 15		14	0.07	11	2.6	13	1.3	46	8.0	14	0.3	0.6	.10	88	0.12		38	0	42	.9	1,137	7.6
June 15.....		--	--	9.2	3.7	11	1.2	44	--	13	--	--	.13	--	--		38	2	38	.8	123	7.2
July 23		--	--	37	16	68	3.5	149	--	104	--	--	.18	--	--		160	38	47	2.3	642	7.4
Aug. 20		--	--	40	15	73	3.6	143	--	115	--	--	.12	--	--		161	44	49	2.5	680	8.0
Sept. 14		19	.01	31	12	63	3.1	126	35	88	.1	1.9	.15	315	.43		127	24	51	2.4	552	7.0

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 September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, December 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 19, 1955	80	--	--	27	8.9	8.3	1.7	106	--	9.0	--	--	0.17	--	--		104	17	15	0.4	243	8.0
Jan. 16, 1956	4,030	--	--	12	2.9	2.4	1.3	52	--	.5	--	--	.08	--	--		42	0	11	.2	101	7.7
Feb. 14	281	--	--	20	8.0	5.6	1.3	a98	--	3.1	--	--	.01	--	--		83	3	13	.3	189	8.3
Mar. 19	12	--	--	23	13	7.8	1.3	126	--	7.5	--	--	.18	--	--		112	9	13	.3	247	8.2
Apr. 16	7.0	--	--	28	15	10	1.5	150	--	9.3	--	--	.08	--	--		133	10	14	.4	290	7.8
May 14	59	17	0.01	22	9.4	6.9	1.4	111	13	4.6	0.3	0.3	.04	130	0.18		94	3	14	.3	200	7.8
June 19	176	--	--	20	5.6	6.5	1.4	100	--	3.2	--	--	.08	--	--		73	0	16	.3	179	7.1
July 26	182	--	--	22	8.8	6.5	1.6	113	--	4.1	--	--	.09	--	--		91	0	13	.3	199	7.8
Aug. 20	158	--	--	25	8.0	6.2	1.8	116	--	4.0	--	--	.00	--	--		95	0	12	.3	210	7.5
Sept. 11	107	18	.00	26	9.3	7.0	1.7	126	11	3.6	.3	1.1	.00	140	.19		103	0	13	.3	227	7.5

a Includes equivalent of 1 part per million of carbonate (CO_3).

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 1956.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...		13	0.04	20	19	56	3.6	131	30	80	0.5	1.9	0.16	289	0.39		130	23	48	2.1	537	7.6
Nov. 21		12	.03	38	19	80	4.6	152	46	130	.4	3.1	.17	408	.55		174	49	49	2.6	746	8.0
Dec. 20.....		21	.13	50	21	82	4.6	105	98	129	.5	--	.31	473	.64		210	124	45	2.5	808	7.2
Jan. 17, 1956 ...		18	--	12	4.9	12	2.6	58	10	14	.6	2.3	.17	106	.14		50	2	33	.7	166	7.6
Feb. 15.....		17	--	17	5.7	24	2.1	73	22	28	.3	1.3	.07	153	.21		66	6	43	1.3	252	7.7
Mar. 19		18	--	14	12	30	1.9	78	24	46	.4	1.8	.13	186	.25		84	20	43	1.4	343	7.4
Apr. 16		18	--	18	8.4	34	2.2	78	23	46	.3	1.7	.05	190	.26		79	15	47	1.7	322	7.4
May 14		14	.07	12	1.5	12	1.3	44	7.6	14	.3	.8	.10	86	.12		36	0	41	.9	130	7.5
June 19		16	.03	10	3.8	14	1.4	47	9.4	18	.3	1.2	.00	97	.13		40	1	42	1.0	148	7.2
July 23		15	--	23	10	40	2.3	92	28	61	.1	1.2	.11	226	.31		100	25	46	1.7	396	7.2
Aug. 20		7.1	--	24	8.6	41	2.3	91	25	63	.1	1.3	.13	218	.30		95	20	48	1.8	398	7.5
Sept. 12		11	.01	34	13	68	4.1	142	27	99	.2	1.7	.18	328	.45		137	21	51	2.5	597	7.5

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	59	24	120	6.4	205	--	181	--	--	0.35	--	--		246	78	51	3.3	1,050	7.8
Nov. 22		--	--	54	21	106	6.4	182	--	170	--	--	.27	--	--		222	73	50	3.1	956	7.9
Dec. 20.....		--	--	34	14	64	4.3	121	--	96	--	--	.24	--	--		142	43	49	2.3	592	7.7
Jan. 17, 1956		--	--	13	5.0	15	2.5	59	--	20	--	--	.14	--	--		53	5	37	.9	190	7.7
Feb. 15.....		--	--	19	9.0	32	2.0	77	--	45	--	--	.15	--	--		85	22	44	1.5	334	8.0
Mar. 20.....		--	--	28	12	47	2.5	100	--	71	--	--	.12	--	--		118	36	46	1.9	473	7.8
Apr. 17.....		--	--	16	7.4	28	1.8	69	--	38	--	--	.08	--	--		70	13	46	1.5	280	7.2
May 15		13	0.09	10	3.8	13	1.3	44	10	17	0.4	0.9	.00	91	0.12		40	4	40	.9	146	7.2
June 20		--	--	10	5.6	15	1.5	49	--	22	--	--	.15	--	--		48	8	40	.9	163	7.1
July 25		--	--	44	21	85	3.8	152	--	141	--	--	.27	--	--		196	71	48	2.6	804	7.8
Aug. 21		--	--	43	17	78	3.8	144	--	130	--	--	.16	--	--		176	58	48	2.6	734	7.8
Sept. 14		21	.01	34	13	68	3.2	130	36	95	.1	2.1	.18	337	.46		137	30	51	2.5	590	7.6

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 1956.
REMARKS.--Records of discharge for gaging station near Tracy, for water year October 1955 to September 1956 given in WSP 1445. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	865	--	--	52	23	117	4.6	186	--	177	--	--	0.33	--	--		226	73	52	3.4	1,010	7.9
Nov. 22	a 213	--	--	54	23	119	5.2	171	--	188	--	--	.22	--	--		231	91	52	3.4	1,030	7.9
Dec. 20	a 60	--	--	35	16	88	3.6	123	--	127	--	--	.33	--	--		154	53	55	3.1	731	--
Jan. 18, 1956	0	--	--	19	9.9	59	2.9	84	--	73	--	--	.68	--	--		88	19	58	2.7	468	7.5
Feb. 16	0	--	--	19	10	49	2.0	86	--	61	--	--	.46	--	--		89	18	54	2.3	421	7.9
Mar. 20	a 358	--	--	26	11	45	2.2	96	--	72	--	--	.33	--	--		111	32	46	1.9	466	7.9
Apr. 17	878	--	--	15	7.9	29	1.8	66	--	39	--	--	.10	--	--		70	16	47	1.5	284	7.3
May 15	a 216	14	0.15	14	2.9	18	1.3	47	15	25	0.3	1.0	.11	115	0.16		47	8	44	1.1	182	7.5
June 20	878	--	--	10	4.8	20	1.5	53	--	26	--	--	.18	--	--		45	2	48	1.3	190	7.4
July 24	3,406	--	--	13	5.4	18	1.5	58	--	25	--	--	.14	--	--		55	7	41	1.1	204	7.0
Aug. 21	2,546	--	--	18	8.6	30	1.8	78	--	39	--	--	.12	--	--		80	16	44	1.5	305	7.4
Sept. 13	1,660	21	.02	30	14	62	3.3	122	37	90	.2	2.1	.12	320	.44		131	31	50	2.4	557	6.9

a Daily mean discharge.

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 1955 to September 1956.
Water temperatures: July 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 529 ppm Nov. 1-17; minimum, 86 ppm June 1-9.
Hardness: Maximum, 200 ppm Oct. 5-8; minimum, 34 ppm June 1-9.
Specific conductance: Maximum daily, 1,110 micromhos Oct. 19, 22; minimum daily, 112 micromhos June 3.
Water temperatures: Maximum, 80°F July 23.
REMARKS.--Daily samples for chemical analyses composited by discharge. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Minimum water temperature not available since pumping plant is not in operation during the winter months. Records of discharge for Delta-Mendota Canal near Tracy for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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. 1-4, 1955	1,722	23	0.03	24	14	62	3.4	114	32	93	0.2	0.7	0.28	309	0.42	1,440	118	25	52	2.5	548	7.9
Oct. 5-8	1,770	28	.02	45	21	104	4.4	166	62	158	.2	3.3	.38	513	.70	2,450	200	64	52	3.2	884	8.1
Oct. 9-12	1,603	21	.05	22	13	54	2.9	113	28	77	.2	.9	.16	276	.38	1,190	110	17	51	2.2	489	7.8
Oct. 13-31	760	26	.02	46	20	98	4.4	166	64	153	.2	3.6	.37	514	.70	1,050	198	62	51	3.0	875	7.6
Nov. 1-17	408	32	.02	46	20	102	4.2	149	69	157	.2	4.1	.31	529	.72	583	196	74	52	3.2	892	7.5
Mar. 7-20, 1956	574	21	.02	21	10	40	2.0	82	36	52	.2	1.4	.27	230	.31	356	94	27	47	1.8	373	7.3
Mar. 21-Apr. 2	435	23	.00	31	16	63	2.8	105	56	95	.2	1.4	.26	364	.50	428	142	56	48	2.3	586	7.2
Apr. 3-7	437	24	.00	27	13	54	2.3	89	50	80	.2	1.1	.22	311	.42	367	121	48	49	2.1	501	7.1
Apr. 8-12	637	24	.00	30	15	62	2.7	102	54	92	.2	1.2	.33	344	.47	592	137	53	49	2.3	567	7.1
Apr. 13-15	725	23	.00	22	12	41	2.3	83	38	66	.2	1.2	.24	262	.36	513	102	34	46	1.8	420	7.1
Apr. 16-30	739	20	.00	16	7.7	31	1.8	66	24	41	.1	1.5	.10	186	.25	371	72	18	48	1.6	287	7.3
May 1-8	527	20	.02	13	5.7	21	1.5	58	13	29	.1	1.3	.03	144	.20	205	56	8	44	1.2	221	7.3
May 9-10	382	18	--	9.4	4.1	15	1.5	46	12	18	.1	.6	.10	a102	.14	105	40	2	44	1.0	153	6.6
May 11-25	270	19	.04	11	5.5	21	1.4	52	14	28	.1	.0	.12	137	.19	100	50	7	47	1.3	205	6.5
May 26-31	365	16	.06	8.2	3.8	14	1.4	41	8.6	18	.1	.6	.09	100	.14	99	36	2	45	1.0	140	6.8
June 1-9	437	13	.07	8.0	3.4	12	1.3	38	7.7	16	.1	.8	.06	86	.12	101	34	3	42	.9	132	6.8
June 10-21	692	15	.05	10	3.9	15	1.4	46	9.6	20	.1	1.0	.11	98	.13	183	41	3	43	1.0	159	6.8
June 22-26	2,031	14	.02	9.2	3.2	13	1.0	42	8.6	18	.1	.7	.13	92	.13	504	36	2	43	.9	139	6.8
June 27-30	2,525	16	.01	12	4.6	18	1.4	51	15	27	.1	.7	.11	121	.16	825	49	7	44	1.1	194	7.2
July 1-12	3,013	17	.04	13	5.2	22	1.3	50	17	32	.2	.7	.10	132	.18	1,070	54	13	46	1.3	220	7.5
July 13-18	3,116	23	.02	22	13	42	1.9	86	32	65	.2	.7	.11	239	.33	2,010	109	38	45	1.7	408	7.5
July 19-28	3,329	16	.01	14	8.5	20	1.6	57	23	31	.3	.5	.08	137	.19	1,230	70	23	38	1.0	238	7.3
July 29-31	3,362	26	.01	34	17	65	3.2	124	48	108	.2	1.3	.18	372	.51	3,380	156	54	47	2.3	622	7.8

a Calculated from determined constituents.

Aug. 1-10, 1956..	3,211	17	.04	16	7.1	25	1.5	66	22	34	.2	1.1	.07	160	.22	1,390	69	15	43	1.3	264	7.2
Aug. 11-26.....	2,908	15	.02	20	11	35	1.8	82	36	52	.2	.9	.07	202	.27	1,590	97	30	43	1.5	355	7.2
Aug. 27-31.....	2,337	18	.01	31	17	61	3.2	119	42	94	.2	1.2	.13	326	.44	2,060	147	49	47	2.2	583	6.8
Sept. 1-10.....	1,968	20	.01	25	10	44	2.1	101	25	65	.2	1.2	.15	256	.35	1,360	104	21	47	1.9	430	7.5
Sept. 11-15.....	1,571	19	.02	23	9.2	40	2.0	95	18	57	.2	.9	.13	230	.31	976	96	18	47	1.8	386	7.3
Sept. 16-30.....	1,297	24	.02	31	12	60	2.7	122	29	86	.1	1.4	.19	320	.44	1,120	127	27	50	2.3	541	7.2
Weighted average	b1,380	19	c0.03	21	10	40	2.1	84	30	60	0.2	1.2	0.14	228	0.31	850	94	25	48	1.7	386	--

b Represents 97 percent of runoff for water year October 1955 to September 1956.
c Represents 96 percent of runoff for water year October 1955 to September 1956.

SAN JOAQUIN RIVER BASIN--Continued

DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
[Once-daily measurement at approximately 9 a.m. to 5 p.m.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	60				--	59	63	66	70	73	75
2	70	60				--	59	64	65	70	74	75
3	69	60				--	59	64	64	69	74	76
4	69	60				--	60	64	65	70	74	75
5	67	60				--	58	66	65	71	73	76
6	67	60				--	60	61	65	71	73	75
7	66	61				54	61	63	65	73	74	74
8	67	60				--	61	62	66	74	74	73
9	66	60				54	63	60	66	74	74	75
10	67	61				54	63	61	67	74	77	75
11	67	61				54	62	61	67	75	76	72
12	67	58				53	61	60	67	75	74	75
13	68	57				54	60	60	67	73	76	71
14	68	55				53	58	63	67	75	74	72
15	67	55				55	57	62	66	76	74	70
16	67	54				56	56	63	67	74	73	70
17	67	53				55	59	65	68	74	74	72
18	67	--				58	59	67	68	77	75	73
19	66	--				58	60	68	69	77	75	73
20	65	--				58	62	68	67	77	75	71
21	65	--				59	64	65	69	77	75	72
22	65	--				61	66	62	69	78	76	72
23	64	--				61	66	67	69	80	76	73
24	65	--				62	66	62	--	78	76	72
25	65	--				--	65	64	66	78	76	72
26	65	--				61	64	67	69	79	76	71
27	64	--				60	64	66	72	78	76	72
28	64	--				61	62	66	73	78	75	72
29	63	--				60	61	66	73	78	74	72
30	63	--				60	62	65	72	78	74	72
31	62	--				60	--	65	--	75	74	--
Average	66	--				--	61	64	68	75	75	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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	40	20	95	3.6	156	--	143	--	--	0.26	--	--		182	54	53	3.0	823	8.2
Oct. 11		20	--	21	14	58	2.9	108	31	80	0.3	1.0	.13	281	0.38		109	20	53	2.4	509	7.7
Nov. 16		--	--	42	21	104	4.2	157	--	146	--	--	.28	--	--		191	62	53	3.3	866	8.1
Dec. 12		--	--	50	21	117	5.2	157	--	166	--	--	.35	--	--		212	83	54	3.5	954	8.0
Jan. 9, 1956		--	--	49	21	114	4.2	154	--	158	--	--	.45	--	--		208	82	54	3.4	935	8.1
Feb. 6		--	--	42	23	124	4.0	118	--	160	--	--	.56	--	--		198	101	57	3.8	991	8.2
Mar. 12		--	--	42	21	117	3.4	a257	--	135	--	--	.65	--	--		193	0	56	3.7	929	8.4
Apr. 9		--	--	26	11	60	2.2	91	--	60	--	--	.48	--	--		109	34	54	2.5	517	8.0
May 9		19	0.09	21	10	44	2.1	79	48	51	.3	1.7	.24	236	.32		95	30	49	2.0	393	7.6
June 13		--	--	29	10	47	2.7	93	--	49	--	--	.00	--	--		115	39	46	1.9	448	7.9
July 16		--	--	20	10	40	2.2	79	--	58	--	--	.15	--	--		91	26	48	1.8	386	7.3
Aug. 15		--	--	18	7.3	28	1.8	71	--	34	--	--	.14	--	--		75	17	44	1.4	286	7.5
Sept. 17		21	.02	30	14	65	3.1	120	36	100	.2	1.5	.14	330	.45		133	35	51	2.5	577	7.2

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

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 1956.
REMARKS.--Tidal gaging station maintained and operated by U. S. Bureau of Reclamation. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		22	0.04	18	22	65	3.2	131	35	95	0.3	0.9	0.07	327	0.44		136	29	50	2.4	595	7.6
Nov. 22		31	.01	52	23	116	5.0	167	79	188	.4	4.7	.25	581	.79		224	87	52	3.4	1,020	7.9
Dec. 21		22	.02	31	13	60	3.3	104	48	94	.3	3.0	.15	326	.44		131	46	49	2.3	467	7.5
Jan. 18, 1956		17	--	11	4.8	12	2.0	50	12	14	.4	1.8	.15	100	.14		47	6	35	.8	160	7.5
Feb. 16		16	--	15	5.9	24	1.7	66	19	27	.3	1.0	.07	143	.19		62	8	45	1.3	240	7.7
Mar. 21		22	--	24	12	44	2.2	96	31	68	.2	1.0	.18	252	.34		109	30	46	1.8	455	7.5
Apr. 17		17	--	13	5.8	21	1.6	62	15	28	.3	1.4	.01	134	.18		56	5	44	1.2	218	7.6
May 15		14	.06	10	3.3	13	1.3	45	10	15	.3	.6	.09	90	.12		38	1	41	.9	140	7.3
June 20		15	.03	12	4.0	17	1.5	50	12	23	.2	1.1	.00	111	.15		46	5	43	1.1	178	7.2
July 24		12	--	12	5.8	18	1.6	54	14	25	.3	.6	.04	116	.16		54	10	41	1.1	200	7.0
Aug. 21		20	--	33	13	62	2.8	119	36	96	.3	1.0	.13	323	.44		136	38	49	2.3	573	7.9
Sept. 13		12	.03	21	9.5	41	2.1	89	26	55	.3	1.1	.16	212	.29		92	19	49	1.9	372	7.1

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955		--	--	20	13	48	2.7	112	--	67	--	--	0.23	--	--		104	12	49	2.0	447	7.9
Nov. 22		--	--	51	22	109	4.4	151	--	175	--	--	.25	--	--		216	92	52	3.2	965	7.8
Dec. 21		--	--	36	16	75	3.5	91	--	109	--	--	.42	--	--		155	80	51	2.6	657	7.5
Feb. 16, 1956		--	--	20	10	39	2.1	71	--	59	--	--	.29	--	--		92	34	47	1.8	389	7.9
Mar. 21		--	--	29	13	51	2.5	93	--	80	--	--	.23	--	--		124	48	47	2.0	512	7.7
Apr. 17		--	--	18	9.3	36	1.8	66	--	54	--	--	.19	--	--		83	29	48	1.7	347	7.4
May 15		13	0.07	12	3.5	16	1.3	44	14	21	0.3	0.8	.10	104	0.14		44	8	43	1.0	171	7.4
June 20		--	--	13	5.1	19	1.5	56	--	26	--	--	.27	--	--		54	8	43	1.1	203	7.1
July 24		--	--	10	4.2	16	1.6	47	--	21	--	--	.06	--	--		42	3	44	1.1	167	7.0
Aug. 21		--	--	20	8.7	32	1.8	72	--	47	--	--	.11	--	--		86	27	44	1.5	333	7.6
Sept. 13		11	.03	21	9.0	40	1.9	87	26	52	.3	1.0	.11	205	.28		89	18	49	1.8	360	7.1

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	29	21	92	3.0	148	--	126	--	--	0.75	--	--		160	39	55	2.2	755	7.8
Nov. 23		--	--	71	36	120	2.4	312	--	148	--	--	2.0	--	--		325	69	44	2.9	1,140	8.0
Dec. 21		--	--	75	36	111	2.8	309	--	143	--	--	1.8	--	--		336	83	42	2.6	1,110	8.2
Jan. 18, 1956		--	--	71	35	117	2.6	294	--	74	--	--	1.8	--	--		320	79	44	2.8	1,110	8.1
Feb. 16		--	--	102	77	264	2.0	a360	--	390	--	--	4.1	--	--		570	275	50	4.8	2,220	8.3
Mar. 21		--	--	70	39	136	2.0	320	--	160	--	--	2.2	--	--		335	73	47	3.2	1,220	8.2
Apr. 18		--	--	33	21	82	2.7	125	--	121	--	--	.73	--	--		167	65	51	2.8	728	7.8
May 16		14	0.16	11	4.9	18	1.4	49	15	22	0.3	0.8	.25	112	0.15		48	8	44	1.1	189	7.5
June 20		--	--	13	6.9	27	1.9	64	--	33	--	--	.22	--	--		61	9	48	1.5	249	7.4
July 24		--	--	14	6.5	26	1.8	65	--	32	--	--	.24	--	--		62	9	47	1.4	251	7.0
Aug. 22		--	--	20	9.7	37	1.9	92	--	45	--	--	.36	--	--		90	15	47	1.7	359	7.7
Sept. 13		11	.07	21	11	50	1.8	98	34	62	.3	.9	.49	241	.33		99	19	52	2.2	430	7.5

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

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

LOCATION.--At right bank at Atchison, Topeka and Santa Fe Railroad bridge, 1.6 miles west of the town of Middle River, San Joaquin County, and 7.9 miles east of Brentwood.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		22	0.10	16	15	45	2.8	112	23	60	0.3	0.8	0.03	240	0.33		101	9	48	1.9	426	7.8
Nov. 25		26	.01	42	21	95	3.8	142	67	152	.3	1.6	.20	479	.65		190	74	51	3.0	848	8.0
Dec. 20		21	.07	39	17	73	3.9	107	73	114	.5	5.1	.34	400	.54		167	24	48	2.5	694	7.6
Jan. 18, 1956		18	--	16	7.1	22	2.2	55	28	30	.4	3.3	.29	154	.21		69	24	40	1.2	255	7.4
Feb. 16		17	--	18	7.2	29	1.9	71	27	37	.2	1.3	.13	174	.24		75	17	45	1.5	299	7.8
Mar. 21		16	--	20	10	34	1.8	80	23	54	.4	.9	.20	199	.27		92	26	44	1.5	375	7.5
Apr. 18		16	--	15	7.9	29	1.6	67	24	40	.3	1.2	.10	168	.23		70	15	47	1.5	283	7.4
May 16		13	.08	11	3.0	14	1.3	44	10	17	.3	.7	.13	93	.13		40	4	42	1.0	148	7.4
June 20		15	.05	10	3.8	14	1.3	45	11	18	.3	1.0	.03	96	.13		41	4	42	1.0	151	7.3
July 24		12	--	12	5.4	16	1.5	56	15	20	.2	.6	.00	111	.15		52	6	39	1.0	183	7.1
Aug. 22		11	--	15	6.9	23	1.5	71	18	30	.3	.7	.08	141	.19		66	8	42	1.2	245	7.5
Sept. 13		11	.04	17	7.9	30	1.6	78	19	40	.3	.7	.15	166	.23		75	11	46	1.5	294	7.3

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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 (calculated)			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, 1955		--	--	19	13	45	2.8	114	--	58	--	--	0.22	--	--		101	8	48	1.9	414	8.0
Nov. 23		--	--	25	14	54	3.0	118	--	71	--	--	.27	--	--		122	25	48	2.1	496	7.9
Dec. 21		--	--	36	18	76	3.7	122	--	113	--	--	.37	--	--		164	64	50	2.6	696	7.9
Jan. 18, 1956		---	--	25	14	51	2.7	74	--	72	--	--	.52	--	--		122	61	47	2.0	521	8.0
Feb. 16		--	--	22	14	51	2.3	95	--	63	--	--	.34	--	--		112	34	49	2.1	467	8.1
Mar. 21		--	--	22	11	40	2.0	88	--	56	--	--	.26	--	--		100	28	46	1.7	408	7.8
Apr. 18		--	--	27	14	60	2.6	103	--	86	--	--	.29	--	--		127	43	50	2.3	542	6.8
May 16		14	0.17	12	3.7	16	1.5	50	14	19	0.3	0.8	.13	107	0.15		45	4	42	1.0	171	7.7
June 20		--	--	9.2	3.9	13	1.4	48	--	17	--	--	.04	--	--		39	0	41	.9	148	7.2
July 24		--	--	12	5.6	16	1.5	58	--	20	--	--	.19	--	--		53	5	39	1.0	182	7.0
Aug. 22		--	--	15	7.1	23	1.5	71	--	29	--	--	.06	--	--		66	8	42	1.2	242	7.5
Sept. 13		13	.01	15	9.3	30	2.0	78	21	42	.0	.6	.04	171	.23		76	12	46	1.5	304	7.4

OLD RIVER AT MANDEVILLE ISLAND, CALIF.
(Formerly published as 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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		22	0.07	16	13	34	2.5	110	19	42	0.3	0.9	0.09	204	0.28		93	3	43	1.5	350	7.9
Nov. 22		22	.08	21	12	32	2.3	104	27	42	.5	2.1	.06	212	.29		100	15	40	1.4	356	8.0
Dec. 20		19	.07	21	11	31	2.6	87	28	42	.5	2.3	.09	201	.27		97	26	40	1.4	337	7.6
Jan. 17, 1956		17	--	18	8.0	21	2.2	53	38	26	.4	5.4	.17	162	.22		78	35	36	1.0	268	7.5
Feb. 15		18	--	20	7.0	27	2.0	72	30	34	.2	1.8	.07	175	.24		79	20	42	1.3	299	7.7
Mar. 20		19	--	16	8.3	25	1.7	72	21	34	.6	1.4	.29	162	.22		74	15	42	1.3	277	7.5
Apr. 17		16	--	20	11	35	2.0	82	32	53	.3	1.2	.08	211	.29		94	27	44	1.6	363	7.5
May 15		21	.11	9.6	3.9	11	1.4	45	1.0	17	2.0	.9	.12	90	.12		40	1	36	.8	138	7.7
June 19.....		15	.14	13	4.3	11	1.3	56	9.4	14	.2	1.0	.00	97	.13		50	4	32	.7	151	7.5
July 25		13	--	12	5.1	15	1.4	60	10	18	.1	.3	.00	105	.14		51	2	38	.9	174	7.4
Aug. 21.....		13	--	14	6.7	23	1.5	72	14	29	.3	.5	.04	137	.19		62	3	44	1.3	240	7.5
Sept. 13		14	.03	15	8.4	28	1.7	79	16	38	.2	.9	.00	161	.22		72	7	45	1.4	283	6.8

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses; in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955	650	--	--	3.8	1.0	2.6	0.7	21	--	0.7	--	--	0.08	--	--		14	0	28	0.3	41.3	7.1
Nov. 21	332	--	--	4.0	.5	2.8	.7	19	--	2.2	--	--	.00	--	--		12	0	32	.4	40.9	7.2
Dec. 19	350	--	--	3.2	1.5	2.3	.6	17	--	3.2	--	--	.12	--	--		14	0	25	.3	42.9	7.1
Jan. 16, 1956	5,020	--	--	3.6	1.5	1.7	.8	20	--	1.5	--	--	.04	--	--		15	0	19	.2	42.5	7.4
Feb. 14	1,510	--	--	4.8	.9	2.2	.8	22	--	.9	--	--	.05	--	--		16	0	22	.2	43.3	7.6
Mar. 19	1,530	--	--	4.4	1.2	2.7	1.1	23	--	2.8	--	--	.20	--	--		16	0	25	.3	46.1	7.5
Apr. 16	1,200	--	--	4.0	1.3	2.1	.9	24	--	.7	--	--	.04	--	--		15	0	22	.2	44.1	7.2
June 19	2,180	--	--	4.0	.4	1.6	.7	19	--	.3	--	--	.07	--	--		12	0	22	.9	29.2	7.3
July 14	1,400	16	0.01	3.8	1.5	2.0	.9	25	1.0	1.0	0.0	0.2	.01	38	0.05		16	0	21	.2	41.4	7.1
July 26	737	--	--	3.6	.6	1.7	.7	18	--	.7	--	--	.17	--	--		11	0	23	.2	30.1	6.9
Aug. 20	720	--	--	3.2	.2	1.4	.6	15	--	.3	--	--	.00	--	--		9	0	24	.2	26.6	6.6
Sept. 11	715	9.0	.00	3.2	.7	2.4	.7	18	1.0	.9	.1	.3	.01	27	.04		11	0	30	.3	32.9	7.0

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 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 71 ppm Jan. 16; minimum, 30 ppm Sept. 1-15.
Hardness: Maximum, 29 ppm Jan. 16; minimum, 11 ppm May 18-25, 27-31.
Specific conductance: Maximum daily, 85.1 micromhos Jan. 16; minimum daily, 30.9 micromhos May 28.
Water temperatures: Minimum, 40°F Feb. 20.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 71 ppm Jan. 16, 1956; minimum, 30 ppm June 1-30, July 1-20, 1952, Sept. 1-15, 1956.
Hardness: Maximum, 34 ppm Feb. 1, 3, 5, Mar. 3, 1953; minimum, 11 ppm May 18-25, 27-31, 1956.
Specific conductance: Maximum daily, 202 micromhos Dec. 15, 1952; minimum daily, 29.4 micromhos July 9, 1952.
Water temperatures, 1951-54: Maximum, 83°F July 17, 1951; minimum, 35°F Jan. 29-30, 1954.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	128	--	--	5.9	0.6	2.8	--	24		--	--	--	--	39	0.05	13	17	0	--	0.3	51.6	6.8
Oct. 11-18	161	--	--	5.3	.7	2.7	--	23		--	--	--	--	38	.05	17	16	0	--	.3	50.2	6.6
Dec. 1-10	328	--	--	4.4	.9	2.4	--	20		--	--	--	--	36	.05	32	14	0	--	.3	43.6	7.0
Dec. 11-20	334	--	--	4.6	.9	2.4	--	20		--	--	--	--	38	.05	34	15	0	--	.3	45.1	6.7
Dec. 21-31	5,186	--	--	4.8	1.2	2.4	--	20		--	--	--	--	47	.06	658	17	1	--	.3	48.4	7.0
Jan. 1-10, 1956 ..	3,176	--	--	4.8	1.1	2.4	--	20		--	--	--	--	46	.06	394	16	0	--	.3	48.8	7.2
Jan. 11-15	2,338	--	--	5.4	1.2	3.5	--	23		--	--	--	--	50	.07	316	18	0	--	.4	58.1	7.1
Jan. 16.....	3,950	--	--	8.8	1.7	3.4	--	18		--	--	--	--	71	.10	757	29	14	--	.3	85.9	7.4
Jan. 17-31.....	3,939	--	--	5.0	1.1	2.4	--	23		--	--	--	--	51	.07	542	17	0	--	.3	49.0	7.3
Feb. 1-10	2,197	--	--	5.6	1.0	2.8	--	28		--	--	--	--	50	.07	297	18	0	--	.3	64.6	6.9
Feb. 11-20.....	1,647	--	--	4.9	1.2	2.8	--	26		--	--	--	--	48	.07	213	17	0	--	.3	60.5	7.0
Feb. 21-29	1,590	--	--	5.2	1.0	2.7	--	27		--	--	--	--	46	.06	197	17	0	--	.3	55.8	7.0
Mar. 1-10	1,542	--	--	5.0	1.3	2.8	--	26		--	--	--	--	44	.06	183	18	0	--	.3	56.6	6.8
Mar. 11-20	1,400	--	--	5.4	1.0	2.7	--	24		--	--	--	--	42	.06	159	18	0	--	.3	58.2	6.7
Mar. 21-31	1,181	--	--	6.2	1.1	3.1	--	26		--	--	--	--	45	.06	143	20	0	--	.3	58.7	6.5
Apr. 1-10	1,097	--	--	4.8	1.5	2.6	--	27		--	--	--	--	49	.07	145	18	0	--	.3	52.6	6.8
Apr. 11-20	1,335	--	--	4.8	1.3	2.5	--	26		--	--	--	--	47	.06	169	18	0	--	.3	49.3	6.7
Apr. 21-30	1,414	--	--	4.5	1.2	2.5	--	25		--	--	--	--	44	.06	168	16	0	--	.3	46.6	6.7
May 1-10	2,122	--	0.02	3.7	1.5	2.5	--	25		--	--	--	--	49	.07	281	15	0	--	.3	43.8	6.7
May 11-17	2,250	--	.02	3.6	1.3	3.2	--	23		--	--	--	--	49	.07	298	14	0	--	.4	54.1	6.5

SAN JOAQUIN RIVER BASIN--Continued

MOKELUMNE RIVER AT WOODBRIDGE, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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 18-25, 1956 .	2,129	--	0.01	2.9	0.9	2.1	--	20		--	--	--	--	38	0.05	218	11	0	--	0.3	35.6	6.5
May 26	3,170	--	--	3.4	.8	3.5	--	20		--	--	--	--	53	.07	454	12	0	--	.4	44.7	6.7
May 27-31	3,666	--	.13	2.8	1.0	2.1	--	19		--	--	--	--	46	.06	455	11	0	--	.3	37.5	6.5
June 1-2, 4-15 ...	2,679	15	.01	3.2	1.0	2.5	1.2	21		1.3	0.0	0.6	0.02	36	.05	260	12	0	29	.3	37.2	7.3
June 3	3,500	16	--	3.2	1.5	4.7	2.4	22		4.4	--	5.0	.03	a48	.07	454	14	0	37	.5	57.8	7.1
Aug. 5-20	80.3	10	.00	3.4	.9	2.1	.8	19		2.0	.0	.7	.00	31	.04	6.7	12	0	26	.3	36.2	6.7
Aug. 21-31.....	84.4	10	.00	3.2	1.0	1.9	.8	18		1.5	.0	1.0	.00	32	.04	7.3	12	0	24	.2	35.4	6.7
Sept. 1-15	157	--	--	3.2	.9	1.9	--	21		--	--	--	--	30	.04	13	12	0	--	.2	35.1	6.9
Sept. 16-30	261	--	.02	3.6	.9	1.9	--	22		--	--	--	--	32	.04	23	13	0	--	.2	37.2	6.8
Weighted average	b 1,580	--	--	4.3	1.1	2.6	--	23		--	--	--	--	46	0.06	196	15	0	--	0.3	49.5	--
Weighted average	c 1,307	--	--	4.5	1.1	2.5	--	23		--	--	--	--	45	0.06	159	15	0	--	0.3	48.6	--

a Calculated from determined constituents.
b Represents 90 percent of runoff for water year October 1955 to September 1956.
c Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

SAN JOAQUIN RIVER BASIN--Continued

MOKELUMNE RIVER AT WOODBRIDGE, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at 6:30 a. m./

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

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955 ..	9.1	--	--	11	6.3	5.6	1.3	76	--	3.0	--	--	0.08	--	--		53	0	18	0.3	132	7.9
Nov. 21	60	--	--	9.2	3.4	4.2	1.4	48	--	3.5	--	--	.00	--	--		37	0	19	.3	96.8	7.6
Dec. 19	352	--	--	9.2	4.6	4.4	1.0	47	--	3.0	--	--	.11	--	--		42	3	18	.3	106	7.5
Jan. 16, 1956 ..	8,350	--	--	4.8	2.2	1.8	1.1	28	--	1.0	--	--	.03	--	--		21	0	15	.2	54.1	7.6
Feb. 14	830	--	--	7.2	2.9	3.1	.9	41	--	1.4	--	--	.00	--	--		30	0	18	.2	76.3	7.8
Mar. 19	776	--	--	6.2	3.2	3.1	.9	38	--	3.5	--	--	.19	--	--		28	0	19	.3	72.2	7.9
Apr. 16	722	--	--	5.5	3.0	2.9	1.0	39	--	1.0	--	--	.01	--	--		26	0	19	.2	66.6	7.3
May 14	1,360	17	0.06	5.4	1.7	2.6	.8	32	1.6	.0	0.2	0.1	.00	45	0.06		21	0	21	.2	50.7	7.2
June 19	254	--	--	5.0	2.2	2.8	1.3	34	--	.4	--	--	.06	--	--		21	0	21	.3	54.6	7.3
July 26	51	--	--	6.4	2.8	3.5	1.4	42	--	1.0	--	--	.07	--	--		27	0	21	.3	69.6	7.0
Aug. 20	32	--	--	8.5	2.6	3.8	1.3	48	--	.7	--	--	.00	--	--		32	0	20	.3	80.4	7.5
Sept. 11	21	16	.02	8.9	3.4	4.0	1.5	52	1.9	1.0	.3	.0	.00	63	.09		36	0	19	.3	89.0	7.1

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....		--	--	15	7.4	12	1.6	88	--	7.0	--	--	0.06	--	--		68	0	27	0.6	188	7.7
Nov. 25.....		--	--	10	4.9	8.9	1.5	52	--	8.2	--	--	.08	--	--		45	2	29	.6	141	7.4
Dec. 22.....		--	--	8.8	4.5	6.9	2.2	48	--	6.1	--	--	.00	--	--		41	2	26	.5	116	--
Jan. 19, 1956....		--	--	5.9	3.1	2.3	.9	33	--	1.3	--	--	.06	--	--		28	1	15	.2	64.9	7.1
Feb. 17.....		--	--	13	6.2	7.1	1.1	74	--	4.9	--	--	.03	--	--		58	0	21	.4	149	8.1
Mar. 22.....		--	--	12	5.4	6.1	.9	66	--	6.0	--	--	.17	--	--		52	0	20	.4	131	7.8
Apr. 18.....		--	--	11	5.5	7.0	1.0	65	--	5.1	--	--	.02	--	--		50	0	23	.4	129	7.5
May 16		19	0.11	12	2.7	7.6	1.1	57	4.0	2.8	0.3	0.5	.08	76	0.10		41	0	22	.4	105	7.7
June 21		--	--	10	7.1	7.9	.9	61	--	5.0	--	--	.08	--	--		54	4	24	.5	125	7.3
July 20		--	--	12	6.5	12	1.1	76	--	9.4	--	--	.17	--	--		57	0	31	.7	163	7.2
Aug. 17.....		--	--	12	6.8	13	1.0	78	--	7.2	--	--	.04	--	--		58	0	32	.7	166	7.4
Sept. 12.....		20	.02	15	7.9	15	1.5	96	11	9.8	.0	.8	.07	128	.17		70	0	31	.8	199	7.6

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 1956.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...		25	0.02	16	11	18	1.7	94	10	25	0.3	1.1	0.03	154	0.21		84	7	31	0.9	254	7.8
Nov. 21.....		23	.03	18	9.0	17	1.8	87	13	26	.3	2.7	.00	154	.21		82	11	30	.8	252	7.9
Dec. 20.....		21	.09	17	9.1	17	1.6	72	21	24	.5	5.9	.05	152	.21		80	21	31	.8	244	7.5
Jan. 17, 1956 ...		16	--	14	7.1	9.9	1.9	44	17	20	.4	7.8	.14	116	.16		64	28	24	.5	188	7.3
Feb. 15.....		19	--	17	8.2	13	1.3	64	17	23	.3	2.7	.07	134	.18		76	24	27	.6	223	7.7
Mar. 19		16	--	8.8	8.3	11	1.1	56	9.0	19	.4	.4	.05	102	.14		56	10	29	.6	167	7.5
Apr. 16		12	--	9.7	5.4	8.7	1.1	44	4.0	19	.3	.3	.01	83	.11		46	10	28	.6	140	7.4
May 14		14	.10	5.2	4.9	5.5	.9	33	4.2	10	.4	.4	.00	62	.08		33	6	26	.4	90.6	7.4
June 19		15	.13	7.4	3.1	6.8	1.0	35	2.4	12	.3	.8	.00	66	.09		31	2	31	.5	99.6	7.1
July 23		15	--	15	8.2	16	1.3	74	11	26	.1	.9	.06	130	.18		71	10	32	.8	215	7.0
Aug. 20		17	--	14	7.6	16	1.1	81	9.2	20	.3	1.0	.06	125	.17		66	0	34	.9	207	7.5
Sept. 12		17	.02	16	8.2	17	1.5	93	13	16	.1	1.2	.07	136	.18		74	0	33	.9	221	7.2

SAN JOAQUIN RIVER BASIN--Continued

SAN JOAQUIN RIVER AT ANTIOCH, CALIF.

LOCATION.--At tidal gaging station at Antioch, Contra Costa County, and 4.5 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1956.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		22	0.12	18	26	138	7.2	116	43	228	0.3	2.6	0.08	607	0.83		151	56	65	4.9	1,020	7.9
Nov. 23		23	.24	20	24	135	6.8	99	45	229	.4	2.8	.08	535	.73		147	66	65	4.8	991	7.8
Dec. 21		21	.16	16	11	42	2.9	80	23	61	.5	1.3	.18	218	.30		86	20	50	2.0	375	7.4
Jan. 18, 1956		16	--	15	7.2	17	2.1	50	29	24	.4	3.5	.16	139	.19		67	26	35	.9	231	7.5
Feb. 16		18	--	17	8.2	22	1.9	70	26	28	.3	2.0	.08	157	.21		76	19	38	1.1	266	7.8
Mar. 21		20	--	16	7.3	22	1.9	92	20	12	.8	.9	.19	146	.20		70	0	40	1.1	318	7.5
Apr. 18		15	--	14	7.8	17	1.4	71	15	24	.3	.4	.10	130	.18		67	9	35	.9	217	7.5
May 16		17	.14	11	4.7	12	1.4	53	11	15	.1	.8	.05	99	.13		47	4	35	.8	151	7.1
June 20		16	.10	9.2	4.0	10	1.3	47	7.4	12	.2	1.0	.00	84	.11		39	0	35	.7	126	7.3
July 24		10	--	16	13	77	3.9	67	29	130	.1	.4	.00	312	.42		94	39	63	3.4	599	7.3
Aug. 22		14	--	21	23	172	6.8	76	50	284	.3	.9	.16	609	.83		148	86	70	6.1	1,130	7.4
Sept. 13		14	.05	18	16	96	3.9	85	32	158	.1	1.0	.08	381	.52		112	42	64	3.9	706	7.3

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 1956.
Water temperatures: June to September 1951, October 1953 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 75°F July 23-26; minimum, 40°F Nov. 16-19, Dec. 5-8.
EXTREMES, 1951, 1953-56.--Water temperatures: Maximum, 75°F Aug. 20, 1951; minimum, 37°F Feb. 27, 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....	191	--	--	9.7	7.4	12	1.3	82	--	8.2	--	--	0.28	--	--		55	0	32	0.7	159	7.7
Nov. 16.....	232	--	--	8.8	7.3	11	1.3	77	--	10	--	--	.18	--	--		52	0	31	.7	153	7.4
Dec. 16.....	656	--	--	7.6	6.6	6.4	.8	63	--	5.0	--	--	.17	--	--		46	0	25	.4	116	7.9
Jan. 16, 1956 ...	8,320	--	--	3.9	4.0	1.7	.2	35	--	.0	--	--	.02	--	--		26	0	12	.1	59.7	7.4
Feb. 15	1,150	--	--	6.0	5.6	4.2	.5	53	--	1.6	--	--	.06	--	--		38	0	19	.3	94.5	7.8
Mar. 13	1,460	--	--	6.4	5.4	3.2	.5	50	--	2.2	--	--	.01	--	--		38	0	15	.2	86.4	7.7
Apr. 9.....	2,030	--	--	5.2	6.8	2.5	.5	53	--	1.8	--	--	.08	--	--		41	0	12	.2	81.5	7.7
May 16	2,110	12	0.01	5.6	5.8	2.0	.5	48	1.0	1.0	0.2	0.0	.07	52	0.07		38	0	10	.1	73.1	7.0
June 13	1,010	--	--	3.8	6.5	3.1	.5	49	--	1.6	--	--	.02	--	--		36	0	15	.2	83.0	--
July 12	430	--	--	7.2	8.1	6.8	1.0	72	--	4.1	--	--	.05	--	--		51	0	22	.4	119	7.6
Aug. 21.....	247	--	--	8.0	8.0	10	1.5	81	--	7.0	--	--	.07	--	--		53	0	28	.6	144	7.6
Sept. 18	235	41	.02	9.2	6.8	11	1.1	80	2.3	6.2	.3	.5	.16	118	.16		51	0	31	.7	146	7.6

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT DELTA, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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	57	56	49	47	44	44	45	45	44	43	45	44	47	45	51	50	55	54	67	67	69	69	68	67
2	57	56	47	46	44	44	46	45	43	43	45	45	45	45	51	51	56	55	67	67	69	67	68	67
3	57	56	46	46	44	44	46	46	43	43	45	45	47	45	51	51	56	56	67	67	67	67	68	68
4	56	54	46	46	44	42	46	46	43	43	45	45	48	47	51	51	56	54	67	67	67	67	68	67
5	55	53	48	46	42	40	46	45	43	43	45	45	48	48	51	51	54	53	67	67	67	67	67	67
6	54	53	48	48	40	40	45	45	43	43	45	44	48	46	51	51	56	53	68	67	67	67	67	67
7	54	53	48	48	40	40	45	45	43	43	44	44	48	48	51	51	56	55	68	68	67	67	67	67
8	54	53	48	48	41	40	45	45	43	43	45	44	48	48	51	51	58	56	69	68	68	67	67	64
9	56	54	48	48	42	41	46	45	44	43	45	45	48	48	51	51	59	57	69	69	68	68	64	64
10	56	55	49	48	45	42	46	46	44	44	45	45	48	48	51	51	59	58	69	69	68	68	64	64
11	55	53	49	48	44	43	46	46	44	44	45	45	48	47	51	51	59	57	69	68	68	68	64	64
12	54	53	48	45	44	44	46	46	44	44	45	44	48	47	52	51	59	58	68	66	68	68	64	63
13	57	54	45	41	44	44	46	46	44	44	44	44	48	48	52	52	59	59	68	67	68	67	64	62
14	57	57	41	41	44	44	46	46	44	44	45	44	49	48	52	52	59	59	68	66	67	67	62	62
15	57	57	41	41	44	44	46	45	44	44	45	45	49	49	54	52	59	57	68	67	67	67	62	62
16	57	57	41	40	44	44	45	45	44	43	45	45	49	49	54	54	58	57	68	67	67	67	62	61
17	57	57	40	40	44	44	45	45	43	43	46	45	49	49	54	54	59	58	70	68	67	67	62	61
18	57	57	40	40	44	44	45	45	43	43	46	45	49	49	54	54	59	59	71	69	67	67	62	62
19	57	56	41	40	44	44	45	45	43	42	45	45	50	49	54	54	59	59	71	70	68	67	62	61
20	56	55	42	41	45	44	45	45	42	41	45	45	50	49	54	54	59	58	72	70	68	68	61	61
21	55	55	43	42	45	45	45	45	42	41	45	45	50	49	54	54	59	59	72	70	68	68	62	61
22	55	54	43	43	45	45	45	45	43	42	46	45	50	49	55	54	61	59	72	70	68	67	62	61
23	54	53	43	41	45	45	46	45	43	43	46	45	50	49	55	55	63	61	73	70	68	66	61	61
24	53	53	41	41	45	44	46	46	44	43	46	46	50	49	55	54	63	62	73	72	67	67	61	61
25	53	52	42	41	44	44	46	46	44	44	46	46	49	49	54	54	62	62	73	72	68	67	62	61
26	52	52	43	42	44	44	46	46	44	44	46	45	49	49	54	54	63	62	73	72	68	68	62	62
27	52	51	43	43	44	44	46	45	44	44	45	44	49	49	54	52	65	63	72	71	68	67	62	61
28	51	50	43	43	44	44	45	45	44	44	45	44	50	49	55	52	68	65	71	70	67	67	61	61
29	50	50	43	43	44	44	45	45	44	44	46	45	51	50	55	54	68	68	70	69	67	67	61	61
30	50	50	44	43	45	44	45	45	--	--	46	46	51	50	55	54	68	67	70	69	67	67	61	61
31	50	49	--	--	45	45	46	44	--	--	47	46	--	--	55	55	--	--	69	69	67	67	--	--
Average	55	54	44	44	44	43	46	45	43	43	45	45	49	48	53	53	60	59	70	69	68	67	64	63

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 69°F July 22-24, 27, 28; minimum, 42°F Feb. 3-9.
EXTREMES, 1951, 1953-56.--Water temperatures: Maximum, 80°F July 22, 1951; minimum, 40°F Dec. 27, 1954.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, November 1955 to August 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 21, 1955	4,600	--	--	12	4.9	9.6	2.1	79	--	4.5	--	--	0.09	--	--		50	0	28	0.6	141	7.9
Feb. 16, 1956	5,400	--	--	11	6.1	9.0	1.7	82	--	2.1	--	--	.03	--	--		53	0	26	.5	143	7.9
Apr. 11.....	7,170	--	--	10	4.9	7.4	1.6	74	--	1.6	--	--	.07	--	--		45	0	25	.5	120	7.9
May 15	6,740	23	0.04	14	3.7	7.5	1.7	57	17	2.2	0.0	0.4	.06	98	0.13		50	3	24	.5	120	7.3
June 13	4,340	--	--	12	5.6	9.6	2.0	86	--	3.0	--	--	.11	--	--		53	0	27	.6	144	7.4
Aug. 20	1,171	--	--	13	6.9	10	2.0	93	--	4.0	--	--	.09	--	--		61	0	26	.6	158	7.2

PIT RIVER NEAR MONTGOMERY CREEK, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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	54	50	49	46	45	48	47	44	43	46	45	51	50	57	56	61	61	67	66	67	67	63	62
2	55	54	50	49	46	46	49	48	43	43	45	45	51	51	57	57	61	61	67	66	67	66	63	62
3	55	54	50	49	46	46	49	49	43	42	45	45	50	50	57	57	62	61	66	66	66	65	63	62
4	54	53	50	49	46	45	50	49	42	42	45	45	50	50	57	56	62	61	66	66	66	65	62	62
5	54	53	49	49	45	44	50	50	42	42	45	45	50	50	56	56	61	61	66	66	66	64	62	62
6	54	53	49	49	44	43	50	49	42	42	45	45	51	50	56	55	62	61	66	66	66	65	62	62
7	54	53	49	49	45	44	49	48	42	42	45	45	51	51	55	55	62	61	67	66	65	63	62	62
8	54	52	49	49	45	44	49	49	42	42	45	44	52	51	56	55	62	62	68	66	64	64	62	61
9	54	52	49	49	44	43	49	49	43	42	44	43	52	52	56	56	62	62	68	67	64	64	61	61
10	54	53	49	49	45	44	49	49	43	43	44	43	52	52	56	56	63	62	67	66	64	64	61	61
11	53	52	49	48	45	45	49	49	43	43	44	44	52	52	56	56	63	62	67	66	64	64	61	60
12	53	53	49	47	45	45	49	49	43	43	44	44	53	52	56	55	63	63	67	67	65	64	60	60
13	54	53	48	46	45	45	49	48	43	43	45	44	53	53	55	55	63	63	67	67	65	64	60	60
14	54	54	47	46	46	45	49	48	43	43	45	45	53	53	56	55	63	63	67	66	64	64	60	59
15	55	54	47	46	46	46	49	49	43	43	45	45	53	53	56	56	63	62	68	66	64	64	60	59
16	54	54	47	45	46	45	49	49	43	43	46	45	53	53	57	56	63	62	67	66	64	64	60	59
17	54	54	45	45	46	46	49	48	43	43	46	46	53	53	58	57	63	62	66	66	64	64	59	58
18	54	54	45	45	46	46	48	48	43	43	47	46	53	53	59	58	63	63	67	66	65	64	59	59
19	54	53	45	45	46	46	48	48	43	43	47	47	53	53	60	59	63	63	67	67	65	64	59	59
20	54	53	46	43	47	46	48	47	43	43	49	47	54	53	61	60	63	63	67	67	65	64	59	59
21	54	53	45	44	48	47	47	47	43	43	49	49	55	54	61	61	63	63	68	67	64	64	59	59
22	54	53	45	44	48	48	47	47	44	43	50	49	56	55	62	61	63	63	69	67	64	64	59	58
23	53	52	45	44	48	47	47	47	46	44	51	50	56	56	62	62	64	63	69	68	64	63	59	58
24	53	52	45	44	48	48	47	47	46	46	51	51	56	56	62	62	65	64	69	68	63	63	59	58
25	53	51	45	45	48	48	47	47	46	46	51	51	56	56	62	62	65	64	68	68	64	63	59	58
26	52	52	45	45	48	48	47	47	46	46	51	51	56	56	62	62	65	64	68	68	64	63	59	58
27	52	51	45	45	48	48	47	46	46	46	51	51	56	56	62	60	66	65	69	68	64	63	59	58
28	52	51	45	45	48	48	46	46	46	46	51	51	56	56	61	61	66	66	69	67	63	63	58	58
29	51	50	45	45	48	48	46	46	46	46	51	50	56	56	61	61	66	66	68	66	63	63	58	58
30	51	50	45	45	48	47	46	45	--	--	50	50	56	56	61	61	67	66	68	66	63	63	59	58
31	50	50	--	--	47	47	45	44	--	--	50	50	--	--	61	61	--	--	67	67	63	63	--	--
Average	53	53	47	46	46	46	48	48	44	43	47	47	53	53	59	58	63	63	67	67	64	64	60	60

SACRAMENTO RIVER BASIN--Continued

McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.

LOCATION.--At gaging station just upstream from Shasta Lake, 0.2 mile downstream from 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 58°F June 27-30, July 7-12, 24-26; minimum, 38°F Feb. 19, 20.
EXTREMES, 1951, 1953-56.--Water temperatures: Maximum, 58°F June 27-30, July 7-12, 24-26, 1956; minimum, 38°F Jan. 18, 1955, Feb. 19, 20, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, November 1955 to June 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 21, 1955 ...	1,580			9.6	2.7	4.4	1.2	50		1.5			0.00				35	0	21	0.3	87.0	7.8
Apr. 11, 1956 ...	2,360			9.2	2.9	3.7	.9	55		.4			.03				35	0	18	.3	82.0	7.8
May 15	2,220	22	0.02	10	3.2	3.5	1.1	52	2.0	.8	0.1	0.3	.00	69	0.09		38	0	16	.2	82.7	7.2
June 13	1,670			8.8	3.2	3.9	1.2	54		1.0			.03				35	0	19	.3	86.2	7.2

McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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	44	43	46	46	42	41	45	44	46	45	51	48	53	50	57	54	55	53	53	51
2	49	49	46	46	44	43	46	45	41	41	45	44	46	45	51	49	53	51	56	54	54	52	53	51
3	49	49	46	46	43	43	47	46	42	41	45	45	46	44	50	48	53	51	56	54	54	51	53	51
4	49	48	47	46	43	42	47	46	43	42	45	45	48	46	48	48	53	50	57	54	54	51	52	50
5	49	48	48	47	42	40	47	46	43	43	45	44	48	47	48	48	51	49	57	54	54	51	51	50
6	48	48	48	47	42	40	47	47	43	43	44	42	48	46	48	48	53	50	57	54	54	52	51	50
7	48	48	47	47	42	42	47	47	43	43	44	43	48	47	48	48	53	50	58	55	54	52	51	50
8	48	48	47	46	43	42	47	47	43	43	45	44	48	47	50	48	54	51	58	55	55	52	51	50
9	50	48	47	46	43	42	47	47	43	42	45	44	49	47	50	48	56	53	58	55	55	53	51	50
10	51	50	47	47	43	43	47	47	42	42	45	44	49	47	50	48	56	53	58	55	55	52	50	49
11	50	49	47	44	44	43	47	47	43	42	45	44	47	46	48	47	55	52	58	54	55	52	50	49
12	50	49	44	44	44	44	47	47	44	43	44	43	48	46	48	46	55	52	58	55	54	52	50	48
13	50	50	44	42	44	44	47	47	44	43	45	43	48	47	49	46	55	52	56	54	54	52	49	47
14	50	50	43	42	44	44	47	47	43	42	45	44	47	47	50	47	55	53	56	54	54	52	49	48
15	50	50	43	42	44	44	48	47	42	41	45	44	47	47	51	49	53	52	56	54	54	52	49	47
16	50	50	42	42	44	44	47	46	41	40	45	44	49	47	52	50	54	51	57	54	54	51	49	47
17	50	49	43	42	44	44	46	46	41	40	46	45	49	47	52	50	55	51	57	55	54	52	49	48
18	50	49	43	43	45	44	46	46	41	41	46	44	49	47	53	51	55	52	57	55	54	52	49	49
19	50	49	43	43	46	45	46	46	42	38	46	45	50	48	53	51	55	53	57	55	54	52	50	49
20	50	50	43	43	46	46	46	46	41	38	46	46	50	48	54	51	55	52	57	55	53	51	50	49
21	50	49	43	43	50	46	46	46	43	41	47	46	50	49	53	51	55	52	57	55	52	51	50	48
22	49	49	43	43	50	50	46	46	44	43	47	46	50	48	54	51	55	52	57	55	52	51	48	47
23	49	48	43	42	50	50	46	46	44	44	48	46	51	49	54	52	56	53	57	55	53	51	48	47
24	48	48	43	42	50	49	46	46	44	43	48	46	51	49	52	50	56	53	58	55	53	51	48	47
25	48	48	43	43	49	49	46	46	43	42	48	47	49	48	54	50	56	54	58	55	53	51	48	48
26	49	48	43	43	49	49	46	45	43	43	48	46	48	48	53	51	57	54	58	55	53	51	49	48
27	48	46	43	43	49	48	45	44	44	43	46	44	49	48	51	49	58	55	57	54	52	50	49	48
28	46	46	43	43	48	47	44	44	44	44	46	45	50	48	53	50	58	56	57	54	51	50	49	48
29	47	46	43	43	47	46	44	43	45	44	47	45	50	48	53	51	58	55	56	54	52	50	49	48
30	47	47	43	43	46	46	43	43	--	--	47	46	50	47	53	51	58	54	56	53	53	51	49	48
31	46	45	--	--	46	46	43	42	--	--	47	46	--	--	53	51	--	--	56	53	53	51	--	--
Average	49	48	44	44	45	45	46	46	43	42	46	45	49	47	51	49	55	52	57	54	54	51	50	49

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955...	6,340	--	--	10	6.0	6.0	1.4	68	--	1.3	--	--	0.11	--	--		50	0	20	0.4	119	7.4
Nov. 16	4,350	--	--	11	4.8	6.8	1.6	67	--	3.5	--	--	.01	--	--		47	0	23	.4	121	7.5
Dec. 12	1,110	--	--	10	6.1	8.0	1.6	71	--	3.0	--	--	.17	--	--		50	0	25	.5	138	7.9
Dec. 19	a8,280	21	0.22	9.2	5.1	6.1	1.2	36	27	2.3	0.0	0.3	.05	90	0.12		44	14	22	.4	126	7.5
Jan. 11, 1956	37,300	--	--	8.3	4.0	4.9	1.1	51	--	.0	--	--	.05	--	--		37	0	22	.4	97.8	7.4
Feb. 15.....	8,220	--	--	10	3.9	6.0	1.4	56	--	.0	--	--	.00	--	--		41	0	23	.4	106	7.7
Mar. 12	7,480	--	--	10	4.6	4.7	1.1	54	--	1.8	--	--	.06	--	--		44	0	18	.3	106	7.4
Apr. 9.....	4,130	--	--	10	3.8	6.0	1.2	59	--	1.8	--	--	.09	--	--		40	0	24	.4	106	7.6
May 14	12,200	15	.07	9.6	3.9	4.8	1.5	55	4.0	2.0	.0	.3	.05	68	.09		40	0	20	.3	95.4	7.1
June 12	7,160	--	--	9.8	3.6	5.2	1.1	55	--	1.4	--	--	.00	--	--		39	0	22	.4	101	--
July 10	8,370	--	--	10	3.5	5.5	1.4	56	--	1.5	--	--	.02	--	--		39	0	23	.4	97.7	7.4
Aug. 15	8,770	--	--	8.8	4.9	5.0	.8	59	--	1.0	--	--	.06	--	--		42	0	20	.3	97.3	7.6
Sept. 19	8,110	22	.07	10	3.4	4.6	.8	57	2.9	.5	.3	.5	.00	73	.10		39	0	20	.3	95.9	7.7

a Daily mean discharge.

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	6,080	--	--	11	5.7	6.3	1.2	67	--	1.1	--	--	0.08	--	--		51	0	21	0.4	120	7.4
Nov. 16	4,680	--	--	12	4.9	7.6	1.7	72	--	3.8	--	--	.09	--	--		50	0	24	.5	131	7.6
Dec. 12	3,340	--	--	11	5.2	7.9	1.6	69	--	3.5	--	--	.08	--	--		49	0	25	.5	132	7.8
Jan. 11, 1956	39,200	--	--	8.5	3.9	5.0	1.2	51	--	.0	--	--	.02	--	--		37	0	22	.4	98.1	7.5
Feb. 14	7,230	--	--	11	3.8	6.0	1.3	56	--	.0	--	--	.01	--	--		43	0	23	.4	111	7.5
Mar. 12	8,180	--	--	11	3.3	6.1	1.1	62	--	.0	--	--	.03	--	--		41	0	24	.4	109	7.8
Apr. 9	3,980	--	--	11	3.4	5.8	1.2	58	--	1.6	--	--	.07	--	--		42	0	23	.4	107	7.7
May 11	14,200	17	0.09	9.2	4.6	5.2	1.2	57	3.0	2.0	0.0	0.3	.10	71	0.10		42	0	21	.3	98.9	7.3
June 12	6,830	--	--	10	3.3	5.3	1.3	55	--	1.4	--	--	.01	--	--		39	0	22	.4	99.4	--
July 9	8,240	--	--	9.9	3.2	5.1	1.3	56	--	1.2	--	--	.00	--	--		38	0	22	.4	99.1	7.4
Aug. 15	8,570	--	--	9.6	5.1	4.8	1.0	58	--	1.5	--	--	.00	--	--		45	0	18	.3	96.5	7.5
Sept. 19	8,060	20	.06	10	3.4	4.8	1.0	56	3.5	.5	.3	.3	.01	72	.10		39	0	21	.3	97.2	7.1

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	67	--	--	14	9.1	8.6	1.4	98	--	4.1	--	--	0.00	--	--		72	0	20	0.4	181	7.6
Dec. 14	620	--	--	25	11	11	1.0	117	--	1.5	--	--	.00	--	--		109	13	18	.5	266	7.7
Jan. 17, 1956	6,750	--	--	19	8.0	5.0	.9	94	--	1.5	--	--	.11	--	--		80	3	12	.2	172	7.8
Feb. 7	785	--	--	28	11	8.8	.9	a138	--	3.6	--	--	.01	--	--		117	4	14	.4	259	8.4
Mar. 13	1,560	--	--	27	11	7.7	.7	b134	--	3.8	--	--	.03	--	--		114	4	13	.3	251	8.4
Apr. 10	1,210	--	--	25	7.7	6.6	1.2	119	--	3.4	--	--	.00	--	--		94	0	13	.3	209	7.9
May 8	1,840	18	0.08	20	9.6	6.6	.8	110	10	2.2	0.2	0.4	.03	122	0.17		89	0	14	.3	196	7.8
June 12	465	--	--	21	10	7.1	1.1	114	--	4.8	--	--	.00	--	--		93	0	14	.3	209	--
July 17	177	--	--	23	10	8.9	1.4	128	--	6.8	--	--	.03	--	--		100	0	16	.4	224	7.5
Aug. 14	92	--	--	20	10	8.6	1.5	119	--	3.2	--	--	.13	--	--		91	0	17	.4	206	7.5
Sept. 18	90	26	.08	18	9.0	7.8	1.2	110	6.1	3.8	.1	.6	.02	127	.17		82	0	17	.4	187	7.5

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

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

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 1955 to September 1956.
Water temperatures: May 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 124 ppm Nov. 22-23; minimum, 80 ppm Aug. 1-31, Sept. 1-10.
Hardness: Maximum, 56 ppm Apr. 12-20; minimum, 28 ppm Jan. 14-15.
Specific conductance: Maximum daily, 161 micromhos Apr. 12; minimum daily, 68.7 micromhos Jan. 15.
Water temperatures: Maximum, 59°F Oct. 15, June 27-28; minimum, 42°F Feb. 19.
EXTREMES, May 1955 to September 1956.--Dissolved solids: Maximum, 124 ppm Nov. 22-23, 1955; minimum, 80 ppm Aug. 1-31, Sept. 1-10, 1955.
Hardness: Maximum, 56 ppm Apr. 12-20, 1956; minimum, 28 ppm Jan. 14-15, 1956.
Specific conductance: Maximum daily, 161 micromhos Apr. 12, 1956; minimum daily, 68.7 micromhos Jan. 15, 1956.
Water temperatures: Maximum, 60°F May 12, 1955; minimum, 42°F Feb. 19, 1956.
REMARKS.--Daily samples for chemical analysis 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 1955 to September 1956 given in WSP 1445.
No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	5,758	25	0.01	12	4.6	6.7	1.4	70	4.0	2.8	0.1	0.4	0.07	91	0.12	1,410	49	0	22	0.4	127	7.6
Oct. 11-20	5,480	26	.02	12	4.5	7.1	1.6	69	5.0	2.8	.1	.8	.12	94	.13	1,390	48	0	23	.4	129	7.1
Oct. 21-31	5,434	27	.03	12	4.6	6.9	2.1	71	4.0	3.0	.2	.4	.17	95	.13	1,390	49	0	22	.4	130	7.3
Nov. 1-18	5,602	28	.01	12	5.0	7.6	1.8	74	4.0	3.5	.1	.6	.11	98	.13	1,480	50	0	24	.5	140	7.2
Nov. 19.....	5,860	--	--	13	5.2	8.7	1.8	71	3.0	--	--	--	--	108	.15	1,710	54	0	25	.5	151	6.9
Nov. 20-21	16,100	21	.08	10	4.1	5.8	1.6	46	8.0	6.0	.0	4.2	.17	108	.15	4,690	42	4	22	.4	122	7.3
Nov. 22-23	7,055	26	.04	12	5.8	7.2	1.7	62	14	5.5	.0	1.4	.10	124	.17	2,360	54	3	22	.4	147	7.1
Nov. 24-30	5,879	27	.03	13	5.5	7.1	1.5	68	9.0	5.5	.1	1.6	.05	110	.15	1,750	55	0	21	.4	153	7.2
Dec. 1-5.....	5,094	30	.03	13	5.5	8.3	1.5	74	6.0	4.5	.2	.7	.14	106	.14	1,460	55	0	24	.5	146	8.0
Dec. 6.....	34,500	18	--	7.6	2.7	4.4	1.3	35	--	3.0	--	3.1	.08	--	--	--	30	1	23	.3	81.9	7.9
Dec. 7-18	8,914	27	.05	12	4.9	7.3	1.3	63	8.0	4.5	.2	.9	.09	101	.14	2,430	50	0	24	.4	135	8.0
Dec. 19-21	47,000	17	.11	8.4	3.4	4.3	1.2	37	8.0	2.5	.2	1.5	.08	82	.11	10,410	35	5	20	.3	92.3	7.5
Dec. 22-23.....	81,700	14	--	9.2	3.2	3.4	1.5	40	7.0	.5	--	1.3	.11	a60	.08	13,240	36	3	16	.2	89.5	6.6
Dec. 24-31	55,500	23	.10	10	4.6	6.2	1.5	57	7.0	3.0	.3	.4	.08	92	.13	13,790	44	0	23	.4	118	7.5
Jan. 1-13, 1956 .	49,890	20	.18	10	3.7	5.2	1.2	53	6.0	2.0	.2	.4	.06	88	.12	11,850	40	0	21	.4	104	7.4
Jan. 14-15	93,150	16	.20	7.2	2.4	3.5	1.1	36	6.0	.5	--	.5	.06	a55	.07	13,830	28	0	20	.3	71.2	7.6
Jan. 16-31	49,780	20	.20	10	3.9	4.8	1.0	54	6.0	1.5	.2	.5	.05	87	.12	11,690	41	0	20	.3	104	7.5
Feb. 1-10.....	17,870	24	.12	13	3.9	6.4	1.2	67	5.6	1.0	.3	.9	.10	94	.13	4,540	48	0	22	.4	126	7.3
Feb. 11-19	11,100	24	.16	13	4.8	6.9	1.3	70	8.0	.5	.3	.9	.07	102	.14	3,060	52	0	22	.4	134	7.1
Feb. 20-22.....	50,600	17	.24	9.9	3.2	4.1	1.1	52	5.4	--	.3	.9	.09	95	.13	12,980	38	0	18	.3	105	7.2
Feb. 23-29	57,500	22	.13	12	3.0	5.8	1.2	57	7.4	.1	.3	.5	.06	91	.12	14,130	42	0	22	.4	109	7.2

a Sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT BEND, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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. 1-10, 1956..	21,150	24	0.13	12	4.3	6.2	1.2	67	5.4	0.8	0.3	0.6	0.10	95	0.13	5,420	48	0	21	0.4	121	7.3
Mar. 11-20	11,160	24	.12	13	4.8	6.6	1.2	70	7.0	.8	.3	.4	.06	98	.13	2,950	52	0	21	.4	130	7.3
Mar. 21-31	9,714	23	.15	13	4.8	6.1	1.2	68	8.6	.9	.3	.4	.04	96	.13	2,520	52	0	20	.4	127	7.3
Apr. 1-11	7,008	25	.03	13	4.8	6.2	1.3	70	6.2	2.1	.3	1.2	.02	96	.13	1,820	52	0	20	.4	130	7.2
Apr. 12-20.....	7,268	24	.03	14	5.2	6.5	1.4	73	6.6	2.8	.2	1.0	.05	100	.14	1,960	56	0	20	.4	141	7.2
Apr. 21-30.....	6,402	24	.03	13	4.4	6.1	1.4	70	5.4	2.2	.3	.8	.07	94	.13	1,620	51	0	20	.4	132	7.4
May 1-4	7,065	24	.05	12	4.4	6.1	1.1	66	4.4	1.5	.3	.5	.10	90	.12	1,720	48	0	21	.4	122	7.5
May 5-17	16,340	23	.06	10	4.2	5.2	1.1	59	4.0	1.5	.3	.7	.07	84	.11	3,710	42	0	21	.3	120	7.1
May 18-31	13,190	23	.06	10	4.4	7.0	1.1	60	4.2	2.4	.1	.4	.04	82	.11	2,920	43	0	25	.5	108	7.1
June 1-10	10,380	24	.06	11	4.1	7.4	1.2	62	6.7	2.3	.1	.5	.04	84	.11	2,350	44	0	26	.5	119	7.0
June 11-20	8,542	24	.05	11	4.4	7.1	1.2	62	5.6	2.3	.1	.2	.03	85	.12	1,960	45	0	25	.5	112	7.2
June 21-30	8,400	22	.05	11	4.1	6.3	1.2	62	3.6	2.4	.1	.3	.06	84	.11	1,910	44	0	23	.4	114	6.8
July 1-10	8,883	24	.04	11	4.7	6.3	1.3	62	5.2	2.6	.1	.4	.04	84	.11	2,010	47	0	22	.4	111	6.9
July 11-20	10,130	24	.04	11	4.1	6.1	1.2	60	5.2	2.4	.1	.5	.06	83	.11	2,270	44	0	22	.4	108	7.0
July 21-31.....	9,998	24	.04	10	3.9	5.9	1.2	60	3.3	2.0	.1	.5	.06	81	.11	2,190	41	0	23	.4	119	6.9
Aug. 1-15	9,059	24	.03	10	4.1	5.6	1.0	60	5.2	1.8	.1	.1	.05	80	.11	1,960	42	0	22	.4	107	6.8
Aug. 16-31.....	9,002	23	.05	10	4.1	5.6	1.1	61	3.8	2.0	.0	.2	.03	80	.11	1,940	42	0	22	.4	111	7.2
Sept. 1-10	8,335	24	.05	10	4.4	5.4	1.1	61	3.6	1.9	.0	.2	.05	80	.11	1,800	43	0	21	.4	104	7.2
Sept. 11-20	8,479	24	.03	9.6	4.1	5.0	1.1	61	3.8	2.2	.2	.3	.08	82	.11	1,880	41	0	21	.3	103	7.3
Sept. 21-30	8,562	24	.03	9.6	4.4	5.2	1.1	61	3.8	2.2	.2	.3	.11	82	.11	1,900	42	0	21	.4	106	7.1
Weighted average	b16,160	c22	c0.11	11	4.0	5.7	1.2	58	c5.9	c1.9	c0.2	c0.6	0.07	c87	c0.14	c3,800	44	0	22	0.4	112	--

b Represents 100 percent of runoff for water year October 1955 to September 1956.
c Includes estimates for missing data.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT BEND, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/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	55	53	48	46	48	52	57	56	56	56	56
2	56	54	50	49	46	47	51	56	55	54	55	57
3	54	55	49	48	47	47	53	54	57	56	56	56
4	54	55	49	47	46	47	54	54	55	57	55	56
5	54	56	48	48	47	46	54	54	54	56	56	57
6	53	56	47	48	47	46	54	53	55	57	56	56
7	54	57	49	48	48	47	54	52	56	56	56	55
8	55	56	49	48	47	49	55	52	56	57	56	55
9	55	57	48	48	47	49	56	53	56	57	56	55
10	53	57	49	48	46	49	53	49	56	57	58	56
11	53	58	51	48	47	47	50	52	56	56	56	55
12	54	53	52	48	47	47	49	52	56	56	56	55
13	55	50	50	48	47	49	49	53	55	54	56	--
14	54	52	50	48	46	49	48	53	55	54	55	--
15	59	54	52	50	46	50	50	54	56	55	55	55
16	58	50	50	48	43	49	50	55	55	55	55	55
17	58	52	50	48	43	51	54	55	58	56	55	55
18	58	53	--	49	43	51	55	55	55	56	55	53
19	57	52	52	49	42	51	56	55	57	57	55	55
20	57	54	49	48	44	50	57	55	57	56	56	56
21	57	50	52	49	46	51	57	56	57	56	56	56
22	50	51	55	49	47	51	58	56	58	58	56	55
23	56	50	52	48	46	52	58	56	57	56	56	55
24	56	50	49	48	46	53	54	56	58	56	56	56
25	56	51	51	47	45	53	52	56	58	57	56	56
26	57	52	51	43	45	51	53	56	58	56	56	55
27	55	53	48	46	47	50	54	55	59	56	56	55
28	56	53	48	46	47	50	54	56	59	55	56	55
29	58	53	48	46	48	52	55	55	58	57	56	56
30	56	52	48	47	--	51	55	55	58	56	56	56
31	56	--	48	46	--	51	--	55	--	56	57	--
Average	55	53	50	48	46	49	53	54	57	56	56	55

SACRAMENTO RIVER BASIN--Continued

MILL CREEK AT MOUTH NEAR LOS MOLINOS, CALIF.
(Formerly Mill Creek near Los Molinos)

LOCATION.--At bridge on U. S. Highway 99, 0.8 mile upstream from confluence with Sacramento River, 4.5 miles below gaging station near Los Molinos, Tehama County.
DRAINAGE AREA.--134 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of water discharge for Mill Creek near Los Molinos for water year October 1955 to September 1956 given in WSP 1445. Considerable diversion between gaging station and sampling point.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	106	--	--	12	6.1	17	2.8	65	--	20	--	--	0.65	--	--		55	2	39	1.0	202	7.8
Nov. 16	128	--	--	14	5.5	21	3.0	66	--	24	--	--	.73	--	--		58	4	43	1.2	229	7.6
Dec. 14	128	--	--	12	5.1	17	2.6	60	--	20	--	--	.58	--	--		51	2	41	1.0	191	7.7
Jan. 17, 1956	1,300	--	--	6.4	2.9	4.3	1.0	35	--	2.5	--	--	.14	--	--		28	0	24	.4	75.6	7.4
Feb. 7	300	--	--	9.3	4.1	9.6	1.5	50	--	9.8	--	--	.29	--	--		40	0	33	.7	132	8.0
Mar. 13	297	--	--	9.2	4.3	10	1.5	53	--	11	--	--	.27	--	--		40	0	34	.7	136	7.9
Apr. 10	481	--	--	8.0	2.7	9.0	1.6	44	--	6.5	--	--	.32	--	--		31	0	37	.7	108	7.5
May 8	629	27	0.02	7.2	2.2	6.4	1.4	37	6.0	5.2	0.0	0.0	.17	74	0.10		27	0	33	.5	86.9	7.3
June 12	535	--	--	7.6	2.4	6.0	1.5	32	--	4.8	--	--	.00	--	--		29	3	30	.5	91.2	7.3
July 17	240	--	--	10	3.2	9.6	2.0	45	--	8.0	--	--	.25	--	--		38	1	34	.7	130	7.4
Aug. 14	155	--	--	12	4.1	12	2.3	58	--	12	--	--	.21	--	--		47	0	34	.8	160	7.7
Sept. 18	141	40	.00	17	9.1	15	3.5	93	17	15	.0	.7	.37	164	.22		80	4	28	.7	226	7.1

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.
DRAINAGE AREA.--200 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	19	--	--	14	7.8	13	3.4	105	--	4.8	--	--	0.19	--	--		67	0	28	0.7	183	8.2
Nov. 16.....	83	--	--	12	7.0	12	1.8	95	--	5.5	--	--	.14	--	--		59	0	30	.7	170	7.7
Dec. 14.....	120	--	--	11	6.2	9.2	1.6	84	--	4.0	--	--	.09	--	--		53	0	27	.6	144	8.2
Jan. 17, 1956.....	2,080	--	--	6.0	2.8	2.8	.8	40	--	.8	--	--	.02	--	--		26	0	18	.2	65.5	7.5
Feb. 7.....	393	--	--	7.5	4.7	5.7	1.2	59	--	2.3	--	--	.08	--	--		38	0	24	.4	102	8.0
Mar. 13.....	429	--	--	8.0	4.4	5.2	1.0	56	--	3.0	--	--	.02	--	--		38	0	22	.4	98.5	7.9
Apr. 10.....	429	--	--	6.0	3.4	4.5	1.1	45	--	.0	--	--	.09	--	--		29	0	24	.4	76.6	7.5
May 8	731	25	0.03	5.6	3.2	3.3	.9	43	0.0	.5	0.1	0.2	.07	60	0.08		27	0	20	.3	63.8	7.4
June 12	208	--	--	8.8	3.4	5.1	1.3	55	--	2.2	--	--	.00	--	--		36	0	23	.4	91.6	7.6
July 17.....	23	--	--	11	6.6	8.6	1.9	88	--	2.5	--	--	.12	--	--		55	0	25	.5	139	7.6
Aug. 14.....	2.3	--	--	18	12	11	2.6	136	--	2.7	--	--	.08	--	--		94	0	20	.5	218	7.8
Sept. 18.....	7.5	41	.02	20	15	13	2.9	161	3.8	4.0	.3	.2	.11	179	.24		114	0	19	.5	256	7.3

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station on bridge on State Highway 32, 1.3 miles northeast of Hamilton City, Glenn County, and 2.4 miles above Pine Creek.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955....	5,390	--	--	11	6.0	7.1	1.4	71	--	1.9	--	--	0.07	--	--		52	0	22	0.4	132	7.7
Nov. 17.....	5,950	--	--	12	5.6	9.0	1.6	79	--	3.4	--	--	.06	--	--		53	0	26	.5	144	7.8
Dec. 14.....	6,290	--	--	14	6.1	8.4	1.4	75	--	6.5	--	--	.03	--	--		60	0	23	.5	157	7.7
Jan. 17, 1956 ...	--	--	--	11	3.1	4.2	1.1	52	--	.0	--	--	.10	--	--		40	0	18	.3	98.5	7.6
Feb. 7.....	--	--	--	13	6.3	6.6	1.1	73	--	2.0	--	--	.01	--	--		58	0	19	.4	142	8.0
Mar. 13	--	--	--	14	5.7	6.1	1.0	74	--	1.9	--	--	.06	--	--		58	0	18	.3	144	7.9
Apr. 10.....	--	--	--	15	4.3	6.6	1.4	76	--	1.2	--	--	.05	--	--		55	0	20	.4	138	7.7
May 8	--	22	0.15	10	4.7	5.3	1.0	60	4.2	1.4	0.3	0.5	.02	80	0.11		44	0	20	.3	108	7.2
June 12	--	--	--	--	11	4.6	5.6	1.2	62	--	2.3	--	--	.00	--	--		46	0	20	.4	117	--
July 17	8,360	--	--	10	5.8	5.6	1.2	62	--	2.0	--	--	.02	--	--		49	0	20	.3	109	7.4
Aug. 14.....	6,980	--	--	11	3.7	5.5	2.1	62	--	.8	--	--	.00	--	--		43	0	21	.4	108	7.5
Sept. 18	7,740	22	.05	9.8	4.5	5.4	1.0	63	2.9	.7	.3	.2	.00	78	.11		43	0	21	.4	108	7.4

BIG CHICO CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station in Arroyo Chico Grant, 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles miles northeast of Chico, Butte County. Prior to Oct. 1, 1955, at site 0.6 mile downstream.
DRAINAGE AREA.--67.9 square miles. Drainage area at former site, 68.3 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	29	--	--	16	8.8	14	1.3	107	--	11	--	--	0.16	--	--		76	0	28	0.7	209	8.1
Nov. 17.....	36	--	--	16	8.3	17	1.3	103	--	14	--	--	.21	--	--		74	0	33	.9	223	7.9
Dec. 15.....	48	--	--	13	6.9	11	.9	84	--	9.0	--	--	.10	--	--		61	0	28	.6	164	8.0
Jan. 17, 1956.....	1,280	--	--	6.3	3.0	2.8	.5	40	--	.4	--	--	.01	--	--		28	0	17	.2	71.1	7.5
Feb. 7.....	188	--	--	8.8	4.8	5.1	.5	49	--	2.8	--	--	.06	--	--		42	0	21	.3	104	8.1
Mar. 13.....	216	--	--	4.0	6.7	4.3	.5	50	--	3.5	--	--	.01	--	--		38	0	20	.3	90.9	7.8
Apr. 10.....	123	--	--	11	5.0	6.7	1.0	70	--	3.5	--	--	.15	--	--		48	0	23	.4	118	7.2
May 8.....	172	30	0.00	9.5	4.9	5.4	.8	62	3.4	3.3	0.0	0.0	.06	88	0.12		44	0	21	.4	107	7.7
June 12	51	--	--	14	7.6	9.8	1.1	92	--	6.2	--	--	.09	--	--		66	0	24	.5	160	7.9
July 17.....	36	--	--	14	8.5	12	1.3	102	--	8.3	--	--	.17	--	--		70	0	27	.6	183	7.8
Aug. 14.....	30	--	--	15	8.7	13	1.4	106	--	9.5	--	--	.08	--	--		73	0	27	.7	193	7.4
Sept. 18.....	29	39	.00	16	8.9	14	1.0	108	4.8	9.8	.2	.0	.11	147	.20		76	0	28	.7	199	7.7

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 1955 to September 1956.
Water temperatures: May 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 122 ppm Mar. 9-20; minimum, 84 ppm Dec. 6-8.
Hardness: Maximum, 70 ppm June 30; minimum, 35 ppm Dec. 19-21.
Specific conductance: Maximum daily, 174 micromhos Dec. 14; minimum daily, 81.1 micromhos Dec. 7.
Water temperatures: Maximum, 72°F June 29; minimum, 45°F on several days during December, January and February.
EXTREMES, May 1955 to September 1956.--Dissolved solids: Maximum, 122 ppm Mar. 9-20, 1956; minimum, 84 ppm Dec. 6-8, 1955.
Hardness: Maximum, 70 ppm June 30, 1956; minimum, 35 ppm Dec. 19-21, 1955.
Specific conductance: Maximum daily, 174 micromhos Dec. 14, 1955; minimum daily, 81.1 micromhos Dec. 7, 1955.
Water temperatures: Maximum, 74°F June 5, 7, 1955; minimum, 45°F on several days during December 1955, January and February 1956.
REMARKS.--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 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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. 1-9, 1955...	5,110	27	0.02	12	5.6	6.5	1.7	75	4.0	3.5	0.1	0.6	0.08	102	0.14	1,410	53	0	20	0.4	139	7.2
Oct. 10-20	5,185	28	.03	13	5.7	6.4	1.9	74	3.0	6.2	.1	.5	.07	110	.15	1,540	56	0	19	.4	150	7.4
Oct. 21-31	5,055	29	.02	12	5.8	6.6	1.9	77	4.0	3.8	.1	.4	.05	104	.14	1,420	54	0	20	.4	143	7.4
Nov. 1-13	5,121	29	.01	13	5.7	7.2	1.7	80	3.0	4.2	.1	.4	.07	110	.15	1,520	56	0	21	.4	150	7.7
Nov. 14-19	5,975	29	.02	12	6.3	7.3	1.6	79	5.0	4.5	.0	.4	.10	108	.15	1,740	56	0	22	.4	148	7.7
Nov. 20-21	9,130	31	--	12	5.8	8.1	1.7	71	8.0	6.5	--	1.3	.19	120	.16	2,960	54	0	24	.5	154	7.3
Nov. 22-23.....	12,420	21	--	10	4.1	6.8	1.9	46	6.0	6.5	--	--	.30	100	.14	3,350	42	4	25	.5	121	7.2
Nov. 24-30	6,819	27	.03	14	5.6	9.0	1.6	72	10	6.5	.2	1.0	.10	116	.16	2,140	58	0	25	.5	157	7.2
Dec. 1-5.....	5,266	30	.02	14	6.8	9.8	1.8	84	8.0	6.0	.1	.6	.14	116	.16	1,650	63	0	25	.5	168	7.1
Dec. 6-8	19,270	22	.12	9.2	3.9	5.8	1.4	49	6.0	4.0	.2	1.8	.11	84	.11	4,370	39	0	23	.4	106	7.7
Dec. 9-11	11,410	27	.05	12	4.9	8.1	1.4	61	8.0	5.5	.3	1.5	.14	98	.13	3,020	50	0	25	.5	136	7.8
Dec. 12-18	8,369	27	.04	14	5.4	8.8	1.4	70	9.0	7.5	.3	1.0	.10	110	.15	2,490	57	0	25	.5	155	7.4
Dec. 19-21	72,570	17	.24	8.8	3.2	4.1	1.6	41	5.0	2.5	.4	2.0	.08	a65	.09	12,740	35	1	19	.3	90.9	7.0
Dec. 29,1955-Jan. 14, 1956 ..	59,390	22	.14	11	4.3	6.4	1.3	59	7.0	3.0	.3	.7	.01	92	.13	14,750	45	0	23	.4	118	8.0
Jan. 15-19	107,200	20	.31	11	4.0	4.7	1.3	52	6.0	2.0	.3	4.5	.08	86	.12	24,890	44	1	18	.3	112	7.6
Jan. 20-31	59,080	20	.18	12	4.4	5.5	1.3	61	6.0	2.5	.3	.8	.04	90	.12	14,360	48	0	19	.3	118	7.9
Feb. 1-5	31,800	23	.09	13	5.7	7.1	1.1	74	8.0	2.0	.2	.9	.12	104	.14	8,930	56	0	21	.4	140	7.3
Feb. 6-20	16,590	23	.10	15	6.9	8.3	1.3	85	8.0	3.7	.3	1.1	.09	114	.16	5,110	66	0	21	.4	163	7.2
Feb. 21-25.....	81,780	16	.21	12	4.0	5.4	1.4	60	5.0	1.9	.7	1.2	.13	95	.13	20,980	46	0	19	.3	116	7.0
Feb. 26-Mar. 3..	53,370	22	.11	12	4.9	6.3	1.4	66	7.8	2.9	.1	1.1	.04	100	.14	14,410	50	0	21	.4	131	7.3

Mar. 4-8, 1956...	25,180	23	.07	13	7.3	6.9	1.3	76	10	3.1	.1	1.2	0.11	110	.15	7,480	62	0	19	.4	145	7.2
Mar. 9-20	15,820	26	.06	15	7.4	7.7	1.3	84	10	3.5	.1	1.0	.13	122	.17	5,210	68	0	19	.4	159	7.3
Mar. 21-31	12,530	26	.06	14	6.9	7.2	1.3	78	10	3.3	.1	.9	.08	116	.16	3,920	63	0	19	.4	150	7.1
Apr. 1-11.....	9,043	28	.03	16	6.0	7.6	1.3	84	8.0	3.9	.1	1.1	.23	110	.15	2,690	65	0	20	.4	158	7.2
Apr. 12-18	9,397	25	.03	16	6.3	7.2	1.2	82	8.0	4.1	.1	.9	.04	106	.14	2,690	66	0	19	.4	157	7.1
Apr. 19-30	7,925	24	.02	14	6.1	6.9	1.2	80	6.6	3.0	.1	1.9	.13	102	.14	2,180	60	0	20	.4	143	7.1
May 1-7.....	10,420	24	.03	13	4.8	6.6	1.2	70	4.6	2.4	.3	1.5	.03	96	.13	2,700	52	0	21	.4	131	7.1
May 8-13.....	19,270	24	.05	10	4.6	5.6	1.1	62	2.0	1.0	.3	1.0	.16	91	.12	4,730	44	0	21	.4	111	7.0
May 14-19	15,850	26	.04	12	4.3	6.1	1.1	66	3.4	1.6	.4	1.0	.06	92	.13	3,940	48	0	21	.4	119	7.4
May 20-31.....	13,680	23	.03	11	4.5	5.9	1.2	64	3.0	2.2	.3	1.1	.07	88	.12	3,250	46	0	21	.4	117	7.2
June 1-10	10,230	23	.03	12	5.7	6.6	1.2	68	6.7	3.0	.1	.9	.05	92	.13	2,540	53	0	21	.4	122	7.0
June 11-20	7,820	25	.03	13	5.0	7.1	1.3	72	4.2	3.0	.1	.2	.07	100	.14	2,110	53	0	22	.4	132	6.6
June 21-29	6,928	26	.03	13	5.2	7.2	1.3	72	5.8	3.1	.1	.8	.00	98	.13	1,830	54	0	22	.4	131	6.8
June 30	7,060	--	--	17	6.7	8.3	1.3	82	--	--	--	--	.09	119	.16	2,270	70	3	20	.4	163	7.7
July 1-10	6,961	26	.03	13	5.2	7.0	1.2	71	5.0	3.4	.1	.8	.07	97	.13	1,820	54	0	21	.4	137	6.9
July 11-20	7,886	24	.03	12	4.9	6.3	1.3	66	4.4	2.6	.1	.6	.08	91	.12	1,940	50	0	21	.4	119	7.1
July 21-31	7,751	22	.02	12	4.6	6.1	1.1	66	3.8	2.2	.1	.2	.03	88	.12	1,840	49	0	21	.4	120	6.6
Aug. 1-15.....	6,821	24	.03	11	5.5	6.1	1.1	67	6.0	2.5	.1	.9	.05	91	.12	1,680	50	0	20	.4	122	6.7
Aug. 16-31.....	6,747	25	.03	11	5.3	6.1	1.1	66	4.2	2.8	.1	.5	.05	92	.13	1,680	49	0	21	.4	123	6.7
Sept. 1-10	6,661	24	.02	11	5.0	7.0	1.8	65	3.8	4.0	.0	2.0	.10	94	.13	1,690	48	0	23	.4	128	6.7
Sept. 11-20	7,419	24	.02	11	4.9	6.5	1.5	66	5.4	3.4	.0	1.4	.04	94	.13	1,880	48	0	22	.4	123	6.9
Sept. 21-30	7,873	24	.04	11	5.0	6.5	1.4	66	4.2	3.4	.1	1.2	.02	92	.13	1,960	48	0	22	.4	122	6.9
Weighted average	b17,460	22	c0.12	12	4.9	6.3	1.3	65	6.3	2.9	c0.3	c1.3	0.07	96	0.13	4,530	50	0	21	0.4	127	--
Weighted average	d18,850	22	0.13	12	4.8	6.1	1.4	63	6.2	2.9	0.3	1.3	0.07	93	0.13	4,730	50	0	21	0.4	123	--

a Sum of determined constituents.
b Represents 91 percent of runoff for water year October 1955 to September 1956.
c Includes estimates for missing data.
d Includes estimated data for missing period. Represents 100 percent of runoff for water year October 1955 to September 1956.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT BUTTE CITY, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
[Once-daily measurement at approximately 4 p. m. to 7 p. m.]

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

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	74	--	--	11	5.8	4.2	1.1	70	--	0.0	--	--	0.07	--	--		51	0	15	0.3	118	7.7
Nov. 17.....	115	--	--	13	5.4	4.8	.9	74	--	.3	--	--	.09	--	--		55	0	16	.3	127	7.7
Dec. 15	203	--	--	11	4.8	3.7	.8	64	--	.5	--	--	.00	--	--		47	0	14	.2	107	7.8
Jan. 16, 1956 ...	3,400	--	--	5.0	2.8	1.8	.5	33	--	.0	--	--	.01	--	--		24	0	14	.2	57.3	7.4
Feb. 7	652	--	--	9.6	1.5	4.0	.5	44	--	.0	--	--	.04	--	--		30	0	22	.3	73.7	7.8
Mar. 13.....	610	--	--	10	1.6	2.5	.3	42	--	2.0	--	--	.04	--	--		32	0	15	.2	73.3	7.7
Apr. 10.....	640	--	--	4.8	3.6	2.7	.7	43	--	.0	--	--	.04	--	--		27	0	17	.2	64.8	7.5
May 8	762	17	0.00	5.8	3.1	2.0	.5	36	2.0	.5	0.0	0.0	.00	49	0.07		27	0	14	.2	57.7	7.5
June 12	370	--	--	8.8	2.9	2.5	.6	47	--	.5	--	--	.00	--	--		34	0	14	.2	72.2	7.5
July 17	191	--	--	9.8	4.3	3.6	1.0	62	--	.3	--	--	.02	--	--		42	0	15	.2	95.5	7.6
Aug. 14.....	155	--	--	11	4.5	3.6	1.1	66	--	.3	--	--	.00	--	--		46	0	14	.2	103	7.2
Sept. 18	124	22	.00	12	4.5	3.6	.7	70	.0	.0	.2	.1	.00	77	.10		49	0	14	.2	103	7.3

SACRAMENTO RIVER BASIN--Continued

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956. 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 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	350	--	--	26	18	51	2.5	183	--	26	--	--	0.11	--	--		139	0	44	1.9	485	7.6
Nov. 18	1,368	--	--	29	21	74	3.2	210	--	35	--	--	.23	--	--		158	0	50	2.5	609	7.8
Dec. 13.....	252	--	--	44	37	131	2.8	288	--	77	--	--	.35	--	--		262	26	52	3.5	1,020	8.0
Jan. 18, 1956 ...	3,170	--	--	15	9.4	26	3.0	110	--	11	--	--	.09	--	--		76	0	41	1.3	269	7.4
Feb. 8.....	529	--	--	58	37	126	1.8	a310	--	87	--	--	.26	--	--		296	42	48	3.2	1,070	8.6
Mar. 14	249	--	--	58	45	144	1.4	b328	--	103	--	--	.26	--	--		328	59	49	3.5	1,110	8.4
Apr. 11.....	493	--	--	27	17	41	2.1	172	--	23	--	--	.26	--	--		137	0	39	1.5	445	7.5
May 14	1,290	9.9	0.06	20	15	41	1.7	151	53	18	0.2	0.8	.17	234	0.32		111	0	42	1.7	380	8.0
June 18	661	--	--	23	16	42	1.3	166	--	20	--	--	.00	--	--		122	0	42	1.7	405	7.6
July 23	843	--	--	24	16	38	1.6	188	--	15	--	--	.21	--	--		125	0	39	1.5	383	7.9
Aug. 20.....	993	--	--	25	15	38	1.4	181	--	14	--	--	.12	--	--		123	0	40	1.5	385	7.9
Sept. 11	1,380	17	.00	24	16	39	1.9	184	33	17	.4	.9	.10	240	.33		126	0	40	1.5	390	7.7

a Includes equivalent of 10 parts per million of carbonate (CO_3).
b Includes equivalent of 9 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 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 164 ppm Sept. 14-16, 20; minimum, 78 ppm Dec. 8-10.
Hardness: Maximum 82 ppm Sept. 14-16, 20; minimum, 31 ppm Dec. 8-10.
Specific conductance: Maximum daily, 273 micromhos Sept. 20; minimum daily, 83.7 micromhos Dec. 9.
Water temperatures: Maximum, 75°F June 28, 29; minimum, 43°F Feb. 16-20.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 244 ppm May 12, 19, 1953; minimum, 78 ppm Dec. 8-10, 1956.
Hardness: Maximum, 115 ppm Aug. 26-28, 1955; minimum, 31 ppm Dec. 8-10, 1955.
Specific conductance: Maximum daily, 447 micromhos Sept. 9, 1952; minimum daily, 83.7 micromhos Dec. 9, 1955.
Water temperatures: Maximum, 78°F July 23, 1952; minimum, 42°F Jan. 3, 9-11, 1952.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445. Considerable inflow during irrigation season of irrigation waste 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 1955 to September 1956

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, 1955 .	5,768	30	0.01	14	7.6	12	1.8	91	9.0	6.8	0.1	0.5	0.00	126	0.17	1,960	66	0	28	0.6	187	7.7
Oct. 11-20	5,937	30	.01	14	7.1	11	1.8	89	9.0	6.0	.1	.5	.00	122	.17	1,960	64	0	26	.6	179	7.8
Oct. 21-31	5,723	30	.01	14	6.8	11	1.7	89	7.0	6.2	.1	.5	.04	120	.16	1,850	63	0	27	.6	180	7.8
Nov. 1-10	5,737	31	.01	14	7.1	12	1.7	91	8.0	6.5	.1	.5	.01	127	.17	1,970	64	0	28	.7	180	7.9
Nov. 11-20	6,444	30	.04	14	7.6	12	1.7	92	12	6.5	.1	.5	.20	122	.17	2,120	66	0	28	.6	184	7.9
Nov. 21-22	9,050	30	.06	14	6.9	12	1.7	93	8.4	5.0	.2	.4	.23	124	.17	3,030	63	0	29	.7	175	7.1
Nov. 23-24	13,300	20	.18	10	4.4	8.9	1.6	50	14	3.6	.6	3.5	.28	104	.14	3,730	43	2	30	.6	132	7.0
Nov. 25-30	8,168	26	.07	14	6.8	13	1.7	79	14	9.4	.3	1.7	.21	131	.18	2,890	63	0	30	.7	186	7.2
Dec. 1-7	6,841	31	.02	15	6.7	12	1.4	84	10	8.2	.2	1.1	.10	132	.18	2,440	65	0	28	.6	188	8.1
Dec. 8-10	18,170	19	.15	8.0	2.7	4.4	1.2	37	5.0	2.5	.3	2.3	.11	78	.11	3,830	31	1	22	.3	85.6	7.1
Dec. 11-19	10,400	28	.02	14	7.1	13	1.4	79	13	9.0	.3	1.2	.15	132	.18	3,710	64	0	30	.7	190	7.6
Dec. 20-31	24,610	22	.21	11	4.5	6.9	1.6	56	10	4.5	.4	1.3	.12	106	.14	7,040	46	0	24	.4	127	7.5
Jan. 1-10, 1956 .	24,480	21	.15	11	5.0	6.9	1.2	61	7.0	4.2	.3	.7	.10	99	.13	6,540	48	0	23	.4	128	7.3
Jan. 11-19	24,700	19	.18	11	4.0	6.4	1.3	57	8.0	4.0	.3	.8	.06	96	.13	6,400	44	0	23	.4	122	7.2
Jan. 20-31	24,720	21	.15	12	5.4	7.4	1.1	64	9.0	5.0	.3	.5	.13	112	.15	7,480	52	0	23	.4	139	7.4
Feb. 1-10.....	21,740	25	.13	15	6.2	8.4	1.2	82	9.0	4.8	.2	.8	.10	116	.16	6,810	63	0	22	.5	156	7.5
Feb. 11-21	16,270	26	.11	17	6.5	8.5	1.2	89	10	5.5	.2	.9	.07	122	.17	5,360	69	0	21	.4	176	7.4
Feb. 22-29.....	24,800	19	.17	12	5.4	7.3	1.2	66	8.0	4.5	.2	.7	.05	108	.15	7,230	52	0	23	.4	137	7.3
Mar. 1-11	22,410	25	.17	14	5.8	7.4	1.1	78	7.0	4.0	.2	.5	.04	108	.15	6,530	59	0	21	.4	146	7.6
Mar. 12-21	16,590	25	.14	16	6.8	8.5	1.1	89	6.0	4.8	.1	.7	.02	118	.16	5,290	68	0	21	.4	170	7.6
Mar. 22-31	14,100	25	.13	15	6.2	7.2	1.1	84	5.0	3.5	.2	.4	.04	109	.15	4,150	63	0	19	.4	152	7.5

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SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956	10,960	25	0.03	16	7.7	9.0	1.3	90	12	4.5	0.2	0.7	0.01	120	0.16	3,550	71	0	21	0.5	173	7.4
Apr. 11-20	10,500	28	.03	16	7.9	9.3	1.3	90	12	4.5	.2	.6	.04	124	.17	3,520	72	0	21	.5	182	7.3
Apr. 21-28	8,058	24	.02	15	8.4	9.2	1.4	92	10	3.5	.2	.9	.17	124	.17	2,700	72	0	21	.5	171	7.4
Apr. 29-May 4	7,388	25	.01	17	8.9	16	1.4	101	18	8.0	.1	.6	.15	154	.21	3,070	79	0	30	.8	218	7.2
May 5-10	12,380	23	.04	12	5.6	7.5	1.4	67	8.0	4.0	.1	.6	.14	108	.15	3,610	53	0	23	.4	132	6.9
May 11-20	15,830	22	.04	12	5.4	7.7	1.2	67	8.0	4.0	.1	.6	.10	126	.17	5,390	52	0	24	.5	132	7.0
May 21-31	12,490	22	.04	13	5.7	9.2	1.2	74	8.0	4.5	.2	.4	.14	116	.16	3,910	56	0	26	.5	145	7.3
June 1-10	10,280	27	.02	14	7.8	16	1.4	94	15	9.0	.1	.6	.11	132	.18	3,660	67	0	34	.9	199	7.3
June 11-20	7,493	30	.02	16	8.3	18	1.4	101	17	10	.1	.7	.08	146	.20	2,950	74	0	34	.9	217	7.7
June 21-30	6,404	30	.02	16	8.3	18	1.2	103	17	10	.1	.6	.17	145	.20	2,510	74	0	34	.9	220	7.5
July 1-10	6,199	27	.01	15	8.4	17	1.2	99	16	9.0	.1	.6	.11	135	.18	2,260	72	0	33	.9	209	7.6
July 11-20	7,098	27	.02	14	9.0	16	1.2	97	16	8.5	.1	.6	.11	132	.18	2,530	72	0	32	.8	206	7.4
July 21-31	7,055	25	.01	14	8.3	15	1.2	96	13	8.0	.1	.1	.13	129	.18	2,460	69	0	32	.8	198	6.7
Aug. 1-15	6,463	26	.02	16	9.1	19	1.2	110	19	9.4	.2	.6	.09	150	.20	2,620	77	0	34	.9	229	7.5
Aug. 16-31	6,725	26	.02	16	9.3	20	1.5	112	18	10	.2	.5	.07	154	.21	2,800	78	0	35	1.0	238	7.6
Sept. 1-10	7,386	26	.02	16	9.6	20	1.3	115	19	9.5	.2	.5	.15	158	.21	3,150	79	0	35	1.0	239	7.6
Sept. 11-13, 17-19	9,225	23	.01	16	8.7	18	1.3	110	17	8.9	.2	.4	.06	147	.20	3,660	76	0	34	.9	224	7.7
Sept. 14-16, 20	9,558	26	.02	17	9.6	22	1.5	122	19	11	.3	.5	.13	164	.22	4,230	82	0	36	1.1	254	7.6
Sept. 21-30	9,241	27	.02	14	6.6	12	1.4	89	9.6	6.1	.2	.4	.11	120	.16	2,990	62	0	29	.7	181	7.5
Weighted average	a12,050	24	0.09	14	6.4	10	1.3	80	10	5.7	0.2	0.7	0.09	119	0.16	3,870	62	0	26	0.6	164	--

a Represents 100 percent of runoff for water year October 1955 to September 1956.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 10 a. m./

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

SACRAMENTO RIVER BASIN--Continued

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1955 to September 1956 given in Report of Sacramento-San Joaquin Water Supervision for 1955 and Report of Sacramento-San Joaquin Water Supervision for 1956. 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 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955	237	--	--	36	25	36	1.8	253	--	40	--	--	0.11	--	--		192	0	29	1.1	512	8.1
Nov. 24	771	--	--	28	21	30	3.0	202	--	32	--	--	.17	--	--		158	0	29	1.0	419	8.0
Dec. 12	1,030	--	--	19	14	19	2.6	141	--	18	--	--	.07	--	--		106	0	27	.8	290	7.7
Feb. 8, 1956	--	--	--	34	23	50	1.2	a177	--	85	--	--	.08	--	--		182	37	37	1.6	586	8.4
Mar. 15	2,260	--	--	20	10	14	1.5	123	--	10	--	--	.00	--	--		92	0	24	.6	240	8.0
Apr. 12	487	--	--	40	17	42	1.6	186	--	68	--	--	.08	--	--		171	18	35	1.4	522	7.8
May 14	2,280	20	0.02	16	8.2	12	1.4	97	5.0	9.7	0.1	0.7	.02	121	0.16		74	0	26	.6	194	7.1
June 18	705	--	--	26	19	25	1.3	194	--	20	--	--	.16	--	--		142	0	27	.9	363	7.8
July 23	504	--	--	29	21	29	1.4	213	--	24	--	--	.11	--	--		157	0	28	1.0	400	7.8
Aug. 20	678	--	--	28	24	30	1.2	228	--	26	--	--	.07	--	--		168	0	28	1.0	427	7.8
Sept. 11	273	28	.02	28	20	27	1.5	219	8.1	17	.3	.5	.06	238	.32		151	0	28	1.0	385	7.3

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

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 1956.
Water temperatures: October 1953 to September 1954.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	1,630	--	--	11	5.7	5.6	1.4	72	--	0.9	--	--	0.05	--	--		51	0	19	0.3	123	7.7
Nov. 17	2,020	--	--	11	5.9	5.6	1.4	71	--	.8	--	--	.05	--	--		52	0	19	.3	124	7.7
Dec. 15	2,920	--	--	12	4.4	4.6	1.1	65	--	1.5	--	--	.04	--	--		48	0	17	.3	120	7.8
Jan. 16, 1956	45,100	--	--	6.1	1.8	2.3	.6	32	--	.0	--	--	.03	--	--		25	0	18	.2	57.6	7.2
Feb. 6	8,820	--	--	10	1.7	3.7	.8	46	--	.0	--	--	.02	--	--		32	0	20	.3	81.4	7.9
Mar. 12	11,700	--	--	10	3.0	4.1	1.1	55	--	.3	--	--	.01	--	--		37	0	19	.3	94.9	7.9
Apr. 9	12,900	--	--	9.4	1.5	3.1	.8	45	--	.0	--	--	.00	--	--		30	0	18	.2	70.8	7.5
May 7	17,500	15	0.05	8.0	2.7	2.6	.6	39	3.0	1.0	0.1	0.0	.00	52	0.07		31	0	15	.2	72.3	7.4
June 11	7,240	--	--	7.6	2.3	2.6	.9	41	--	.6	--	--	.02	--	--		28	0	16	.2	67.6	7.4
July 16	2,970	--	--	10	4.0	4.2	1.1	62	--	.8	--	--	.00	--	--		42	0	18	.3	97.6	7.7
Aug. 13	2,800	--	--	11	3.8	4.0	1.3	62	--	.1	--	--	.07	--	--		43	0	16	.3	101	7.5
Sept. 17	2,710	21	.00	12	5.4	4.8	1.2	72	2.9	1.0	.1	.1	.04	84	.11		52	0	16	.3	116	7.4

SACRAMENTO RIVER BASIN--Continued

SOUTH HONCUT CREEK NEAR BANGOR, CALIF.

LOCATION.--At gaging station, 2.3 miles southeast of Bangor, Butte County, and 3.3 miles upstream from Tennessee Creek.
DRAINAGE AREA.--30.5 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, November 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	5.7	--	--	18	9.2	23	0.5	68	--	15	--	--	0.38	--	--		83	27	37	1.1	273	7.5
Dec. 15	6.5	--	--	11	6.1	11	.4	63	--	6.3	--	--	.03	--	--		52	0	31	.7	151	7.8
Jan. 16, 1956 ...	386	--	--	6.0	2.7	3.4	.3	35	--	.8	--	--	.04	--	--		26	0	22	.3	64.7	7.4
Feb. 6	48	--	--	8.5	3.6	5.9	.2	52	--	2.3	--	--	.00	--	--		36	0	26	.4	98.9	8.0
Mar. 12	37	--	--	8.4	4.4	6.2	.2	56	--	3.5	--	--	.06	--	--		39	0	26	.4	103	7.9
Apr. 9	10	--	--	11	4.5	9.9	.5	72	--	3.5	--	--	.09	--	--		46	0	32	.6	132	7.7
May 7	32	27	0.04	10	5.5	7.1	.4	68	5.0	2.0	0.0	0.0	.00	90	0.12		48	0	24	.4	117	7.7
June 11	3.0	--	--	14	7.6	13	.3	87	--	6.5	--	--	.00	--	--		66	0	30	.7	169	7.9
July 16.....	.3	--	--	17	9.6	22	.3	111	--	1.3	--	--	.17	--	--		82	0	37	1.1	244	7.7
Aug. 13.....	.1	--	--	13	6.0	14	.6	89	--	6.3	--	--	.00	--	--		57	0	35	.8	170	7.1
Sept. 17	.0	37	.00	26	14	29	.8	173	17	17	.3	.9	.10	227	.31		124	0	34	1.1	343	7.6

YUBA RIVER NEAR SMARTSVILLE, CALIF.

LOCATION.--About 0.5 mile downstream from bridge on State Highway 20, 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 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445. 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 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	266	--	--	16	5.3	4.1	0.7	72	--	1.8	--	--	0.03	--	--		62	3	12	0.2	136	8.0
Nov. 17	618	--	--	17	3.8	4.3	.7	70	--	2.1	--	--	.00	--	--		58	1	14	.2	136	7.8
Dec. 15	710	--	--	12	3.9	3.0	.6	55	--	2.5	--	--	.03	--	--		46	1	12	.2	103	8.0
Jan. 16, 1956	31,900	--	--	5.2	1.7	1.5	.5	26	--	.2	--	--	.03	--	--		20	0	14	.1	47.4	7.7
Feb. 6	3,779	--	--	8.1	1.4	2.1	.4	34	--	.0	--	--	.02	--	--		26	0	15	.2	61.6	7.8
Mar. 12	3,169	--	--	8.1	2.3	2.3	.3	39	--	.0	--	--	.00	--	--		30	0	14	.2	70.3	7.9
Apr. 9	3,606	--	--	8.8	1.6	2.0	.5	40	--	.0	--	--	.01	--	--		28	0	13	.2	66.4	7.6
May 7	8,890	12	0.07	6.4	2.0	1.7	.5	30	3.0	.8	0.0	0.0	.00	41	0.06		24	0	13	.2	49.7	7.0
June 11	5,336	--	--	5.7	1.3	1.4	.5	28	--	.4	--	--	.02	--	--		20	0	13	.1	45.2	7.1
July 16	775	--	--	7.4	1.6	2.2	.8	37	--	.3	--	--	.00	--	--		25	0	15	.2	60.6	7.4
Aug. 13	772	--	--	13	2.1	2.6	.9	54	--	.0	--	--	.00	--	--		41	0	12	.2	92.8	7.5
Sept. 17	661	18	.00	14	4.1	3.3	.7	66	3.8	1.0	.1	.0	.04	78	.11		52	0	12	.2	113	7.4

SACRAMENTO RIVER BASIN--Continued

YUBA RIVER AT MARYSVILLE, CALIF.

LOCATION.--At gaging station on Simpson Lane Bridge in Marysville, Yuba County, about 2 miles upstream from mouth.
DRAINAGE AREA.--1,340 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	92	--	--	14	6.0	3.7	0.7	67	--	0.3	--	--	0.00	--	--		60	5	12	0.2	131	7.8
Nov. 18	490	--	--	16	4.5	4.2	.8	70	--	1.5	--	--	.00	--	--		59	2	13	.2	138	7.7
Dec. 16.....	803	--	--	13	3.8	3.6	.7	57	--	1.5	--	--	.09	--	--		48	1	14	.2	112	7.8
Jan. 16, 1956 ...	33,200	--	--	5.4	1.8	1.6	.6		--	.5	--	--	.00	--	--		21	0	14	.2	52.2	7.5
Feb. 6.....	4,450	--	--	9.5	1.2	2.4	.4	36	--	.0	--	--	.01	--	--		29	0	15	.2	68.4	7.8
Mar. 12	3,510	--	--	8.8	2.4	2.6	.6	40	--	.0	--	--	.01	--	--		32	0	15	.2	75.7	7.8
Apr. 9.....	4,080	--	--	8.5	2.2	2.3	.5	43	--	.0	--	--	.00	--	--		30	0	14	.2	71.5	7.6
May 7	10,200	12	0.12	6.8	1.5	1.6	.4	31	0.0	1.0	0.0	0.0	.00	38	0.05		23	0	13	.1	51.5	7.0
June 11	5,540	--	--	6.0	1.2	1.5	.4	29	--	.4	--	--	.01	--	--		20	0	14	.1	46.4	7.3
July 16.....	340	--	--	9.6	5.1	2.5	.7	45	--	.2	--	--	.00	--	--		45	8	11	.2	81.2	7.4
Aug. 13.....	349	--	--	13	3.5	2.8	.9	58	--	.0	--	--	.00	--	--		47	0	11	.2	107	7.6
Sept. 17	403	17	.02	14	5.1	3.7	1.0	67	7.7	.8	.1	.0	.02	82	.11		56	1	12	.2	117	7.5

BEAR RIVER NEAR WHEATLAND, CALIF.

LOCATION.--Near gaging station on downstream side of bridge on U. S. Highway 99E, 1 mile southeast of Wheatland, Yuba County, and 6.5 miles downstream from Rock Creek.
DRAINAGE AREA.--295 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	69	--	--	26	10	7.3	1.5	107	--	9.0	--	--	0.02	--	--		106	18	13	0.3	244	7.8
Nov. 18	80	--	--	26	9.5	7.9	1.8	96	--	10	--	--	.08	--	--		104	25	14	.3	248	7.7
Dec. 16	102	--	--	19	7.0	5.2	1.1	69	--	6.5	--	--	.02	--	--		76	19	13	.3	179	7.8
Jan. 16, 1956	7,240	--	--	6.0	2.2	1.6	.7	27	--	1.0	--	--	.00	--	--		24	2	12	.1	57.5	7.3
Feb. 6	1,000	--	--	9.1	2.7	2.7	.6	36	--	.9	--	--	.03	--	--		34	4	14	.2	82.0	7.7
Mar. 12	626	--	--	8.4	3.8	2.9	.6	39	--	3.2	--	--	.69	--	--		36	4	14	.2	86.7	7.7
Apr. 9	254	--	--	8.4	4.1	2.9	.6	46	--	2.0	--	--	.03	--	--		38	0	14	.2	90.3	7.5
May 7	640	11	0.14	8.9	3.3	2.9	.8	42	6.0	1.8	0.1	0.2	.00	56	0.08		36	2	15	.2	83.8	7.0
June 11	26	--	--	18	8.0	3.6	.7	80	--	3.8	--	--	.08	--	--		78	12	9	.2	165	7.6
July 16	4.4	--	--	32	16	6.5	1.0	142	--	6.6	--	--	.05	--	--		145	29	9	.2	293	8.1
Aug. 13	11	--	--	30	15	6.8	1.1	142	--	8.1	--	--	.00	--	--		137	21	10	.3	283	7.3
Sept. 17	7.2	22	.00	34	15	7.5	1.0	152	29	8.1	.1	.1	.00	192	.26		146	21	10	.3	303	7.7

SACRAMENTO RIVER BASIN--Continued

FEATHER RIVER AT NICOLAUS, CALIF.

LOCATION (revised).--At highway bridge at Nicolaus, Sutter County, just 0.3 mile upstream from gaging station, and 2.6 miles downstream from Bear River.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 80°F July 25.
EXTREMES, 1951-56.--Dissolved solids (1951-55): Maximum, 111 ppm Aug. 1-10, 1951; minimum, 45 ppm June 1-3, 8, 10, 1952.
Hardness (1951-55): Maximum, 114 ppm June 21, 1954; minimum, 22 ppm June 1-3, 8, 10, 1952.
Specific conductance (1951-55): 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.--Sampling station washed out in flood of December 1955 and remained inoperative from December 11, 1955 to May 20, 1956. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses in parts per million, water year October 1955 to September 1956

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, 1955 ..	1,029	--	--	14	6.3	6.3	--	83	--	--	--	--	--	96	0.13	267	61	0	--	0.4	149	7.8
Oct. 11-20	1,335	--	--	14	6.1	6.2	--	80	--	--	--	--	--	97	.13	350	60	0	--	.3	147	7.7
Oct. 14	1,520	--	--	14	6.2	6.6	1.6	81	--	2.9	--	--	0.11	--	--	--	60	0	19	--	152	7.4
Oct. 21-31	1,319	--	--	14	5.8	6.0	--	81	--	--	--	--	--	94	.13	335	59	0	--	.3	144	7.7
Nov. 1-10	1,437	--	--	13	6.2	5.7	--	79	--	--	--	--	--	92	.13	357	58	0	--	.3	141	7.7
Nov. 11-20	2,082	--	--	13	6.0	5.6	--	75	--	--	--	--	--	91	.12	512	57	0	--	.3	140	7.6
Nov. 18	2,760	--	--	14	7.6	5.9	1.5	76	--	2.7	--	--	.03	--	--	--	66	4	16	--	145	7.5
Nov. 21-30	3,064	--	--	12	4.9	4.8	--	64	--	--	--	--	--	84	.11	695	50	0	--	.3	123	7.4
Dec. 1-6.....	4,083	--	--	14	4.9	5.6	--	68	--	--	--	--	--	87	.12	959	55	0	--	.3	132	7.7
Dec. 7-10	7,105	--	--	10	4.6	4.6	--	50	--	--	--	--	--	76	.10	1,460	44	3	--	.3	110	6.9
Dec. 16	3,600	--	--	12	4.9	4.6	1.1	64	--	2.5	--	--	.06	--	--	--	50	0	16	--	120	7.9
Feb. 6, 1956	16,100	--	--	10	2.5	3.3	.7	46	--	.4	--	--	.05	--	--	--	35	0	17	--	87.1	7.9
Mar. 12	15,700	--	--	9.4	3.5	3.6	.7	51	--	.8	--	--	.05	--	--	--	38	0	17	--	93.8	7.8
Apr. 9	16,900	--	--	8.8	2.4	3.1	.9	48	0.0	.0	--	--	.00	--	--	--	32	0	17	--	78.2	7.5
Apr. 23.....	19,100	15	0.13	7.2	2.9	2.7	.7	44	.0	.6	0.3	0.4	.00	57	.08	2,940	30	0	16	.2	69.8	7.6
May 7	29,000	14	.09	6.4	2.4	2.4	.7	37	.0	1.0	.1	.0	.00	a45	.06	--	26	0	16	--	61.1	7.1
May 21-31	21,200	--	.04	6.0	2.5	2.8	--	27	--	--	--	--	--	56	.08	3,210	25	3	--	.2	67.2	6.9
June 1-10	14,680	--	--	6.6	2.5	2.6	--	39	--	--	--	--	--	56	.08	2,220	27	0	--	.2	66.1	7.0
June 11	11,600	--	--	7.6	2.2	2.3	.8	40	--	1.0	--	--	.00	--	--	--	28	0	15	--	66.6	7.2
June 11-20	9,893	--	--	7.4	2.7	2.5	--	41	--	--	--	--	--	58	.08	1,550	30	0	--	.2	69.8	6.8
June 21-30	6,885	--	--	8.3	2.9	2.9	--	47	--	--	--	--	--	62	.08	1,150	33	0	--	.2	78.9	7.1

July 1-10, 1956 ..	3,529	20	.03	10	4.6	5.0	1.0	60	3.8	2.2	.1	0.4	0.07	82	.11	781	44	0	19	.3	103	7.3
July 11-18	1,808	36	.03	22	8.5	5.2	1.5	114	5.8	3.5	.1	.4	.01	a139	.19	679	90	0	11	.2	189	7.5
July 16	1,690	--	--	13	6.2	5.2	1.3	77	--	2.6	--	--	.03	--	--	--	58	0	16	--	132	7.6
July 19	1,630	22	--	14	4.6	5.6	1.2	76	5.8	3.0	--	1.3	.05	a95	.13	418	54	0	16	.3	127	7.5
July 20-24	1,296	22	--	24	10	5.3	1.4	138	4.8	.4	.0	.5	.10	134	.18	469	103	0	10	.2	206	7.9
July 25-31	1,514	23	--	14	6.4	5.8	1.2	80	4.8	2.6	.0	.2	.18	100	.14	409	61	0	17	.3	140	7.8
Aug. 1-15	1,439	22	--	13	6.9	5.4	1.4	82	3.8	3.2	.0	.8	.11	92	.13	357	61	0	16	.3	146	7.6
Aug. 13	1,410	--	--	13	4.9	5.1	1.5	74	--	1.0	--	--	.00	--	--	--	55	0	16	--	129	7.5
Aug. 16-31	1,489	18	--	14	5.5	5.1	1.1	77	2.9	3.2	.0	.5	.12	95	.13	382	58	0	16	.3	135	7.7
Sept. 1-16	2,016	--	--	13	5.5	5.5	--	78	--	--	--	--	--	86	.12	468	55	--	--	.3	135	7.2
Sept. 17	2,590	15	.00	11	5.7	4.6	1.2	69	4.8	.5	.1	.1	.05	a77	.10	--	51	0	16	--	115	7.2
Sept. 17-21	2,734	--	--	24	10	5.8	--	127	--	--	--	--	--	128	.17	924	101	--	--	.2	217	7.5
Sept. 22, 28-30 ...	2,785	--	--	12	5.8	4.9	--	74	--	--	--	--	--	106	.14	797	54	--	--	.3	125	7.0
Sept. 23-27	2,904	--	--	18	8.0	4.8	--	100	--	--	--	--	--	105	.14	823	78	--	--	.2	172	7.2

a Sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

FEATHER RIVER AT NICOLAUS, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 7 a. m./

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

AMERICAN RIVER AT FAIR OAKS, CALIF.

LOCATION.--In San Juan Grant at old highway bridge just downstream from gaging station, 1,500 feet upstream from new highway bridge at Fair Oaks, Sacramento County, 2.6 miles downstream from Nimbus Dam, and 10 miles downstream from South Fork.
DRAINAGE AREA.--1,921 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to December 1906, March 1951 to September 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 56 ppm Dec. 11-22; minimum, 34 ppm June 1-15, 16-30.
Hardness: Maximum, 30 ppm Dec. 11-22; minimum, 15 ppm July 16-31, Aug. 1-15.
Specific conductance: Maximum daily, 80.6 micromhos Dec. 22; minimum daily, 36.4 micromhos July 28.
Water temperatures: Maximum, 71°F Oct. 4; minimum, 41°F Jan. 29.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 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.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	951	--	--	7.8	2.0	2.9	--	37	--	--	--	--	--	54	0.07	139	28	0	--	0.2	72.3	7.5
Oct. 11-20.....	944	--	--	8.0	2.0	2.8	--	38	--	--	--	--	--	50	.07	127	28	0	--	.2	70.1	7.6
Oct. 21-31.....	537	--	--	8.0	2.2	2.8	--	38	--	--	--	--	--	48	.07	70	29	0	--	.2	72.0	7.4
Nov. 1-10	533	--	--	8.2	2.0	2.9	--	38	--	--	--	--	--	48	.07	69	28	0	--	.2	73.5	7.6
Nov. 11-20	534	--	--	8.0	2.1	2.8	--	37	--	--	--	--	--	48	.07	69	28	0	--	.2	70.6	7.5
Nov. 21-30	582	--	--	8.0	1.8	2.6	--	37	--	--	--	--	--	48	.07	75	28	0	--	.2	70.7	7.5
Dec. 1-10	625	--	--	8.0	2.2	2.8	--	36	--	--	--	--	--	52	.07	88	29	0	--	.2	72.3	7.5
Dec. 11-22	1,186	--	--	8.6	2.2	3.0	--	37	--	--	--	--	--	56	.08	179	30	0	--	.2	77.3	7.4
Dec. 23-31	48,310	--	--	6.0	1.1	1.8	--	25	--	--	--	--	--	47	.06	6,130	20	0	--	.2	50.0	7.1
Jan. 1-10, 1956 ..	10,880	--	--	6.2	1.6	1.8	--	28	--	--	--	--	--	48	.07	1,410	22	0	--	.2	54.5	7.2
Jan. 11-20	19,380	--	--	6.2	1.8	2.1	--	29	--	--	--	--	--	50	.07	2,620	23	0	--	.2	58.5	7.3
Jan. 21-31.....	18,590	--	--	6.4	1.6	2.1	--	30	--	--	--	--	--	50	.07	2,510	22	0	--	.2	56.1	7.2
Feb. 1-10.....	6,121	--	--	6.4	2.1	2.3	--	36	--	--	--	--	---	50	.07	826	25	0	--	.2	62.6	7.6
Feb. 11-20	5,485	--	--	6.7	2.2	2.4	--	37	--	--	--	--	--	48	.07	711	26	0	--	.2	63.7	7.5
Feb. 21-29	5,030	--	--	6.6	2.2	2.3	--	37	--	--	--	--	--	48	.07	652	25	0	--	.2	62.3	7.0
Mar. 1-10	5,535	--	--	6.8	2.2	2.3	--	37	--	--	--	--	--	50	.07	747	26	0	--	.2	65.0	7.1
Mar. 11-20	5,190	--	--	7.0	2.4	2.4	--	38	--	--	--	--	--	53	.07	743	27	0	--	.2	66.6	7.2
Mar. 21-31	5,474	--	--	6.8	2.4	2.5	--	39	--	--	--	--	--	50	.07	739	27	0	--	.2	69.3	7.1

SACRAMENTO RIVER BASIN--Continued

AMERICAN RIVER AT FAIR OAKS, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956.	4,471	--	--	5.6	2.9	2.2	--	38	--	--	--	--	--	50	0.07	604	26	0	--	0.2	68.9	6.8
Apr. 11-20	4,027	--	--	6.0	2.4	2.2	--	36	--	--	--	--	--	48	.07	522	25	0	--	.2	60.9	6.8
Apr. 21-30	3,447	--	--	4.8	2.7	2.0	--	32	--	--	--	--	--	44	.06	410	23	0	--	.2	57.8	6.9
May 1-10.....	3,616	--	--	5.2	2.2	2.0	--	30	--	--	--	--	--	41	.06	400	22	0	--	.2	50.7	6.9
May 11-20	3,201	--	0.04	5.8	1.2	2.0	--	29	--	--	--	--	--	40	.05	346	19	0	--	.2	56.9	6.9
May 21-31.....	11,780	--	.03	5.7	1.0	1.8	--	27	--	--	--	--	--	37	.05	1,180	18	0	--	.2	46.2	6.7
June 1-15	8,617	--	--	5.0	1.7	1.9	--	27	--	--	--	--	--	34	.05	791	20	0	--	.2	47.9	6.7
June 7 a	8,210	15	.00	4.4	1.3	1.6	0.6	26	0.0	0.5	0.2	0.00	0.00	38	.05	--	16	0	17	--	41.8	7.2
June 16-30.....	4,905	--	--	4.8	1.2	1.9	--	25	--	--	--	--	--	34	.05	450	17	0	--	.2	42.0	6.7
July 1-15.....	4,327	--	--	4.2	1.2	1.6	--	23	--	--	--	--	--	37	.05	432	16	0	--	.2	40.2	6.6
July 16-31	4,212	--	--	3.8	1.3	1.7	--	22	--	--	--	--	--	38	.05	432	15	0	--	.2	38.2	7.0
Aug. 1-15	4,522	13	.01	4.0	1.3	1.8	1.0	24	--	.5	.0	.6	.00	36	.05	440	15	0	19	.2	38.6	6.8
Aug. 16-31	3,449	12	.01	4.8	1.0	2.0	.9	25	--	1.2	.0	.5	.00	38	.05	354	16	0	20	.2	41.9	6.7
Aug. 22 a	3,610	10	.01	4.0	1.2	1.5	.7	24	.0	1.0	.0	.0	.00	33	.04	--	15	0	17	--	36.4	6.7
Sept. 1-15.....	2,413	13	.00	5.4	.8	1.9	.9	25	--	1.0	.0	.7	.00	38	.05	248	17	0	19	.2	42.4	6.8
Sept. 16-30	2,273	13	.00	5.2	1.2	2.0	1.0	27	--	1.0	.0	1.2	.00	38	.05	233	18	0	18	.2	46.3	6.7
Weighted average	b 5,952	--	--	5.8	1.6	2.0	--	29	--	--	--	--	--	45	0.06	723	21	0	--	0.2	53.3	--

a Not included for computation of weighted averages.
b Represents 100 percent of runoff for water year October 1955 to September 1956.

SACRAMENTO RIVER BASIN--Continued

AMERICAN RIVER AT FAIR OAKS, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement from approximately 8 a. m. to 10 a. m./

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

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	986	--	--	7.1	2.4	2.8	1.1	36	--	1.8	--	--	0.00	--	--		28	0	17	0.2	72.5	7.4
Nov. 18	511	--	--	8.4	1.8	3.2	1.0	37	--	3.2	--	--	.00	--	--		28	0	19	.3	73.5	7.7
Dec. 16	636	--	--	8.7	2.2	3.2	1.1	38	--	3.3	--	--	.00	--	--		31	0	18	.2	76.4	7.3
Jan. 19, 1956	a 26,700	--	--	6.2	2.0	1.8	.7	29	--	.9	--	--	.03	--	--		24	0	14	.2	56.6	7.3
Feb. 10	a 6,300	--	--	8.1	.8	2.2	.7	31	--	.0	--	--	.07	--	--		24	0	16	.2	60.4	7.7
Mar. 16	a 6,270	--	--	7.2	2.1	2.2	.5	35	--	1.5	--	--	.02	--	--		27	0	15	.2	64.8	7.8
Apr. 19	a 2,820	--	--	5.6	2.2	2.1	.7	32	--	1.3	--	--	.04	--	--		23	0	16	.2	57.1	7.1
May 11	a 3,120	13	0.03	6.8	1.7	2.0	.6	28	4.0	1.5	0.0	0.1	.00	44	0.06		24	1	15	.2	49.9	7.2
June 7	a 8,020	12	.00	4.6	1.5	1.7	.6	28	.0	.8	.1	.0	.00	b 40	.05		18	0	17	.2	43.3	7.3
June 22	a 4,520	--	--	4.8	1.3	1.6	.7	25	--	.7	--	--	.04	--	--		17	0	16	.2	42.1	7.0
July 25	a 3,620	--	--	3.8	1.6	2.0	.7	25	--	.4	--	--	.06	--	--		16	0	21	.2	39.5	7.1
Aug. 22	a 3,450	10	.00	4.4	1.2	1.3	.7	24	.0	.9	.0	.1	.01	b 34	.05		16	0	14	.1	37.2	6.6
Aug. 23	a 3,540	--	--	4.4	1.0	1.5	.7	23	--	.1	--	--	.00	--	--		15	0	17	.2	38.3	6.8
Sept. 21	a 2,230	11	.01	4.4	2.2	1.6	.7	27	1.9	.0	.1	.0	.03	35	.05		20	0	14	.2	42.6	7.1

a Daily mean discharge.
b Residue on evaporation at 180°C.

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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 1956.
Water temperatures: May 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 131 ppm Sept. 1-10; minimum, 45 ppm Dec. 22-31.
Hardness: Maximum, 70 ppm Sept. 1-10; minimum, 22 ppm Dec. 22-31.
Specific conductance: Maximum daily, 235 micromhos Sept. 11; minimum daily, 47.2 micromhos Dec. 26.
Water temperatures: Maximum, 76°F Sept. 8; minimum, 43°F Feb. 2, 4, 18, 19.
EXTREMES, 1954-56.--Dissolved solids (1955-56): Maximum, 131 ppm Sept. 1-10, 1956; minimum, 45 ppm Dec. 22-31, 1955.
Hardness (1955-56): Maximum, 70 ppm Sept. 1-10, 1956; minimum, 22 ppm Dec. 22-31, 1955.
Specific conductance (1955-56): Maximum daily, 235 micromhos Sept. 11, 1956; minimum daily, 47.2 micromhos Dec. 26, 1955.
Water temperatures: Maximum, 77°F July 31, 1955; minimum, 43°F Feb. 2, 4, 18, 19, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	7,947	28	0.01	15	7.4	12	1.6	92	7.0	9.2	0.2	0.4	0.06	126	0.17	2,700	68	0	27	0.6	190	7.7
Oct. 11-20.....	8,243	26	.01	14	7.3	12	1.6	88	8.0	8.0	.2	.5	.14	120	.16	2,670	65	0	28	.6	180	7.5
Oct. 14 a.....	8,690	--	--	13	7.3	10	1.5	88	--	5.1	--	--	.11	--	--	--	62	0	25	--	169	7.9
Oct. 21-31.....	7,585	26	.02	14	7.1	12	1.6	89	8.0	7.5	.2	.5	.06	120	.16	2,460	64	0	28	.7	182	7.4
Nov. 1-10	7,904	27	.01	14	7.3	12	1.7	91	7.0	7.8	.2	.6	.03	124	.17	2,650	65	0	28	.6	184	7.4
Nov. 11-20	9,063	26	.01	15	7.0	12	1.7	91	9.0	7.5	.1	.5	.06	119	.16	2,910	66	0	28	.6	182	7.6
Nov. 18a.....	9,960	--	--	13	7.5	12	1.7	88	--	7.5	--	--	.05	--	--	--	63	0	28	--	178	7.8
Nov. 21-22	10,980	26	.01	15	7.0	13	1.6	89	11	8.5	.1	.6	.11	120	.16	3,560	66	0	29	.7	186	7.7
Nov. 23-24	18,250	22	.16	11	5.2	8.4	1.5	63	8.0	6.8	.1	1.6	.20	96	.13	4,730	49	0	26	.5	139	7.5
Nov. 25-30	12,300	22	.08	14	6.6	13	1.6	76	14	10	.1	1.4	.10	122	.17	4,050	62	0	31	.7	186	7.5
Dec. 1-6	9,993	25	.02	15	6.5	11	1.7	82	10	7.8	.1	1.0	.13	116	.16	3,130	64	0	27	.6	184	7.2
Dec. 7-11.....	23,940	17	.12	11	4.0	5.9	1.4	52	6.0	5.5	.3	1.9	.06	86	.12	5,560	44	1	22	.4	123	6.9
Dec. 12-19.....	15,975	23	.06	15	6.5	12	1.4	78	14	9.0	.2	1.3	.07	122	.17	5,260	64	0	28	.7	188	7.5
Dec. 20-21	56,600	15	.05	8.8	3.4	4.6	1.3	40	7.0	4.0	.2	1.4	.11	66	.09	10,090	36	3	21	.3	99.3	7.4
Dec. 22-31.....	80,780	10	.12	5.6	1.8	1.9	1.1	26	3.0	1.5	.2	.9	.03	45	.06	9,810	22	1	15	.2	57.1	7.0
Dec. 22 a	71,900	--	--	6.0	2.4	2.8	1.5	28	--	1.7	--	--	.14	--	--	--	25	2	18	--	63.4	--
Jan. 1-15, 1956 ..	67,320	15	.08	8.8	3.2	4.2	1.4	45	5.0	2.2	.2	.8	.04	64	.09	11,630	35	0	20	3	95.2	7.0
Jan. 13 a	64,400	--	--	9.1	4.9	4.4	1.4	52	--	2.4	--	--	.08	--	--	--	43	0	18	--	103	7.4
Jan. 16-20.....	85,320	12	.05	6.6	2.6	2.4	.9	34	3.0	1.2	.2	.6	.00	48	.07	11,060	27	0	16	.2	70.5	7.1
Jan. 21-31	78,210	15	.07	7.6	2.9	2.7	1.0	40	3.0	1.8	.2	.5	.00	62	.08	13,090	31	0	15	.2	77.3	7.1

a Not included for computation of weighted averages.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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				
Feb. 1-4, 1956..	64,920	20	0.11	11	4.5	5.3	1.1	61	5.0	3.0	0.2	0.7	0.08	85	0.12	14,900	46	0	19	0.3	112	7.3
Feb. 5-10	58,680	22	.11	13	5.2	7.3	1.1	71	6.0	5.5	.2	.8	.07	100	.14	15,840	54	0	22	.4	139	7.5
Feb. 10 a	53,300	--	--	12	6.4	7.8	1.1	71	--	5.7	--	--	.13	--	--	--	56	0	23	--	148	7.9
Feb. 11-20	40,670	22	.10	14	6.3	8.4	1.3	80	7.0	5.9	.1	.5	.07	108	.15	11,860	61	0	22	.5	153	7.9
Feb. 21-23	47,700	19	.04	10	4.5	5.3	1.0	56	5.0	3.8	.2	.5	.02	79	.11	10,170	44	0	20	.4	107	7.7
Feb. 24-29	65,270	19	.07	9.6	3.8	4.3	1.2	54	3.0	2.4	.2	.6	.08	74	.10	13,040	40	0	19	.3	95.7	7.7
Mar. 1-6	61,170	22	.03	11	4.5	5.5	1.3	62	5.0	3.4	.1	.5	.10	85	.12	14,040	46	0	20	.4	115	7.7
Mar. 7-12.....	53,430	21	.13	13	5.1	6.7	1.1	71	6.0	4.9	.2	.3	.05	98	.13	14,140	53	0	21	.4	135	7.8
Mar. 13-20.....	41,410	20	.11	14	5.1	7.1	1.1	74	6.0	5.4	.1	.3	.04	98	.13	10,960	56	0	21	.4	140	7.8
Mar. 16 a.....	42,000	--	--	13	6.2	6.3	1.2	72	--	5.8	--	--	.01	--	--	--	58	0	19	--	143	7.8
Mar. 21-31.....	40,810	21	.10	12	4.8	6.5	1.3	67	5.0	4.4	.1	.1	.06	90	.12	9,920	50	0	22	.4	126	7.7
Apr. 1-10	32,240	24	.03	12	5.8	7.0	1.0	68	7.0	4.5	.2	1.0	.00	100	.14	8,700	54	0	22	.4	131	7.2
Apr. 11-20	32,290	23	.03	11	5.0	6.0	1.0	62	5.0	4.0	.2	.7	.04	94	.13	8,200	48	0	21	.4	120	7.3
Apr. 19 a	29,900	--	--	11	5.4	8.6	1.1	66	--	3.8	--	--	.07	--	--	--	50	0	27	--	125	7.2
Apr. 21-30	31,800	22	.04	9.6	4.9	5.6	1.0	59	3.0	3.7	.2	.6	.04	82	.11	7,040	44	0	21	.4	111	7.2
May 1-10.....	37,380	19	.03	9.6	4.4	5.5	1.0	53	5.0	4.2	.2	.7	.06	79	.11	7,970	42	0	22	.4	105	7.2
May 11-20.....	40,490	21	.04	9.6	4.9	6.4	1.0	59	2.0	5.3	.2	.7	.03	86	.12	9,400	44	0	23	.4	117	7.0
May 11 a	44,700	17	.09	9.6	4.4	6.0	.8	54	2.0	5.2	.1	.3	.00	b72	.10	--	42	0	23	--	97.1	7.6
May 21-31.....	48,890	18	.03	7.6	4.1	5.0	.9	50	1.0	3.5	.2	.5	.11	72	.10	9,500	36	0	23	.4	100	7.0
June 1-10	36,070	20	.03	9.6	4.3	7.2	1.1	57	6.6	5.1	.2	.2	.03	84	.11	8,180	42	0	27	.5	113	7.1
June 11-20	23,770	21	.02	10	4.8	7.7	1.0	61	4.2	5.0	.2	.4	.06	91	.12	5,840	45	0	27	.5	127	7.0
June 21-30	16,620	22	.02	11	5.2	8.9	1.1	65	7.6	6.0	.2	.3	.10	98	.13	4,400	49	0	28	.6	134	7.1
June 22 a	18,200	--	--	11	5.1	8.8	.9	66	--	5.8	--	--	.11	--	--	--	48	0	28	--	133	7.4
July 1-10	13,340	23	.00	11	6.0	10	1.3	70	8.0	6.6	.3	.4	.01	102	.14	3,670	52	0	29	.6	146	7.2
July 11-20	12,070	23	.02	13	6.7	11	.9	76	8.6	8.0	.1	.5	.08	108	.15	3,520	60	0	28	.6	159	7.1
July 21-31	11,850	22	.02	12	6.3	11	.9	74	7.3	7.2	.1	.5	.03	106	.14	3,390	56	0	29	.6	154	7.1
July 25 a.....	11,400	--	--	12	7.3	13	1.2	83	--	8.3	--	--	.05	--	--	--	60	0	31	--	165	7.4

Aug. 1-10, 1956.	11,910	21	.02	13	5.7	12	.9	77	5.6	7.7	.1	0.5	0.01	108	.15	3,470	56	0	31	.7	161	7.1
Aug. 11-20	11,680	22	.05	13	6.7	13	.8	84	9.0	8.8	.2	.5	.14	114	.16	3,600	60	0	32	.7	177	7.5
Aug. 21-31	11,750	23	.07	14	7.1	14	1.0	90	9.0	9.6	.1	.4	.11	122	.17	3,870	64	0	32	.8	185	7.3
Aug. 23 a	11,800	--	--	12	7.3	13	1.0	82	--	9.0	--	--	.02	--	--	--	60	0	32	--	168	7.6
Sept. 1-10.....	11,920	23	.06	15	7.9	15	1.1	99	9.0	11	.2	.6	.13	131	.18	4,220	70	0	31	.8	205	7.6
Sept. 11-20.....	14,400	23	.05	15	7.6	14	1.1	98	9.6	8.6	.2	.5	.09	125	.17	4,860	69	0	30	.7	196	7.3
Sept. 11 a.....	12,900	15	.02	9.6	4.9	8.9	.8	62	6.1	5.0	.3	.6	.00	b 82	.11	--	44	0	30	--	127	7.3
Sept. 21-30	14,920	22	.06	14	7.0	12	1.2	88	7.5	7.8	.2	.6	.05	114	.16	4,590	64	0	29	.7	177	7.2
Weighted average	30,870	19	0.06	10	4.5	6.4	1.1	57	5.2	4.3	0.2	0.6	0.05	84	0.11	7,000	44	0	24	0.4	118	--

a Not included for computation of weighted averages.
b Calculated from determined constituents.

SACRAMENTO RIVER BASIN--Continued

SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
[Once-daily measurement at approximately 12:15 p. m.]

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

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 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	29	19	14	2.5	187	--	7.1	--	--	1.3	--	--		150	0	17	0.5	340	7.8
Nov. 21		--	--	29	19	14	2.5	a189	--	7.5	--	--	1.3	--	--		151	0	16	.5	333	8.4
Dec. 12		--	--	28	20	14	2.5	185	--	8.5	--	--	1.3	--	--		151	0	16	.5	341	7.8
Jan. 19, 1956		--	--	20	13	8.9	1.7	130	--	5.2	--	--	.75	--	--		105	0	15	.4	240	7.6
Feb. 9		--	--	20	12	9.0	1.8	125	--	3.9	--	--	.59	--	--		98	0	16	.4	228	8.1
Mar. 14		--	--	17	12	7.3	1.8	110	--	5.2	--	--	.44	--	--		91	1	15	.3	196	8.2
Apr. 11		--	--	18	12	8.5	1.8	120	--	4.5	--	--	.64	--	--		93	0	16	.4	211	7.7
May 15		15	0.04	19	13	8.9	1.8	124	11	4.3	0.1	2.3	.67	137	0.19		100	0	16	.4	223	7.6
June 19		--	--	24	10	8.9	1.8	129	--	4.2	--	--	.67	--	--		102	0	16	.4	229	7.7
July 24		--	--	22	13	9.4	1.9	136	--	5.0	--	--	.71	--	--		108	0	16	.4	236	7.9
Aug. 21		--	--	21	14	9.6	2.0	139	--	5.0	--	--	.73	--	--		110	0	16	.4	241	7.5
Sept. 12		11	00	23	13	9.6	2.0	142	7.7	5.5	.3	.6	.67	143	.19		112	0	15	.4	249	7.4

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

SACRAMENTO RIVER BASIN--Continued

CLEAR LAKE AT LAKEPORT, CALIF.

LOCATION.--At foot of Third 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 1956.
REMARKS.--Records of gage height for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	29	19	14	2.5	212	--	6.1	--	--	1.1	--	--		149	0	17	0.5	354	7.7
Nov. 21		--	--	28	19	14	2.5	184	--	8.0	--	--	1.2	--	--		149	0	17	.5	331	7.9
Dec. 12		--	--	28	18	13	2.5	182	--	8.5	--	--	1.1	--	--		145	0	16	.5	323	8.0
Jan. 19, 1956		--	--	18	12	6.7	1.7	118	--	5.0	--	--	.62	--	--		93	0	13	.3	218	8.1
Feb. 9		--	--	19	11	8.3	1.7	121	--	4.0	--	--	.54	--	--		94	0	16	.4	221	8.0
Mar. 14		--	--	18	10	7.1	1.8	107	--	5.0	--	--	.45	--	--		87	0	15	.3	195	7.9
Apr. 11		--	--	17	12	7.8	1.8	120	--	3.5	--	--	.58	--	--		91	0	15	.4	205	7.8
May 15		14	0.04	18	12	8.3	1.8	121	9.4	3.8	0.1	1.8	.58	130	0.18		95	0	16	.4	213	7.6
June 19		--	--	23	10	8.7	1.8	128	--	4.2	--	--	.58	--	--		100	0	16	.4	225	7.9
July 24		--	--	22	13	9.6	1.8	136	--	5.0	--	--	.67	--	--		107	0	16	.4	237	7.5
Aug. 21		--	--	21	14	9.6	2.0	138	--	5.0	--	--	.78	--	--		110	0	16	.4	246	7.1
Sept. 12		14	.00	22	14	9.6	2.0	141	7.7	5.0	.3	.6	.71	145	.20		111	0	16	.4	247	7.5

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955	1.1	--	--	31	20	15	2.8	198	--	7.2	--	--	1.2	--	--		161	0	17	0.5	361	7.3
Nov. 21	.5	--	--	30	20	15	2.9	200	--	8.5	--	--	1.3	--	--		159	0	17	.5	355	7.8
Dec. 12	.4	--	--	30	20	15	2.6	199	--	8.0	--	--	1.1	--	--		158	0	17	.5	351	8.1
Jan. 19, 1956	2,940	--	--	26	17	12	2.5	170	--	6.7	--	--	1.1	--	--		136	0	16	.4	310	7.7
Feb. 9	2,610	--	--	26	16	13	2.2	167	--	5.5	--	--	1.1	--	--		130	0	18	.5	302	8.0
Mar. 14	2,640	--	--	21	16	10	2.0	142	--	7.2	--	--	.82	--	--		117	1	15	.4	261	8.0
Apr. 11	3.2	--	--	18	19	16	3.4	160	--	12	--	--	.83	--	--		121	0	22	.6	298	7.8
May 15	220	9.7	0.01	22	14	10	2.1	140	11	5.4	0.1	2.0	.86	146	0.20		111	0	16	.4	250	7.8
June 19	372	--	--	27	11	9.9	2.1	142	--	5.0	--	--	.80	--	--		111	0	16	.4	249	7.8
July 24	446	--	--	22	14	10	1.9	144	--	5.5	--	--	.63	--	--		114	0	16	.4	250	7.8
Aug. 21	337	--	--	23	14	10	2.2	145	--	5.3	--	--	.87	--	--		114	0	16	.4	255	7.1
Sept. 12	220	10	.00	24	14	10	2.0	150	7.7	5.3	.3	.9	.77	149	.20		117	0	15	.4	261	7.5

SACRAMENTO RIVER BASIN--Continued

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 mile above confluence with Cache Creek.
DRAINAGE AREA.--198 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445. Some inflow between gaging station and sampling point during rainy season.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	0.8	--	--	40	29	50	1.9	251	--	--	84	--	--	5.6	--	--		221	15	33	1.5	667	8.0
Nov. 21	3.6	--	--	35	27	53	2.2	193	9	--	83	--	--	6.1	--	--		197	24	37	1.6	603	8.5
Dec. 12	67	--	--	37	34	44	1.7	222	6	--	80	--	--	4.7	--	--		231	39	29	1.3	632	8.3
Jan. 19, 1956	1,290	--	--	18	14	8.1	.8	125	--	--	5.2	--	--	.40	--	--		101	0	15	.4	224	8.0
Feb. 9	397	--	--	23	22	13	.8	176	2	--	8.2	--	--	.68	--	--		147	0	16	.5	325	8.4
Mar. 14	322	--	--	23	21	12	.8	168	3	--	11	--	--	.58	--	--		142	0	15	.4	309	8.3
Apr. 11	160	--	--	28	26	21	1.2	223	--	--	16	--	--	1.4	--	--		178	0	20	.7	403	8.1
May 15	63	17	0.00	29	28	22	1.3	211	6	19	22	0.1	0.4	1.5	250	0.34		186	3	20	.7	413	8.4
June 19	24	--	--	34	28	27	1.6	238	--	--	34	--	--	2.2	--	--		202	7	22	.8	474	8.2
July 24	76	--	--	36	30	31	2.1	241	--	--	46	--	--	2.7	--	--		212	14	24	.9	521	8.2
Aug. 21	62	--	--	31	31	34	2.1	226	--	--	53	--	--	3.3	--	--		203	18	26	1.0	524	8.0
Sept. 12	.0	24	.00	45	36	40	1.8	284	--	21	62	.1	.1	3.0	373	.51		262	29	25	1.1	617	8.0

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955	10	--	--	44	32	57	2.5	a280	--	73	--	--	2.1	--	--		242	12	34	1.6	680	8.4
Nov. 24	5	--	--	50	32	72	2.3	b298	--	94	--	--	1.8	--	--		258	14	37	2.0	768	8.3
Dec. 13	81	--	--	42	37	82	3.3	c262	--	128	--	--	4.0	--	--		256	41	41	2.2	834	8.3
Jan. 18, 1956	5,350	--	--	24	19	16	1.6	169	--	12	--	--	.85	--	--		140	1	20	.6	331	8.0
Feb. 8	3,490	--	--	28	21	17	1.9	d191	--	13	--	--	1.1	--	--		157	0	19	.6	366	8.4
Mar. 15	3,290	--	--	24	20	15	1.8	169	--	12	--	--	.85	--	--		143	4	18	.5	331	8.2
Apr. 12	306	--	--	45	45	58	2.7	329	--	64	--	--	1.8	--	--		298	28	29	1.5	785	8.2
May 14	480	11	0.00	29	27	29	2.2	211	27	28	0.0	1.2	1.3	260	0.35		182	9	25	.9	447	7.9
June 18	426	--	--	27	20	22	2.2	184	--	20	--	--	1.2	--	--		150	0	24	.8	368	7.9
July 23	410	--	--	25	18	17	2.3	167	--	15	--	--	1.0	--	--		136	0	21	.6	319	7.9
Aug. 20	322	--	--	25	18	17	2.2	173	--	14	--	--	.93	--	--		135	0	21	.6	324	7.7
Sept. 11	201	12	.01	28	18	21	.2	186	14	20	.1	.4	.93	207	.28		144	0	24	.8	358	7.8

a Includes equivalent of 9 parts per million of carbonate (CO_3).
b Includes equivalent of 5 parts per million of carbonate (CO_3).
c Includes equivalent of 7 parts per million of carbonate (CO_3).
d Includes equivalent of 4 parts per million of carbonate (CO_3).

SACRAMENTO RIVER BASIN--Continued

PUTAH CREEK NEAR WINTERS, CALIF.

LOCATION.--At gaging station, 6 miles west of Winters, Yolo County, and 8 miles downstream from Capell Creek.
DRAINAGE AREA.--577 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955	0.2	--	--	37	64	48	2.7	415	13	--	35	--	--	1.4	--	--		356	0	23	1.1	798	8.5
Nov. 24	4.1	--	--	37	59	41	1.8	384	6	--	32	--	--	1.4	--	--		337	12	21	1.0	741	8.3
Dec. 13	26	--	--	27	41	23	1.5	287	0	--	18	--	--	.71	--	--		238	3	17	.6	503	8.1
Jan. 18, 1956	2,440	--	--	21	26	10	1.2	181	0	--	6.0	--	--	.20	--	--		158	10	12	.3	334	8.1
Feb. 8	920	--	--	30	46	17	1.1	281	10	--	9.5	--	--	.35	--	--		266	19	12	.5	527	8.5
Mar. 15	654	--	--	31	51	21	1.0	314	2	--	14	--	--	.38	--	--		286	25	14	.5	581	8.3
Apr. 12	471	--	--	30	57	21	1.1	357	0	--	12	--	--	.44	--	--		310	17	13	.5	609	8.1
May 14	179	27	0.00	29	52	20	1.4	319	0	40	14	0.0	0.8	.47	342	0.47		288	26	13	.5	569	8.2
June 18	38	--	--	39	62	30	2.0	393	0	--	21	--	--	.73	--	--		351	29	16	.7	695	8.2
July 23	11	--	--	37	67	40	2.2	409	13	--	25	--	--	1.3	--	--		366	9	19	.9	750	8.4
Aug. 20	12	--	--	30	66	43	2.2	420	0	--	25	--	--	1.1	--	--		346	2	21	1.0	732	8.0
Sept. 11	9.0	27	.00	40	65	45	.2	437	0	50	28	.2	.3	1.3	472	.64		366	8	21	1.0	752	8.2

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 1956.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effect from Suisun Bay.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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 (calculated)			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, 1955		24	0.01	14	8.5	14	1.7	92	11	9.0	0.3	1.0	0.01	129	0.18		70	0	30	0.7	203	7.8
Nov. 25		17	.16	9.6	4.9	7.6	1.6	50	9.0	8.0	.5	1.1	.02	84	.11		44	3	26	.5	129	7.3
Dec. 22		12	.12	6.2	2.3	2.9	1.3	29	4.2	1.2	1.0	1.1	.09	46	.06		25	1	19	.3	66.7	7.0
Jan. 19, 1956		14	--	6.4	2.4	2.8	.9	33	3.0	2.0	.4	.7	.06	49	.07		26	0	18	.2	66.2	7.5
Feb. 17		21	--	13	6.4	7.2	1.1	74	7.8	5.0	.3	.8	.03	99	.13		59	0	21	.4	152	7.8
Mar. 22		19	--	4.4	9.0	2.5	1.0	44	10	4.0	.4	.3	.04	73	.10		48	12	10	.2	122	7.5
Apr. 19		18	--	11	5.7	7.2	1.0	67	6.4	6.0	.2	.2	.01	89	.12		51	0	23	.4	134	7.6
May 16		18	.10	12	2.9	5.3	1.0	57	4.0	2.5	.3	.5	.09	75	.10		42	0	21	.4	103	7.7
June 21		21	.01	11	5.2	8.4	1.0	62	8.6	6.2	.3	.8	.00	94	.13		49	0	27	.5	129	7.4
July 20		18	--	12	6.6	12	1.3	75	10	8.5	.1	.9	.09	106	.14		57	0	31	.7	158	7.3
Aug. 17		18	--	14	5.4	13	1.0	80	9.4	8.7	.3	.8	.09	110	.15		57	0	33	.7	169	7.5
Sept. 12		21	.01	16	8.8	18	1.5	103	12	14	.0	1.0	.10	143	.19		76	0	33	.9	224	7.7

SACRAMENTO RIVER BASIN--Continued

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 1956.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effect from Suisun Bay.

Chemical analyses, in parts per million water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	15	10	17	1.9	104	--	14	--	--	0.15	--	--		80	0	31	0.8	236	8.1
Nov. 1		27	--	15	10	15	1.8	100	15	11	0.4	1.1	.23	146	0.20		80	0	28	.7	222	8.1
Nov. 23		--	--	15	8.4	15	2.0	97	--	12	--	--	.09	--	--		72	0	30	.8	212	7.8
Dec. 22		--	--	12	10	15	3.3	77	--	12	--	--	.16	--	--		72	9	30	.8	205	--
Jan. 19, 1956		--	--	21	17	23	1.9	145	--	15	--	--	.42	--	--		124	5	28	.9	342	7.7
Feb. 17		--	--	24	19	25	2.1	160	--	18	--	--	.48	--	--		139	8	28	.9	377	8.2
Mar. 22		--	--	24	19	22	1.8	158	--	16	--	--	.40	--	--		138	8	25	.8	356	8.1
Apr. 18		--	--	17	15	18	1.4	121	--	15	--	--	.23	--	--		105	6	27	.8	279	7.9
May 16		17	0.15	16	12	19	1.9	109	24	13	.4	1.1	.18	159	.22		90	1	31	.9	252	7.5
June 21		--	--	11	7.2	12	1.5	76	--	8.0	--	--	.12	--	--		57	0	31	.7	164	7.6
July 23		--	--	12	7.7	13	1.4	82	--	8.4	--	--	.16	--	--		62	0	31	.7	175	7.0
Aug. 22		--	--	14	6.5	14	1.4	84	--	8.2	--	--	.11	--	--		62	0	32	.8	182	7.8
Sept. 12		21	.03	15	8.8	17	1.4	102	13	12	.0	1.0	.06	139	.19		74	0	33	.9	219	7.4

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 1956.
REMARKS.--Gaging station maintained and operated by State of California Department 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 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955.....		--	--	14	8.7	14	1.5	95	--	9.9	--	--	0.09	--	--		71	0	30	0.7	207	7.7
Nov. 25.....		--	--	15	7.0	13	1.7	90	--	10	--	--	.03	--	--		66	0	29	.7	190	7.8
Dec. 22.....		--	--	88	4.5	6.1	2.3	43	--	4.5	--	--	.12	--	--		40	5	23	.4	109	--
Jan. 19, 1956.....		--	--	10	5.4	5.4	1.3	57	--	3.1	--	--	.12	--	--		47	0	19	.3	118	7.5
Feb. 17.....		--	--	17	10	13	1.4	100	--	10	--	--	.21	--	--		84	2	25	.6	221	8.1
Mar. 22		--	--	16	11	12	1.3	101	--	10	--	--	.39	--	--		84	1	23	.6	216	8.1
Apr. 18.....		--	--	12	7.1	8.6	1.0	73	--	7.1	--	--	.08	--	--		59	0	24	.5	152	7.7
May 16.....		18	0.13	12	4.5	7.9	1.0	62	9.0	4.5	0.4	0.4	.05	89	0.12		48	0	26	.5	119	7.6
June 21		--	--	9.8	5.0	8.4	1.1	60	--	5.5	--	--	.00	--	--		45	0	28	.5	124	7.5
July 23.....		--	--	12	6.8	12	1.3	78	--	9.0	--	--	.06	--	--		58	0	30	.7	163	7.3
Aug. 27.....		--	--	13	6.7	14	1.2	84	--	9.7	--	--	.00	--	--		60	0	33	.8	177	7.5
Sept. 12		19	.03	15	8.4	15	1.1	98	13	8.5	.3	.7	.02	129	.18		72	0	31	.8	205	7.5

SACRAMENTO RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN SACRAMENTO RIVER BASIN IN CALIFORNIA

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 12, 1955	41	--	--	22	9.4	32	6.1	177	--	6.5	--	--	0.18	--	--		94	0	41	1.4	315	8.2
Nov. 16	36	--	--	19	6.7	31	5.8	145	--	8.4	--	--	.16	--	--		75	0	45	1.6	280	7.8
May 9, 1956	750	30	0.14	15	5.5	15	3.0	100	9.0	2.5	0.2	0.6	.02	130	0.18		60	0	34	.8	174	7.5
June 13	195	--	--	17	5.8	15	3.2	114	--	.8	--	--	.13	--	--		66	0	32	.8	187	7.6
July 18	124	--	--	17	5.4	16	3.6	117	--	1.7	--	--	.07	--	--		65	0	33	.9	189	7.9
Aug. 15	93	--	--	18	6.7	19	5.1	126	--	3.0	--	--	.10	--	--		73	0	34	1.0	221	7.4
Sept. 19	114	38	.29	17	8.4	20	4.6	135	12	1.5	.2	.9	.10	170	.23		77	0	34	1.0	225	7.6
BURNEY CREEK NEAR BURNEY (SEC. 18, T. 35 N., R. 3 E.)																						
Oct. 12, 1955	25	--	--	10	5.6	4.5	1.2	71	--	0.0	--	--	0.03	--	--		48	0	17	0.3	111	7.6
Nov. 16	35	--	--	10	5.2	4.2	1.1	70	--	.0	--	--	.00	--	--		46	0	16	.3	107	7.8
May 9, 1956	100	17	0.02	4.8	1.9	2.0	.4	28	1.0	1.0	0.0	0.1	.00	42	0.06		20	0	18	.2	41.7	7.4
June 13	100	--	--	6.7	2.8	2.6	.9	44	--	.4	--	--	.06	--	--		28	0	16	.2	64.8	7.7
July 18	60	--	--	8.8	4.4	4.0	1.0	60	--	.3	--	--	.00	--	--		40	0	18	.3	92.1	7.3
Aug. 15	30	--	--	9.9	5.2	4.2	1.1	68	--	.0	--	--	.00	--	--		46	0	16	.3	102	7.5
Sept. 19	40	33	.10	11	5.0	4.5	1.2	71	1.0	.5	.0	.0	.01	91	.12		48	0	16	.3	106	7.4
STONY CREEK NEAR HAMILTON CITY (SEC. 36, T. 22 N., R. 2 W.)																						
Jan. 17, 1956	5,640			22	6.3	6.6	1.1	98		9.0			0.12				81	1	15	0.3	198	8.1
Feb. 7	385			36	11	14	.8	a 157		14			.06				136	7	18	.5	334	8.4
Mar. 13	1,070			30	12	11	.8	b 139		8.7			.11				123	9	16	.4	283	8.4
Apr. 10	338			33	9.2	12	1.0	144		8.8			.08				120	2	18	.5	280	8.0
May 8	920	13	0.02	28	11	12	.7	132	17	10	0.2	0.4	.06	157	0.21		114	6	18	.5	264	7.9
June 12	5.6			26	18	14	.9	161		14			.09				140	8	18	.5	315	--
July 17	6.7			30	16	15	1.1	168		15			.20				139	1	19	.6	325	7.9
INDIAN CREEK NEAR CRESCENT MILLS (SEC. 25, T. 26 N., R. 9 E.)																						
Oct. 11, 1955	18	--	--	25	8.9	12	1.4	133	--	4.9	--	--	0.10	--	--		99	0	21	0.5	236	7.3
Nov. 15	49	--	--	19	6.7	9.8	1.3	104	--	2.6	--	--	.09	--	--		75	0	22	.5	189	7.4
May 10, 1956	2,700	23	0.12	8.0	2.2	3.5	.8	43	1.0	1.0	0.2	0.1	.00	61	0.08		29	0	20	.3	71.0	7.1
June 14	610	--	--	9.9	2.8	4.1	1.4	55	--	.7	--	--	.02	--	--		36	0	19	.3	89.8	7.3

a Includes equivalent of 3 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).

INDIAN CREEK NEAR CRESCENT MILLS (SEC. 25, T. 26 N., R. 9 E.)--Continued

July 19, 1956	86	--	--	18	5.6	9.4	1.8	102	--	1.8	--	--	0.06	--	--		68	0	23	0.5	168	7.2
Aug. 16	33	--	--	23	7.9	11	2.5	123	--	2.0	--	--	.00	--	--		90	0	20	.5	213	7.3
Sept. 20.....	91	25	0.05	17	7.0	9.2	2.4	96	9.6	3.5	0.2	0.2	.13	121	0.16		71	0	21	.5	170	7.0

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date of collection	Time	Water temperature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
CLEAR CREEK AT FRENCH GULCH					
Sept. 13, 1955.....	9:15 a.m.	65	7.0	10	0.2
Dec. 1.....	3:20 p.m.	45	87	5	1.2
May 1, 1956.....	4:30 p.m.	59	191	14	7.2

NAPA RIVER BASIN

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 September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 17, 1955 ...	0.0	--	--	30	17	28	4.3	210	--	11	--	--	0.35	--	--		145	0	29	1.0	391	7.4
Nov. 21.....	1.9	--	--	37	19	22	8.3	194	--	26	--	--	.44	--	--		169	10	21	.7	433	7.5
Dec. 13.....	5.3	--	--	24	12	29	4.6	120	--	38	--	--	1.0	--	--		109	11	35	1.2	357	7.5
Jan. 19, 1956 ...	406	--	--	11	5.0	6.6	1.8	60	--	5.0	--	--	.10	--	--		48	0	22	.4	142	7.9
Feb. 9.....	90	--	--	16	7.1	11	2.0	84	--	6.1	--	--	.19	--	--		69	0	25	.6	195	7.9
Mar. 15.....	66	--	--	17	7.7	11	1.9	87	--	8.0	--	--	.05	--	--		74	3	24	.6	190	7.8
Apr. 12.....	41	--	--	18	9.5	15	2.6	103	--	10	--	--	.31	--	--		84	0	27	.7	233	7.5
May 14.....	22	38	0.02	20	8.8	16	2.7	116	4.0	11	0.3	6.2	.39	164	0.22		86	0	28	.8	231	7.6
June 18.....	3.2	--	--	26	13	18	2.8	142	--	13	--	--	.29	--	--		120	4	24	.7	298	8.0
July 23.....	.5	--	--	31	16	18	3.2	178	--	10	--	--	.33	--	--		142	0	21	.7	339	7.9
Aug. 20.....	a.4	--	--	30	17	18	4.1	186	--	10	--	--	.33	--	--		146	0	21	.6	345	7.9
Sept. 11.....	.1	37	.01	28	13	22	2.2	181	13	10	.3	1.1	.25	216	.29		125	0	27	.9	319	8.0

a Daily mean discharge.

EAST FORK RUSSIAN RIVER AT POTTER VALLEY POWERHOUSE, CALIF.

LOCATION.--At gaging station of Pacific Gas and Electric Company powerhouse, 3 miles northwest of Potter Valley, Mendocino County, and 16 miles above mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for Potter Valley powerhouse tailrace near Potter Valley for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 3, 1955	231	--	--	21	6.7	6.3	0.6	97	--	2.7	--	--	0.37	--	--		80	0	15	0.3	177	7.9
Nov. 14.....	231	--	--	23	6.5	6.9	1.0	102	--	5.0	--	--	.59	--	--		84	0	15	.3	190	7.5
Dec. 5	240	--	--	26	5.6	8.7	.9	106	--	6.8	--	--	.75	--	--		88	1	17	.4	207	--
Feb. 16, 1956 ...	318	--	--	14	4.5	4.2	.8	67	--	.0	--	--	.11	--	--		54	0	14	.2	123	8.0
Mar. 5	317	--	--	12	3.2	3.3	1.0	54	--	2.0	--	--	.31	--	--		43	0	14	.2	96.8	7.8
Apr. 2	320	--	--	12	5.8	4.0	.9	75	--	.0	--	--	1.5	--	--		54	0	14	.2	122	7.7
May 7	320	12	0.01	17	4.9	4.4	.8	80	6.4	2.1	0.1	0.4	.15	87	0.12		62	0	13	.2	139	7.8
July 2	225	--	--	17	4.3	3.9	.7	78	--	1.5	--	--	.19	--	--		60	0	12	.2	133	7.4
Aug. 6	252	--	--	17	5.7	5.0	.8	85	--	2.2	--	--	.19	--	--		66	0	14	.3	142	7.6
Sept. 11	259	10	.00	20	5.5	5.0	.9	94	3.8	2.2	.0	.4	.32	94	.13		72	0	13	.3	160	7.4

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RUSSIAN RIVER BASIN--Continued

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 3, 1955	206	--	--	21	6.8	6.5	0.8	101	--	2.5	--	--	0.42	--	--		80	0	15	0.3	185	7.7
Nov. 14.....	280	--	--	22	7.0	6.8	1.0	102	--	3.8	--	--	.46	--	--		84	0	15	.3	196	7.8
Dec. 5	715	--	--	20	7.3	7.6	1.8	90	--	5.6	--	--	.68	--	--		80	6	17	.4	187	--
Jan. 16, 1956....	1,450	--	--	13	6.2	4.0	1.3	72	--	2.0	--	--	.05	--	--		58	0	13	.2	135	8.0
Feb. 16	379	--	--	17	6.1	5.3	.8	84	--	1.1	--	--	.18	--	--		67	0	14	.3	153	7.6
Mar. 5	751	--	--	16	7.6	5.7	1.1	85	--	4.0	--	--	.28	--	--		71	1	15	.3	157	7.8
Apr. 2.....	347	--	--	16	6.6	4.9	.8	88	--	.0	--	--	.12	--	--		67	0	14	.3	149	7.8
May 7	331	12	0.04	18	5.6	5.0	.9	86	8.0	.2	0.3	0.4	.22	93	0.13		68	0	14	.3	152	7.8
June 11.....	127	--	--	18	6.5	5.4	1.1	91	--	1.9	--	--	.24	--	--		72	0	14	.3	162	--
July 2	184	--	--	18	7.8	4.6	.9	86	--	2.0	--	--	.17	--	--		77	6	11	.2	149	7.4
Aug. 6	209	--	--	18	5.9	5.2	.9	90	--	1.5	--	--	.21	--	--		69	0	14	.3	152	7.7
Sept. 11.....	239	8.8	.00	20	6.1	5.4	1.0	98	5.6	2.3	.0	.4	.35	98	.13		75	0	13	.3	166	7.5

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 3, 1955		--	--	21	6.8	6.9	0.7	103	--	2.7	--	--	0.42	--	--		80	0	16	0.3	187	7.5
Nov. 14		--	--	22	7.4	8.0	1.1	105	--	4.7	--	--	.45	--	--		85	0	17	.4	197	7.7
Dec. 5		--	--	20	8.3	9.4	1.2	103	--	6.3	--	--	.67	--	--		84	0	19	.4	203	--
Jan. 16, 1956 ...		--	--	28	6.1	4.5	1.4	119	--	3.5	--	--	.08	--	--		95	0	9	.2	209	8.1
Feb. 17.....		--	--	23	7.3	6.6	.9	110	--	2.6	--	--	.25	--	--		88	0	14	.3	197	8.2
Mar. 5		--	--	24	8.0	6.7	1.1	113	--	4.5	--	--	.22	--	--		93	0	13	.3	202	8.0
Apr. 2.....		--	--	22	8.8	7.2	.9	121	--	3.0	--	--	1.3	--	--		91	0	15	.3	202	7.9
May 7.....		13	0.00	24	8.7	7.5	1.3	118	11	2.8	0.1	0.9	.21	128	0.17		96	0	14	.3	209	7.6
June 11		--	--	20	7.0	7.6	1.1	101	--	2.9	--	--	.29	--	--		79	0	17	.4	181	--
July 2		--	--	18	7.1	8.0	1.0	100	--	2.5	--	--	.34	--	--		74	0	19	.4	170	7.5
Aug. 6.....		--	--	18	7.3	6.1	1.0	95	--	2.5	--	--	.19	--	--		75	0	15	.3	160	7.6
Sept. 11		10	.01	20	6.6	7.2	.9	100	5.8	4.3	.0	.5	.26	105	.14		77	0	17	.4	178	7.5

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 3, 1955	204	--	--	22	7.5	7.3	0.8	108	--	2.7	--	--	0.46	--	--		86	0	15	0.3	196	7.9
Nov. 14	245	--	--	24	6.7	7.8	1.0	111	--	4.2	--	--	.57	--	--		88	0	16	.4	199	7.6
Dec. 5	249	--	--	25	8.2	11	1.0	116	--	7.7	--	--	.76	--	--		96	1	20	.5	226	--
Jan. 16, 1956 ...	6,680	--	--	11	6.2	4.6	1.4	64	--	1.2	--	--	.05	--	--		53	1	15	.3	122	7.2
Feb. 17	650	--	--	20	8.2	6.8	.9	104	--	2.9	--	--	.27	--	--		84	0	15	.3	191	7.9
Mar. 5	2,330	--	--	17	7.7	5.5	1.1	89	--	3.5	--	--	.09	--	--		74	1	14	.3	165	7.9
Apr. 2	575	--	--	18	8.8	6.9	.9	114	--	2.0	--	--	.77	--	--		81	0	15	.3	184	7.6
May 7	428	13	0.02	24	5.5	7.2	1.0	105	9.6	2.6	0.3	0.9	.25	116	0.16		82	0	16	.3	193	7.7
June 11.....	255	--	--	23	7.7	8.7	1.2	112	--	5.8	--	--	.20	--	--		89	0	17	.4	208	--
July 2	260	--	--	20	8.3	6.8	1.1	106	--	3.5	--	--	.39	--	--		84	0	15	.3	182	7.7
Aug. 6	181	--	--	19	7.7	6.3	1.0	100	--	2.5	--	--	.18	--	--		79	0	15	.3	172	7.8
Sept. 11	223	13	.00	20	7.3	6.1	.9	104	4.8	3.5	.0	.6	.35	108	.15		80	0	14	.3	182	7.3

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 3, 1955.....	192	--	--	27	14	19	1.2	162	--	11	--	--	4.3	--	--		125	0	25	0.7	303	8.0
Nov. 14.....	279	--	--	26	11	11	1.1	137	--	6.7	--	--	1.4	--	--		109	0	18	.5	245	8.0
Dec. 5.....	328	--	--	28	10	11	1.1	133	--	7.8	--	--	.4	--	--		111	2	18	.5	257	7.9
Jan. 16, 1956 ...	31,900	--	--	10	5.1	3.2	2.3	58	--	2.0	--	--	.11	--	--		46	0	12	.2	108	7.7
Feb. 17.....	1,080	--	--	24	12	10	1.2	139	--	4.2	--	--	1.1	--	--		111	0	16	.4	256	8.1
Mar. 5	3,210	--	--	20	11	8.6	1.0	117	--	6.5	--	--	.66	--	--		95	0	16	.4	215	7.5
Apr. 2.....	852	--	--	22	14	12	1.3	150	--	2.5	--	--	1.5	--	--		112	0	19	.5	261	7.9
May 7	857	16	0.02	28	9.8	11	1.2	140	12	4.6	0.3	1.3	1.2	154	0.21		110	0	18	.5	252	7.9
June 11.....	226	--	--	27	15	15	1.4	166	--	8.5	--	--	2.4	--	--		127	0	20	.6	298	--
July 2	160	--	--	29	16	16	1.4	177	--	10	--	--	2.8	--	--		139	0	20	.6	313	7.8
Aug. 6	140	--	--	27	15	18	1.3	174	--	12	--	--	3 4				130	0	23	.7	307	7.9
Sept. 11	145	17	.00	27	14	14	1.4	165	8.1	9.1	.0	.0	2.1	174	.24		124	0	36	.5	287	7.5

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 1956.
REMARKS.--Records of discharge for gaging station near Guerneville for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg) [9]	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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. 3, 1955	181	--	--	26	14	16	1.4	163	--	12	--	--	3.0	--	--		123	0	22	0.6	308	7.7
Nov. 14.....	257	--	--	26	12	15	1.3	152	--	10	--	--	1.5	--	--		116	0	22	.6	280	7.9
Dec. 5	363	--	--	27	12	14	2.5	136	--	10	--	--	1.1	--	--		117	5	20	.6	276	--
Jan. 16, 1956 ...	52,700	--	--	10	4.9	3.7	1.2	59	--	1.8	--	--	.05	--	--		45	0	15	.2	107	7.4
Feb. 17.....	1,610	--	--	28	14	12	1.3	158	--	6.3	--	--	.77	--	--		128	0	17	.5	291	8.1
Mar. 5	4,610	--	--	20	11	7.9	1.5	115	--	6.2	--	--	.50	--	--		94	0	15	.4	211	8.0
Apr. 2.....	1,180	--	--	22	15	13	1.3	154	--	6.0	--	--	1.2	--	--		116	0	19	.5	267	7.8
May 7	1,200	19	0.06	27	10	12	1.5	138	12	6.2	0.3	1.5	.87	158	0.21		110	0	19	.5	231	7.8
June 11	327	--	--	27	18	15	1.6	165	--	10	--	--	1.7	--	--		142	7	18	.5	305	--
July 2	183	--	--	30	16	15	1.5	181	--	10	--	--	2.1	--	--		142	0	18	.5	318	7.9
Aug. 6	158	--	--	29	17	16	1.5	184	--	12	--	--	2.9	--	--		143	0	19	.6	322	7.9
Sept. 11	163	17	.00	27	15	15	1.4	171	9.0	11	.0	.4	2.7	182	.25		129	0	20	.6	304	7.6

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 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955		--	--	36	9.3	7.6	1.3	142	--	4.8	--	--	0.17	--	--		128	12	11	0.3	277	8.2
Nov. 15		--	--	37	9.7	9.5	1.2	136	--	9.8	--	--	.26	--	--		132	20	13	.4	288	8.2
Dec. 6		--	--	13	2.9	5.6	2.7	49	--	3.3	--	--	.22	--	--		44	4	20	.4	112	--
Jan. 17, 1956		--	--	9.8	4.0	4.2	1.3	53	--	.0	--	--	.01	--	--		41	0	18	.3	101	7.1
Feb. 16		--	--	16	5.4	6.2	.8	81	--	3.0	--	--	.10	--	--		62	0	18	.3	148	8.0
Mar. 6		--	--	27	7.5	5.9	1.1	112	--	6.8	--	--	.04	--	--		98	6	11	.3	218	7.9
Apr. 2		--	--	16	6.3	3.9	.9	83	--	1.0	--	--	.09	--	--		66	0	11	.2	144	7.7
May 8		9.0	0.04	18	3.7	3.4	.8	71	8.2	.5	0.3	0.3	.00	79	0.11		60	2	11	.2	128	7.5
June 12		--	--	22	4.9	3.8	.9	88	--	1.5	--	--	.11	--	--		75	3	10	.2	162	--
July 3		--	--	27	7.2	4.7	1.2	111	--	3.0	--	--	.14	--	--		97	6	9	.2	201	7.9
Aug. 7		--	--	38	9.3	7.0	1.3	156	--	4.5	--	--	.09	--	--		133	5	10	.3	273	7.9
Sept. 14		12	.00	38	9.7	7.5	1.6	155	18	5.5	.0	.3	.16	169	.23		135	8	11	.3	286	7.6

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 of Miranda, Humboldt County, and 20 miles upstream from mouth.
DRAINAGE AREA.--537 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	72	--	--	26	11	9.2	1.3	138	--	6.5	--	--	0.17	--	--		108	0	15	0.4	251	7.9
Nov. 15	153	--	--	24	9.5	9.2	.9	119	--	7.6	--	--	.13	--	--		99	1	17	.4	228	8.0
Dec. 6	24,500	--	--	7.2	3.1	3.9	2.2	35	--	2.2	--	--	.20	--	--		31	2	20	.3	75.9	--
Jan. 17, 1956	12,600	--	--	11	4.0	3.5	1.6	56	--	2.5	--	--	.08	--	--		44	0	14	.2	105	7.7
Feb. 16	2,450	--	--	16	5.0	6.5	.8	80	--	2.6	--	--	.05	--	--		61	0	19	.4	148	8.0
Mar. 6	5,450	--	--	12	2.8	4.8	1.1	59	--	1.5	--	--	.03	--	--		42	0	20	.3	102	7.7
Apr. 2	664	--	--	5.6	12	6.4	.9	86	--	2.5	--	--	.04	--	--		63	0	18	.4	149	7.7
May 8	479	13	0.02	19	5.0	6.9	1.0	90	6.4	2.8	0.3	0.2	.05	99	0.13		68	0	18	.4	159	7.9
June 12	177	--	--	23	8.0	7.7	1.1	116	--	5.1	--	--	.11	--	--		90	0	15	.4	204	--
July 3	117	--	--	27	9.4	8.8	1.3	134	--	5.5	--	--	.18	--	--		106	0	15	.4	229	7.8
Aug. 7	60	--	--	26	10	10	1.5	141	--	7.0	--	--	.10	--	--		108	0	17	.4	243	7.8
Sept. 14	44	7.0	.00	28	11	10	1.5	148	6.0	7.2	.0	.5	.16	144	.20		114	0	16	.4	258	7.6

EEL RIVER BASIN--Continued

SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 17, 1955	52	1	0.1
Dec. 19	36,900	4,520	450,000
Jan. 31, 1956	3,850	177	1,840
Feb. 27	7,210	629	12,200

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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
Dec. 19, 1955	2:00 p.m.	36,900		4,520	4,300	14	21	31	42	55	67	81	94		98	100	VPWCM

EEL RIVER BASIN--Continued

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	154	--	--	33	11	9.5	1.2	a152	--	6.8	--	--	0.18	--	--		126	1	14	0.4	277	8.5
Nov. 15	340	--	--	36	9.2	10	1.3	146	--	9.1	--	--	.10	--	--		128	8	14	.4	286	7.9
Dec. 6	56,300	--	--	12	3.9	4.6	1.9	49	--	2.4	--	--	.26	--	--		46	6	17	.3	108	--
Jan. 17, 1956	65,400	--	--	14	3.2	3.0	1.8	61	--	1.5	--	--	.11	--	--		48	0	11	.2	112	8.1
Feb. 16	5,200	--	--	34	8.8	15	1.5	140	--	19	--	--	.11	--	--		121	6	21	.6	304	8.1
Mar. 6	23,500	--	--	21	7.4	5.7	1.3	100	--	6.5	--	--	.27	--	--		83	1	13	.3	183	7.9
Apr. 2	5,050	--	--	26	2.2	5.2	1.0	97	--	1.5	--	--	.05	--	--		74	0	13	.3	163	7.7
May 8	6,130	10	0.02	22	4.5	4.7	.9	89	9.8	1.7	0.3	0.7	.06	99	0.13		74	1	12	.2	159	7.9
June 12	1,500	--	--	25	6.1	5.3	1.2	105	--	3.0	--	--	.00	--	--		88	2	11	.2	190	--
July 3	550	--	--	31	9.2	6.3	1.2	134	--	4.5	--	--	.17	--	--		115	5	11	.3	234	7.9
Aug. 7	167	--	--	43	25	14	2.1	239	--	11	--	--	.15	--	--		212	16	12	.4	441	7.7
Sept. 14	86	8.4	.00	40	12	9.9	1.7	182	11	6.3	.0	.7	.14	180	.24		147	0	13	.4	316	7.5

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

EEL RIVER AT SCOTIA, CALIF.--Continued

Periodic determinations of suspended-sediment discharge, for period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 17, 1955	138	3	1.1
Dec. 19	139,000	3,650	1,370,000
Jan. 31, 1956	19,100	472	24,300
Mar. 1	27,900	783	59,000

Particle-size analysis of suspended sediment, water year October 1955 to September 1956
(*Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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
Dec. 19, 1955	4:22 p.m.	139,000		3,650	3,830	25	33	46	59	74	82	92	97		98	100	VPWCM

EEL RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN EEL RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, for period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
MIDDLE FORK EEL RIVER AT DOS RIOS			
Jan. 10, 1956	a11,300	3,250	99,000
Feb. 16	a1,280	58	200
EEL RIVER BELOW DOS RIOS			
Jan. 10, 1956	23,100	1,580	98,500
Feb. 16	2,170	53	311
VAN DUZEN RIVER NEAR BRIDGEVILLE			
Sept. 15, 1955	22	24	1.4
Dec. 19	23,200	4,520	283,000
Jan. 31, 1956	1,280	92	318
Feb. 27	1,540	246	1,020
Aug. 2	21	0	0

a Discharges computed from stations above and below the confluence of Middle Fork Eel River with Eel River.

EEL RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN EEL RIVER BASIN IN CALIFORNIA--Continued

Particle-size analyses of suspended-sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
MIDDLE FORK EEL RIVER AT DOS RIOS																	
Jan. 10, 1956	4:00 p.m.	a 11,300		3,250	2,600	12	17	23	32	42	50	60	78		90	100	VPWCM
EEL RIVER BELOW DOS RIOS																	
Jan. 10, 1956	3:00 p.m.	23,100		1,580	3,060	21	23	33	43	54	64	77	93		99	100	VPWCM
VAN DUZEN RIVER NEAR BRIDGEVILLE																	
Dec. 19, 1955	10:30 a.m.	23,200		4,520	4,060	16	22	30	38	50	62	77	91		97	100	VPWCM

a Discharges computed from stations above and below the confluence of Middle Fork Eel River with Eel River.

MAD RIVER BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN MAD RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, for period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
MAD RIVER NEAR ARCATA			
Sept. 15, 1955.....	28	5	0.4
Dec. 21.....	15,600	1,770	74,600
Feb. 2, 1956.....	1,700	185	849
Feb. 29.....	4,800	398	5,160
May 2	485	171	224
Aug. 2	46	55	6.8

MAD RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN MAD RIVER BASIN IN CALIFORNIA--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water; W_1 in distilled water; C, chemically dispersed; M_1 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
MAD RIVER NEAR ARCATA																
Dec. 21, 1955....	9:17 a.m.	15,600		1,770	3,630	13	25	34	47	60	72	86	97		100		VPWCM

REDWOOD CREEK BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN REDWOOD CREEK BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, for period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
REDWOOD CREEK AT ORICK			
Sept. 16, 1955.....	75	9	1.8
May 3, 1956.....	355	18	17

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	1,560	--	--	13	8.2	22	3.4	100	--	4.2	--	--	0.12	--	--		66	0	40	1.2	238	7.4
Nov. 7	2,610	--	--	11	5.5	14	2.7	78	--	3.0	--	--	.06	--	--		50	0	36	.9	164	7.7
Dec. 2	3,060	--	--	12	5.7	15	2.7	78	--	3.2	--	--	.08	--	--		53	0	37	.9	165	7.2
Jan. 11, 1956	6,270	--	--	9.6	5.6	13	2.2	66	--	3.5	--	--	.11	--	--		47	0	36	.8	166	8.1
Feb. 6	6,380	--	--	12	4.9	15	2.2	70	--	.0	--	--	.11	--	--		50	0	38	.9	170	8.0
Mar. 13	6,450	--	--	15	4.0	16	2.5	78	--	.3	--	--	.07	--	--		54	0	38	.9	175	7.9
Apr. 9	7,430	--	--	11	5.5	13	2.2	73	--	2.6	--	--	.08	--	--		50	0	35	.8	154	7.4
May 14	6,960	22	0.11	14	3.7	15	2.6	77	16	2.1	0.5	2.0	.02	116	0.16		50	0	38	.9	161	7.8
June 6	3,670	--	--	12	7.6	19	3.4	89	--	3.5	--	--	.07	--	--		61	0	39	1.1	202	--
July 10	2,420	--	--	17	12	25	4.0	112	--	4.9	--	--	.12	--	--		90	0	36	1.1	291	7.1
Aug. 25	1,330	--	--	19	10	29	4.6	110	--	4.7	--	--	.11	--	--		90	0	40	1.3	309	7.3
Sept. 23	930	36	.05	19	9.6	26	4.0	106	50	4.2	.3	3.6	.14	205	.28		87	0	38	1.2	286	7.6

KLAMATH RIVER BASIN--Continued

KLAMATH RIVER AT SOMESBAR, CALIF.

LOCATION.--One hundred 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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	2,010	--	--	15	9.7	15	2.2	106	--	5.5	--	--	0.12	--	--		77	0	29	0.7	216	7.5
Nov. 16	2,430	--	--	16	8.0	13	2.0	101	--	6.2	--	--	.15	--	--		73	0	27	.7	199	7.8
Dec. 7	13,700	--	--	12	5.2	6.1	1.1	65	--	2.0	--	--	.00	--	--		51	0	20	.4	127	--
Apr. 3, 1956	19,100	--	--	13	6.9	7.2	1.4	87	--	1.0	--	--	.06	--	--		61	0	20	.4	148	7.7
May 9	19,800	18	0.03	13	5.2	6.5	1.2	75	8.0	.6	0.3	0.5	.00	90	0.12		54	0	20	.4	128	7.1
June 13	13,300	--	--	11	5.0	6.3	1.4	67	--	1.5	--	--	.00	--	--		48	0	22	.4	121	--
July 5	8,600	--	--	16	7.8	12	2.1	89	--	--	--	--	.08	--	--		72	0	25	.6	192	7.4
Aug. 8	4,250	--	--	20	9.8	13	1.9	114	--	5.0	--	--	.03	--	--		90	0	23	.6	222	7.8
Sept. 12	2,530	29	.00	21	11	22	3.4	124	35	7.0	.0	2.1	.14	192	.26		98	0	32	1.0	289	7.1

Periodic determinations of suspended-sediment discharge, September 1955 to May 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 14, 1955	1,630	5	22
May 1, 1956	21,800	200	11,800

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analyses: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
May 1, 1956	11:22 a.m.	21,800		200	598		24		33		47	57	72		92	100	VPWCM

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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 1956.
Water temperatures: September 1951 to September 1955.
EXTREMES, 1951-55.--Water temperatures: Maximum, 76°F on several days in August 1955; minimum, 33°F on several days in January 1952.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955 ...	205	--	--	9.2	11	4.5	0.5	82	--	5.6	--	--	0.09	--	--		69	2	12	0.2	152	7.9
Nov. 15.....	186	--	--	10	11	5.6	.6	85	--	9.8	--	--	.05	--	--		72	2	14	.3	163	8.0
Dec. 12.....	1,120	--	--	6.8	7.8	4.1	.6	61	--	3.5	--	--	.06	--	--		49	0	15	.3	111	7.7
Jan. 12, 1956 ...	4,640	--	--	5.0	6.2	2.0	.4	48	--	.3	--	--	.00	--	--		38	0	10	.1	81.0	7.5
Feb. 14	1,750	--	--	7.0	7.0	2.7	.3	60	--	.0	--	--	.06	--	--		46	0	11	.2	100	7.7
Mar. 12	1,940	--	--	6.8	7.8	2.6	.5	61	--	1.8	--	--	.04	--	--		49	0	10	.2	102	7.9
May 14	3,780	11	0.03	6.0	6.6	3.1	.6	55	1.0	2.0	0.1	0.2	.08	58	0.08		42	0	14	.2	82.5	7.5
June 12	3,650	--	--	3.5	5.0	2.5	.7	40	--	.5	--	--	.06	--	--		29	0	15	.2	64.3	--
July 10	1,090	--	--	4.6	6.3	3.7	.7	54	--	2.3	--	--	.05	--	--		39	0	17	.3	85.8	7.5
Aug. 15	284	--	--	7.2	11	7.2	.8	81	--	6.5	--	--	.10	--	--		63	0	20	.3	144	7.6
Sept. 13	195	18	.00	9.4	11	8.2	.9	88	3.6	7.8	.0	.3	.16	102	.14		68	0	21	.4	165	7.6

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 13, 1955	111	2	0.6
Dec. 1.....	792	49	105
Mar. 1, 1956	2,100	31	176
May 1	5,330	36	518

KLAMATH RIVER BASIN--Continued

TRINITY RIVER NEAR HOOPA, CALIF.

LOCATION.--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.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	383	--	--	24	11	6.2	0.8	116	--	8.8	--	--	0.05	--	--		103	8	11	0.3	228	7.9
Nov. 15	581	--	--	25	10	6.8	.6	112	--	10	--	--	.08	--	--		104	12	12	.3	228	8.1
Dec. 7	9,580	--	--	16	4.6	3.9	1.6	67	--	2.7	--	--	.09	--	--		59	4	12	.2	128	--
Feb. 14, 1956	7,130	--	--	19	8.6	5.5	1.0	101	--	2.5	--	--	.05	--	--		83	0	12	.3	184	7.9
Mar. 8	10,400	--	--	20	4.5	2.9	.6	89	--	.0	--	--	.04	--	--		68	0	8	.2	143	8.0
Apr. 3	9,160	--	--	14	6.8	2.8	.6	82	--	1.5	--	--	.03	--	--		63	0	9	.2	131	7.7
Apr. 10	a 11,000	--	--	4.4	8.3	2.8	.5	61	--	1.0	--	--	.03	--	--		45	0	12	.2	90.4	7.7
May 9	9,780	14	0.04	13	4.4	2.4	.5	67	0.6	.1	0.3	0.1	.04	68	0.09		51	0	9	.1	106	7.9
June 13	6,110	--	--	9.5	5.2	2.4	.6	59	--	1.0	--	--	.02	--	--		45	0	10	.2	97.9	--
July 5	2,780	--	--	14	5.8	2.9	.6	73	--	2.5	--	--	.12	--	--		59	0	10	.2	124	7.5
Aug. 8	1,030	--	--	20	9.0	5.5	1.0	102	--	5.5	--	--	.06	--	--		87	3	12	.3	184	7.7
Sept. 12	562	13	.00	25	9.1	6.1	1.0	119	6.7	7.6	.0	.2	.12	128	.17		100	2	12	.3	218	7.6

a Daily mean discharge.

TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Periodic determinations of suspended-sediment discharge, period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 15, 1955.....	447	4	4.8
May 2, 1956.....	9,200	101	2,510

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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
May 2, 1956	12:12 p.m.	9,200		101	552		42		61		76	85	91		100		VPWCM

KLAMATH RIVER BASIN--Continued

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	3,030	--	--	18	8.4	11	1.8	104	--	4.8	--	--	0.19	--	--		80	0	23	0.5	206	7.7
Nov. 16	4,900	--	--	17	7.9	9.0	1.4	93	--	5.9	--	--	.14	--	--		75	0	20	.5	183	7.8
Dec. 7	33,300	--	--	10	4.6	3.7	.8	49	--	2.3	--	--	.05	--	--		44	4	15	.2	94.6	--
Jan. 18, 1956	107,000	--	--	12	5.6	4.3	1.1	65	--	.0	--	--	.02	--	--		53	0	15	.3	122	7.4
Feb. 9	27,000	--	--	15	6.5	6.1	1.1	81	--	1.2	--	--	.07	--	--		64	0	17	.3	150	8.1
Mar. 7	38,900	--	--	18	4.4	5.3	.9	84	--	1.1	--	--	.07	--	--		63	0	15	.3	145	7.9
Apr. 3	31,400	--	--	13	6.6	5.0	1.0	81	--	1.0	--	--	.05	--	--		59	0	15	.3	134	7.6
May 10	30,100	15	0.05	13	4.3	5.0	.9	68	4.8	1.1	0.3	0.5	.04	78	0.11		50	0	18	.3	116	7.8
June 14	16,900	--	--	10	5.2	4.9	1.1	63	--	1.5	--	--	.00	--	--		46	0	18	.3	110	--
July 4	a12,400	--	--	14	6.8	6.2	1.3	81	--	3.0	--	--	.01	--	--		63	0	17	.3	147	7.4
Aug. 9	4,260	--	--	20	10	13	1.8	112	--	5.5	--	--	.10	--	--		91	0	23	.6	224	7.7
Sept. 13	3,380	24	.00	21	9.6	17	3.0	114	29	5.9	.0	1.5	.14	167	.23		92	0	28	.8	258	7.2

a Daily mean discharge.

KLAMATH RIVER NEAR KLAMATH, CALIF.--Continued

Periodic determinations of suspended-sediment discharge, for period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 16, 1955	3,080	9	75
Feb. 1, 1956	40,700	625	68,700
Feb. 28	47,900	510	66,000
May 3	36,500	385	37,900

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Feb. 28, 1956	2:00 p.m.	47,900		510							43	58	92		100		V
May 3	1:07 p.m.	36,500		385	1,110		13		24		35	41	56		94	100	VPWCM

KLAMATH RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN KLAMATH RIVER BASIN IN CALIFORNIA

Periodic determinations of suspended-sediment discharge, September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
SHASTA RIVER NEAR YREKA			
Sept. 14, 1955	22	7	0.4
Dec. 8	188	18	9.1
Mar. 7, 1956	547	16	24
May 8	289	39	30
SCOTT RIVER NEAR FORT JONES			
Sept. 13, 1955	22	10	0.6
Dec. 6	642	324	562
Mar. 20, 1956	1,700	409	1,880
May 12	1,300	91	319
KLAMATH RIVER NEAR SEIAD VALLEY			
Sept. 14, 1955	1,620	8	35
Dec. 7	5,020	39	529
Mar. 9, 1956	10,200	127	3,500
May 10	10,500	67	1,900
SALMON RIVER AT SOMESBAR			
Sept. 14, 1955	207	6	3.4
May 2, 1956	3,900	9	95
SOUTH FORK TRINITY RIVER NEAR SALYER			
Sept. 15, 1955	101	1	0.3
Feb. 2, 1956	3,520	105	998
Feb. 29	5,150	228	3,170
Apr. 30	1,830	14	69

MISCELLANEOUS ANALYSES OF STREAMS IN KLAMATH RIVER BASIN IN CALIFORNIA--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
	SCOTT RIVER NEAR FORT JONES																
Mar. 20, 1956....	4:00 p.m.	1,700	49	409	2,010	17	24	34	43	52	66	79	93		100		VPWCM
KLAMATH RIVER NEAR SEIAD VALLEY																	
Mar. 9, 1956	2:00 p.m.	10,200	42	127							65	76	89		100		V

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 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1445.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		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, 1955	310	--	--	7.2	12	2.7	0.3	80	--	2.3	--	--	0.02	--	--		66	0	8	0.1	140	7.6
Nov. 16	845	--	--	5.6	12	2.3	.3	71	--	3.0	--	--	.00	--	--		64	6	7	.1	123	7.9
Dec. 8	8,420	--	--	4.4	6.8	1.7	.3	47	--	1.8	--	--	.00	--	--		39	0	9	.1	80.9	--
Jan. 18, 1956	18,000	--	--	4.2	5.4	1.6	.1	40	--	2.0	--	--	.00	--	--		32	0	10	.1	70.0	7.7
Feb. 10	2,480	--	--	5.0	7.1	4.9	.2	52	--	.8	--	--	.01	--	--		42	0	20	.3	102	7.9
Mar. 7	5,790	--	--	5.7	4.8	2.7	.3	47	--	.4	--	--	.00	--	--		34	0	15	.2	75.3	7.7
Apr. 3	4,900	--	--	4.4	6.8	1.7	.3	51	--	.0	--	--	.00	--	--		39	0	9	.1	78.1	7.7
May 10	2,700	13	0.01	6.4	4.9	1.4	.3	45	1.0	1.0	0.1	0.2	.00	50	0.07		36	0	8	.1	77.6	7.8
June 14	1,080	--	--	5.6	7.6	2.8	.4	57	--	1.4	--	--	.00	--	--		45	0	12	.2	95.6	--
July 4	572	--	--	7.2	9.0	2.1	.5	68	--	.5	--	--	.00	--	--		55	0	8	.1	111	7.5
Aug. 9	321	--	--	8.0	11	2.5	.2	80	--	2.5	--	--	.01	--	--		65	0	8	.1	130	7.7
Sept. 13	262	14	.00	8.4	12	2.5	.4	82	3.8	3.1	.0	.3	.04	85	.12		71	4	7	.1	138	7.5

SMITH RIVER NEAR CRESCENT CITY, CALIF.--Continued

Periodic determinations of suspended-sediment discharge, period September 1955 to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Sept. 16, 1955	680	2	3.7
Dec. 20	21,500	90	5,220
Feb. 1, 1956	4,640	13	163
Feb. 28	8,700	21	493

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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	
Dec. 20, 1956	12:17 p.m.	21,500		90							59	61	70		80	100	S

PART 12. PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 72°F July 19, 20; minimum, 36°F Nov. 14-16, Feb. 1, 15-17.
EXTREMES, 1952-56.--Water temperatures: Maximum, 72°F July 19, 20, 1956; minimum, 34°F Nov. 28-30, Dec. 1, 1952, Jan. 21, 1954.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	51	49	48	47	47	42	40	37	36	43	43	45	45	--	--	--	--	--	--	61	58	62	61
2	54	53	48	47	47	47	42	42	37	37	43	43	45	45	--	--	--	--	--	--	59	57	61	58
3	54	54	49	48	47	45	43	42	39	37	43	42	45	45	--	--	--	--	--	--	57	56	59	57
4	54	53	49	49	45	44	43	43	39	39	42	41	46	45	53	51	--	--	--	--	59	57	58	57
5	53	51	49	48	44	44	43	43	41	39	42	42	45	43	--	--	--	--	--	--	62	59	58	57
6	51	49	49	48	45	44	43	43	41	41	42	41	45	42	--	--	--	--	--	--	64	61	59	57
7	50	50	50	49	45	45	44	43	42	41	42	41	47	45	--	--	--	--	--	--	63	62	59	58
8	50	50	50	50	45	45	44	43	42	40	42	41	48	45	--	--	--	--	--	--	65	62	58	56
9	50	50	51	50	45	45	44	43	41	39	42	42	50	44	--	--	--	--	--	--	65	63	58	58
10	50	50	51	49	46	45	44	43	42	41	42	42	51	46	--	--	--	--	--	--	65	63	58	58
11	50	49	49	45	47	46	44	43	43	42	42	41	50	48	--	--	--	--	63	63	65	62	58	57
12	51	49	45	40	47	46	44	44	43	42	42	41	51	47	--	--	--	--	65	63	66	63	58	56
13	52	51	40	38	46	44	44	44	43	41	44	42	53	48	--	--	--	--	65	62	66	64	58	56
14	52	51	38	36	44	44	44	44	41	39	43	41	52	48	--	--	--	--	62	61	64	62	58	58
15	52	52	36	36	44	44	45	44	39	36	44	41	49	47	--	--	--	--	63	61	62	61	58	57
16	52	50	37	36	44	44	45	45	36	36	45	42	50	45	--	--	--	--	65	63	61	60	58	58
17	53	51	37	37	44	44	45	45	38	36	46	43	51	44	--	--	--	--	67	64	61	60	59	58
18	53	53	40	37	44	37	45	45	40	38	47	43	53	46	--	--	--	--	69	65	62	61	60	59
19	53	52	44	37	42	39	45	45	40	40	47	44	56	49	--	--	--	--	72	67	63	62	60	59
20	52	51	45	44	43	42	45	45	40	40	44	43	57	51	--	--	--	--	72	70	65	63	60	59
21	51	51	45	45	45	43	45	45	41	40	44	44	56	52	--	--	--	--	71	68	67	65	60	59
22	51	50	45	44	45	45	45	45	42	41	44	44	54	51	59	--	--	--	70	67	67	66	59	56
23	51	48	45	45	45	45	45	44	42	41	44	44	--	--	59	56	56	54	70	67	66	66	57	55
24	52	51	45	45	45	44	44	44	41	41	44	44	--	--	--	--	54	52	69	66	66	66	60	57
25	53	51	46	45	45	44	44	43	41	41	45	44	--	--	--	--	55	53	68	64	66	64	61	60
26	51	49	46	46	45	45	43	42	42	41	45	44	--	--	--	--	--	--	66	63	64	63	61	60
27	49	48	47	46	45	44	42	40	42	42	44	43	--	--	--	--	--	--	65	62	63	61	60	57
28	50	49	47	47	44	43	41	40	42	42	45	44	52	50	--	--	--	--	63	60	61	58	58	57
29	51	50	47	47	43	42	41	41	42	42	45	44	52	49	--	--	--	--	62	61	60	60	58	57
30	51	50	47	47	42	41	41	39	--	--	45	45	53	49	--	--	--	--	62	61	60	58	57	56
31	50	49	--	--	41	39	39	37	--	--	45	44	--	--	--	--	--	--	61	59	62	59	--	--
Average	52	51	46	44	45	44	43	43	41	40	44	43	50	47	--	--	--	--	--	--	63	61	59	58

CHEHALIS RIVER NEAR GRAND MOUND, WASH.

LOCATION.--Temperature recorder at gaging station, at 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 76°F July 23, 24; minimum, 34°F Feb. 2, 3, 16-18.
EXTREMES, 1952-56.--Water temperatures: Maximum, 76°F July 23, 24, 1956; minimum, 34°F Feb. 2, 3, 16-18, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	56	55	48	48	44	44	39	39	36	35	41	41	44	44	52	51	60	60	64	61	67	64	67	63
2	56	56	48	47	44	44	39	39	35	34	41	41	44	44	53	52	62	60	64	61	66	63	65	60
3	56	56	48	47	44	44	41	39	35	34	41	40	44	44	54	53	62	59	61	60	63	62	64	60
4	56	55	49	48	44	44	42	41	36	35	40	39	45	44	54	53	59	58	62	59	65	63	64	58
5	55	54	49	49	44	42	42	42	37	36	39	39	46	45	54	53	59	57	62	61	66	63	65	60
6	54	54	49	49	42	42	42	42	38	37	39	39	45	45	54	52	57	56	62	61	66	63	67	60
7	54	53	49	49	42	42	42	42	39	38	39	39	46	45	56	53	56	55	64	61	66	62	67	61
8	53	52	49	49	43	42	42	42	39	39	39	39	48	46	57	55	55	55	66	63	68	63	67	59
9	52	50	50	49	43	43	42	42	39	39	39	39	49	47	58	56	55	55	67	65	68	64	63	62
10	50	50	50	50	43	43	42	42	39	39	40	39	50	48	58	56	56	55	68	65	67	64	64	62
11	50	50	50	49	44	43	42	42	40	39	40	40	50	49	57	56	56	54	68	66	67	63	64	63
12	50	50	49	47	45	44	43	42	40	40	40	40	50	50	57	55	57	55	70	66	70	64	64	63
13	50	50	47	45	45	44	43	43	40	40	40	40	51	50	55	53	57	56	70	68	68	66	63	62
14	51	50	45	43	44	43	43	41	40	39	41	40	51	50	55	53	57	57	67	66	68	66	64	62
15	51	51	43	41	43	43	42	41	39	36	42	41	50	48	57	54	57	57	69	65	66	64	63	62
16	52	51	41	39	43	43	43	42	36	34	43	42	49	47	59	56	57	56	70	67	67	64	63	62
17	52	52	40	39	43	43	43	42	34	34	44	42	49	48	62	58	58	56	72	68	69	64	62	61
18	52	52	39	38	43	42	43	42	35	34	44	43	51	48	63	61	58	57	73	69	71	65	61	60
19	52	52	38	38	42	40	43	42	37	35	45	44	53	50	63	62	58	57	74	70	71	67	61	60
20	52	52	41	38	41	40	43	42	38	37	45	43	55	52	62	61	58	57	75	72	71	68	62	61
21	52	52	42	41	42	41	43	42	38	38	43	43	56	54	61	60	59	57	75	71	72	68	62	60
22	52	52	42	42	44	42	43	43	38	38	43	43	55	54	62	60	59	58	75	71	73	68	61	59
23	52	52	42	42	44	43	43	43	38	38	43	43	55	53	62	60	59	58	76	72	70	68	61	59
24	52	52	42	42	43	42	43	40	38	38	43	43	54	52	60	59	60	58	76	72	70	68	62	61
25	52	52	43	42	43	42	40	40	38	38	44	43	55	53	61	59	60	58	75	71	69	68	62	61
26	52	51	44	43	43	42	40	39	38	38	44	43	56	54	61	59	62	59	73	70	68	66	62	61
27	51	49	44	44	43	42	39	38	39	38	43	43	55	54	59	58	63	61	73	69	67	66	61	59
28	49	49	44	44	42	41	38	38	40	39	43	43	54	53	59	57	62	61	72	69	68	64	60	59
29	49	49	44	44	41	40	38	38	41	40	45	43	53	52	61	59	62	62	71	68	67	65	59	59
30	49	49	44	44	40	40	38	38	--	--	45	44	53	51	63	60	62	61	70	67	67	64	59	58
31	49	48	--	--	40	39	38	36	--	--	45	44	--	--	62	60	--	--	69	66	68	63	--	--
Average	52	52	45	44	43	42	41	41	38	37	42	41	51	49	58	57	59	58	69	66	68	65	63	61

SKOKOMISH RIVER BASIN

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 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 61°F Aug. 12-14, 18-23, 31; minimum, freezing point Mar. 7.
EXTREMES, May 1955 to September 1956.--Water temperatures: Maximum, 61°F Aug. 12-14, 18-23, 31, 1956; minimum, freezing point Mar. 7, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	47	44	44	41	41	40	39	37	36	36	35	39	38	41	41	46	43	51	47	56	53	60	56
2	50	48	44	40	41	41	39	39	37	37	36	35	39	39	42	41	48	44	52	48	54	52	57	54
3	49	49	44	41	41	41	39	39	38	37	36	33	39	39	42	41	48	45	52	49	55	51	57	53
4	49	47	44	44	41	41	39	39	38	38	36	33	40	39	42	41	47	43	50	49	57	51	59	52
5	49	46	44	43	41	40	39	39	39	38	35	34	40	39	41	41	47	44	49	49	59	52	58	53
6	50	47	45	44	40	40	39	39	39	39	36	34	39	39	41	41	46	44	49	47	59	53	58	52
7	48	47	45	44	40	40	40	39	39	39	35	32	41	39	42	41	44	44	52	47	59	53	58	54
8	47	46	46	45	40	40	40	40	40	39	37	34	41	39	42	41	44	44	52	49	60	53	58	53
9	47	46	46	45	40	40	40	40	39	39	38	36	41	39	43	42	44	43	53	49	60	54	58	54
10	46	46	46	44	40	40	40	40	39	39	38	36	41	39	42	42	45	43	52	49	60	54	54	54
11	46	46	44	41	40	40	40	40	39	39	38	36	41	40	42	41	45	43	53	50	60	54	54	53
12	47	46	41	39	40	40	40	40	39	39	38	36	41	39	42	41	47	43	53	50	61	54	56	51
13	47	46	39	38	40	39	40	40	39	39	38	37	41	40	45	40	47	45	54	51	61	55	57	51
14	48	46	38	38	39	39	40	40	39	38	41	37	40	40	48	42	45	45	54	51	61	55	56	52
15	49	47	39	38	39	39	40	40	38	37	41	38	40	40	47	42	45	45	53	50	57	55	56	53
16	48	46	40	39	39	39	40	40	37	37	41	38	40	40	47	43	45	45	54	51	57	54	55	53
17	48	46	40	36	40	39	40	40	37	37	42	38	40	39	45	43	46	45	55	51	60	53	55	52
18	47	47	39	36	40	36	40	40	37	37	41	38	41	39	45	43	47	45	56	52	61	54	56	53
19	48	47	40	38	37	35	40	40	37	34	41	39	41	39	45	43	46	46	56	52	61	55	56	52
20	47	46	41	40	37	37	40	40	35	35	39	38	41	39	44	43	46	45	57	53	61	55	56	53
21	47	46	41	41	39	37	40	40	35	35	38	38	40	40	44	43	48	45	57	53	61	55	55	51
22	48	46	41	39	39	39	40	40	36	35	38	38	40	40	45	43	48	47	57	53	61	56	54	51
23	47	46	41	39	40	39	40	38	37	35	38	37	40	39	46	43	49	47	58	53	61	56	54	51
24	47	47	41	40	40	39	39	38	37	34	38	37	41	39	45	43	47	46	59	54	60	56	55	54
25	48	46	40	40	40	39	39	39	38	34	38	38	41	40	47	43	48	46	59	54	60	56	55	53
26	46	45	40	40	40	40	39	38	37	37	38	38	41	41	47	44	49	47	59	53	59	55	53	53
27	45	45	41	40	40	40	38	37	37	36	38	38	41	41	46	43	50	48	59	53	59	55	53	52
28	46	45	41	41	40	40	38	37	36	36	38	38	41	41	48	43	51	48	58	52	59	55	53	51
29	46	45	41	41	40	40	38	38	36	36	38	38	41	41	49	43	50	48	58	52	59	55	53	52
30	45	44	41	41	40	40	38	37	--	--	38	38	41	40	49	43	49	47	58	52	60	55	52	51
31	44	44	--	--	40	40	37	37	--	--	39	38	--	--	48	44	--	--	58	53	61	54	--	--
Average	47	46	42	41	40	39	39	39	38	37	38	37	40	40	45	42	47	45	55	51	59	54	56	53

SKOKOMISH RIVER BASIN--Continued

VANCE CREEK NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder at gaging station, 1 mile downstream from Aristine Creek and 8½ miles southwest of Potlatch, Mason County.
DRAINAGE AREA.--15.6 square miles
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1956.
EXTREMES, July 1955 to September 1956.--Water temperatures: Maximum, 64°F July 20, 23; minimum, 33°F Dec. 18, Mar. 7.
REMARKS.--Records of discharge for July to September 1955 given in WSP 1396 and for water year October 1955 to September 1956 given in WSP 1446.

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	--	--	55	53	58	52	11	--	--	56	53	56	53	21	62	54	57	52	52	50
2	--	--	53	52	59	53	12	--	--	54	53	57	53	22	59	54	57	52	52	49
3	--	--	55	52	58	53	13	--	--	56	51	54	53	23	61	54	57	51	54	51
4	--	--	56	52	58	53	14	63	56	57	51	54	52	24	58	54	55	52	53	50
5	--	--	57	53	60	54	15	61	55	57	52	52	51	25	55	54	54	51	52	49
6	--	--	58	53	57	55	16	56	54	56	52	52	51	26	54	53	54	52	52	50
7	--	--	58	54	57	54	17	61	53	57	53	53	51	27	54	53	54	51	53	51
8	--	--	55	53	56	55	18	57	54	58	52	53	51	28	54	53	57	52	51	50
9	--	--	57	52	56	55	19	57	53	58	53	54	51	29	55	53	58	52	51	50
10	--	--	59	53	56	55	20	61	53	58	53	53	51	30	54	53	57	53	53	50
														31	54	53	56	53	--	--
Average															--	--	56	52	54	52

SKOKOMISH RIVER BASIN--Continued

VANCE CREEK NEAR POTLATCH, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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	44	44	42	42	39	38	36	36	39	39	42	41	45	42	49	48	56	49	54	52	54	50
2	53	51	45	40	42	42	39	37	37	36	40	39	42	42	44	43	53	48	56	50	53	52	54	49
3	53	51	45	45	42	41	39	39	38	37	40	38	43	42	44	42	49	47	56	50	57	52	54	48
4	52	49	45	44	41	41	40	39	39	38	39	38	43	42	43	43	51	46	52	49	59	52	54	47
5	50	49	44	44	41	38	40	39	39	39	39	38	42	41	44	43	49	46	53	50	60	53	53	47
6	50	49	44	44	40	40	40	39	39	39	39	39	42	41	46	42	47	46	52	50	60	53	55	48
7	50	49	44	44	41	40	40	40	40	39	39	33	43	42	47	43	46	45	56	49	60	53	52	48
8	49	49	45	44	41	38	40	40	40	39	39	35	43	42	47	43	45	45	57	50	61	54	53	47
9	49	49	45	45	40	40	40	40	40	39	39	39	43	42	47	44	45	45	55	52	60	54	49	48
10	49	48	45	43	40	40	40	40	40	39	39	39	43	42	46	44	46	45	58	52	59	54	49	48
11	48	47	43	39	41	40	40	40	40	40	39	38	43	42	45	42	47	44	56	53	60	53	50	48
12	48	47	39	38	41	41	40	40	40	40	39	38	43	42	44	42	48	45	60	53	61	54	52	47
13	48	48	38	37	40	40	41	40	40	38	39	39	43	42	47	42	48	46	60	54	61	54	52	47
14	49	48	38	37	40	40	41	39	38	37	40	39	43	42	48	43	48	47	55	53	55	54	52	49
15	49	48	37	37	40	40	40	39	37	35	40	40	43	42	49	44	48	47	58	53	56	53	49	49
16	48	48	38	37	40	40	41	40	35	35	41	40	43	42	51	45	49	47	60	53	56	53	51	49
17	48	48	38	34	40	39	41	40	36	35	41	40	43	42	51	45	51	47	61	54	59	52	51	48
18	49	48	38	35	39	33	41	41	37	36	41	41	44	42	52	47	50	48	62	55	60	52	51	49
19	49	48	40	38	38	35	41	40	37	35	41	41	44	43	53	48	49	48	63	55	60	53	52	49
20	48	48	41	40	40	38	41	40	36	35	41	40	44	43	50	48	48	46	64	57	60	54	52	48
21	48	48	41	41	40	40	41	41	36	35	40	40	44	43	52	46	51	47	63	56	61	54	52	48
22	48	47	41	38	41	40	41	41	37	35	40	40	44	43	53	46	52	48	63	55	60	53	51	47
23	47	46	40	38	41	40	41	40	38	36	40	40	44	43	52	48	50	48	64	56	58	53	51	47
24	49	47	42	40	40	39	40	40	38	34	41	40	43	42	51	48	50	48	63	56	60	54	51	50
25	49	47	42	42	41	40	40	40	38	35	41	41	44	42	54	47	51	48	63	56	56	53	50	50
26	47	46	42	41	41	41	40	39	38	37	41	41	44	42	50	48	56	49	62	55	58	53	51	50
27	46	46	42	41	41	41	39	38	38	38	41	41	43	42	52	47	56	50	61	55	53	52	50	49
28	47	46	42	42	41	40	39	39	39	38	41	41	44	42	53	47	55	49	61	54	57	52	49	48
29	47	46	42	42	40	40	39	38	39	39	41	41	43	42	54	48	51	49	60	52	55	52	50	48
30	46	45	42	42	40	40	38	37	--	--	41	41	44	41	56	49	53	49	57	52	56	50	49	48
31	45	44	--	--	40	39	37	36	--	--	41	41	--	--	51	49	--	--	56	53	57	50	--	--
Average	49	48	42	41	40	40	40	39	38	37	41	39	43	42	49	45	50	47	59	53	58	53	51	48

SKOKOMISH RIVER BASIN--Continued

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 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 60°F July 19, 20, 23, 24, Aug. 24; minimum, 34°F Mar. 7, may have been lower during period of no record in February and March.
EXTREMES, May 1955 to September 1956.--Water temperatures: Maximum, 61°F Aug. 6, 1955; minimum, 34°F Mar. 7, 1956, may have been lower during period of no record in February and March.
REMARKS.--Recorder moved to new site Feb. 8, 1956. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	49	47	47	46	46	40	39	37	35	39	38	43	39	45	42	46	44	54	47	54	52	56	53
2	53	51	47	44	46	46	39	39	37	36	38	38	41	40	45	42	48	44	55	49	52	52	57	51
3	53	51	47	44	46	46	39	39	39	37	38	35	43	40	44	42	46	44	54	50	56	51	56	51
4	53	50	48	47	46	45	42	39	39	38	38	35	44	41	44	43	47	43	51	49	57	51	59	50
5	53	49	48	47	45	42	41	39	39	39	38	37	42	39	44	43	46	43	53	49	57	52	58	51
6	53	49	47	47	44	43	41	40	40	39	39	37	41	40	46	42	46	44	51	48	58	53	59	51
7	50	50	47	47	45	44	41	41	40	39	38	34	45	41	46	42	45	44	55	48	58	53	56	51
8	50	48	48	47	45	44	41	41	40	39	--	36	44	41	47	42	45	44	56	49	58	53	59	50
9	48	48	49	48	44	44	41	41	--	--	--	--	45	40	46	43	44	44	53	51	58	53	50	49
10	48	47	48	47	44	44	41	40	--	--	--	--	45	41	45	43	46	44	55	50	57	53	54	49
11	47	47	47	44	46	44	40	40	--	--	--	--	44	41	44	42	48	44	54	51	58	53	53	52
12	48	47	44	42	44	44	40	40	--	--	--	--	44	41	45	42	48	45	56	51	59	53	56	51
13	49	47	42	41	44	43	40	40	--	--	--	--	44	41	47	41	47	45	57	52	59	53	56	51
14	50	48	42	41	43	42	40	40	--	--	--	--	44	41	48	42	46	45	54	52	54	54	55	51
15	50	48	41	40	43	42	40	40	--	--	--	--	43	41	48	43	46	45	57	52	55	53	52	51
16	50	47	43	41	43	43	--	--	--	--	--	--	42	41	49	43	47	45	58	52	57	53	55	51
17	50	47	43	40	43	43	--	--	--	--	--	--	44	40	48	44	49	45	59	53	58	52	55	51
18	49	48	42	40	43	38	--	--	--	--	--	--	45	41	48	44	48	46	59	53	59	52	54	52
19	50	48	44	42	41	38	--	--	--	--	--	--	45	41	48	44	48	47	60	54	59	53	56	51
20	49	48	44	44	41	41	--	--	--	--	40	39	45	41	47	44	47	45	60	55	59	53	58	52
21	48	48	44	44	43	41	--	--	--	--	39	39	43	41	48	44	52	46	59	54	59	53	56	51
22	50	47	44	43	43	43	--	--	--	--	39	39	43	41	48	44	52	47	59	53	59	53	54	50
23	49	47	44	43	43	42	40	38	--	--	39	39	43	41	47	44	50	47	60	53	59	54	55	50
24	49	48	44	43	42	41	38	38	--	--	40	39	43	41	46	44	49	47	60	54	60	54	54	52
25	49	47	45	43	42	41	39	38	--	--	41	40	45	41	49	44	50	48	59	54	56	54	54	53
26	47	47	46	45	42	42	38	37	--	--	41	39	45	41	47	45	55	48	59	54	58	53	55	53
27	47	47	47	46	42	41	37	36	--	--	40	39	43	41	48	45	54	49	58	53	56	52	54	52
28	47	47	47	47	41	41	38	37	--	--	40	40	44	41	50	44	54	48	58	52	58	52	55	52
29	48	47	47	46	41	40	38	38	39	38	40	40	43	42	50	45	50	48	58	52	56	53	52	52
30	48	47	46	46	40	40	38	37	--	--	40	40	46	41	49	44	50	47	56	53	58	52	53	51
31	47	47	--	--	40	40	37	36	--	--	41	40	--	--	48	45	--	--	57	53	59	52	--	--
Average	50	48	45	44	43	42	--	--	--	--	--	--	44	41	47	43	48	46	57	52	57	53	55	51

SKOKOMISH RIVER BASIN--Continued

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 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 55°F July 20; minimum, 38°F Dec. 18, Mar. 7.
EXTREMES, May 1955 to September 1956.--Water temperatures: Maximum, 55°F July 20, 1956; minimum, 38°F Dec. 18, 1955, Mar. 7, 1956.
REMARKS.--Clock stopped Apr. 20-23; temperature range 48°F to 50°F during this period. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	46	45	45	42	41	40	40	45	44	46	45	49	48	50	50	52	50	50	50	52	51
2	49	49	46	43	45	45	42	42	41	40	45	45	46	46	49	48	50	50	52	51	50	50	51	50
3	49	49	48	45	45	44	43	42	42	41	45	41	46	45	49	47	50	50	52	51	51	50	50	49
4	49	49	48	47	44	43	43	43	42	42	42	41	47	45	48	48	50	49	52	51	51	50	51	49
5	49	48	47	46	43	41	43	43	44	42	42	42	46	45	49	48	50	49	52	51	52	50	51	49
6	48	48	47	46	43	41	43	42	44	44	43	42	46	45	50	48	49	49	51	51	52	51	51	50
7	48	48	47	47	43	43	43	42	44	44	43	38	47	46	50	49	49	49	51	50	52	51	51	51
8	48	48	48	47	43	43	43	42	44	44	42	40	47	46	51	49	50	49	53	51	52	51	51	50
9	48	48	49	48	44	43	43	42	44	43	43	42	48	46	50	50	50	50	53	52	52	51	51	51
10	48	48	49	47	44	44	43	43	44	44	43	42	49	47	50	49	50	49	53	52	52	51	51	50
11	48	48	47	43	46	44	44	43	44	44	43	42	50	48	50	48	50	49	53	52	51	50	50	50
12	48	48	43	41	46	43	45	44	44	44	43	42	50	48	50	49	51	50	53	52	52	51	50	49
13	48	48	41	41	43	41	45	44	44	43	43	43	50	48	51	48	50	50	53	52	52	52	50	49
14	49	48	41	40	41	41	45	44	43	43	44	43	49	48	51	49	50	50	53	52	52	51	50	49
15	49	49	40	39	42	41	45	44	43	41	45	44	49	47	52	50	50	50	52	51	52	51	50	49
16	49	48	41	40	43	42	45	44	41	41	45	44	48	46	52	50	50	50	53	51	52	52	50	49
17	48	48	42	40	43	43	45	45	42	41	46	45	49	46	53	51	50	50	54	52	52	51	50	49
18	48	48	42	41	43	38	45	45	43	42	46	45	49	47	54	52	50	50	54	52	53	51	49	49
19	48	48	43	42	41	39	45	44	43	43	46	46	50	48	53	52	50	50	54	53	53	52	50	49
20	48	48	44	43	42	41	44	44	43	42	46	44	--	--	52	51	50	49	55	54	53	53	50	49
21	48	48	44	44	43	42	44	44	42	42	45	45	--	--	52	50	50	49	54	53	53	53	50	49
22	48	48	44	42	43	43	44	44	43	42	45	45	--	--	52	50	51	50	54	53	53	52	49	47
23	48	47	43	42	43	42	44	42	43	43	45	45	50	--	52	51	51	50	54	53	53	53	49	47
24	49	47	44	43	42	42	42	42	43	42	46	45	50	48	52	51	50	49	54	52	54	52	50	49
25	50	49	44	44	44	42	42	42	43	42	46	46	50	49	52	51	50	49	53	52	53	53	50	50
26	49	48	44	44	44	44	42	41	43	43	46	45	50	49	52	51	53	50	52	51	53	52	50	50
27	48	47	44	44	44	43	41	40	43	43	45	44	49	48	51	51	53	53	51	50	53	52	50	49
28	48	47	45	44	43	42	42	41	44	43	45	45	49	48	52	50	53	52	51	50	52	51	50	49
29	48	48	45	45	42	42	42	42	44	44	46	45	48	48	52	50	52	51	51	50	52	52	50	50
30	48	47	45	45	42	42	42	41	--	--	46	46	49	46	52	51	51	51	51	50	52	51	50	49
31	47	47	--	--	42	41	41	40	--	--	46	45	--	--	52	50	--	--	51	50	52	51	--	--
Average	48	48	45	44	43	42	43	43	43	42	45	44	48	47	51	50	50	50	53	51	52	51	50	49

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 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 54°F on several days during May, July and August; minimum, 40°F Nov. 2, 17, Mar. 7.
EXTREMES, April 1955 to September 1956.--Water temperatures: Maximum, 54°F on several days during May, July, and August, 1956; minimum, 40°F Nov. 2, 17, 1955, Mar. 7, 1956.

Temperature (°F) of water, water year October 1955 to September 1956

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	45	47	45	47	45	46	44	45	42	46	45	49	44	--	--	50	48	53	47	50	48	51	48
2	50	48	46	40	47	46	46	45	45	43	46	45	49	46	--	--	52	48	52	49	49	48	51	47
3	50	48	46	43	47	46	45	45	47	44	46	43	49	46	--	--	50	49	52	48	51	47	51	47
4	49	47	49	46	47	45	46	44	47	45	46	43	50	45	--	--	51	47	50	47	52	47	51	46
5	--	--	48	46	48	43	46	44	48	46	46	45	49	45	--	--	49	47	51	48	53	48	52	46
6	--	--	48	47	46	45	46	44	48	46	47	43	48	45	--	--	49	47	50	48	53	48	52	46
7	--	--	48	47	47	45	47	45	48	46	45	40	51	46	--	--	49	47	52	47	53	48	51	48
8	--	--	49	47	46	44	47	45	47	45	46	44	50	46	53	48	49	47	54	48	53	48	52	47
9	--	--	49	47	47	45	47	45	47	44	--	44	52	45	52	48	49	48	52	49	53	48	50	48
10	--	--	48	46	46	46	47	45	47	45	--	--	52	46	51	47	50	48	52	49	52	48	50	49
11	47	46	46	43	49	46	48	46	48	46	--	--	52	47	50	46	51	47	51	48	53	48	50	48
12	49	47	44	43	47	45	47	46	--	45	47	43	52	47	51	46	51	47	53	48	54	48	51	47
13	49	46	43	42	46	45	47	45	47	44	46	44	52	46	52	46	49	47	52	48	53	49	51	47
14	50	47	43	41	46	44	46	45	46	44	48	44	51	47	53	47	49	48	50	48	50	48	51	47
15	49	47	43	41	46	46	47	45	44	42	48	43	51	47	54	47	50	47	52	48	51	48	49	48
16	49	46	44	43	46	46	47	46	44	42	48	43	50	47	54	47	50	48	53	48	52	48	51	48
17	50	46	44	40	46	45	47	46	46	43	49	44	52	45	53	47	51	48	53	48	52	47	50	48
18	49	47	44	41	45	41	47	46	47	45	49	44	52	45	54	48	50	48	54	48	53	47	50	48
19	49	47	45	43	46	42	46	45	47	46	49	45	52	46	53	49	50	48	54	48	53	48	51	48
20	48	46	46	44	44	43	47	46	46	45	45	45	52	46	52	48	50	47	54	50	53	49	51	48
21	48	47	46	44	44	42	47	47	45	45	46	45	51	47	53	48	51	47	54	49	53	48	50	47
22	49	46	45	43	45	44	48	46	47	44	46	45	51	47	53	47	51	48	53	49	53	48	50	46
23	49	45	44	43	45	44	47	45	46	45	45	44	52	46	52	48	50	47	54	49	52	49	51	46
24	49	48	45	44	45	44	46	45	45	43	--	--	52	46	51	48	51	47	54	49	53	49	51	49
25	50	47	46	45	46	45	47	44	47	44	--	--	53	47	52	48	51	48	52	48	51	49	51	49
26	48	47	46	45	46	45	46	44	46	45	49	45	53	47	51	48	53	48	53	48	53	48	50	48
27	47	46	47	45	46	45	45	42	46	45	48	45	50	46	51	48	53	49	52	48	51	48	49	47
28	48	47	47	46	46	44	45	44	47	45	47	46	51	46	52	48	52	48	52	47	52	48	50	47
29	49	47	47	46	46	45	45	44	46	45	48	46	50	47	53	47	50	47	53	48	51	49	49	47
30	48	46	46	46	46	43	45	43	--	--	47	46	--	46	53	48	50	47	51	48	52	47	50	47
31	47	45	--	--	45	44	45	42	--	--	48	45	--	--	50	49	--	--	51	47	52	47	--	--
Average	49	47	46	44	46	44	46	45	46	44	47	44	49	46	--	--	50	48	52	48	52	48	51	47

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NISQUALLY RIVER BASIN

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 61°F Aug. 5, 6, 12; minimum, freezing point Dec. 29, 30.
EXTREMES, 1951-56.--Water temperatures: Maximum, 61°F July 9, 1952, Aug. 5, 6, 12, 1956; minimum freezing point on many days during winter months of 1952 and 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	43	40	40	37	37	34	33	33	33	36	36	41	39	48	40	44	43	51	44	53	47	53	45
2	48	45	40	40	37	37	34	34	34	33	37	36	42	39	48	42	49	42	52	45	49	48	54	43
3	47	45	40	39	37	37	35	34	36	34	37	34	44	40	45	42	44	42	50	45	53	47	53	43
4	46	44	39	37	37	37	35	35	36	35	34	34	42	40	45	42	45	41	51	44	59	48	54	43
5	44	43	37	37	37	37	36	35	38	36	35	34	43	39	48	42	44	41	47	45	61	48	54	44
6	43	42	38	37	37	37	36	36	38	37	38	34	44	39	49	41	43	42	54	45	61	49	54	44
7	43	43	38	38	37	37	36	36	38	37	37	34	43	41	50	42	46	42	56	43	60	49	54	45
8	43	43	38	38	37	37	36	36	37	35	35	34	47	40	51	41	45	44	57	45	60	48	54	43
9	43	42	39	38	37	37	36	36	37	34	36	34	49	39	50	42	47	44	53	46	60	48	47	44
10	42	42	39	38	37	37	37	36	37	36	38	34	47	40	44	42	49	42	56	46	59	48	51	46
11	42	41	39	38	37	33	37	37	37	36	37	34	43	41	44	41	49	41	55	47	60	49	51	47
12	44	41	39	38	34	33	38	37	36	35	38	34	48	39	45	41	51	41	54	46	61	48	54	46
13	46	42	39	38	34	34	38	37	35	34	37	34	48	40	49	40	48	43	56	46	60	48	54	44
14	45	42	39	38	34	33	37	36	35	33	40	36	46	39	51	41	47	44	49	46	57	48	53	43
15	45	44	39	38	35	33	37	36	33	33	41	35	43	40	53	42	45	43	57	46	53	48	53	44
16	44	41	38	37	35	35	37	37	33	33	41	35	45	40	53	42	47	43	58	46	54	48	52	43
17	45	41	37	37	35	35	37	37	33	33	43	35	47	38	51	42	51	43	58	46	58	45	51	44
18	44	42	37	37	35	35	37	37	33	33	43	36	48	39	48	42	49	43	60	47	59	46	52	43
19	43	43	37	36	35	35	37	37	34	33	40	38	49	40	49	41	45	43	59	47	59	47	51	44
20	44	42	37	36	36	35	38	37	36	34	39	38	47	40	45	41	47	43	59	49	59	47	47	43
21	44	43	37	37	36	36	38	38	36	36	40	38	45	40	49	41	52	43	59	47	59	47	49	44
22	43	41	37	37	36	36	39	38	37	36	39	38	43	40	50	41	51	44	59	46	58	47	49	41
23	42	39	37	37	36	36	39	36	37	36	38	37	45	39	45	41	47	44	59	47	53	47	51	41
24	41	41	37	37	36	36	36	35	36	35	38	37	45	39	45	42	46	43	60	47	56	49	50	46
25	42	41	37	37	36	36	36	34	36	35	38	37	47	40	51	41	48	42	59	48	51	48	50	46
26	41	40	37	37	36	36	34	33	36	36	38	36	46	40	44	42	55	45	59	47	51	48	49	46
27	40	40	37	37	36	35	34	33	36	36	42	37	42	39	43	41	56	45	58	46	52	48	49	44
28	40	40	37	37	35	33	34	33	37	36	40	39	43	41	51	41	53	45	58	46	56	47	46	43
29	40	40	37	37	33	32	34	33	37	36	41	39	47	40	53	42	49	43	57	45	53	48	46	44
30	40	40	37	37	33	32	34	33	--	--	41	40	49	39	51	42	50	44	58	46	54	45	46	44
31	40	40	--	--	33	33	33	33	--	--	43	39	--	--	50	43	--	--	56	46	54	44	--	--
Average	43	42	38	37	36	35	36	35	36	35	39	36	45	40	48	41	48	43	56	46	57	47	51	44

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 73° F July 20; minimum, 33° F Jan. 31.
EXTREMES, 1951-56.--Water temperatures: Maximum, 73° F July 20, 1956; minimum, 33° F Jan. 31, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	51	42	41	41	41	38	38	34	34	35	35	43	43	49	48	54	53	56	53	63	62	65	61
2	55	53	42	41	41	40	38	37	35	34	36	35	43	43	49	48	53	51	56	55	62	59	62	58
3	53	53	42	42	40	40	38	37	37	35	36	35	45	43	49	48	54	52	56	55	62	59	61	57
4	53	51	42	42	40	40	38	38	37	36	35	34	45	45	49	48	52	51	57	55	66	60	62	57
5	51	48	42	42	40	40	38	38	38	37	35	34	45	44	49	48	51	50	57	56	65	62	62	57
6	49	46	42	42	40	40	38	38	38	38	35	34	45	44	49	48	51	50	58	56	65	63	62	58
7	49	48	42	42	40	40	38	38	38	38	35	34	46	45	49	48	51	50	59	57	65	64	62	59
8	48	48	42	42	40	40	38	38	38	38	35	34	47	46	50	49	51	50	61	59	65	64	62	58
9	48	48	42	42	40	40	38	38	38	37	36	35	48	46	50	49	51	50	62	61	68	64	62	58
10	48	47	43	42	40	40	38	38	38	38	37	36	48	46	50	49	51	51	62	61	68	64	59	58
11	47	47	43	41	41	40	39	38	38	38	37	36	47	47	49	48	52	49	63	62	69	64	59	58
12	47	47	41	38	41	40	39	38	38	37	37	37	49	47	48	48	54	50	63	62	69	63	60	57
13	47	47	38	37	40	39	39	39	37	36	37	37	49	47	50	47	54	52	65	62	69	64	60	57
14	47	47	37	36	39	39	39	38	37	36	38	37	49	47	51	49	53	52	64	60	68	64	60	56
15	47	47	36	35	39	39	39	38	36	36	39	38	48	47	52	50	52	51	66	60	65	64	60	57
16	47	47	35	35	39	39	39	39	36	35	39	38	48	47	52	50	51	51	66	60	65	64	60	56
17	47	46	36	35	39	39	39	39	35	34	39	38	48	47	52	50	54	51	67	60	67	62	60	56
18	47	46	36	35	39	38	39	39	35	34	39	39	49	47	52	51	54	52	69	61	69	63	58	56
19	47	46	36	36	39	38	39	39	35	34	40	40	50	48	52	51	53	53	71	63	68	63	59	56
20	47	47	37	36	39	39	40	39	35	34	40	39	50	48	53	52	53	51	73	66	69	63	59	56
21	47	46	38	37	41	39	40	40	35	35	39	39	50	48	52	50	54	51	72	65	69	64	57	55
22	46	45	38	38	41	40	40	40	36	35	40	39	49	48	52	51	55	52	71	64	69	64	56	53
23	46	44	39	38	40	40	40	38	36	36	40	40	49	48	53	52	54	52	71	64	69	64	56	52
24	46	45	39	39	40	40	38	37	36	35	40	40	49	48	52	51	53	51	71	64	67	64	56	55
25	46	45	40	39	40	40	38	37	35	35	40	40	50	48	52	50	53	51	70	64	66	63	58	55
26	46	45	40	39	40	40	37	36	35	35	41	40	50	49	53	52	58	52	69	63	63	60	58	56
27	46	45	41	40	40	40	36	35	36	35	42	40	50	49	52	50	59	55	68	63	62	60	56	54
28	45	44	41	41	40	40	36	36	36	35	42	42	49	48	52	49	59	55	66	62	64	60	55	53
29	44	43	41	41	40	39	36	36	35	35	42	42	49	48	54	51	59	54	65	61	64	61	54	53
30	43	43	41	41	39	38	36	34	--	--	43	42	49	47	55	53	55	53	64	61	64	59	53	51
31	43	42	--	--	38	38	35	33	--	--	43	43	--	--	55	54	--	--	64	62	65	60	--	--
Average	48	47	40	39	40	40	38	38	36	36	38	38	48	47	51	50	54	52	65	61	66	62	59	56

DUWAMISH RIVER BASIN

GREEN RIVER NEAR PALMER, WASH.

LOCATION.--At city of Tacoma Green River Pipe Line bridge about half a mile below headworks dam, 2 miles below gaging station, 4½ miles downstream from North Fork and 2 miles southeast of Palmer, King County.
DRAINAGE AREA.--230 square miles (above gaging station).
RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1956.
Sediment records: August 1950 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 57°F Sept. 7; minimum, freezing point Feb. 16-17.
Sediment concentrations: Maximum daily, 1,140 ppm Dec. 12; minimum daily, 0.3 ppm July 11-15, Aug. 1-5.
Sediment loads: Maximum daily, 42,700 tons Dec. 12; minimum daily, 0.2 ton Aug. 1-5.
EXTREMES, 1950-56.--Water temperatures: Maximum, 61°F Sept. 6, 1950; minimum, freezing point several days during winter months.
Sediment concentrations: Maximum daily, 1,350 ppm Dec. 9, 1953; minimum, 0.3 ppm Oct. 1-10, 1954, July 11-15, Aug. 1-5, 1956.
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, Aug. 1-5, 1956.
REMARKS.--Maximum observed sediment concentration during water year 3,140 ppm Dec. 11.
Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956
/Once daily measurement between 8 a.m. and 10 a.m./

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

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR PALMER, WASH.--Continued

Suspended sediment, water year October 1955 to September 1956

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.....	259			2,310	13	81	2,280		
2.....	247			2,180	23	s 154	1,970		
3.....	255	3.4	3.4	3,560	41	394	1,620	7.2	33
4.....	477			4,330	64	748	1,360		
5.....	604			3,840	35	363	1,220		
6.....	464			2,800			1,180		
7.....	431	--	e 1.3	2,260	15	92	1,110		
8.....	511			1,990			1,050	1.7	5.1
9.....	2,040	37	s 218	2,080			1,100		
10.....	2,490	12	81	5,140	147	2,040	1,090		
11.....	1,710			3,760	51	518	7,710	1,080	s 41,300
12.....	1,320			2,500			12,000	1,140	s 42,700
13.....	1,100	4.7	15	1,930			4,580	142	s 1,850
14.....	942			1,580	21	95	3,890	47	494
15.....	834			1,250			2,180		
16.....	727			1,100			1,820	9.9	43
17.....	648			950			1,560		
18.....	587	1.1	1.8	1,100			1,340		
19.....	562			1,600	10	32	1,220		
20.....	523			1,200			1,430	9.5	37
21.....	490			1,100			1,950	33	s 209
22.....	456	1.0	1.2	992			3,640	161	s 1,620
23.....	431			924	2.0	5.2	3,210	53	s 485
24.....	626	14	s 32	992			2,310		
25.....	1,410	47	s 168	1,980	27	s 170	1,880		
26.....	1,740	10	47	4,060	70	s 765	1,650		
27.....	1,620	6.8	s 36	3,780	24	245	1,510	10	41
28.....	3,670	82	813	2,720			1,340		
29.....	5,630	300	s 6,110	2,150	11	69	1,200		
30.....	5,670	160	s 2,720	2,110			1,100		
31.....	3,240	31	s 284	--	--	--	1,020		
Total.	41,714	--	10,617.5	68,268	--	6,703.6	72,570	--	89,428.5

	January			February			March		
1.....	960			514			1,080	52	s 206
2.....	900			523			1,770	38	s 193
3.....	1,000	4.2	13	546	1.8	2.5	1,360		
4.....	1,540			500			1,100		
5.....	1,490			505			895	4.1	11
6.....	1,320			469			765		
7.....	1,200			460			780		
8.....	1,080	2.1	6.2	447	.8	1.0	825		
9.....	985			425			720		
10.....	915			425			640	3.6	6.4
11.....	865			620	9.7	s 29	570		
12.....	855			1,160	11	s 37	536		
13.....	1,020	1.0	2.6	890			518		
14.....	970			755			487		
15.....	1,160			640	6.0	12	487	--	e 4.1
16.....	1,220			600			505		
17.....	1,280			600			560		
18.....	1,430	3.9	14	575			760		
19.....	1,420			505	3.1	4.4	1,010		
20.....	1,350			478			1,030	7.2	22
21.....	1,210			460			1,260		
22.....	1,160			434			1,480		
23.....	1,250	1.4	4.3	416			1,820		
24.....	1,110			407	2.3	2.6	1,910		
25.....	990			407			2,120	10	53
26.....	900			398			2,230		
27.....	815			381			1,780		
28.....	780	1.7	3.4	390	1.7	1.8	1,500		
29.....	705			416			1,530	5.1	21
30.....	650			--	--	--	1,560		
31.....	550			--	--	--	1,540		
Total.	33,080	--	220.9	15,346	--	171.9	35,128	--	965.5

e Estimated.
s Computed by subdividing day.

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR PALMER, WASH.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	1,400			2,180			2,880		
2	1,270			2,080			2,350		
3	1,180	4.1	15	2,060	4.5	25	2,210	6.5	41
4	1,400			2,010			2,130		
5	1,460			2,070			1,990		
6	1,300			2,290			1,900		
7	1,260			2,660	23	166	1,830		
8	1,280	--	e15	3,070			1,770	4.2	21
9	1,380			3,330	45	405	1,820		
10	1,860			3,500	30	284	2,020		
11	2,570			2,890			1,970		
12	2,530	55	401	2,370			1,680		
13	3,000			2,010	7.2	44	1,550	1.8	8.1
14	3,600	54	525	1,910			1,540		
15	3,510	48	455	2,160			1,550		
16	2,800			2,950	12	96	1,520		
17	2,360	16	112	4,170	40	450	1,590		
18	2,290			5,060	95	1,300	1,580	1.5	6.9
19	2,880			5,220	186	2,620	1,930		
20	4,020	75	814	4,690	50	633	1,960		
21	5,410	119	1,740	3,450	33	307	1,670		
22	5,280	118	1,680	3,200	28	242	1,500		
23	4,040	72	785	3,460	32	299	1,400	3.1	12
24	3,140			3,100	15	115	1,270		
25	2,840	26	205	2,600			1,140		
26	2,980			2,600			1,100		
27	2,930			2,450			1,140		
28	2,700			2,110	4.0	28	1,200	.9	2.7
29	2,650	7.0	48	2,160			1,140		
30	2,390			2,800			1,020		
31	--	--	--	3,230			--	--	--
Total	77,710	--	8,921	89,840	--	7,877	50,350	--	458.5

Day	July			August			September		
1	920			271			178		
2	885			271			175		
3	875	3.0	7.1	271	0.3	0.2	171	2.2	1.0
4	840			263			171		
5	880			251			168		
6	1,000			247			164		
7	880			243			160		
8	845	.7	1.7	235	1.3	.8	160	1.8	.8
9	885			228			164		
10	885			228			168		
11	820			224			224		
12	755			216			208		
13	710	.3	.6	208	1.6	.9	178	3.8	1.9
14	655			208			171		
15	605			208			168		
16	541			208			160		
17	514			204			157		
18	482	1.4	1.9	201	1.0	.5	154	2.9	1.2
19	464			197			154		
20	460			193			157		
21	434			190			157		
22	416			186			160		
23	381	1.7	1.8	182	1.2	.6	154	1.0	.4
24	368			182			164		
25	359			190			168		
26	342			216			190		
27	333			208			186		
28	312	.4	.3	193	1.0	.5	186	3.1	1.9
29	295			193			251		
30	287			197			346		
31	279			186			--	--	--
Total	18,707	--	67.3	6,698	--	18.0	5,372	--	36.0

Total discharge for year (cfs) 514,783
Total load for year (tons) 125,485.7

e Estimated.

GREEN RIVER NEAR PALMER, WASH.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; 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. 9, 1955	8:00 a.m.	1,840	43	48	362	32	43	55	66	81	95	98	99		100	--	SPWCM
Oct. 10	2:00 a.m.	2,810	44	15	--	--	--	--	--	--	80	89	96		100	--	S
Oct. 10	10:00 a.m.	2,640	44	13	--	--	--	--	--	--	85	93	98		100	--	S
Oct. 28	8:30 a.m.	3,860	44	115	520	15	17	22	27	34	43	46	69		100	--	VPWCM
Oct. 28	2:30 p.m.	3,960	44	77	358	15	25	27	28	38	49	64	83		100	--	VPWCM
Oct. 28	8:00 p.m.	3,620	44	34	285	32	51	52	55	65	83	91	97		99	100	SPWCM
Oct. 29	2:00 p.m.	6,550	44	223	1,280	14	22	28	37	45	56	70	82		97	100	VPWCM
Oct. 29	11:00 p.m.	8,100	44	428	1,510	10	12	17	23	29	36	46	66		86	100	VPWCM
Nov. 10	3:45 p.m.	5,320	42	128	840	--	30	--	45	--	70	72	80		95	100	SPWCM
Nov. 10	9:00 p.m.	4,800	41	82	675	--	32	--	49	--	75	75	85		100	--	SPWCM
Nov. 25	9:30 p.m.	2,970	36	43	--	--	--	--	--	--	46	53	69		93	100	S
Nov. 26	1:00 p.m.	4,120	38	36	--	--	--	--	--	--	61	67	80		97	100	S
Nov. 26	6:00 p.m.	4,110	38	28	--	--	--	--	--	--	80	87	93		97	100	S
Dec. 11	10:00 a.m.	3,640	38	159	920	--	22	--	32	--	59	73	90		100	--	VPWCM
Dec. 12	4:30 a.m.	16,800	38	1,770	3,480	--	12	--	29	--	49	61	77		92	100	VPWCM
Dec. 12	11:30 a.m.	10,800	38	686	4,300	--	18	--	37	--	61	76	92		99	100	VPWCM
Dec. 21	9:00 p.m.	2,400	46	88	570	--	21	--	35	--	76	88	99		100	--	VPWCM
Dec. 22	5:30 p.m.	4,260	36	110	580	--	15	--	26	--	60	74	90		99	100	VPWCM
Dec. 22	11:30 p.m.	3,980	36	121	520	--	13	--	21	--	51	64	78		97	100	VPWCM

DUWAMISH RIVER BASIN--Continued

GREEN RIVER NEAR AUBURN, WASH.

LOCATION.--Temperature recorder at gaging station, 1½ miles east of Auburn, King County, and 2 miles downstream from Big Soos Creek.
DRAINAGE AREA.--382 square miles (excludes 4 square miles in the vicinity of Youngs Lake, flow from which has been diverted to Cedar River basin since about 1935).
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 66°F July 19, 20, 22-25; minimum, 33°F Feb. 16, 17.
EXTREMES, 1952-56.--Water temperatures: Maximum, 66°F July 19, 20, 22-25, 1956; minimum, 33°F Feb. 16, 17, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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

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, King County, 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum recorded, 60°F Sept. 1, 2; minimum, 36°F Jan. 30, 31, Feb. 1, 2, 14-17.
EXTREMES, 1953-56.--Water temperatures: Maximum, 64°F Aug. 19, 1953; minimum, 36°F Jan. 30, 31, Feb. 1, 2, 14-17, 1956.
REMARKS.--Recorder stopped May 19-21, July 26 to Aug. 1, Sept. 6-11; temperature ranges during these periods 50°F to 52°F, 50°F to 56°F, and 51°F to 57°F respectively. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	48	48	42	42	40	38	37	36	41	39	42	40	45	45	51	51	54	50	--	51	60	59
2	52	52	48	48	42	41	40	38	37	36	41	39	41	40	45	45	51	51	52	51	55	51	60	59
3	52	52	48	48	42	41	40	38	38	37	40	39	42	40	45	45	51	51	51	50	57	50	59	57
4	52	50	48	47	42	41	40	38	40	37	40	39	43	41	45	45	51	51	54	50	56	50	59	58
5	50	50	47	47	41	40	40	38	40	38	41	38	42	41	46	45	51	50	52	51	56	50	58	53
6	50	49	47	47	41	40	40	39	40	38	42	38	44	40	49	45	50	50	53	51	56	51	--	--
7	50	49	47	47	41	41	39	38	40	37	41	39	42	42	49	46	50	50	56	50	56	51	--	--
8	49	49	47	47	41	41	39	38	39	37	40	38	44	42	49	46	50	50	58	51	57	51	--	--
9	49	49	47	47	41	41	40	39	39	37	40	38	44	42	48	46	50	50	56	53	56	51	--	--
10	49	48	47	47	41	41	40	39	40	38	42	39	45	42	47	47	51	50	55	53	54	51	--	--
11	48	48	47	44	42	41	40	39	41	38	42	39	44	43	47	47	51	49	54	52	56	51	--	--
12	48	48	44	44	42	41	40	39	39	38	42	38	45	43	47	46	52	50	57	52	58	52	55	51
13	49	48	44	43	41	40	40	39	39	37	40	37	46	43	49	45	51	50	55	52	56	52	56	51
14	49	49	43	43	40	39	40	39	39	36	42	38	44	43	49	46	51	50	54	51	57	53	56	51
15	49	49	43	43	39	39	40	38	37	36	43	38	44	43	51	47	51	50	55	50	53	52	56	52
16	49	49	43	41	39	39	39	38	38	36	43	39	44	42	51	48	50	50	57	50	53	52	56	52
17	49	49	41	41	40	39	39	38	39	36	43	39	44	42	51	48	51	50	58	51	56	51	56	52
18	49	49	41	40	39	38	39	38	41	37	44	38	45	43	51	49	52	50	58	51	57	51	56	52
19	49	49	40	40	40	39	39	38	41	38	41	39	45	43	--	--	51	51	59	53	57	52	56	52
20	49	49	43	40	41	39	39	38	41	38	42	39	46	44	--	--	51	50	57	52	57	52	56	53
21	49	49	43	42	41	39	40	39	42	38	41	39	46	45	51	--	52	50	58	51	57	54	54	52
22	49	48	42	42	40	38	40	39	42	38	41	39	46	45	52	50	51	50	57	51	57	52	55	51
23	48	48	42	42	38	38	39	38	42	39	41	39	46	44	51	50	51	50	59	51	55	52	55	51
24	48	48	43	42	38	38	39	38	41	39	40	39	45	44	51	50	51	50	58	52	53	51	55	54
25	48	48	42	42	38	38	38	37	42	39	41	40	46	44	51	50	51	49	57	51	53	52	55	54
26	48	48	42	42	39	38	38	37	42	42	40	39	46	45	50	50	53	50	57	51	52	51	55	54
27	48	48	42	42	38	38	37	37	42	38	40	39	45	45	50	50	52	51	--	50	54	51	54	53
28	49	48	42	42	39	38	39	37	41	38	41	40	45	45	51	49	52	50	--	--	57	51	53	53
29	49	49	42	42	38	38	40	37	41	38	42	40	45	45	52	49	51	50	--	--	57	51	53	53
30	49	49	42	42	39	38	40	36	--	--	41	40	46	44	55	50	51	50	--	--	59	56	53	53
31	49	48	--	--	39	38	37	36	--	--	42	40	--	--	52	51	--	--	--	--	59	57	--	--
Average	49	49	44	44	40	39	39	38	40	38	41	39	44	43	49	48	51	50	56	51	56	52	56	53

SNOHOMISH RIVER BASIN

WALLACE RIVER AT GOLD BAR, WASH.

LOCATION.--Temperature recorder at gaging station 30 feet downstream from highway bridge, a quarter of a mile north of Gold Bar, Snohomish County, and 1¼ miles upstream from Olney Creek.
DRAINAGE AREA.--19.8 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1956.
EXTREMES, July 1955 to September 1956.--Water temperatures: Maximum recorded, 66° F Aug. 12, 18-22, 1956; minimum recorded, freezing point Feb. 15-17, 1956.
REMARKS.--Records of discharge for the period July to September 1955 given in WSP 1396, and for the water year October 1955 to September 1956 given in WSP 1446.

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	--	--	51	50	--	--	11	--	--	56	53	--	--	21	58	50	59	52	--	--
2	--	--	52	49	--	--	12	--	--	56	51	--	--	22	58	49	60	54	--	--
3	--	--	55	49	--	--	13	--	--	61	50	--	--	23	57	50	56	53	--	--
4	--	--	58	50	--	--	14	56	51	--	--	54	51	24	53	51	55	54	--	--
5	--	--	59	52	--	--	15	55	49	--	--	51	49	25	51	50	54	53	--	--
6	--	--	61	54	--	--	16	51	49	--	--	51	49	26	53	50	59	52	52	51
7	--	--	60	55	--	--	17	56	47	59	56	55	46	27	50	48	59	52	51	48
8	--	--	56	53	--	--	18	52	49	60	54	--	--	28	50	49	61	53	49	47
9	--	--	59	51	--	--	19	55	49	57	55	--	--	29	50	48	63	54	50	48
10	--	--	61	54	--	--	20	57	48	59	54	--	--	30	49	48	57	56	51	47
														31	52	49	58	54	--	--
Average																	58	53	--	--

SNOHOMISH RIVER BASIN--Continued

WALLACE RIVER AT GOLD BAR, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

STILLAGUAMISH RIVER BASIN

JIM CREEK NEAR ARLINGTON, WASH.

LOCATION.--Temperature recorder at gaging station at abandoned bridge 1¼ 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 73°F July 19, 20; minimum, 33°F Nov. 14, 15, Jan. 31, Feb. 1, 2, 15-17.
EXTREMES, 1951-56.--Water temperatures: Maximum, 73°F July 19, 20, 1956; minimum, freezing point on many days during winter months.
REMARKS.--Record of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	45	45	41	41	37	36	33	33	39	38	43	40	48	44	53	51	62	52	60	58	64	60
2	53	52	45	44	41	41	38	37	35	33	39	39	44	41	50	44	57	50	62	55	59	57	61	55
3	53	51	46	44	41	41	38	38	37	35	39	36	43	40	49	44	55	48	58	55	61	55	61	54
4	53	47	47	46	41	39	38	38	37	37	38	37	42	41	48	46	50	47	63	55	65	56	61	53
5	49	47	46	45	40	39	39	38	38	37	38	37	43	40	49	46	51	47	60	55	66	57	63	55
6	49	45	46	45	41	40	39	39	38	38	39	37	43	40	54	44	49	47	59	54	66	57	64	55
7	49	47	46	46	41	40	40	39	40	38	38	38	43	42	55	45	49	46	65	53	66	57	63	58
8	47	46	47	47	41	40	39	38	38	36	38	36	46	41	54	44	51	49	67	56	67	57	63	56
9	47	47	47	47	41	40	39	38	39	36	40	36	49	41	53	45	49	48	65	59	66	58	60	56
10	48	47	47	44	41	40	39	38	39	38	40	37	50	41	50	45	49	47	62	59	65	59	60	57
11	47	47	44	39	41	40	40	39	39	39	39	35	49	42	49	44	51	47	64	58	65	59	60	57
12	49	47	39	36	40	39	40	39	39	38	38	36	50	42	50	45	55	48	67	59	68	58	60	55
13	49	46	36	34	39	37	40	39	38	37	39	36	50	42	54	44	53	50	68	59	68	61	61	56
14	50	47	35	33	37	37	39	39	37	34	42	37	45	42	56	46	59	51	62	60	65	63	62	57
15	51	49	34	33	37	37	40	39	34	33	42	37	45	43	57	47	55	51	65	58	63	60	59	57
16	49	47	36	34	37	37	40	40	33	33	42	38	47	43	57	46	54	50	67	59	64	59	62	58
17	50	48	36	34	38	37	41	40	35	33	44	38	50	41	57	46	58	51	69	59	66	58	59	58
18	49	48	38	36	37	34	41	40	36	35	43	38	52	42	57	46	57	52	71	60	68	59	61	57
19	51	50	38	37	37	34	40	40	37	36	41	40	52	43	56	47	55	51	73	63	68	60	61	57
20	51	48	39	38	38	37	40	40	38	37	40	39	51	43	52	47	53	49	73	66	68	60	59	57
21	51	49	39	39	40	38	41	40	37	36	42	40	49	43	57	46	58	49	71	64	69	60	58	56
22	50	49	39	39	40	39	41	40	37	36	41	40	51	43	57	48	55	52	71	62	69	60	56	52
23	49	46	39	39	39	39	41	40	38	37	40	39	50	42	54	48	58	51	71	62	66	62	57	53
24	50	49	39	39	40	39	40	39	38	37	42	38	51	43	55	49	56	51	70	62	66	64	57	56
25	52	48	40	40	41	40	39	38	38	37	43	41	53	44	59	48	56	50	69	62	65	60	57	56
26	48	47	40	40	41	40	38	37	38	37	42	40	53	44	55	49	60	53	69	60	61	59	57	53
27	47	47	40	40	40	39	37	35	38	37	42	40	48	44	54	48	59	55	68	61	61	59	55	53
28	47	47	40	40	39	37	37	36	39	38	41	41	48	45	58	47	60	52	66	57	63	56	54	52
29	47	46	41	41	37	36	36	35	39	38	41	41	50	45	61	49	57	53	65	57	62	59	52	52
30	46	46	41	41	36	36	35	34	--	--	43	41	53	44	62	50	58	51	62	58	63	57	52	50
31	46	46	--	--	36	36	34	33	--	--	43	40	--	--	57	52	--	--	61	56	64	56	--	--
Average	49	48	41	40	39	38	39	38	37	36	41	38	48	42	54	46	55	50	66	59	65	59	59	55

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 57°F Aug. 17-26, 1956; minimum, 36°F Feb. 1-3, 16-18, 1956.
EXTREMES, 1952-56.--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 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	43	43	40	40	38	38	37	36	38	38	40	39	43	43	44	44	45	45	54	54	56	56
2	48	48	43	41	40	40	39	38	36	36	38	38	40	40	43	43	44	44	47	45	54	53	56	56
3	48	48	42	41	40	40	39	39	37	36	38	38	40	40	43	43	44	44	47	47	54	54	56	55
4	48	46	43	42	40	40	39	39	38	37	38	37	40	40	43	43	44	44	47	46	54	53	56	55
5	46	46	43	43	40	40	39	39	39	38	38	37	40	39	43	43	44	44	47	47	54	54	56	55
6	46	44	43	43	40	40	39	39	39	39	38	38	40	39	43	43	44	44	47	46	55	54	56	55
7	45	45	43	43	40	40	39	39	40	39	38	38	40	40	43	43	44	44	47	46	55	55	56	56
8	45	45	43	43	40	40	39	39	40	39	38	38	41	40	44	43	44	44	48	47	55	55	56	55
9	45	45	43	43	40	40	39	39	40	39	38	37	41	40	44	43	44	44	49	48	55	55	56	55
10	45	45	43	43	40	40	39	39	40	40	38	37	41	40	44	43	44	44	49	49	55	55	55	55
11	45	45	43	42	40	38	39	39	40	39	38	37	41	40	43	43	44	44	49	49	55	55	55	55
12	45	45	42	39	39	38	39	39	39	39	38	38	41	39	43	43	44	44	49	49	55	55	55	55
13	46	45	39	38	39	39	39	39	39	39	40	38	41	39	44	43	44	44	49	49	56	55	55	55
14	46	46	38	38	39	38	39	39	39	38	40	39	41	39	44	43	44	44	49	49	56	56	55	55
15	46	46	38	38	38	38	39	39	38	37	40	39	41	40	44	44	44	44	49	49	56	56	55	54
16	46	46	38	38	39	38	39	39	37	36	40	40	41	40	44	44	44	44	50	49	56	56	54	54
17	46	46	38	38	39	39	39	39	36	36	40	39	41	39	44	44	44	44	50	50	57	56	54	54
18	46	46	38	38	39	38	40	39	37	36	40	39	42	41	45	44	44	44	51	50	57	56	54	54
19	46	46	38	38	38	37	40	40	37	37	40	40	42	41	45	44	44	44	51	51	57	57	54	54
20	46	46	39	38	38	38	40	40	38	37	40	39	42	41	45	45	44	44	52	51	57	57	54	54
21	46	46	39	39	39	38	40	40	38	38	40	39	42	41	45	45	44	44	52	52	57	57	54	54
22	46	46	39	39	39	39	40	40	38	38	40	39	42	41	45	44	44	44	52	52	57	57	54	53
23	46	45	39	39	39	39	40	40	38	38	39	38	42	41	44	44	44	44	53	52	57	57	53	53
24	46	45	39	39	39	39	40	39	38	38	38	37	42	41	44	44	44	44	53	53	57	57	53	53
25	48	46	39	39	39	39	39	39	38	38	39	38	42	41	44	44	44	44	53	53	57	57	53	53
26	47	46	39	39	39	39	39	38	38	38	39	39	42	41	44	44	45	44	53	53	57	56	53	53
27	46	45	40	39	39	39	38	37	38	38	40	38	42	42	44	44	45	45	53	53	56	56	53	53
28	45	44	40	40	39	39	38	37	38	38	40	40	43	42	44	44	45	45	53	53	56	56	53	53
29	44	44	40	40	39	38	38	37	38	38	40	39	43	43	45	44	45	45	53	53	56	56	53	53
30	44	44	40	40	38	38	38	37	--	--	40	39	43	43	45	44	45	45	54	53	56	56	53	53
31	44	43	--	--	38	38	37	37	--	--	40	39	--	--	45	44	--	--	54	54	56	56	--	--
Average	46	45	40	40	39	39	39	39	38	38	39	38	41	40	44	44	44	44	50	50	56	56	55	54

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum not determined; minimum, 36°F Nov. 13-18, Jan. 27 to Feb. 6, Feb. 14-23, Mar. 11-14.
EXTREMES, 1952-56.--Water temperatures: Maximum, 66°F Sept. 5, 1955; minimum, 33°F Mar. 7, 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	47	46	41	41	38	38	36	36	37	37	39	38	46	44	54	51	52	52				
2	52	51	46	45	41	41	38	38	36	36	37	37	40	39	44	44	51	50	54	52				
3	52	51	47	45	41	41	38	38	36	36	37	37	40	40	45	44	50	50	54	54				
4	52	49	47	47	41	41	38	38	36	36	37	37	40	40	45	45	50	48	54	54				
5	49	48	47	47	41	41	39	38	36	36	37	37	40	40	45	45	48	48	54	54				
6	48	46	47	47	41	40	39	39	37	36	37	37	40	40	46	45	48	48	54	54				
7	48	47	47	47	41	40	39	39	37	37	37	37	40	40	48	46	48	48	54	54				
8	48	47	48	47	41	40	39	39	37	37	37	37	41	40	48	46	48	48	54	54				
9	48	47	48	48	41	41	39	39	37	37	37	37	43	41	48	47	48	48	58	54				
10	48	47	48	46	41	41	39	39	37	37	37	37	44	41	47	45	48	48	58	58				
11	48	47	46	41	42	41	39	39	37	37	37	36	44	42	45	44	48	47	58	58				
12	48	47	41	37	42	42	39	39	37	37	36	36	44	42	45	44	49	47	59	58				
13	49	48	37	36	42	40	39	39	37	37	36	36	45	42	47	45	49	49	60	59				
14	50	49	36	36	40	39	39	39	37	36	37	36	45	43	49	47	50	49	--	--				
15	50	50	36	36	39	39	39	39	36	36	38	37	44	44	50	49	50	50	--	--				
16	50	50	36	36	39	39	39	39	36	36	39	38	44	43	50	49	50	50	--	--				
17	50	50	36	36	39	39	39	39	36	36	38	38	43	41	51	49	50	50	--	--				
18	50	50	38	36	39	37	39	39	36	36	38	38	45	43	52	49	51	50	--	--				
19	51	50	38	37	38	37	39	39	36	36	38	38	46	43	52	49	51	50	--	--				
20	51	50	38	37	38	38	39	39	36	36	38	38	46	44	51	50	51	50	--	--				
21	52	51	38	38	39	38	39	39	36	36	38	38	46	44	50	48	51	50	--	--				
22	52	51	39	38	40	39	40	39	36	36	38	38	46	44	51	50	51	50	--	--				
23	51	49	39	38	40	40	40	40	37	36	38	38	46	43	51	50	51	50	--	--				
24	51	49	39	39	40	40	40	40	37	37	38	38	46	44	50	50	52	51	--	--				
25	51	49	39	39	40	40	40	39	37	37	38	38	47	46	52	50	52	52	--	--				
26	49	49	39	39	40	40	39	38	37	37	39	38	47	45	52	50	52	52	--	--				
27	49	48	39	39	40	40	38	36	37	37	39	38	46	45	51	49	52	52	--	--				
28	48	48	40	39	40	39	36	36	37	37	39	38	45	45	52	50	52	52	--	--				
29	48	48	41	40	39	39	36	36	37	37	39	38	45	45	54	52	52	52	--	--				
30	48	47	41	41	39	38	36	36	--	--	39	38	46	45	55	54	52	52	--	--				
31	47	47	--	--	38	38	36	36	--	--	39	38	--	--	55	54	--	--	--	--				
Average	50	49	42	41	40	40	39	38	37	36	38	37	44	42	49	48	50	50	--	--				

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 52°F Aug. 18-22, 25, 28; minimum, 35°F Mar. 1.
EXTREMES, 1953-56.--Water temperatures: Maximum, 53°F Sept. 3, 5, 1955; minimum, 35°F Mar. 1, 1956.
REMARKS.--Clock stopped from Sept. 16-30; temperature range 48°F to 49°F during this period. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	47	47	42	42	38	38	36	36	36	35	39	38	41	41	45	45	47	46	50	49	52	50
2	49	49	48	47	42	42	38	38	36	36	36	36	39	38	41	41	45	44	47	47	50	49	51	50
3	49	49	47	43	42	42	38	38	36	36	36	36	39	38	42	41	44	44	47	46	50	49	52	50
4	49	49	45	44	42	42	38	38	36	36	36	36	39	38	42	41	44	44	47	46	50	49	51	49
5	49	49	46	45	42	42	38	38	36	36	36	36	39	38	42	41	44	44	47	47	50	49	50	50
6	49	49	46	46	42	42	38	38	36	36	36	36	39	38	44	42	44	44	47	46	50	49	51	50
7	49	49	46	45	42	42	38	38	36	36	37	36	39	38	44	42	44	44	47	46	50	49	50	49
8	49	48	46	46	42	42	38	38	36	36	37	36	39	39	44	42	44	44	47	47	50	49	50	49
9	48	47	46	45	42	42	38	38	36	36	37	36	39	39	44	42	44	44	47	47	50	50	49	49
10	48	47	45	45	42	42	38	38	36	36	37	37	39	39	42	42	44	44	47	47	50	50	49	49
11	48	48	45	45	42	39	38	38	36	36	37	37	40	39	43	42	45	44	48	46	51	50	49	49
12	48	48	45	44	40	39	38	38	36	36	37	37	40	39	43	42	45	45	49	47	50	50	49	49
13	48	48	44	39	40	40	38	38	36	36	37	37	40	39	43	42	45	45	49	47	51	50	49	49
14	48	48	43	39	40	40	38	38	36	36	37	37	41	39	44	42	46	45	48	48	51	50	49	48
15	49	48	43	43	40	40	38	38	37	36	37	37	39	39	45	42	45	45	48	48	50	50	49	48
16	49	48	43	43	40	39	38	38	37	37	37	37	39	39	45	43	45	45	48	48	51	50	--	--
17	49	48	43	43	39	39	38	38	37	37	38	37	40	39	45	43	46	45	49	48	51	50	--	--
18	49	48	43	42	39	38	38	38	37	37	39	37	40	39	45	43	46	45	49	48	52	51	--	--
19	49	49	43	42	38	38	38	38	37	37	38	38	40	39	44	43	46	45	49	48	52	51	--	--
20	49	49	43	43	38	38	38	38	37	37	38	38	41	40	44	43	45	45	49	48	52	51	--	--
21	49	49	43	43	38	38	38	38	37	37	38	38	41	40	45	43	46	45	49	48	52	51	--	--
22	49	49	43	43	38	38	38	38	37	37	38	38	41	40	45	44	46	45	49	48	52	51	--	--
23	49	49	43	43	38	38	38	38	37	37	38	38	42	40	45	44	46	46	49	48	51	51	--	--
24	49	49	43	43	38	38	38	38	37	37	39	38	41	41	44	44	46	46	49	48	51	51	--	--
25	49	48	43	42	38	38	38	37	37	37	39	39	42	41	46	44	46	46	49	48	52	51	--	--
26	48	48	42	42	39	38	37	37	37	36	39	39	41	41	45	44	47	46	49	49	51	51	--	--
27	48	48	42	41	39	39	37	37	36	36	39	39	41	41	45	44	47	46	49	49	51	51	--	--
28	48	48	42	42	39	38	37	37	36	36	39	39	42	40	45	44	47	46	51	49	52	50	--	--
29	48	47	42	42	38	38	37	37	36	36	39	39	42	41	45	44	46	46	50	49	50	50	--	--
30	47	47	42	42	38	37	37	36	--	--	39	39	41	41	46	45	47	46	50	50	51	50	--	--
31	47	47	--	--	38	37	36	36	--	--	39	38	--	--	45	45	--	--	50	50	50	50	--	--
Average	49	48	44	43	40	40	38	38	36	36	38	37	40	39	44	43	45	45	48	48	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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 56°F Aug. 20, 21; minimum, freezing point Feb. 1, 2, 18.
EXTREMES, 1952-56.--Water temperatures: Maximum, 57°F on several days during summer months; minimum recorded, freezing point Feb. 1, 2, 18, 1956.
REMARKS.-- Clock stopped from Nov. 13 to Jan. 2; temperature range 35°F to 39°F during this period. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	43	43			--	--	32	32	36	35	43	41	42	41	44	43	49	46	52	48	54	52
2	48	48	43	42			--	--	34	32	37	36	43	41	43	41	46	42	48	46	50	48	53	50
3	48	48	42	42			37	37	36	34	37	36	42	41	43	41	44	42	48	46	49	48	52	49
4	48	47	44	42			38	37	37	36	37	37	41	41	43	42	42	42	49	47	52	48	51	49
5	47	46	43	43			38	38	37	37	37	37	41	40	43	42	43	41	48	46	53	49	52	49
6	46	45	43	43			38	38	38	37	38	37	41	39	45	41	43	42	46	46	54	50	52	49
7	45	45	43	42			38	38	41	37	38	37	42	41	45	41	43	42	49	45	54	50	53	51
8	46	45	43	43			38	38	39	36	37	37	45	41	44	41	43	42	50	47	54	50	53	51
9	45	45	44	43			38	38	40	36	38	37	44	41	44	41	44	43	49	47	54	50	51	51
10	45	45	44	42			38	38	38	37	41	35	44	41	43	41	43	42	49	47	54	50	52	51
11	45	45	42	37			39	38	37	36	43	34	44	40	41	41	44	41	52	47	54	51	51	51
12	46	45	37	36			39	39	37	37	37	35	44	40	42	41	45	41	52	47	54	50	53	51
13	46	45	--	--			39	39	37	36	45	36	43	39	44	41	45	43	51	47	54	51	53	51
14	46	46	--	--			39	39	36	34	47	37	42	39	45	41	46	43	50	47	54	51	52	51
15	47	46	--	--			39	39	34	--	50	38	40	40	46	42	45	43	51	47	54	51	52	51
16	47	46	--	--			39	38	--	--	44	39	41	40	45	42	43	43	51	47	52	50	52	50
17	46	45	--	--			38	38	33	--	51	39	43	39	44	41	47	43	51	48	54	51	52	50
18	46	46	--	--			38	38	33	32	45	39	43	40	44	41	47	43	52	47	55	51	52	51
19	47	46	--	--			38	38	36	33	41	40	43	40	44	41	46	43	53	48	55	52	52	51
20	47	46	--	--			38	38	40	35	41	40	42	40	42	41	44	43	52	49	56	52	52	51
21	46	46	--	--			38	38	38	35	41	41	41	40	45	41	47	42	53	49	56	53	51	50
22	46	46	--	--			38	38	37	35	41	40	42	40	45	41	47	43	52	48	55	53	50	48
23	46	44	--	--			38	38	39	35	41	40	42	40	44	41	45	43	53	48	55	53	50	49
24	47	45	--	--			38	38	39	35	41	40	41	40	42	41	45	43	53	49	54	53	51	50
25	48	45	--	--			38	36	38	35	41	41	43	40	46	42	45	43	52	49	55	53	51	51
26	45	45	--	--			36	35	39	35	42	41	43	40	44	42	47	45	52	48	54	51	51	51
27	45	44	--	--			35	34	37	34	43	41	41	40	42	42	50	46	51	49	51	51	51	50
28	44	44	--	--			35	35	36	36	43	42	42	41	46	42	48	45	51	48	54	51	50	49
29	44	44	--	--			35	34	37	36	42	42	44	41	47	42	46	45	52	48	53	52	49	49
30	44	43	--	--			34	33	--	--	42	42	43	41	46	42	49	45	53	49	54	51	49	49
31	43	43	--	--			33	33	--	--	42	42	--	--	47	42	--	--	52	49	53	51	--	--
Average	46	45	--	--			37	37	37	35	41	38	42	40	44	41	45	43	51	47	54	51	52	50

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BLACKFOOT RIVER NEAR BONNER, MONT.

LOCATION.--Temperature recorder at gaging station, 1.1 miles upstream from highway bridge on State Highway 20, 5 miles northeast of Bonner, Missoula County, 5 miles downstream from Union Creek, and 7 miles upstream from mouth.
DRAINAGE AREA.--2,290 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 70°F July 23-25, 30; minimum, freezing point on several days during December and January.
REMARKS.--No record Oct. 1-10. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956
/Continuous water-stage recorder with temperature attachment/

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

COLUMBIA RIVER MAIN STEM

COLUMBIA RIVER AT INTERNATIONAL BOUNDARY

LOCATION (revised).--At cableway 2.2 miles downstream from gaging station and international boundary, 2.7 miles downstream from Pend Oreille River, and about 10 miles upstream from Northport, Stevens County, Wash.
DRAINAGE AREA.--59,700 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: February 1910 to January 1911, November 1951 to September 1956.
Water temperatures: November 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 105 ppm Feb. 16-29; minimum, 75 ppm July 20-31.
Hardness: Maximum, 89 ppm Feb. 16-29; minimum, 65 ppm July 20-31.
Specific conductance: Maximum daily, 192 micromhos Dec. 3; minimum dailv. 130 micromhos Aug. 2, 3.
Water temperatures: Maximum, 64°F on several days during August; minimum, 34°F on several days during December to March.
EXTREMES, 1951-56.--Dissolved solids: Maximum, 110 ppm Apr. 11-20, 1953; minimum, 73 ppm July 21 to Aug. 10, 1954.
Hardness: Maximum, 92 ppm Mar. 1-10, 1953; minimum, 61 ppm Aug. 1-13, 1955.
Specific conductance: Maximum daily, 192 micromhos Dec. 3, 1955; minimum daily, 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.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1955 to September 1956 given in WSP 1446. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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				
Nov. 17-30, 1955..	61,430			22	5.1	2.3		81	12	1.0		1.0	0.01	96	0.13	15,920	76	10	6	0.1	157	7.8
Dec. 1-14	50,020			24	4.9	2.4		80	16	.5		1.4	--	101	.14	13,640	80	14	6	.1	165	7.9
Dec. 15-31	52,260			24	5.4	2.2		82	15	1.5		.4	.04	100	.14	14,110	82	15	6	.1	164	7.9
Jan. 1-10, 1956...	50,210			24	5.1	2.1		81	16	.8		.4	--	101	.14	13,690	81	15	5	.1	165	7.9
Jan. 11-20.....	48,550			24	5.6	2.2		83	16	.8		.4	.05	102	.14	13,370	83	15	6	.1	167	7.9
Jan. 21-31.....	43,590			24	5.6	2.2		83	16	.8		.6	--	103	.14	12,120	83	15	6	.1	169	7.9
Feb. 1-15	45,680			25	5.5	2.3		86	17	1.0		.5	--	99	.13	12,210	85	14	6	.1	176	7.8
Feb. 16-29	40,560			25	6.4	2.5		90	17	1.0		.6	.04	105	.14	11,500	89	15	6	.1	181	7.5
Mar. 1-15.....	41,630			25	5.9	2.3		88	17	1.0		.5	--	101	.14	11,350	87	15	5	.1	178	7.4
Mar. 16-31.....	57,260			23	6.2	2.2		86	14	1.0		.5	.05	97	.13	15,000	83	12	6	.1	171	7.5
Apr. 1-15	73,550			23	6.0	2.4		86	14	1.2		.3	--	100	.14	19,860	82	11	6	.1	165	7.2
Apr. 16-30	148,200			21	5.0	2.3		80	12	1.0		.3	.02	92	.13	36,810	73	7	6	.1	153	7.7
May 1-15.....	171,400			20	5.4	2.2		78	12	.8		.3	--	89	.12	41,190	72	8	6	.1	149	7.3

May 16-31, 1956..	305,300			19	4.8	2.0		72	10	.8		.5	.02	82	0.11	67,590	67	8	6	.1	138	7.4
June 1-16.....	433,200			19	4.8	2.0		74	9.2	.8		.5	--	82	.11	95,910	67	6	6	.1	138	7.6
June 17-30.....	321,200			19	4.8	1.6		72	9.7	.5		.6	--	82	.11	71,110	67	8	5	.1	138	7.3
July 1-19.....	230,000			20	3.9	1.6		73	9.4	.5		.7	--	78	.11	48,440	66	6	5	.1	137	6.8
July 20-31.....	198,600			19	4.3	1.4		69	9.5	.8		.7	.01	75	.10	40,220	65	8	4	.1	134	6.9
Aug. 1-31	113,100			20	4.2	1.6		71	11	.5		.4	.02	76	.10	23,210	67	9	5	.1	137	6.8
Sept. 1-30.....	67,950			22	4.4	1.7		77	13	.5		.0	.00	85	.12	15,590	73	10	5	.1	149	7.7
Total or weighted average [a].....	129,200			20	4.8	1.9		76	11	0.7		0.5	--	85	0.12	29,650	70	7	5	0.1	145	--
Total or weighted average [b].....	120,400			21	4.8	1.9		76	11	0.8		0.5	--	86	0.12	27,960	72	10	5	0.1	146	--

a Represents 94 percent of runoff for water year October 1955 to September 1956.
b Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT INTERNATIONAL BOUNDARY--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
Water temperatures: October 1953 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 85 ppm Aug. 16-31; minimum, 40 ppm Apr. 11-30.
Hardness: Maximum, 52 ppm Aug. 16-31; minimum, 18 ppm Apr. 21-30.
Specific conductance: Maximum daily, 155 micromhos Aug. 17; minimum daily, 46 micromhos Apr. 25, 26.
Water temperatures: Maximum, 69°F Aug. 6, 8, 14; minimum, freezing point on several days during winter months.
EXTREMES, 1953-56.--Dissolved solids: Maximum, 98 ppm Oct. 21-31, 1953; minimum, 36 ppm May 21 to June 2, June 4-9, 11-13, 1955.
Hardness: Maximum, 61 ppm Sept. 11-20, 1953; minimum, 18 ppm May 11-20, 1954, Apr. 21-30, 1956.
Specific conductance: Maximum daily, 178 micromhos Aug. 16, Oct. 29, 1953; minimum daily, 39 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.--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 1955 to September 1956 given in WSP 1446.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 19-20, 1955	997			10	4.7	3.4		31	28	0.8		0.7	--	74	0.10	199	44	19	13	0.2	119	6.6
Oct. 11-12, 14-17, 28, 30-31	1,973			7.9	3.1	2.1		26	16	.8		.7	--	53	.07	282	32	11	11	.2	84	6.7
Oct. 13, 18, 21-27,29	990			8.7	3.8	2.8		29	21	1.0		.7	0.06	67	.09	179	37	13	12	.2	101	6.7
Nov. 1-8	3,378			7.1	2.9	2.0		26	14	.5		.1	--	52	.07	474	30	9	12	.2	79	6.7
Nov. 9-21	2,739			6.7	2.6	1.7		24	15	.5		.3	.02	52	.07	385	27	7	10	.1	76	6.8
Nov. 22-30	3,061			7.5	2.6	1.9		24	16	.8		.1	--	56	.08	463	29	9	11	.1	81	6.6
Dec. 1-10, 16	2,053			8.3	3.4	2.0		25	19	1.5		.7	--	63	.09	349	35	15	10	.2	88	6.8
Dec. 11-15, 17-31	7,487			6.4	2.1	1.3		19	13	1.0		.7	.08	50	.07	1,010	25	9	10	.1	66	6.8
Jan. 1-10, 1956	3,921			7.9	2.9	1.7		24	17	1.0		.5	--	59	.08	625	32	12	9	.1	81	6.6
Jan. 11-31	2,164			8.7	3.5	2.0		24	20	.8		.6	.14	64	.09	374	36	16	11	.2	90	6.7
Feb. 1-9, 11-15	1,320			8.7	3.8	2.2		26	23	1.5		.6	--	61	.08	217	37	16	10	.2	100	6.7
Feb. 10, 16-29	1,148			10	4.7	2.7		26	29	1.5		.6	.04	71	.10	219	44	23	11	.2	114	6.6
Mar. 1-12	1,011			10	4.5	2.7		28	27	1.0		.7	--	74	.10	202	43	20	11	.2	113	7.0
Mar. 13-31	3,852			6.4	2.6	1.5		22	13	.8		.5	.04	50	.07	520	27	9	11	.1	75	6.7
Apr. 1-10	5,017			5.0	1.8	1.8		19	8.5	.8		.1	--	43	.06	582	20	4	16	.2	60	6.5
Apr. 11-20	14,900			4.8	1.8	1.6		20	8.2	.8		.3	.04	40	.05	1,610	19	3	13	.2	56	6.9
Apr. 21-30	17,390			4.4	1.8	1.8		19	7.3	.8		.4	--	40	.05	1,880	18	2	16	.2	52	6.6

SPOKANE RIVER BASIN--Continued

COEUR D'ALENE RIVER AT CATALDO, IDAHO--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956 ..	10,080			5.4	2.2	1.9		22	11	0.8		0.3	--	46	0.06	1,250	22	4	13	0.2	66	6.7
May 11-20	12,300			6.7	3.1	2.0		25	14	.8		.4	0.02	55	.07	1,830	29	9	12	.2	78	6.7
May 21-31	9,412			8.3	3.4	2.3		26	19	.8		.5	--	60	.08	1,520	35	14	12	.2	91	6.8
June 1-30.....	3,034			9.5	4.3	3.1		30	26	.5		.2	--	71	.10	582	41	16	12	.2	111	6.8
July 1-12	1,501			10	4.9	2.6		30	23	.8		.6	--	73	.10	296	45	20	11	.2	115	6.4
July 13-31	891			12	4.9	2.9		31	32	.5		.6	.02	81	.11	195	50	25	11	.2	128	6.9
Aug. 1-15.....	648			11	4.8	2.9		31	30	.5		.5	--	78	.11	136	47	22	11	.2	123	6.9
Aug. 16-31.....	566			12	5.4	3.8		33	35	.8		.8	.05	85	.12	130	52	25	13	.2	137	6.9
Sept. 1-30	429			--	--	--		--	--	--		--	--	--	--	--	--	--	--	--	--	--
Total or weighted average [a]	4,026			6.8	2.8	2.0		23	15	0.8		0.4	--	53	0.07	576	28	10	12	0.2	77	--
Total or weighted average [b]	3,731			6.8	2.8	2.0		23	15	0.8		0.4	--	53	0.07	534	28	10	12	0.2	77	--

a Represents 99 percent of runoff for water year October 1955 to September 1956.
b Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

SPOKANE RIVER BASIN--Continued

COEUR D'ALENE RIVER AT CATALDO, IDAHO--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

COLUMBIA RIVER MAIN STEM

COLUMBIA RIVER AT GRAND COULEE DAM, WASH.

LOCATION (revised).--At Grand Coulee Dam, 1½ miles north of Grand Coulee, Grant County, 2,500 feet upstream from gaging station, and 14.5 miles upstream from Nespelem River.
DRAINAGE AREA.--74,100 square miles, approximately (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1956.
Water temperatures: November 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 98 ppm Apr. 11-30; minimum, 72 ppm Oct. 11-20.
Specific conductance: Maximum daily, 166 micromhos Apr. 6, 11; minimum daily, 123 micromhos June 1.
Water temperatures: Maximum, 64°F Oct. 26-29; minimum, 34°F Feb. 29 to Mar. 3.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 111 ppm Apr. 11-30, 1955; minimum, 72 ppm Oct. 11-20, 1955.
Specific conductance: Maximum daily, 193 micromhos Apr. 24, 25, 1955; minimum daily, 123 micromhos Sept. 16, 17, 1955, June 1, 1956.
Water temperatures: Maximum, 65°F Aug. 19, 1951; minimum, 34°F Feb. 29 to Mar. 3, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ...	65,610	4.1	0.02	19	3.8	1.6	1.1	67	9.8	0.2	0.1	0.5	0.01	74	0.10	13,110	63	8	5	0.1	129	7.3
Oct. 11-20.....	58,500	--	--	--	--	--	--	--	--	--	--	--	--	72	.10	11,370	--	--	--	--	130	--
Oct. 21-31.....	62,450	--	--	--	--	--	--	--	--	--	--	--	--	80	.11	13,490	--	--	--	--	142	--
Nov. 1-10.....	66,680	--	--	--	--	--	--	--	--	--	--	--	--	78	.11	14,040	--	--	--	--	140	--
Nov. 11-20.....	68,350	--	--	--	--	--	--	--	--	--	--	--	--	77	.10	14,210	--	--	--	--	140	--
Nov. 21-30.....	63,550	--	--	--	--	--	--	--	--	--	--	--	--	82	.11	14,070	--	--	--	--	146	--
Dec. 1-10.....	60,330	--	--	--	--	--	--	--	--	--	--	--	--	86	.12	14,010	--	--	--	--	149	--
Dec. 11-20.....	57,090	--	--	--	--	--	--	--	--	--	--	--	--	88	.12	13,560	--	--	--	--	151	--
Dec. 21-31.....	68,890	--	--	--	--	--	--	--	--	--	--	--	--	85	.12	15,810	--	--	--	--	149	--
Jan. 1-10, 1956 ...	71,960	5.2	.00	21	4.5	2.3	1.4	74	12	1.2	.1	.9	.09	85	.12	16,510	71	10	6	.1	147	7.4
Jan. 11-20.....	63,870	--	--	--	--	--	--	--	--	--	--	--	--	89	.12	15,350	--	--	--	--	144	--
Jan. 21-31.....	61,060	--	--	--	--	--	--	--	--	--	--	--	--	88	.12	14,510	--	--	--	--	146	--
Feb. 1-10	67,760	--	--	--	--	--	--	--	--	--	--	--	--	90	.12	16,470	--	--	--	--	147	--
Feb. 11-20.....	65,780	--	--	--	--	--	--	--	--	--	--	--	--	87	.12	15,450	--	--	--	--	145	--
Feb. 21-29.....	63,680	--	--	--	--	--	--	--	--	--	--	--	--	86	.12	14,790	--	--	--	--	145	--
Mar. 1-10	61,010	--	--	--	--	--	--	--	--	--	--	--	--	86	.12	14,170	--	--	--	--	145	--
Mar. 11-20	57,900	--	--	--	--	--	--	--	--	--	--	--	--	90	.12	14,070	--	--	--	--	149	--
Mar. 21-31	79,980	--	--	--	--	--	--	--	--	--	--	--	--	92	.13	19,870	--	--	--	--	154	--
Apr. 1-10.....	107,600	7.9	.00	22	5.1	2.4	1.3	82	14	1.0	.2	.2	.04	95	.13	27,600	76	9	6	.1	161	7.2
Apr. 11-20.....	126,300	--	--	--	--	--	--	--	--	--	--	--	--	98	.13	33,420	--	--	--	--	163	--
Apr. 21-30.....	295,300	--	--	--	--	--	--	--	--	--	--	--	--	98	.13	78,140	--	--	--	--	161	--
May 1-20	248,500	--	--	--	--	--	--	--	--	--	--	--	--	89	.12	59,710	--	--	--	--	144	--
May 21-31	331,300	--	--	--	--	--	--	--	--	--	--	--	--	80	.11	71,560	--	--	--	--	132	--

June 1-10, 1956 ..	474,200	--	--	--	--	--	--	--	--	--	--	--	--	--	77	.10	98,590	--	--	--	--	127	--
June 11-20.....	399,200	--	--	--	--	--	--	--	--	--	--	--	--	--	81	.11	87,310	--	--	--	--	131	--
Juae 21-30.....	324,800	--	--	--	--	--	--	--	--	--	--	--	--	--	79	.11	69,280	--	--	--	--	133	--
July 1-31	219,600	7.4	.01	.19	4.1	1.7	.9	71	9.5	.5	.1	0.6	.01		78	.11	46,250	64	6	5	.1	137	7.6
Aug. 1-31.....	113,000	--	--	--	--	--	--	--	--	--	--	--	--	--	78	.11	23,800	--	--	--	--	132	--
Sept. 1-30	72,030	--	--	--	--	--	--	--	--	--	--	--	--	--	77	.10	14,980	--	--	--	--	136	--
Weighted average	137,200	--	--	--	--	--	--	--	--	--	--	--	--	--	83	0.11	30,750	--	--	--	--	140	--

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT GRAND COULEE DAM, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once daily measurement at approximately 10 a. m./

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

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 1956.
Water temperatures: December 1952 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 46 ppm Apr. 12-20; minimum, 28 ppm July 21-31.
Hardness: Maximum, 27 ppm Apr. 12-20; minimum, 18 ppm Aug. 1 to Sept. 10.
Specific conductance: Maximum daily, 68 micromhos Oct. 25, 28, Apr. 17, 18; minimum daily, 40 micromhos Aug. 21, 26.
Water temperatures: Maximum, 58° F July 18; minimum, freezing point on several days during winter months.
EXTREMES, 1952-56.--Dissolved solids: Maximum, 52 ppm Oct. 21-31, 1953, Apr. 1-10, 1954, Mar. 1-10, 1955; minimum, 27 ppm Aug. 11-31, 1955.
Hardness: Maximum, 35 ppm Nov. 11-21, 1953; minimum, 17 ppm Sept. 21-30, 1954.
Specific conductance: Maximum daily, 90 micromhos Nov. 12, 1953; minimum daily, 40 micromhos Aug. 21, 26, 1956.
Water temperatures: Maximum, 61° F July 12, 18, 1953; minimum, freezing point on many days during winter months, except during winter of 1952-53.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1955 to September 1956 given in WSP 1446.

Chemical analyses in parts per million, water year October 1955 to September 1956

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, 1955	1,247	6.8	0.00	4.8	2.1	2.2	0.8	28	1.4	0.8	0.1	0.8	0.01	34	0.05	114	21	0	18	0.2	52	6.8
Oct. 11-20	769	--	--	--	--	2.5	--	30	--	--	--	--	--	37	.05	77	22	0	--	--	56	6.7
Oct. 21-31	691	--	--	--	--	2.8	--	36	--	--	--	--	--	41	.06	76	25	0	--	--	64	7.0
Nov. 1-10	1,275	--	--	--	--	2.6	--	31	--	--	--	--	--	41	.06	141	22	0	--	--	57	7.0
Nov. 11-20	1,696	--	--	--	--	2.2	--	28	--	--	--	--	--	37	.05	169	21	0	--	--	53	6.9
Nov. 21-30	2,714	--	--	--	--	1.7	--	26	--	--	--	--	--	32	.04	234	20	0	--	--	49	6.7
Dec. 1-10	3,070	--	--	--	--	1.3	--	25	--	--	--	--	--	30	.04	249	19	0	--	--	47	6.7
Dec. 11-20	3,176	--	--	--	--	1.7	--	26	--	--	--	--	--	32	.04	274	20	0	--	--	48	6.7
Dec. 21-31	2,943	--	--	--	--	1.8	--	27	--	--	--	--	--	33	.04	262	20	0	--	--	50	6.8
Jan. 1-10, 1956	3,597	5.3	.00	5.2	1.4	1.3	.5	24	1.4	.8	.1	.3	.02	32	.04	311	19	0	13	.1	47	6.5
Jan. 11-20	1,571	--	--	--	--	2.0	--	28	--	--	--	--	--	32	.04	136	20	0	--	--	51	6.8
Jan. 21-31	1,086	--	--	--	--	2.0	--	29	--	--	--	--	--	32	.04	94	22	0	--	--	54	6.8
Feb. 1-10	1,040	--	--	--	--	2.2	--	30	--	--	--	--	--	34	.05	95	22	0	--	--	55	6.8
Feb. 11-20	1,370	--	--	--	--	2.1	--	30	--	--	--	--	--	35	.05	129	22	0	--	--	54	6.8
Feb. 21-29	1,443	--	--	--	--	2.0	--	29	--	--	--	--	--	34	.05	132	21	0	--	--	54	6.9
Mar. 1-10	1,685	--	--	--	--	2.1	--	29	--	--	--	--	--	36	.05	164	21	0	--	--	52	6.8
Mar. 11-20	2,592	--	--	--	--	2.0	--	28	--	--	--	--	--	36	.05	252	21	0	--	--	51	6.7
Mar. 21-31	2,609	--	--	--	--	2.2	--	30	--	--	--	--	--	37	.05	261	23	0	--	--	55	6.6
Apr. 1-11	3,042	7.9	.00	5.8	1.9	2.1	.5	31	1.7	1.5	.1	.4	.06	36	.05	296	22	0	17	.2	56	6.6
Apr. 12-20	2,442	--	--	--	--	2.8	--	36	--	--	--	--	--	46	.06	303	27	0	--	--	66	6.8
Apr. 21-30	2,864	--	--	--	--	2.5	--	33	--	--	--	--	--	42	.06	325	23	0	--	--	60	6.7

YAKIMA RIVER BASIN--Continued

YAKIMA RIVER AT CLE ELUM, WASH.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956...	3,083	--	--	--	--	2.1	--	32	--	--	--	--	--	39	0.05	325	24	0	--	--	57	6.7
May 11-20	3,302	--	--	--	--	2.1	--	29	--	--	--	--	--	38	.05	339	21	0	--	--	52	6.7
May 21-31	3,409	--	--	--	--	2.0	--	28	--	--	--	--	--	35	.05	322	20	0	--	--	51	6.8
June 1-10.....	4,912	--	--	--	--	1.4	--	27	--	0.8	--	--	--	32	.04	424	21	0	--	--	49	6.3
June 11-20.....	5,567	--	--	--	--	1.3	--	26	--	.8	--	--	--	30	.04	451	20	0	--	--	46	6.3
June 21-30.....	3,992	--	--	--	--	1.4	--	27	--	.5	--	--	--	30	.04	323	20	0	--	--	48	6.3
July 1-10	2,430	8.2	0.02	5.2	1.6	1.4	0.5	28	1.3	.8	0.1	0.3	0.01	29	.04	190	20	0	13	0.1	48	6.5
July 11-20	2,724	--	--	--	--	1.3	--	26	--	.5	--	--	--	31	.04	228	20	0	--	--	46	6.2
July 21-31	2,821	--	--	--	--	1.3	--	24	--	.5	--	--	--	28	.04	213	19	0	--	--	44	6.2
Aug. 1-7, 10-11, 18	2,945	--	--	--	--	1.3	--	24	--	.5	--	--	--	30	.04	239	18	0	--	--	44	6.2
Aug. 8-9, 12-17, 19-20	2,984	--	--	--	--	1.3	--	24	--	.5	--	--	--	29	.04	234	18	0	--	--	43	6.1
Aug. 21-31.....	2,756	--	--	--	--	1.0	--	23	--	.2	--	--	--	29	.04	216	18	0	--	--	43	6.1
Sept. 1-10	2,182	--	--	--	--	1.4	--	26	--	.2	--	--	--	29	.04	171	18	0	--	--	43	6.4
Sept. 11-20	1,824	--	--	--	--	1.3	--	26	--	.5	--	--	--	29	.04	143	19	0	--	--	45	6.3
Sept. 21-30	1,681	--	--	--	--	1.4	--	27	--	.2	--	--	--	30	.04	136	20	0	--	--	46	6.5
Weighted average	2,489	--	--	--	--	1.7	--	28	--	--	--	--	--	33	0.04	222	21	0	--	--	50	--

YAKIMA RIVER BASIN--Continued

YAKIMA RIVER AT CLE ELUM, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 7 a. m./

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

YAKIMA RIVER BASIN--Continued

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 1956.
Water temperatures: December 1952 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 234 ppm Aug. 12-22; minimum, 86 ppm May 22-31, June 13-15, 17-22.
Hardness: Maximum, 137 ppm Aug. 12-22; minimum, 47 ppm on several days in December, May and June.
Specific conductance: Maximum daily, 355 micromhos Aug. 16; minimum daily, 112 micromhos June 2.
Water temperatures: Maximum, 78°F July 17, 24, Aug. 5, 6; minimum, freezing point on several days during winter months.
EXTREMES, 1952-56.--Dissolved solids: Maximum, 236 ppm Sept. 11-20, 1953; minimim, 85 ppm June 10-17, 24-26, 1955.
Hardness: Maximum, 145 ppm Sept. 11-30, 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, June 2, 1956.
Water temperatures: Maximum, 78°F on several days during summer months; minimum, freezing point on several days during winter months, most years.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955	2,467			30	11	21		a168	22	7.1		2.3	--	207	0.28	1,380	120	0	26	0.8	324	8.3
Oct. 11-21	3,122			27	10	19		151	19	6.4		1.8	0.04	188	.26	1,580	108	0	27	.8	293	8.0
Oct. 22-31	3,290			25	9.3	17		140	16	5.9		1.8	--	173	.24	1,540	101	0	26	.7	269	8.1
Nov. 1-5, 8-10	4,759			18	7.3	12		102	12	4.5		.0	--	133	.18	1,710	75	0	25	.6	202	7.8
Nov. 6-7, 11-19	6,460			15	5.3	8.5		78	8.2	3.5		.1	.06	100	.14	1,740	59	0	24	.5	154	7.3
Nov. 20-30	6,806			13	6.0	9.2		74	9.5	3.2		1.1	--	98	.13	1,800	57	0	26	.5	150	7.3
Dec. 1-10	6,879			13	6.0	9.8		75	10	3.8		.9	--	100	.14	1,860	57	0	28	.6	154	7.6
Dec. 11, 13-21	9,658			13	3.6	7.8		66	7.8	2.5		.8	.06	89	.12	2,320	47	0	26	.5	132	7.4
Dec. 12, 22-31	10,610			13	6.0	10		77	11	3.5		1.5	--	110	.15	3,150	57	0	27	.6	161	7.4
Jan. 1-12, 1956	9,101			13	5.5	9.0		75	9.3	3.5		.8	--	95	.13	2,330	55	0	25	.5	151	7.5
Jan. 13-21	6,044			18	7.8	14		103	15	5.0		1.2	.01	134	.18	2,190	77	0	28	.7	213	7.8
Jan. 22-31	4,904			20	9.4	17		117	17	6.2		1.8	--	153	.21	2,030	89	0	30	.8	242	7.9
Feb. 1-10	3,454			21	8.8	15		118	15	6.0		2.1	--	152	.21	1,420	89	0	27	.7	238	7.9
Feb. 11-20	4,449			18	8.5	13		105	13	5.0		1.7	.04	131	.18	1,570	80	0	26	.6	210	8.0
Feb. 21-29	4,643			20	7.8	12		105	14	4.8		2.6	--	135	.18	1,690	82	0	24	.6	214	7.9
Mar. 1-10	5,599			20	8.0	15		110	14	5.5		2.5	--	141	.19	2,130	83	0	28	.7	224	8.0
Mar. 11-20	6,851			16	8.0	11		96	11	4.2		2.2	.04	123	.17	2,280	73	0	24	.6	192	8.0
Mar. 21-31	12,500			15	5.7	9.4		85	7.4	3.2		3.0	--	119	.16	4,020	65	0	24	.5	168	7.6

Apr. 1-10, 1956.	10,980			14	5.4	7.9		77	6.5	3.0		1.5	--	104	0.14	3,080	57	0	23	0.5	149	7.2
Apr. 11-20	13,460			13	4.9	6.7		71	5.2	2.8		1.2	0.01	102	.14	3,710	53	0	21	.4	135	7.2
Apr. 21-30	15,130			13	4.7	6.6		71	5.0	2.8		.9	--	102	.14	4,170	52	0	21	.4	132	7.0
May 1-10, 15-16.	10,020			15	4.8	8.0		78	7.2	2.8		1.2	--	102	.14	2,760	57	0	23	.5	148	7.3
May 11-14, 17-21	13,840			13	4.5	6.8		69	6.0	2.8		1.4	--	95	.13	3,550	51	0	22	.4	131	7.2
May 22-31	16,100			12	4.1	6.4		65	5.0	2.2		1.0	.01	86	.12	3,740	47	0	22	.4	122	7.2
June 1-10.....	15,890			12	4.2	6.5		66	5.4	2.0		.4	--	87	.12	3,730	47	0	22	.4	122	7.3
June 11-12, 16, 23-30	9,579			13	5.3	8.3		74	6.9	2.8		.6	--	98	.13	2,530	54	0	25	.5	142	7.6
June 13-15, 17-22	13,060			12	4.2	7.0		68	6.4	2.2		.3	--	86	.12	3,030	47	0	23	.4	128	7.3
July 1-24	4,161			18	7.0	12		100	11	4.0		.8	--	129	.18	1,450	74	0	26	.6	194	7.6
July 25-31.....	2,247			28	12	20		160	20	6.8		1.2	--	199	.27	1,210	119	0	27	.8	307	8.2
Aug. 1-11.....	1,992			33	11	21		170	23	6.8		2.9	--	212	.29	1,140	128	0	26	.8	327	7.9
Aug. 12-22	1,823			35	12	23		184	25	7.5		3.3	.08	234	.32	1,150	137	0	26	.9	354	8.1
Aug. 23-31.....	2,291			32	11	21		168	23	7.0		3.6	--	215	.29	1,330	125	0	26	.8	328	7.9
Sept. 1-15	2,322			33	11	21		170	21	6.8		3.1	--	212	.29	1,330	128	0	26	.8	323	7.9
Sept. 16-30.....	2,148			33	12	21		178	22	7.2		3.2	.02	222	.30	1,290	132	0	26	.8	340	7.9
Weighted average	7,055			16	6.1	10		87	9.4	3.6		1.3	--	115	0.16	2,190	65	0	25	0.5	170	--

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

YAKIMA RIVER BASIN--Continued

YAKIMA RIVER AT KIONA, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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 1956.
Water temperatures: January 1953 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 349 ppm Dec. 11-20; minimum, 163 ppm June 11-20.
Hardness: Maximum, 268 ppm Dec. 11-20; minimum, 130 ppm June 11-20.
Specific conductance: Maximum daily, 648 micromhos Feb. 2; minimum daily, 250 micromhos June 5.
Water temperatures: Maximum, 64°F July 23, 26-28; minimum, freezing point on many days during November to March.
EXTREMES, 1953-56.--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, 648 micromhos Feb. 2, 1956; 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.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1955 to September 1956 given in WSP 1447. 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 1955 to September 1956

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, 1955..	2,863	13		67	19	14	2.8	204	74	17		1.7	--	310	0.42	2,400	245	78	11	0.4	503	7.8
Oct. 11-20.....	2,800	13		60	19	14	2.5	188	74	17		1.2	0.05	294	.40	2,220	228	74	12	.4	482	7.7
Oct. 21-31.....	2,795	13		61	19	14	2.5	188	75	17		1.4	--	298	.41	2,250	230	76	12	.4	484	7.7
Nov. 1-10	2,679	13		64	19	14	2.5	198	77	18		1.4	--	307	.42	2,220	238	76	11	.4	505	7.6
Nov. 11-20.....	2,612	12		68	20	15	2.1	208	81	20		1.6	.07	329	.45	2,320	252	81	11	.4	533	7.6
Nov. 21-30.....	2,858	12		67	19	15	2.1	203	73	19		1.5	--	309	.42	2,380	245	78	12	.4	509	7.8
Dec. 1-10.....	2,502	12		69	20	16	2.1	210	78	20		1.4	--	330	.45	2,230	254	82	12	.4	533	7.6
Dec. 11-20.....	2,447	13		73	21	16	2.4	221	84	22		1.5	.05	349	.47	2,310	268	88	11	.4	562	7.6
Dec. 21-31	4,335	12		62	17	14	2.4	195	63	17		1.4	--	291	.40	3,410	224	64	12	.4	478	7.6
Jan. 1-10, 1956..	3,005	11		70	19	15	1.9	218	73	18		1.1	--	325	.44	2,640	252	74	11	.4	523	7.9
Jan. 11-20.....	2,768	13		47	18	17	2.0	153	72	19		1.5	.06	264	.36	1,970	191	66	16	.5	438	8.0
Jan. 21-31	2,539	11		57	19	18	2.1	180	77	22		1.2	--	294	.40	2,020	220	72	15	.5	493	7.9
Feb. 1-10	2,127	12		58	20	20	2.5	176	88	24		1.2	--	316	.43	1,810	226	82	16	.6	520	8.0
Feb. 11-20.....	2,150	12		61	20	17	2.3	193	81	20		1.4	.05	312	.42	1,810	234	76	14	.5	519	7.8
Feb. 21-29	2,324	12		65	19	17	2.3	202	77	20		1.3	--	317	.43	1,990	240	74	13	.5	523	7.8
Mar. 1-10.....	2,351	11		61	19	17	2.3	191	79	22		1.5	--	312	.42	1,980	230	74	14	.5	514	7.8
Mar. 11-20.....	3,156	14		61	16	16	2.2	194	66	18		1.4	.06	289	.39	2,460	218	59	14	.5	476	7.8
Mar. 21-31	5,981	14		46	12	13	2.2	155	43	13		1.5	--	223	.30	3,600	164	37	14	.4	372	7.8

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SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER NEAR HEISE, IDAHO--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956 ..	7,193	14		44	11	14	2.0	152	39	14		0.9	--	213	0.29	4,140	155	30	16	0.5	361	7.6
Apr. 11-20.....	11,380	14		45	11	12	2.0	159	34	11		1.5	0.06	209	.28	6,420	158	27	14	.4	350	7.7
Apr. 21-30	14,840	14		51	11	9.0	1.5	188	30	7.8		1.3	--	222	.30	8,900	172	18	10	.3	364	7.9
May 1-10	15,480	13		50	11	9.0	1.8	177	30	7.8		.9	--	216	.29	9,030	168	23	10	.3	358	7.7
May 11-20.....	19,830	13		44	8.8	9.0	1.5	157	25	6.8		.9	.09	193	.26	10,330	146	17	12	.3	320	7.8
May 21-31	29,120	9.2		46	7.8	6.0	.9	158	20	5.2		.9	--	179	.24	14,070	146	16	8	.2	305	7.5
June 1-10.....	31,910	10		39	8.3	5.8	1.2	144	19	3.8		.8	--	164	.22	14,130	132	14	9	.2	276	7.6
June 11-20.....	28,310	10		38	8.8	5.6	1.2	136	21	4.8		.8	.04	163	.22	12,460	130	18	8	.2	271	7.6
June 21-30.....	18,810	10		41	9.2	6.5	1.3	144	28	5.5		1.2	--	177	.24	8,990	140	22	9	.2	298	7.6
July 1-10	16,090	11		39	9.2	7.0	2.0	132	28	6.4		2.8	--	181	.25	7,860	136	28	10	.3	298	7.3
July 11-20	13,400	11		39	9.2	7.6	2.0	134	33	6.8		1.7	.06	183	.25	6,620	136	26	11	.3	304	7.3
July 21-31	12,480	12		38	8.8	8.1	2.0	128	33	7.1		1.4	--	184	.25	6,200	132	27	12	.3	296	7.2
Aug. 1-10.....	10,430	13		41	10	10	2.7	138	37	7.2		1.5	--	198	.27	5,580	144	31	13	.4	315	7.3
Aug. 11-20	9,274	13		44	7.8	10	2.7	140	38	7.8		.8	.05	204	.28	5,110	142	27	13	.4	322	7.5
Aug. 21-31.....	9,345	14		42	7.8	10	2.7	130	37	9.0		1.0	--	192	.26	4,840	136	29	13	.4	313	7.3
Sept. 1-10	8,950	13		40	9.2	11	2.7	132	37	9.0		.7	--	198	.27	4,780	138	30	14	.4	315	7.3
Sept. 11-20	7,358	13		46	9.7	11	2.7	146	43	10		.9	.07	220	.30	4,370	156	36	13	.4	347	7.6
Sept. 21-30	5,913	12		51	11	12	2.7	158	50	12		.5	--	234	.32	3,740	170	40	13	.4	378	7.7
Weighted average	8,985	12		46	11	9.3	1.8	155	35	8.7		1.2	--	206	0.28	5,000	160	33	11	0.3	340	--

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER NEAR HEISE, IDAHO--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

HENRYS FORK BASIN

HENRYS FORK NEAR REXBURG, IDAHO

LOCATION.--Temperature recorder at gaging station, 200 feet downstream from highway bridge, downstream from all tributaries, and 6 miles (revised) west of Rexburg, Madison County.
DRAINAGE AREA.--2,920 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1953 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 72°F several days in July; minimum, freezing point Feb. 22-24.
EXTREMES, 1953-56.--Water temperatures: Maximum, 77°F July 17-19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1447.

Temperature (°F) of water, water year October 1955 to September 1956

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

SNAKE RIVER AT KING HILL, IDAHO

LOCATION.--At county highway bridge about 400 yards dqwnstream from gaging station, at King Hill, Elmore County, and 20 miles downstream from Malad River.
DRAINAGE AREA.--35,800 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1956.
Water temperatures: March 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 355 ppm Oct. 11-20; minimum, 257 ppm June 1-10.
Hardness: Maximum, 210 ppm Dec. 1-10, Jan. 1-10; minimum, 170 ppm June 1-10.
Specific conductance: Maximum daily, 578 micromhos Oct. 16; minimum daily, 399 micromhos June 5.
Water temperatures: Maximum, 71° F July 21; minimum, 40°F Feb. 2.
EXTREMES, 1951-56.--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, 40°F Feb. 2, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1955 to September 1956 given in WSP 1447.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955 ..	8,948			47	21	36		228	60	27		3.2	--	351	0.48	8,480	204	17	27	1.1	560	8.0
Oct. 11-20	9,401			48	21	36		231	62	28		3.2	0.02	355	.48	9,010	206	17	27	1.1	563	8.2
Oct. 21-31	9,117			46	21	35		a225	59	26		3.0	--	340	.46	8,370	202	18	27	1.1	547	8.3
Nov. 1-10	9,465			48	21	37		230	60	27		3.2	--	350	.48	8,940	206	17	28	1.1	557	8.2
Nov. 11-20.....	8,867			47	21	34		226	59	26		3.1	.06	347	.47	8,310	204	19	26	1.0	552	8.2
Nov. 21-30.....	9,135			48	20	35		227	59	26		3.4	--	344	.47	8,480	202	18	27	1.1	554	8.2
Dec. 1-10.....	8,985			48	22	36		224	60	26		3.1	--	350	.48	8,490	210	26	28	1.1	551	7.7
Dec. 11-20	8,813			49	21	36		222	60	27		3.5	--	346	.47	8,230	209	27	27	1.1	552	7.8
Dec. 21-31.....	10,690			46	19	34		207	56	25		3.0	.15	328	.45	9,470	193	23	28	1.1	518	7.9
Jan. 1-10, 1956 ..	10,410			48	22	35		222	60	26		3.1	--	342	.47	9,610	210	28	27	1.0	546	8.0
Jan. 11-20	11,340			48	20	33		214	56	26		3.0	--	334	.45	10,230	202	27	26	1.0	531	8.1
Jan. 21-31	12,100			48	21	34		218	60	27		2.9	.10	342	.47	11,170	206	27	26	1.0	540	8.1
Feb. 1-10.....	11,930			50	20	33		223	56	28		2.6	--	349	.47	11,240	207	24	25	1.0	540	8.2
Feb. 11-20.....	11,740			49	20	32		219	57	26		2.5	.19	339	.46	10,750	204	24	25	1.0	529	8.2
Feb. 21-29.....	12,390			49	19	31		215	55	26		2.6	--	326	.44	10,910	200	24	25	1.0	521	8.3
Mar. 1-10	13,220			48	19	30		210	55	26		2.4	--	317	.43	11,310	198	26	24	.9	511	8.3
Mar. 11-20.....	12,630			48	19	29		209	54	25		2.7	.14	316	.43	10,780	198	27	24	.9	507	8.4
Mar. 21-31	17,020			45	18	27		197	50	23		2.5	--	296	.40	13,600	186	24	24	.9	477	8.1

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

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER AT KING HILL, IDAHO--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--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, 1956 ..	19,280			51	17	26		205	50	23		2.3	--	307	0.42	15,980	197	29	22	0.8	492	8.1
Apr. 11-20.....	12,810			48	17	28		202	51	24		2.4	0.08	303	.41	10,480	190	24	24	.9	489	8.2
Apr. 21-30.....	15,460			46	19	28		200	51	24		2.2	--	302	.41	12,610	193	29	24	.9	489	8.1
May 1-11.....	16,000			48	16	27		203	48	23		1.9	--	297	.40	12,830	186	20	23	.9	479	7.9
May 12-21.....	12,640			46	18	29		209	48	24		1.8	.11	309	.42	10,550	189	18	25	.9	488	7.9
May 22-31.....	15,560			44	17	28		198	45	22		2.1	--	292	.40	12,270	180	18	25	.9	462	7.9
June 1-10	27,270			45	14	20		188	38	17		1.6	--	257	.35	18,920	170	16	20	.7	414	8.0
June 11-20.....	19,080			44	15	23		194	40	18		1.7	.04	267	.36	13,750	172	13	22	.8	432	7.8
June 21-30.....	14,390			44	16	24		196	42	18		1.8	--	276	.38	10,720	176	15	23	.8	440	8.0
July 1-10.....	7,728			44	19	33		212	51	24		2.3	--	317	.43	6,610	188	14	27	1.1	496	8.0
July 11-20	7,635			44	20	35		215	53	26		2.7	.08	326	.44	6,720	192	16	28	1.1	511	8.0
July 21-31	8,127			44	21	35		216	53	25		2.9	--	330	.45	7,240	196	19	28	1.1	517	7.9
Aug. 1-16.....	8,569			46	20	34		219	57	24		4.0	--	331	.45	7,660	197	17	27	1.1	525	8.0
Aug. 17-31.....	8,380			48	21	36		224	58	26		4.3	.02	346	.47	7,830	206	22	28	1.1	537	8.1
Sept. 1-15	8,783			50	20	36		226	60	26		4.0	--	344	.47	8,160	207	22	27	1.1	545	8.1
Sept. 16-30	9,413			48	21	37		226	61	26		4.3	.04	346	.47	8,790	206	21	28	1.1	547	8.1
Weighted average	11,800			47	19	31		211	53	24		2.7	--	318	0.43	10,130	196	21	26	1.0	506	--

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER AT KING HILL, IDAHO--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

BOISE RIVER BASIN

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 1956.
Water temperatures: November 1950 to September 1956.
Sediment records: January 1939 to June 1940.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 464 ppm Nov. 11-20; minimum, 88 ppm Apr. 1-10.
Hardness: Maximum, 202 ppm Dec. 1-10; minimum, 39 ppm Apr. 1-10, June 1-13, 17-19.
Specific conductance: Maximum daily, 757 micromhos Nov. 17; minimum daily, 112 micromhos Apr. 5, 9.
Water temperatures: Maximum, 82°F July 19; minimum, freezing point Jan. 31.
EXTREMES, 1939-40, 1950-56.--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 11-26, 1953.
Specific conductance: Maximum daily, 1470 micromhos July 30, Aug. 26, 1939; minimum daily, 82 micromhos Apr. 27, 1952.
Water temperatures, (1950-56): Maximum, 85°F on several days during summer months, 1951, 1952 and 1954; minimum, freezing point Jan. 31, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for gaging station for water year October 1955 to September 1956 given in WSP 1447.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 17-20, 1955	547			46	13	74		259	88	19		4.1	--	404	0.55	597	168	0	48	2.5	633	8.2
Oct. 7-16	683			38	12	58		217	68	16		3.6	0.04	331	.45	610	144	0	46	2.1	527	8.0
Oct. 21-31	799			52	14	78		a284	95	20		3.4	--	441	.60	951	187	0	47	2.5	683	8.3
Nov. 1-10	715			53	14	81		292	99	21		3.6	--	452	.61	873	190	0	47	2.6	700	8.1
Nov. 11-20	686			55	14	81		297	100	22		3.1	.02	464	.63	859	194	0	46	2.5	715	8.0
Nov. 21-30	671			55	14	80		291	97	22		3.0	--	452	.61	819	194	0	47	2.5	702	8.0
Dec. 1-10	647			53	17	78		289	97	22		2.9	--	460	.63	804	202	0	46	2.4	696	7.9
Dec. 11-20	588			55	15	79		291	98	22		2.9	.15	459	.62	729	199	0	46	2.4	703	8.1
Dec. 21-31	696			50	15	74		273	91	21		2.8	--	435	.59	817	186	0	46	2.4	665	7.7
Jan. 1-9, 1956	574			54	15	77		286	96	22		3.0	--	458	.62	710	196	0	46	2.4	697	7.9
Jan. 10-19	671			51	13	72		264	92	21		4.1	.12	427	.58	774	180	0	45	2.3	654	7.9
Jan. 20-31	1,680			27	6.6	33		133	43	9.0		4.0	--	222	.30	1,010	94	0	42	1.5	330	7.4
Feb. 1-6, 9	1,590			26	7.2	32		136	41	9.2		3.1	--	225	.31	966	94	0	41	1.4	328	7.8
Feb. 7-8	808			45	13	59		238	--	18		3.3	--	--	--	--	166	0	--	2.0	569	8.0
Feb. 10, 12-16, 21-24	4,350			17	3.4	15		75	17	4.2		2.9	--	126	.17	1,480	56	0	37	.9	179	7.6
Feb. 11, 17-20, 25-29	5,300			15	3.1	13		69	14	3.5		2.4	.08	111	.15	1,590	50	0	37	.8	156	7.5

Mar. 1-10, 1956..	5,650			14	3.0	12		67	13	3.5		2.0	--	103	.14	1,570	47	0	35	.8	150	7.4
Mar. 11-21.....	6,460			15	2.9	11		66	12	3.0		2.1	.01	102	.14	1,780	49	0	33	.7	147	7.4
Mar. 22-31.....	6,780			13	2.9	10		62	11	3.0		1.9	--	97	.13	1,780	44	0	32	.7	136	7.7
Apr. 1-10.....	6,030			13	1.7	9.0		57	8.4	2.5		1.2	--	88	.12	1,430	39	0	33	.6	119	7.1
Apr. 11-20	3,310			13	2.4	10		59	9.9	3.0		1.4	.06	93	.13	831	42	0	34	.7	132	7.1
Apr. 21-30.....	3,340			15	2.2	11		74	12	4.0		1.6	--	104	.14	938	46	0	30	.7	150	7.1
May 1-11, 23-27..	4,720			13	2.2	10		60	11	3.0		1.1	--	91	.12	1,160	42	0	34	.7	131	7.0
May 12-22, 28-31.	4,616			12	2.6	10		59	11	3.0		1.2	.05	91	.12	1,130	41	0	34	.7	131	7.1
June 1-13, 17-19 .	4,430			12	2.1	10		59	11	3.0		1.0	.08	90	.12	1,080	39	0	34	.7	130	7.0
June 14-16, 20, 21	2,360			17	3.1	19		86	20	5.8		1.7	--	133	.18	847	55	0	41	1.1	199	7.3
June 22-30.....	711			27	6.6	35		144	41	11		2.9	--	226	.31	434	94	0	43	1.6	349	7.6
July 1-10	425			33	7.8	47		176	55	14		2.1	--	274	.37	314	114	0	46	1.9	432	7.6
July 11-20	276			39	9.0	61		211	69	17		2.6	.05	336	.46	250	134	0	49	2.3	516	7.9
July 21-31.....	391			36	9.8	55		200	61	15		2.9	--	314	.43	331	130	0	48	2.1	484	7.8
Aug. 1-10	350			39	11	62		220	69	16		2.8	--	342	.47	323	142	0	49	2.3	532	7.9
Aug. 11-20.....	296			43	9.9	68		237	76	18		2.9	.04	342	.51	299	148	0	49	2.4	579	8.0
Aug. 21-31.....	398			38	12	65		227	74	19		3.1	--	362	.49	389	144	0	48	2.4	560	8.0
Sept. 1-10	415			42	11	64		234	75	18		3.2	--	368	.50	412	150	0	47	2.3	567	8.1
Sept. 11-20	466			39	12	62		228	75	16		3.7	.05	355	.48	447	147	0	46	2.2	545	8.0
Sept. 21-30	499			39	12	61		226	72	16		3.6	--	352	.48	474	147	0	46	2.2	541	8.0
Weighted average	2,173			19	4.2	20		94	23	5.8		2.0	--	147	0.20	862	65	0	39	1.1	218	--

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

BOISE RIVER BASIN--Continued

BOISE RIVER AT NOTUS, IDAHO--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

GRANDE RONDE RIVER AT TROY, OREG.

LOCATION.--Temperature recorder at gaging station, at end of bridge at Troy, Wallowa County, 100 feet downstream from Wenaha River.
DRAINAGE AREA.--3,275 square miles.
RECORDS AVAILABLE.--Water temperatures: May to September 1956.
EXTREMES, May to September 1956.--Water temperatures: Maximum, 73°F July 22-25; minimum 41°F May 12-14.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1447.

Temperature (°F) of water, May to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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															--	--	49	48	57	51	67	60	62	53
2															48	--	49	48	57	51	60	55	61	52
3															47	45	50	49	56	51	63	53	58	49
4															46	44	49	47	58	53	65	56	58	48
5															47	43	47	46	56	54	68	58	58	48
6															46	43	46	45	57	52	65	59	60	48
7															46	43	49	46	60	51	66	57	61	55
8															45	44	52	49	62	53	68	57	62	55
9															44	43	53	51	68	55	67	58	61	54
10															45	43	53	52	69	61	67	57	62	56
11															44	42	52	49	68	62	67	56	61	54
12															46	41	51	49	68	60	68	56	60	53
13															46	41	52	50	66	60	69	57	60	52
14															47	41	52	51	64	56	67	57	59	52
15															49	43	51	49	66	57	69	61	59	52
16															50	43	49	48	66	58	69	58	60	52
17															50	44	51	48	68	59	67	55	61	53
18															48	45	53	50	70	60	68	56	59	54
19															47	45	53	51	72	61	68	56	62	57
20															47	44	51	49	69	63	67	55	60	55
21															47	44	51	49	72	63	69	57	55	53
22															46	45	52	50	73	62	69	58	54	48
23															47	46	52	51	73	61	65	58	55	48
24															47	46	52	51	73	63	67	59	55	50
25															46	45	52	50	73	63	65	58	58	51
26															46	46	55	50	72	61	59	54	58	51
27															46	45	57	53	71	60	57	54	57	53
28															46	45	56	54	69	61	64	54	54	51
29															47	46	55	53	71	62	60	54	55	50
30															48	47	55	51	70	60	64	52	55	53
31															49	47	--	--	70	61	63	52	--	--
Average															47	44	52	50	67	58	66	56	59	52

SNAKE RIVER MAIN STEM

SNAKE RIVER AT CENTRAL FERRY, NEAR POMEROY, WASH.

LOCATION.--At bridge on U. S. Highway 295 at Central Ferry, Garfield County, 14 miles northwest of Pomeroy, and about 36 miles downstream from gaging station near Clarkston.
DRAINAGE AREA.--103,200 square miles, approximately (at gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
Water temperatures: October 1955 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 257 ppm Oct. 21-31; minimum, 68 ppm May 15-31.
Hardness: Maximum, 136 ppm Oct. 1-10; minimum, 32 ppm May 15-31.
Specific conductance: Maximum daily, 434 micromhos Oct. 25; minimum daily, 73 micromhos May 25, 27.
Water temperatures: Maximum, 79°F July 25; minimum, freezing point several days during January and February.
REMARKS.--Chemical quality samples were collected at station near Clarkston, Washington (1 mile downstream from gaging station) from November 1951 to September 1955. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for gaging station near Clarkston for water year October 1955 to September 1956 given in WSP 1447. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955	21,940	20	0.05	33	13	33	4.2	160	51	17	0.4	1.9	--	256	0.35	15,160	136	5	34	1.2	415	8.0
Oct. 11-20.....	25,510	23	.05	31	12	31	4.1	151	49	16	.3	2.4	0.04	246	.33	16,940	127	3	34	1.2	396	7.9
Oct. 21-31.....	23,480	23	.01	32	12	33	4.0	157	51	18	.4	2.1	--	257	.35	16,290	129	0	35	1.3	413	8.0
Nov. 1-5, 9-11, 15-20.....	26,310	24	.01	30	12	29	3.8	149	46	16	.3	2.2	.02	238	.32	16,910	124	3	33	1.1	383	8.0
Nov. 6-8, 12-14, 21-30.....	32,410	21	.05	25	9.8	23	3.5	121	36	12	.3	2.6	--	197	.27	17,240	103	4	32	1.0	309	7.7
Dec. 1-4, 13-15, 20-21.....	34,300	22	.04	27	8.1	22	3.1	116	33	12	.3	2.7	--	191	.26	17,690	101	6	31	1.0	296	7.7
Dec. 5-12, 16-19	28,430	25	.00	29	11	25	3.6	133	39	14	.5	2.2	.08	218	.30	16,730	118	9	31	1.0	347	7.7
Dec. 26-31	69,400	--	--	16	4.2	11	2.5	66	--	5.5	--	3.0	--	--	--	--	57	3	28	.6	166	7.6
Jan. 1-14, 1956.	40,690	25	.03	24	7.5	19	2.9	103	28	10	.3	2.5	--	174	.24	19,120	91	7	31	.9	258	7.0
Jan. 15-31.....	47,490	26	.10	24	8.4	20	3.0	110	28	10	.4	2.5	.02	188	.26	24,110	94	4	31	.9	274	7.0
Feb. 1-10, 12-14, 17-19	32,920	25	.00	30	10	24	3.2	132	36	14	.3	2.3	--	214	.29	19,020	116	8	30	1.0	334	7.6
Feb. 11, 15-16, 20-29	38,320	24	.02	29	8.3	21	3.1	120	31	12	.3	2.5	.04	194	.26	20,070	106	8	29	.9	301	7.6
Mar. 1-19.....	43,730	25	.06	27	8.6	19	3.0	117	29	11	.3	2.6	.02	187	.25	22,080	103	7	28	.8	286	7.7
Mar. 20-31.....	96,870	23	.19	17	6.0	11	2.7	76	16	6.5	.2	2.7	--	141	.19	36,880	67	5	25	.6	182	7.4
Apr. 1-13	87,120	22	.05	20	5.6	12	2.7	84	18	7.8	.2	1.6	--	138	.19	32,460	73	4	25	.6	202	7.6
Apr. 14-30	153,900	17	.06	12	2.6	7.0	1.8	50	9.6	3.2	.2	1.0	.01	98	.13	40,720	41	0	25	.5	120	7.3
May 1-14	141,400	17	.02	13	3.1	8.9	1.7	57	12	4.5	.3	.8	--	94	.13	35,890	45	0	29	.6	135	7.1
May 15-31	223,600	11	.04	8.7	2.4	5.7	1.4	41	7.5	3.0	.2	.8	.04	68	.09	41,050	32	0	27	.4	92	6.8

June 1-6, 13-16 1956	200,800	15	.01	13	2.7	7.7	1.6	56	11	4.0	.2	0.9	--	85	.12	46,080	44	0	27	.5	126	7.2
June 7-12, 17-20	153,900	16	.03	14	4.5	8.8	1.7	64	13	4.8	.3	.8	.01	96	.13	39,890	53	1	26	.5	146	7.2
June 21-30	93,280	16	.03	16	4.4	10	1.9	72	15	6.0	.3	.7	--	106	.14	26,700	58	0	27	.6	165	7.1
July 1-8, 12-13..	56,280	16	.00	15	4.3	11	1.9	70	16	5.8	.3	.8	--	105	.14	15,960	55	0	29	.6	165	7.4
July 9-11, 14-20.	41,500	17	.04	19	5.3	16	2.4	86	22	8.0	.3	1.0	.08	133	.18	14,900	69	0	33	.8	210	7.5
July 21-31	30,400	18	.00	24	7.0	22	2.8	112	29	12	.4	.9	--	174	.24	14,280	89	0	34	1.0	279	7.7
Aug. 1-15	26,190	23	.04	29	8.3	27	3.4	131	40	13	.3	1.6	.09	206	.28	14,570	106	0	35	1.1	330	7.5
Aug. 16-31.....	23,960	24	.02	30	9.6	30	3.6	140	44	15	.4	1.8	--	223	.30	14,430	114	0	35	1.2	357	7.6
Sept. 1-30	23,280	23	.02	32	11	33	4.0	154	51	16	.4	1.8	.06	247	.34	15,530	125	0	36	1.3	402	7.8
Total or weighted average [a] ...	65,960	18	0.04	18	5.4	13	2.3	80	20	7.1	0.3	1.4	--	131	0.18	23,330	67	2	29	0.7	194	--
Total or weighted average [b] ...	66,750	18	0.04	18	5.3	13	2.3	79	20	7.1	0.3	1.5	--	130	0.18	23,430	67	3	29	0.7	193	--

a Represents 98 percent of runoff for water year October 1955 to September 1956.
b Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1955 to September 1956.

SNAKE RIVER MAIN STEM--Continued

SNAKE RIVER AT CENTRAL FERRY NEAR POMEROY, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

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 1956, (discontinued).
EXTREMES, 1955-56.--Water temperatures: Maximum, 80°F July 21; minimum, freezing point Jan. 9, Feb. 17, 18.
EXTREMES, 1951-56.--Water temperatures: Maximum, 80°F July 21, 1956; minimum, freezing point on many days during winter months.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	57	49	43	41	41	40	36	33	36	33	43	38	41	39	54	47	63	58	68	57	66	59	69	58
2	58	51	42	39	40	38	36	34	35	33	42	40	41	38	53	49	65	56	63	57	63	57	65	56
3	56	51	48	41	39	38	36	34	33	33	40	37	42	38	52	50	63	57	66	54	68	55	64	53
4	53	50	50	48	38	34	37	35	34	33	39	37	44	41	51	48	57	53	69	59	69	59	64	53
5	54	49	48	45	35	33	36	35	37	34	37	34	43	40	51	47	53	49	66	60	71	59	64	53
6	53	46	47	44	39	35	36	35	37	34	39	34	44	39	52	48	55	50	70	58	71	61	66	55
7	52	49	48	44	36	35	37	35	37	34	36	34	45	42	51	48	62	52	72	59	72	60	68	58
8	54	50	48	44	38	35	35	34	37	34	44	36	45	40	50	47	67	56	74	61	72	60	66	57
9	55	54	50	46	38	37	35	32	37	33	41	36	49	42	52	46	68	60	75	63	73	61	64	55
10	55	51	52	47	38	36	38	34	37	34	37	34	49	45	52	48	65	59	75	63	71	59	63	56
11	51	47	47	40	43	39	39	37	39	36	39	33	49	45	48	45	64	55	73	64	72	59	65	57
12	57	49	40	36	42	37	39	37	41	38	39	33	47	42	47	43	65	56	73	62	73	61	65	55
13	57	50	36	34	37	34	39	38	38	36	38	36	49	43	51	44	67	58	73	64	74	62	65	55
14	57	51	34	33	35	34	39	37	37	35	42	36	50	44	54	46	62	57	73	64	70	63	66	55
15	57	51	35	33	36	35	39	36	35	33	42	35	49	44	57	50	57	54	74	62	72	62	66	55
16	56	50	34	33	39	36	38	36	34	33	44	37	49	44	60	52	57	53	75	63	72	61	66	56
17	55	49	34	33	39	37	38	37	33	32	44	37	48	43	60	54	64	53	75	63	72	60	66	56
18	54	51	40	34	38	35	39	38	35	32	44	37	50	44	59	56	64	56	77	63	72	60	65	58
19	56	51	45	40	40	38	39	37	34	33	41	37	52	46	61	57	62	59	79	66	73	61	65	61
20	54	49	43	40	41	40	39	38	37	34	40	36	53	47	63	56	63	55	79	69	72	60	63	57
21	53	50	40	38	41	39	39	39	38	36	41	38	52	48	63	55	64	54	80	68	73	61	59	52
22	54	50	39	37	42	41	39	39	36	35	41	37	53	48	63	56	66	56	78	66	74	62	59	50
23	51	46	39	37	41	37	39	38	38	33	44	38	53	47	62	58	66	60	79	66	72	65	60	50
24	51	46	39	37	38	35	38	35	35	33	43	38	51	46	59	53	66	56	79	67	72	62	60	52
25	53	48	42	39	38	36	35	34	40	35	43	38	50	47	59	50	67	56	78	66	67	61	62	54
26	52	48	44	42	39	38	35	34	37	35	41	38	50	46	58	53	71	59	75	64	62	57	62	54
27	48	44	44	41	38	37	36	34	38	35	39	36	51	48	53	49	73	61	74	64	66	57	60	56
28	48	45	41	39	37	34	35	34	39	37	42	38	49	46	58	48	73	63	74	64	68	58	58	53
29	50	47	43	40	34	33	35	33	40	38	43	39	51	44	64	54	68	58	75	62	65	58	59	51
30	50	47	41	40	33	33	35	34	--	--	44	40	52	45	66	58	67	56	74	62	67	57	61	56
31	47	43	--	--	34	33	36	33	--	--	42	39	--	--	64	58	--	--	73	61	68	56	--	--
Average	53	49	43	40	38	36	37	36	37	34	41	37	48	44	56	51	64	56	74	63	70	60	64	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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 75°F July 20, 21, 23, 24; minimum, freezing point on many days during November to March.
EXTREMES, 1950-56.--Water temperatures: Maximum, 76°F July 24, 1951; minimum, freezing point on many days during winter months.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	49	39	37	35	34	33	32	32	32	32	36	34	37	35	48	40	50	46	61	49	62	57	--	--
2	50	41	35	33	35	33	32	32	32	32	35	34	39	35	46	41	54	45	57	53	59	54	--	--
3	49	42	39	34	34	33	32	32	32	32	35	33	41	34	45	43	52	47	61	49	--	52	--	--
4	48	45	44	39	33	33	32	32	32	32	35	33	41	35	44	43	50	45	64	54	--	--	--	--
5	47	44	42	37	33	33	32	32	32	32	34	33	40	35	46	42	46	43	60	54	--	--	--	--
6	47	38	39	36	33	33	33	32	32	32	34	33	41	33	46	42	48	43	64	54	--	--	--	--
7	47	39	39	37	33	33	33	32	32	32	34	33	40	37	46	42	55	46	66	53	--	--	--	--
8	48	43	40	36	33	32	32	32	32	32	38	34	43	34	46	43	58	48	68	55	--	--	--	--
9	52	48	43	39	32	32	32	32	32	32	35	33	45	36	47	42	59	50	70	58	--	--	--	--
10	52	46	43	40	32	32	32	32	32	32	33	33	47	38	45	43	56	50	71	60	--	--	--	--
11	46	43	40	32	32	32	32	32	32	32	33	33	44	39	43	40	55	47	69	61	--	--	--	--
12	51	45	33	32	33	32	32	32	32	32	33	32	45	39	41	39	56	47	71	60	--	--	--	--
13	51	43	32	32	33	33	32	32	32	32	32	32	46	37	46	39	57	49	69	62	--	--	--	--
14	51	43	33	32	33	33	32	32	32	32	33	32	45	38	49	40	55	50	69	59	--	--	--	--
15	51	44	33	33	33	33	32	32	33	32	35	33	45	38	52	42	50	48	69	57	--	--	--	--
16	49	43	33	32	33	33	33	32	33	32	39	34	44	39	53	44	51	47	70	57	--	--	--	--
17	49	42	32	32	33	33	33	32	32	32	39	34	44	37	53	44	56	48	71	57	--	--	--	--
18	49	44	32	32	33	33	33	32	32	32	39	34	46	38	51	45	57	49	72	58	--	--	--	--
19	50	46	32	32	33	33	33	32	32	32	38	35	47	39	50	45	56	51	74	61	--	--	--	--
20	49	42	32	32	34	33	35	33	32	32	37	34	49	40	52	44	53	49	75	64	--	--	54	--
21	48	43	32	32	35	34	36	35	33	32	37	35	46	40	52	43	56	46	75	64	--	--	54	48
22	47	43	32	32	36	35	36	35	32	32	37	35	47	40	53	43	59	48	74	61	--	--	53	44
23	45	38	32	32	35	32	35	33	32	32	39	35	47	39	50	45	59	53	75	61	--	--	53	44
24	45	38	32	32	32	32	33	32	32	32	39	35	46	39	48	44	58	48	75	63	--	--	55	47
25	[illegible]	40	32	32	34	32	32	32	33	32	40	35	45	41	52	43	58	48	74	61	--	--	56	48
26	46	42	33	32	36	34	32	32	33	32	37	35	45	41	49	44	62	50	72	59	--	--	57	49
27	42	38	33	33	35	33	32	32	32	32	39	35	45	42	46	41	65	53	72	58	--	--	56	52
28	43	41	34	33	33	32	32	32	34	32	41	34	44	41	49	43	64	54	71	60	--	--	53	49
29	43	40	35	34	32	32	32	32	34	33	41	35	45	39	53	44	61	51	71	58	--	--	54	46
30	43	38	35	33	32	32	32	32	--	--	41	36	46	39	54	45	60	49	70	57	--	--	54	51
31	39	37	--	--	32	32	32	32	--	--	40	36	--	--	53	47	--	--	69	57	--	--	--	--
Average	48	42	35	34	33	33	33	32	32	32	37	34	44	38	49	43	56	48	69	58	--	--	--	--

DESCHUTES RIVER NEAR CULVER, OREG.

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LOCATION.--Temperature recorder at gaging station, 0.7 mile downstream from bridge on Cove-Grandview road, 2½ miles above 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 64°F July 13, 17; minimum, 38° F Dec. 19, 29-31, Jan. 1, 2.
EXTREMES, 1952-56.--Water temperatures: Maximum, 64°F July 13, 17, 1956; minimum, 38°F on several days during winter months.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	52	51	48	45	43	42	39	38	40	39	44	43	49	47	56	54	59	56	60	58	60	58	60	58
2	52	51	45	44	43	42	39	38	39	39	44	44	48	47	56	55	59	56	59	58	59	58	59	58
3	52	51	45	45	42	42	40	39	40	39	44	44	49	47	55	54	59	57	59	57	59	57	58	57
4	51	51	47	45	42	41	40	40	40	40	44	44	49	48	54	54	57	55	62	59	59	57	58	56
5	51	51	47	47	41	40	40	40	41	40	44	43	49	47	55	54	56	55	61	60	59	58	58	56
6	51	50	47	47	42	41	40	40	41	41	43	42	49	47	56	54	56	55	61	59	60	58	58	56
7	51	50	47	47	41	40	40	40	42	41	44	43	50	49	56	54	59	56	62	59	61	58	59	57
8	50	50	47	47	41	40	41	40	42	41	45	44	51	49	54	53	61	57	62	60	61	59	59	57
9	51	50	47	47	42	41	41	40	42	41	45	44	52	50	54	52	62	60	63	60	61	59	58	57
10	51	50	48	47	42	41	41	41	42	42	44	44	53	51	53	52	62	60	62	60	61	59	58	57
11	50	49	48	45	43	42	41	41	43	42	44	43	53	52	54	52	60	57	62	61	61	59	58	57
12	50	49	45	43	43	43	41	41	44	43	44	43	52	51	54	52	61	58	63	60	61	59	58	56
13	50	50	43	41	43	41	41	41	44	44	45	44	53	51	54	52	61	59	64	62	62	60	58	56
14	50	50	41	39	41	40	41	41	44	43	45	45	53	51	56	54	60	59	63	61	62	60	58	56
15	51	50	40	39	40	40	41	40	44	42	46	45	53	52	59	56	59	57	62	60	62	60	58	56
16	51	51	40	39	40	39	41	40	42	40	48	46	53	52	61	57	60	57	63	60	61	59	58	56
17	51	51	39	39	40	39	41	41	41	40	48	48	53	51	62	59	60	57	64	61	60	58	58	56
18	51	51	39	39	40	39	41	41	42	41	49	48	54	52	62	60	60	58	64	60	60	58	58	57
19	51	51	39	39	39	38	41	41	42	42	49	48	56	54	61	59	60	58	63	60	61	58	58	57
20	51	50	40	39	40	39	41	41	42	42	49	47	57	55	61	59	60	58	63	60	60	58	57	57
21	51	50	40	40	40	40	41	41	42	42	49	48	57	55	61	57	60	57	62	59	60	58	57	55
22	51	50	40	40	40	40	41	41	42	42	49	49	57	55	61	58	61	58	62	59	60	58	55	53
23	51	50	40	40	40	39	41	41	42	42	50	48	57	55	61	59	61	59	63	60	59	58	55	53
24	51	50	41	40	40	39	41	39	42	42	50	49	56	53	59	56	61	58	63	60	59	57	55	54
25	51	50	42	41	40	39	40	39	42	42	50	49	55	54	58	55	60	58	63	60	58	57	56	54
26	51	50	44	42	40	40	40	39	42	42	50	48	55	53	58	56	61	59	62	59	57	57	56	55
27	50	50	44	44	40	39	40	39	42	42	49	47	55	53	56	54	62	59	62	59	58	56	56	55
28	51	50	44	43	39	39	41	40	43	42	50	48	55	53	58	55	62	60	61	58	58	56	56	55
29	51	50	44	43	39	38	40	40	43	43	50	49	55	53	61	57	62	59	61	58	58	58	55	54
30	50	50	44	43	38	38	40	40	--	--	50	50	55	53	61	59	60	58	60	58	58	56	56	54
31	50	48	--	--	38	38	40	40	--	--	50	49	--	--	61	57	--	--	60	58	59	57	--	--
Average	51	50	44	43	41	40	41	40	42	41	47	46	53	51	58	55	60	58	62	59	60	58	57	56

DESCHUTES RIVER BASIN--Continued

CROOKED RIVER NEAR CULVER, OREG.

LOCATION (revised).--Temperature recorder at gaging station, on right bank 1 mile upstream from mouth, 1.2 miles 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 62°F May 20; minimum, 40°F Dec. 24, 25.
EXTREMES, 1952-56.--Water temperatures: Maximum, 63°F July 14, 1953; minimum, 40°F Dec. 24, 25, 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	53	53	52	51	51	51	47	46	47	46	48	48	46	45	56	54	59	58	59	57	57	57	58	57
2	53	53	52	52	51	51	47	47	47	47	49	48	45	45	56	55	59	58	58	58	57	56	57	57
3	53	53	52	52	51	51	47	47	47	47	49	49	47	46	55	55	59	58	59	57	57	56	57	57
4	53	53	52	52	51	51	48	47	47	47	49	48	48	47	55	54	58	57	59	58	57	56	57	56
5	53	53	52	52	51	50	48	48	47	47	48	47	48	47	54	54	57	56	58	58	57	57	57	56
6	53	53	52	52	51	50	48	48	47	47	47	47	48	47	54	54	56	56	59	58	58	57	57	56
7	53	53	52	52	51	51	48	48	47	47	48	47	48	48	54	54	57	56	59	58	58	57	57	57
8	53	53	52	52	51	51	48	48	47	47	49	48	49	48	54	52	58	57	59	58	58	57	57	57
9	53	53	52	52	51	51	48	48	48	47	49	49	50	49	54	53	59	58	59	58	58	57	57	57
10	53	53	52	52	51	51	49	48	48	48	49	47	51	50	54	54	59	58	59	58	58	57	57	57
11	53	53	52	52	51	51	49	49	48	48	47	47	51	50	54	52	58	57	59	58	58	57	57	57
12	53	53	52	51	51	51	49	49	49	48	48	47	50	50	53	52	58	57	60	58	58	57	57	56
13	53	53	51	50	51	49	49	49	49	49	49	48	50	50	53	52	57	57	59	58	58	57	58	57
14	53	53	50	50	49	46	49	49	49	47	49	49	51	50	55	53	57	57	59	58	58	57	58	58
15	53	53	50	50	47	46	49	47	47	47	49	48	51	51	58	55	57	57	60	58	58	57	58	58
16	53	53	50	50	47	47	47	43	48	47	48	48	51	51	60	57	57	57	59	59	58	57	58	58
17	53	53	50	50	48	47	43	41	48	48	48	48	51	51	61	59	58	57	59	58	58	57	58	58
18	53	53	51	50	48	48	42	41	48	48	48	48	52	51	61	60	58	57	59	58	58	57	58	58
19	53	53	51	51	49	48	43	42	48	48	48	48	53	52	61	60	58	58	59	58	58	57	58	58
20	53	53	51	51	49	49	45	43	49	48	48	46	54	53	62	60	58	58	59	58	58	57	58	58
21	53	53	51	51	49	49	45	45	49	48	46	45	55	54	61	60	59	58	59	58	58	57	58	57
22	53	53	51	51	49	46	45	45	48	44	45	45	55	55	61	59	59	58	59	58	58	57	58	57
23	53	53	51	51	46	43	45	43	44	41	45	45	55	55	60	60	59	58	59	58	58	57	57	57
24	53	53	51	51	43	40	43	43	46	44	46	45	55	54	60	58	59	58	59	58	59	58	58	57
25	53	53	51	51	42	40	43	43	47	46	46	45	54	54	59	58	59	57	59	58	58	57	58	57
26	53	53	52	51	44	42	44	43	47	47	45	44	54	53	58	58	59	58	58	57	57	57	58	58
27	53	52	52	52	44	44	44	44	48	47	44	42	54	53	58	57	60	58	58	57	57	57	58	58
28	53	52	52	52	44	44	45	44	48	48	44	43	55	54	58	57	59	58	58	57	57	57	58	58
29	52	52	52	51	44	44	45	45	48	48	46	44	54	53	58	57	59	58	58	57	57	57	58	57
30	52	52	51	51	46	44	46	45	--	--	46	46	55	53	58	58	59	57	58	57	57	57	57	57
31	52	52	--	--	46	46	46	46	--	--	46	46	--	--	59	58	--	--	58	57	57	57	--	--
Average	53	53	51	51	48	47	46	46	48	47	47	47	51	51	57	56	58	57	59	58	58	57	58	57

METOLIUS RIVER NEAR GRANDVIEW, OREG.

LOCATION (revised).--Temperature recorder at gaging station three-quarters of a mile upstream from Street Creek, 7½ miles northwest of Grandview, and 13 miles northwest of Culver, Jefferson County.
DRAINAGE AREA.--324 square miles (hydrologic drainage boundary uncertain owing to ground-water exchange).
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 53°F July 23-25; minimum, 38°F Jan. 31, Feb. 1, 2.
EXTREMES, 1952-56.--Water temperatures: Maximum, 53°F on several days in the summer months, minimum, 38°F Jan. 31, Feb. 1, 2, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	48	45	45	44	43	43	40	39	39	38	42	41	44	41	47	42	49	45	50	45	50	47	51	47
2	48	46	45	44	43	41	40	39	39	38	42	41	43	41	46	42	50	45	50	46	48	46	50	47
3	47	45	46	44	42	41	41	40	39	39	42	39	45	41	45	43	48	45	50	45	51	46	50	46
4	47	46	46	45	41	40	41	41	40	39	41	39	45	43	45	43	48	44	51	45	51	47	50	46
5	47	45	46	45	41	39	41	40	41	40	40	39	45	42	45	43	47	44	49	46	49	46	50	47
6	47	45	46	45	41	41	41	40	41	40	41	39	45	42	46	43	47	44	51	46	50	46	50	47
7	47	45	46	45	41	41	41	40	41	40	41	39	45	43	46	43	50	45	51	46	50	46	50	47
8	47	45	46	45	42	41	41	40	41	39	42	41	46	42	46	43	51	45	52	46	50	46	50	47
9	47	46	47	45	42	41	41	39	41	40	42	40	46	42	45	43	50	46	51	47	51	46	50	47
10	47	45	47	45	42	41	41	40	42	40	41	40	46	43	45	43	49	46	52	47	50	46	49	47
11	46	45	45	44	43	42	41	41	42	41	41	39	45	43	45	42	49	44	51	46	50	46	49	47
12	47	45	44	43	43	41	41	41	42	41	42	39	45	43	46	42	50	45	52	46	51	46	49	46
13	47	46	44	43	41	40	41	40	41	40	43	41	46	42	47	42	49	45	51	47	51	47	49	46
14	48	46	43	43	41	40	41	39	41	40	42	40	46	42	48	43	48	46	51	46	51	47	49	46
15	48	46	43	42	40	40	40	39	40	39	42	40	45	42	49	43	49	44	51	45	52	47	49	46
16	47	45	43	42	41	40	40	39	39	39	44	41	46	42	49	44	49	45	51	46	50	46	49	46
17	47	46	43	42	41	41	41	40	41	39	44	41	46	41	49	44	50	44	52	46	50	46	49	47
18	47	46	44	42	41	40	41	40	41	40	44	41	46	42	48	44	49	45	52	46	51	47	49	47
19	47	45	44	43	41	40	41	40	41	39	43	41	46	42	49	44	49	46	52	47	51	47	48	47
20	47	45	44	43	41	40	41	40	41	39	43	41	47	43	49	44	49	44	52	48	50	46	48	47
21	47	45	44	43	40	39	41	41	40	39	43	42	46	43	48	43	50	44	52	48	50	46	48	46
22	47	45	44	42	39	39	41	41	41	39	43	42	47	43	49	44	50	45	52	47	51	47	47	45
23	47	45	43	42	39	39	41	39	41	40	44	41	46	42	48	45	50	46	53	48	50	47	48	45
24	47	45	44	43	40	39	40	39	41	39	44	41	46	41	48	44	50	44	53	48	51	47	49	46
25	47	46	44	43	40	39	40	39	41	40	44	42	46	43	49	43	50	44	53	48	49	47	49	46
26	47	45	44	43	40	40	39	39	41	40	43	41	45	42	47	45	51	45	52	48	48	46	49	46
27	45	45	44	43	40	39	39	39	41	40	43	40	46	42	48	43	51	46	52	47	50	46	49	47
28	46	45	44	43	40	39	39	39	42	41	44	41	45	42	49	44	51	46	52	47	50	46	48	46
29	47	45	44	43	39	39	40	39	42	41	45	42	46	42	50	45	50	45	52	47	49	47	48	45
30	47	45	44	43	39	39	39	39	--	--	44	42	46	42	49	45	50	45	52	47	50	47	48	47
31	45	44	--	--	39	39	39	38	--	--	43	42	--	--	49	45	--	--	51	47	50	47	--	--
Average	47	45	45	43	41	40	40	40	41	40	43	41	46	42	47	43	49	45	51	47	50	46	49	46

DESCHUTES RIVER BASIN--Continued

DESCHUTES RIVER NEAR MADRAS, OREG.

LOCATION.--Temperature recorder at gaging station, 1 mile downstream from Pelton damsite, 5 miles upstream from Shitike Creek and 7½ miles northwest of Madras, Jefferson County.
DRAINAGE AREA.--7,800 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 59°F on several days during May, July, and August; minimum, 43°F on several days during January to February.
EXTREMES, 1952-56.--Water temperatures: Maximum, 59°F on several days during summer months, except water year 1954-55; minimum, 43°F on several days during winter months.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
[Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	53	52	51	50	50	49	45	44	44	44	47	46	48	46	53	52	57	55	56	54	56	54	57	55
2	53	52	50	49	49	49	45	45	44	43	47	47	47	46	53	52	57	55	56	54	56	54	57	55
3	53	52	50	50	49	49	46	45	43	43	47	46	48	46	52	52	57	56	56	53	57	54	56	54
4	53	52	51	50	49	48	46	46	44	43	46	46	49	47	53	52	56	54	57	55	57	55	56	54
5	53	52	51	51	48	47	46	46	45	44	46	45	49	48	53	53	55	53	57	55	57	56	56	54
6	53	51	51	51	48	47	47	46	45	45	45	44	48	48	54	53	54	53	57	54	58	55	56	54
7	52	52	51	51	48	47	47	47	46	45	45	44	49	48	54	54	56	54	58	55	58	56	57	55
8	53	52	51	51	48	47	47	47	46	46	46	45	49	48	54	53	58	55	58	55	58	56	57	55
9	53	52	52	51	48	47	47	46	46	46	46	46	50	49	53	53	58	57	58	55	58	56	57	55
10	53	52	52	51	48	48	47	46	47	46	46	45	51	50	53	53	58	56	58	55	58	56	56	55
11	52	51	51	49	49	48	47	47	47	47	45	44	51	51	53	52	57	54	58	55	58	56	56	55
12	53	51	49	48	49	48	47	47	48	47	45	44	51	50	52	52	57	55	59	55	59	56	56	54
13	53	52	48	46	48	47	47	47	48	48	46	45	51	50	53	52	57	55	59	56	59	57	56	54
14	53	52	46	45	47	46	47	47	48	47	47	46	52	50	55	53	56	55	58	55	59	57	56	54
15	53	53	45	45	46	46	47	46	47	45	47	47	52	51	57	55	55	54	58	56	58	56	56	55
16	53	53	45	45	46	46	46	46	45	43	49	47	52	51	58	56	56	54	58	55	58	56	56	55
17	53	52	45	45	46	46	46	45	45	43	49	48	52	50	59	57	56	54	58	55	58	55	56	55
18	53	53	47	45	46	45	45	45	45	45	49	48	52	51	59	57	56	55	58	55	57	55	56	55
19	53	53	47	47	45	45	45	44	45	45	49	48	53	52	59	57	56	55	58	56	58	56	56	56
20	53	52	47	47	47	45	45	44	45	45	48	48	54	53	58	57	56	54	58	56	58	56	56	55
21	53	52	47	47	47	46	45	44	45	44	48	47	54	54	58	55	56	54	58	56	58	56	55	54
22	53	52	48	47	46	46	45	44	45	44	48	47	54	53	57	55	57	55	58	55	58	56	55	53
23	53	51	48	47	46	45	45	45	45	43	48	47	54	53	57	56	57	55	59	56	58	56	55	53
24	52	51	48	48	45	44	45	44	44	43	48	48	54	52	56	54	57	54	59	56	58	56	56	54
25	52	52	49	48	44	44	44	44	45	44	48	48	53	52	56	54	57	54	59	56	58	56	56	55
26	53	51	50	49	45	44	44	44	45	45	48	47	52	52	56	54	57	55	58	55	56	55	56	55
27	52	51	50	50	45	45	44	44	46	45	47	45	53	51	54	52	58	55	57	55	57	55	56	55
28	52	51	50	50	45	45	44	43	46	46	47	46	53	51	55	53	58	55	57	54	57	55	56	54
29	52	51	50	50	45	44	44	43	46	46	49	47	52	50	57	54	57	54	57	54	57	55	55	54
30	52	51	50	49	44	44	44	44	--	--	49	48	53	51	57	56	56	54	57	54	57	55	55	54
31	51	50	--	--	44	44	44	44	--	--	48	48	--	--	56	55	--	--	57	54	57	55	--	--
Average	53	52	49	48	47	46	46	45	46	45	47	46	51	50	55	54	57	55	58	55	58	56	56	54

DESCHUTES RIVER AT MOODY, NEAR BIGGS, OREG.

LOCATION (revised).--Temperature recorder at gaging station, at Moody, 1 mile upstream from mouth, and 4 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 70°F July 20, 21; minimum, 33°F Dec. 30.
EXTREMES, 1954-56.--Water temperatures: Maximum, 70°F July 14, 1955, July 20, 21, 1956; minimum, 33°F Dec. 30, 1955.
REMARKS.--Recorder stopped Nov. 15-16, Dec. 12 to Jan. 16; temperature ranges during these periods, 36°F to 38°F, and 33°F to 46°F respectively.
Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	56	54	50	45	45	45	--	--	37	36	45	44	48	47	55	53	60	59	63	60	60	58	61	58
2	56	54	48	47	45	45	--	--	36	35	45	45	48	47	55	54	60	58	63	60	58	56	61	58
3	56	55	50	47	45	44	--	--	36	36	45	44	49	47	55	52	59	57	63	60	59	56	60	57
4	55	54	51	49	44	43	--	--	37	36	45	43	50	48	53	52	57	55	64	60	60	57	59	56
5	55	52	51	51	43	42	--	--	38	37	44	43	50	48	54	52	57	55	64	61	63	59	58	56
6	54	52	52	50	42	41	--	--	40	38	43	42	50	48	54	53	56	55	64	61	64	60	58	56
7	53	52	52	51	43	41	--	--	41	40	44	42	50	49	55	54	57	55	65	61	64	61	60	56
8	53	52	52	51	42	42	--	--	41	41	45	43	51	49	55	54	60	56	67	63	64	61	60	57
9	54	53	52	52	43	42	--	--	41	41	45	44	52	50	55	54	63	59	67	64	65	61	60	58
10	53	52	53	51	43	43	--	--	41	41	44	43	52	51	55	53	62	61	68	64	64	62	60	59
11	52	51	51	48	45	43	--	--	43	41	44	42	53	52	53	52	61	59	66	64	65	62	60	57
12	52	50	48	43	--	--	--	--	44	43	44	42	54	52	53	52	61	58	66	62	65	61	60	56
13	54	52	43	40	--	--	--	--	43	43	45	43	54	52	54	52	61	59	67	64	65	62	60	56
14	54	53	40	38	--	--	--	--	43	41	46	44	54	53	55	53	60	58	66	64	66	63	60	57
15	55	54	--	--	--	--	--	--	41	39	46	45	54	53	57	55	59	57	66	63	65	63	60	57
16	55	54	--	--	--	--	--	--	39	39	48	45	53	52	59	57	60	57	66	63	64	62	60	58
17	55	54	37	36	--	--	42	42	39	38	50	47	53	52	61	59	60	57	67	63	64	61	61	58
18	55	54	38	36	--	--	42	42	41	39	50	48	54	52	61	60	60	59	67	64	64	61	59	58
19	55	53	40	38	--	--	42	42	41	41	49	49	55	53	61	60	60	59	69	65	64	61	60	58
20	55	53	42	40	--	--	42	42	41	41	49	48	56	54	60	59	61	58	70	66	65	61	59	58
21	55	53	42	42	--	--	42	42	42	42	48	48	56	55	59	58	61	58	70	67	65	62	58	56
22	55	53	43	42	--	--	42	42	42	41	48	48	56	55	59	58	62	59	69	66	65	63	56	55
23	54	52	43	43	--	--	42	42	42	41	49	48	55	54	59	58	62	59	69	65	65	63	56	54
24	53	52	45	43	--	--	42	42	42	41	49	48	55	53	58	57	62	59	69	65	65	63	58	55
25	54	53	46	45	--	--	42	40	42	41	49	48	54	53	59	56	62	59	68	66	64	62	59	56
26	53	52	46	46	--	--	40	40	43	42	48	47	55	53	57	56	64	60	67	64	61	57	59	58
27	52	50	46	45	--	--	40	40	43	43	47	46	54	53	56	55	66	62	65	62	58	65	58	57
28	51	50	45	44	--	--	40	39	44	43	47	46	54	53	57	55	66	63	65	62	60	56	58	56
29	53	51	44	44	--	--	39	39	44	44	49	47	54	52	60	56	64	61	65	61	60	59	58	56
30	52	51	45	44	--	--	41	39	--	--	50	49	55	52	61	59	63	60	64	62	60	57	57	56
31	51	50	--	--	--	--	39	37	--	--	49	48	--	--	61	60	--	--	62	58	61	57	--	--
Average	54	52	46	44	--	--	--	--	41	40	47	45	53	51	57	55	61	58	66	63	63	60	59	57

COLUMBIA RIVER MAIN STEM

COLUMBIA RIVER AT MARYHILL FERRY NEAR RUFUS, OREG.

LOCATION (revised).--At Maryhill Ferry about 2½ miles downstream from Rufus, Sherman County, about 6 miles upstream from the Deschutes River, and about 9 miles upstream from gaging station near The Dalles, Wasco County.
DRAINAGE AREA.--237,000 square miles, approximately (above gaging station near The Dalles).
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1956.
Water temperatures: December 1950 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 163 ppm Dec. 2-15; minimum 74 ppm May 21-31.
Hardness: Maximum, 101 ppm Dec. 2-15; minimum, 45 ppm May 21-31.
Specific conductance: Maximum daily, 324 micromhos Dec. 7; minimum daily, 102 micromhos May 27.
Water temperatures: Maximum, 72°F Aug. 18, 22; minimum, freezing point Feb. 2, 7-10.
EXTREMES, 1950-56.--Dissolved solids: Maximum, 163 ppm Dec. 2-15, 1955; minimum, 74 ppm May 21-31, 1956.
Hardness: Maximum, 104 ppm Dec. 21-31, 1952; minimum, 45 ppm May 21-31, 1956.
Specific conductance: Maximum daily, 324 micromhos Dec. 7, 1955; minimum daily, 102 micromhos May 27, 1956.
Water temperatures: Maximum, 77°F Sept. 4-6, 1953; minimum, freezing point on several days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for gaging station near The Dalles for water year October 1955 to September 1956 given in WSP 1448. Discharge records include the flow of the Deschutes River, which on the average amounts to less than 5 percent of the flow at the gaging station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955..	105,100	11	0.00	22	6.3	10	1.6	92	20	4.2	0.2	1.3	0.02	124	0.17	35,190	81	6	21	0.5	208	7.8
Oct. 11-20	103,600	--	--	--	--	10	--	95	--	--	--	--	--	126	.17	35,240	81	3	--	--	211	7.4
Oct. 21-31	101,400	--	--	--	--	10	--	92	--	--	--	--	--	121	.16	33,130	80	5	--	--	207	7.5
Nov. 1-5, 20-25..	121,500	--	--	--	--	9.9	--	89	--	--	--	--	--	120	.16	39,370	78	5	--	--	200	7.7
Nov. 6-8, 15-19, 26-27.....	123,500	--	--	--	--	9.5	--	89	--	--	--	--	--	118	.16	39,350	78	5	--	--	201	7.5
Nov. 9-14, 28-30.	130,300	--	--	--	--	10	--	100	--	--	--	--	--	136	.18	47,850	87	5	--	--	224	7.4
Dec. 1, 16-22 ...	130,900	--	--	--	--	7.7	--	72	--	--	--	--	--	114	.16	40,290	61	2	--	--	160	7.5
Dec. 2-15	122,100	--	--	--	--	13	--	116	--	--	--	--	--	163	.22	53,740	101	6	--	---	260	7.4
Dec. 23-31	220,600	--	--	--	--	7.2	--	77	--	--	--	--	--	114	.16	67,900	66	3	--	--	166	7.4
Jan. 1-10, 1956..	155,900	16	.06	19	5.7	7.5	2.0	81	12	4.8	.2	1.4	.01	115	.16	48,410	71	5	18	.4	193	7.6
Jan. 11-20	158,800	--	--	--	--	8.2	--	81	--	--	--	--	--	119	.16	51,020	73	7	--	--	175	7.4
Jan. 21-30	147,600	--	--	--	--	9.9	--	88	--	--	--	--	--	127	.17	50,610	76	4	--	--	193	7.2
Feb. 1-10	124,100	--	--	--	--	9.2	--	92	--	---	--	--	--	125	.17	41,880	81	6	--	--	198	7.7
Feb. 11-20	126,100	--	--	--	--	11	--	96	--	--	--	--	--	136	.18	46,300	85	6	--	--	216	7.7
Feb. 21-29	138,400	--	--	--	--	10	--	94	--	--	--	--	--	136	.18	50,820	83	6	--	--	211	7.6

Mar. 1-10, 1956 ..	139,100	--	--	--	--	10	--	92	--	--	--	--	--	133	.18	49,950	80	5	--	--	204	8.0
Mar. 11-20.....	133,100	--	--	--	--	10	--	94	--	--	--	--	--	133	.18	47,800	82	5	--	--	207	7.6
Mar. 21-31.....	225,500	--	--	--	--	9.0	--	82	--	--	--	--	--	128	.17	77,930	70	3	--	--	179	7.4
Apr. 1-10.....	236,700	18	04	19	6.0	7.2	2.1	83	14	3.8	.2	1.3	.06	116	.16	74,130	72	4	17	.4	176	7.3
Apr. 11-20.....	293,600	--	--	--	--	6.2	--	74	--	--	--	--	--	106	.14	84,030	65	4	--	--	156	7.4
Apr. 21-30.....	489,600	--	--	--	--	4.2	--	68	--	--	--	--	--	90	.12	119,000	61	5	--	--	137	7.4
May 1-10	442,000	--	--	--	--	4.8	--	67	--	--	--	--	--	92	.13	109,800	58	3	--	--	136	7.3
May 11-20.....	471,900	--	--	--	--	4.5	--	61	--	--	--	--	--	84	.11	107,000	52	2	--	--	126	7.3
May 21-31.....	662,800	--	--	--	--	3.8	--	52	--	--	--	--	--	74	.10	132,400	45	2	--	--	108	7.3
June 1-10	783,700	--	--	--	--	3.8	--	62	--	--	--	--	--	79	.11	167,200	55	4	--	--	123	7.0
June 11-20	642,300	--	--	--	--	4.0	--	71	--	--	--	--	--	84	.11	145,700	63	5	--	--	141	7.2
June 21-30	491,400	--	--	--	--	3.9	--	71	--	--	--	--	--	85	.12	112,800	65	7	--	--	142	7.3
July 1-10	358,600	11	.02	18	4.2	4.1	1.5	71	11	1.5	.2	1.2	.06	87	.12	84,240	62	4	12	.2	143	6.8
July 11-20.....	305,200	--	--	--	--	4.1	--	77	--	--	--	--	--	92	.13	75,810	70	7	--	--	153	7.3
July 21-31.....	259,000	--	--	--	--	4.7	--	77	--	--	--	--	--	93	.13	65,030	70	7	--	--	156	7.3
Aug. 1-31.....	158,700	--	--	--	--	6.9	--	85	--	--	--	--	--	102	.14	43,710	75	5	--	--	174	7.4
Sept. 1-30.....	115,400	--	--	--	--	9.8	--	94	--	--	--	--	--	117	.16	36,450	83	6	--	--	201	7.6
Weighted average	243,400	--	--	--	--	6.2	--	76	--	--	--	--	--	100	0.14	65,720	66	4	--	--	159	--

COLUMBIA RIVER MAIN STEM--Continued

COLUMBIA RIVER AT MARYHILL FERRY NEAR RUFUS, OREG.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 8:30 a. m./

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

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 1956.
EXTREMES, 1955-56--Water temperatures: Maximum, 55°F July 20, 21, Aug. 14; minimum, freezing point Feb. 20.
EXTREMES, 1950-56.--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 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	43	38	38			--	--	33	33	37	36	38	36	44	39	46	43	47	45	51	49	52	49
2	46	44	38	36			--	--	33	33	37	37	38	36	44	40	46	42	47	46	49	46	50	47
3	46	46	40	38			--	--	33	33	37	34	39	36	42	40	45	42	49	45	50	47	49	46
4	46	45	41	40			--	--	33	33	34	33	40	38	42	40	43	41	49	46	51	48	49	45
5	45	43	40	39			--	--	33	33	34	34	39	36	43	40	43	41	49	48	53	49	49	45
6	44	41	40	39			36	36	35	33	35	33	39	37	41	39	43	42	50	47	52	49	49	46
7	43	42	41	40			36	36	35	35	36	35	41	39	41	39	43	42	51	47	53	50	51	48
8	43	43	42	41			36	35	35	35	37	36	41	38	42	39	43	42	52	48	53	50	51	48
9	43	43	44	42			35	34	35	35	37	35	41	38	42	39	--	--	51	49	54	50	51	48
10	43	43	44	40			36	35	35	35	35	33	41	39	41	40	45	43	52	49	54	50	50	49
11	43	42	40	35			37	36	37	35	34	33	41	39	41	38	44	41	52	50	53	50	50	49
12	44	42	35	34			37	37	37	36	35	33	41	38	43	39	45	42	53	49	53	50	50	47
13	44	44	34	34			37	37	36	35	38	35	41	38	44	39	45	44	53	50	54	50	49	47
14	45	44	--	--			37	33	35	33	37	35	41	38	45	41	45	44	52	49	55	51	50	48
15	45	45	--	--			33	33	33	33	37	35	41	38	46	41	45	44	52	48	54	51	50	48
16	45	44	--	--			36	33	33	33	38	36	41	38	46	41	46	43	52	48	52	49	50	48
17	44	44	--	--			36	36	34	33	38	36	41	38	46	41	46	43	53	49	52	48	50	48
18	45	44	--	--			36	36	34	33	39	36	41	38	43	41	45	43	54	50	52	48	50	49
19	46	45	--	--			36	35	34	34	39	37	41	38	45	41	45	44	54	51	53	49	51	50
20	46	45	--	--			36	35	34	32	38	37	41	38	44	40	44	42	55	52	53	49	51	48
21	45	44	--	--			36	36	34	33	38	37	41	38	44	40	--	--	55	50	53	50	48	46
22	44	43	--	--			36	36	35	34	38	38	42	39	44	40	--	--	54	50	53	50	47	44
23	43	42	--	--			36	36	35	35	39	38	42	38	43	41	46	44	54	50	54	51	48	45
24	45	42	--	--			36	35	35	34	39	38	42	39	44	42	46	43	54	50	53	50	49	47
25	46	44	--	--			35	33	35	34	39	39	42	39	45	41	46	44	54	51	53	49	49	47
26	44	42	--	--			33	33	35	35	39	37	42	40	44	42	49	45	53	49	49	48	49	48
27	42	41	--	--			33	33	35	35	39	36	42	39	45	41	50	46	52	49	52	48	49	47
28	42	41	--	--			33	33	36	35	39	38	42	40	46	42	50	47	51	47	51	47	47	45
29	42	42	--	--			33	33	37	36	40	39	43	38	46	42	48	45	52	48	51	49	48	45
30	42	39	--	--			33	33	--	--	40	39	43	39	46	43	48	45	52	48	50	47	48	46
31	39	38	--	--			33	33	--	--	39	37	--	--	46	43	--	--	52	49	51	48	--	--
Average	44	43	--	--			35	35	35	34	37	36	41	38	44	40	46	43	52	49	52	49	49	47

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 66°F July 26; minimum, freezing point Jan. 31, Feb. 1-4.
EXTREMES, 1950-56.--Water temperatures: Maximum, 66°F July 17, 23, 1951, Aug. 7, 8, 1955, July 26, 1956; minimum, freezing point Jan. 31, Feb. 1-4, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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

MIDDLE FORK WILLAMETTE RIVER BELOW NORTH FORK, NEAR OAKRIDGE, OREG.

LOCATION.--Temperature recorder at gaging station, half a mile below 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 68°F July 25; minimum, 35°F Nov. 15-17, Feb. 1, 16, 17.
EXTREMES, 1950-56.--Water temperatures: Maximum, 68°F July 25, 1956; minimum, 35°F on several days during winter months.
REMARKS.--Record of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	54	50	44	42	42	41	40	38	37	35	40	40	43	41	48	43	52	48	59	53	63	59	63	58
2	54	51	45	43	41	41	40	40	37	36	41	40	43	41	47	44	54	48	59	55	60	57	60	57
3	52	51	45	44	41	41	40	40	39	37	41	41	45	41	46	45	52	48	58	55	63	57	59	55
4	51	50	46	45	41	39	41	40	39	38	41	39	45	42	46	45	48	46	59	54	65	59	60	55
5	53	50	46	45	39	39	41	41	39	39	39	38	45	42	46	43	47	46	58	55	65	61	61	55
6	52	49	46	45	41	39	41	38	40	39	40	38	45	41	48	44	50	46	61	54	65	61	61	57
7	51	50	45	44	41	41	39	38	40	39	40	39	45	43	46	45	54	48	63	56	65	60	61	57
8	51	50	45	44	41	41	40	39	40	39	41	39	46	43	45	44	55	49	64	57	65	60	61	57
9	52	51	46	45	41	41	40	39	39	37	41	40	47	43	48	43	56	50	64	59	65	60	59	57
10	52	49	47	46	41	41	41	39	39	37	41	40	46	43	46	44	54	50	63	59	63	59	57	55
11	49	47	46	41	44	41	41	41	40	39	40	38	45	43	45	43	54	48	62	59	63	58	59	55
12	52	48	41	39	44	43	41	41	41	40	41	38	45	42	45	43	56	49	63	57	65	60	59	55
13	53	51	39	38	43	42	41	41	41	40	41	40	47	43	49	43	53	50	63	58	65	61	59	55
14	54	51	38	37	42	42	41	41	40	39	43	40	45	44	50	45	51	50	63	57	65	60	60	56
15	53	52	37	35	42	42	42	41	39	37	43	40	45	44	52	46	51	49	63	57	64	60	60	56
16	54	52	35	35	43	42	42	42	37	35	43	40	46	42	52	46	51	49	63	57	65	60	60	56
17	53	51	37	35	43	43	42	41	36	35	43	40	46	41	51	46	55	48	64	59	64	60	61	57
18	52	52	38	37	43	43	42	42	38	36	43	40	47	42	49	46	53	50	65	60	64	60	60	57
19	53	51	40	38	44	43	42	42	38	38	43	41	48	43	51	45	51	50	65	61	65	60	59	57
20	53	51	41	40	44	44	43	42	38	38	43	41	47	42	51	46	53	49	67	61	66	64	57	56
21	52	50	41	41	44	44	43	43	38	38	42	42	46	42	51	46	55	48	66	62	65	62	57	55
22	53	50	41	41	44	42	43	43	39	38	43	41	47	43	52	46	56	50	66	61	66	61	56	53
23	51	49	41	40	42	42	43	42	39	39	45	41	47	42	50	47	56	52	67	61	66	62	56	53
24	51	48	42	41	42	42	42	41	39	39	45	41	46	42	48	46	56	50	67	62	65	62	58	53
25	50	49	42	42	42	42	41	40	39	39	44	42	45	43	52	46	56	50	68	63	69	60	58	54
26	49	48	42	42	42	42	41	40	39	39	43	40	46	43	51	47	59	52	67	63	60	58	58	55
27	48	47	42	42	42	42	41	41	40	39	43	40	44	43	47	46	61	53	66	62	61	57	58	56
28	48	47	42	41	42	41	41	39	40	39	45	40	45	42	52	46	61	55	65	61	62	58	56	54
29	50	48	42	41	41	39	39	39	40	40	46	42	47	42	55	48	58	53	65	60	63	58	56	53
30	50	46	42	42	39	38	39	38	--	--	45	43	50	42	53	50	57	52	65	60	65	59	57	55
31	46	43	--	--	38	38	38	37	--	--	43	41	--	--	53	48	--	--	65	60	63	58	--	--
Average	51	49	42	41	42	41	41	40	39	38	42	40	46	42	49	45	54	50	64	59	64	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 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 62°F Aug. 8, 9, 12, 13; minimum, 39°F Feb. 16-18.
EXTREMES, August 1955 to September 1956.--Water temperatures: Maximum 62°F Aug. 8, 9, 12, 13, 1956; minimum, 39°F Feb. 16-18, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	58	57	55	55	45	45	43	43	41	41	42	41	45	44	50	48	50	49	56	55	58	55	61	57
2	58	57	55	55	45	45	43	43	41	40	42	41	45	44	48	48	51	49	55	55	58	56	61	56
3	58	57	55	54	45	44	43	43	41	40	41	41	45	44	48	47	52	50	55	55	59	56	61	56
4	58	57	54	54	44	44	43	43	41	40	41	41	45	44	48	47	52	51	57	54	59	56	61	56
5	58	57	54	54	44	44	43	43	41	41	41	41	47	44	48	47	51	51	55	54	60	56	60	57
6	57	57	54	54	44	44	43	43	41	41	41	41	46	44	51	47	52	50	57	54	60	56	61	57
7	57	57	54	53	44	44	43	43	41	40	41	41	46	45	48	47	52	50	57	54	60	56	60	58
8	57	57	54	53	44	44	43	42	41	40	41	41	47	45	48	47	53	50	57	54	62	56	60	58
9	57	57	53	53	44	44	42	42	41	40	41	41	48	45	50	48	54	51	57	54	62	57	60	58
10	57	57	53	53	44	44	42	41	41	40	43	41	47	46	50	50	52	51	56	55	60	57	59	58
11	57	57	53	51	44	44	41	41	41	40	43	41	46	45	50	49	52	51	55	55	61	57	60	57
12	57	57	51	50	44	43	41	41	41	40	43	41	45	44	50	50	52	51	57	55	62	57	59	57
13	57	57	50	50	43	43	41	41	41	40	42	41	45	44	51	50	52	51	55	54	62	57	59	58
14	57	57	50	49	43	43	41	41	41	40	45	41	45	44	52	50	51	50	57	54	61	56	59	58
15	57	57	49	49	43	43	42	41	41	40	45	41	44	44	53	50	51	50	58	54	60	56	59	57
16	57	57	49	47	43	43	42	41	40	39	45	42	45	44	53	50	51	50	60	55	59	56	58	57
17	57	57	47	47	43	43	42	41	40	39	45	42	46	44	53	51	53	51	61	56	60	56	59	57
18	57	57	47	47	43	43	42	42	41	39	46	43	46	44	52	50	53	52	61	56	60	56	58	57
19	57	57	47	47	43	43	42	42	41	40	44	43	48	45	52	51	52	52	61	56	60	56	58	57
20	57	57	47	47	43	43	42	42	41	40	44	44	48	46	52	51	53	52	60	57	61	56	58	57
21	57	57	47	47	--	43	42	42	41	41	44	43	48	46	53	52	53	52	60	57	61	56	58	57
22	57	57	47	46	--	44	43	42	41	41	43	43	47	46	53	52	54	52	60	57	61	56	58	57
23	57	57	46	46	44	44	43	43	42	40	44	43	48	46	53	52	54	52	60	56	60	56	58	57
24	57	57	46	46	44	44	43	43	41	41	44	43	48	46	53	52	54	53	61	57	59	57	59	57
25	57	57	46	46	44	44	43	43	41	41	44	44	47	46	53	52	56	54	60	56	58	56	59	57
26	57	57	46	45	44	44	43	43	41	41	44	44	48	46	52	51	57	53	59	56	59	56	58	57
27	57	56	46	45	44	44	43	43	41	41	44	43	47	47	52	51	56	54	59	55	60	57	58	58
28	56	56	46	45	44	44	43	43	41	41	45	44	48	46	52	51	56	54	59	55	60	56	58	58
29	57	56	45	45	44	43	43	42	41	41	45	44	49	46	52	51	57	54	59	55	60	56	59	58
30	56	56	45	45	43	43	42	41	--	--	45	45	49	47	51	49	56	55	59	55	61	56	59	58
31	56	55	--	--	43	43	42	41	--	--	45	44	--	--	50	49	--	--	59	55	61	56	--	--
Average	57	57	50	49	44	44	42	42	41	40	43	42	47	45	51	50	53	52	58	55	60	56	59	51

FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OREG.

LOCATION.--Temperature recorder at gaging station, 10 feet upstream from road 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 77°F July 20; minimum, 34°F Nov. 14-17.
EXTREMES, 1950-56.--Water temperatures: Maximum, 77°F July 20, 1956; minimum, 34°F Jan. 30, 31, 1951, Nov. 14-17, 1955.
REMARKS.--Records of discharge for water year October 1955 to September 1956 are given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	55	52	45	45	46	45	--	--	37	36	42	42	44	43	55	49	60	56	63	55	67	63	69	64
2	55	53	45	45	45	45	--	--	37	36	43	42	44	43	53	50	63	56	62	58	63	61	66	61
3	54	53	45	44	45	45	--	--	38	37	43	42	45	43	50	50	62	57	62	58	66	59	65	60
4	53	52	46	45	45	43	--	--	39	38	42	41	45	44	50	49	57	52	66	58	68	63	65	59
5	52	50	47	46	43	43	--	--	40	39	42	40	45	43	50	48	52	50	66	62	70	65	66	60
6	51	49	48	47	44	43	44	39	41	40	41	40	45	42	52	50	54	51	67	61	71	65	66	62
7	50	49	48	47	44	44	41	39	41	41	41	41	45	45	52	50	58	53	69	62	72	65	67	63
8	50	50	47	47	45	44	42	41	41	40	41	41	47	44	50	49	60	55	72	64	72	66	67	62
9	52	50	48	47	46	45	42	42	40	39	41	41	47	44	50	49	62	58	73	67	72	66	65	63
10	52	50	50	48	46	46	42	42	39	39	41	41	47	45	50	48	61	57	71	66	69	65	63	61
11	50	48	49	43	47	46	43	42	41	39	41	39	46	44	48	47	60	54	67	63	68	63	62	59
12	50	47	43	41	47	47	43	43	43	41	41	39	46	44	49	47	61	56	70	62	71	64	62	58
13	51	50	41	40	47	46	43	43	43	42	42	41	49	45	51	48	59	56	69	65	71	66	63	58
14	53	51	--	--	46	45	44	43	42	41	43	41	49	47	55	50	57	55	69	63	71	65	63	59
15	53	52	--	--	45	45	45	44	41	38	43	40	47	46	57	52	55	53	71	64	71	66	64	59
16	55	53	--	--	46	45	45	45	38	36	43	41	48	46	58	54	54	53	72	65	69	66	64	59
17	54	52	36	34	46	46	45	45	37	37	43	41	49	45	59	55	57	51	73	66	70	63	64	59
18	53	52	40	35	46	46	45	45	40	37	44	42	50	46	60	55	56	54	74	67	71	65	63	60
19	53	52	43	40	47	46	45	45	40	40	44	43	51	48	59	55	54	52	74	70	72	66	63	61
20	52	50	45	43	47	47	45	45	40	40	44	43	51	48	60	56	53	51	77	71	73	67	62	58
21	52	50	45	45	48	47	45	45	42	40	43	43	51	49	60	56	55	50	76	70	74	69	60	56
22	51	50	45	44	48	46	45	45	42	42	43	43	52	49	62	56	57	52	76	70	75	69	59	55
23	51	49	44	44	46	45	45	45	42	42	45	43	51	48	60	56	57	55	76	70	73	69	59	55
24	50	49	45	44	45	45	45	44	42	41	45	43	51	48	56	54	58	53	76	71	71	69	61	56
25	50	50	45	45	45	45	44	43	41	41	45	44	50	49	60	52	60	54	74	70	69	65	62	57
26	50	49	46	45	45	45	43	43	41	41	44	42	52	49	59	54	63	55	73	67	65	63	61	60
27	49	48	46	46	45	44	43	42	42	41	44	42	51	49	54	52	66	58	72	66	65	62	61	59
28	49	48	46	46	44	43	42	40	42	42	45	42	51	48	57	51	66	60	71	65	67	62	59	57
29	50	49	46	46	43	41	40	40	42	42	46	44	53	49	63	54	64	58	70	64	67	63	60	55
30	50	47	46	46	--	--	40	38	--	--	46	44	54	48	62	59	62	57	70	63	67	61	62	59
31	47	45	--	--	--	--	38	37	--	--	44	43	--	--	59	56	--	--	69	63	68	62	--	--
Average	52	50	45	44	46	44	43	42	40	40	43	42	49	46	55	52	59	54	71	65	70	65	63	59

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 67°F July 18, 20-24, 27-29, Aug. 8, 9, 12-14; minimum, 36°F Feb. 1-3, 16.
EXTREMES, 1953-56.--Water temperatures: Maximum, 67°F July 18, 20-24, 27-29, Aug. 8, 9, 12-14, 1956; minimum, 36°F Feb. 1-3, 16, 1956.
REMARKS.--Record of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	57	50	48	45	45	42	42	37	36	41	41	44	43	54	50	53	51	60	55	62	60	64	59
2	59	56	50	50	45	44	42	42	36	36	42	41	44	43	51	50	53	51	58	57	63	60	64	58
3	56	55	50	50	44	43	42	42	38	36	42	41	45	43	50	50	53	52	59	58	65	60	64	58
4	56	56	50	50	43	43	43	42	38	37	41	41	45	44	50	50	52	51	62	57	65	61	64	58
5	56	53	50	50	43	43	43	43	40	38	41	39	46	43	52	49	--	50	60	59	66	61	64	59
6	56	54	51	50	43	43	43	41	39	38	41	39	45	43	53	50	--	--	62	58	66	61	64	60
7	55	55	51	51	43	43	41	41	40	39	40	40	46	45	52	50	--	--	63	58	66	60	63	60
8	55	55	51	51	43	43	41	41	40	39	40	40	49	44	50	49	--	--	64	58	67	61	63	59
9	55	55	51	51	43	43	41	41	39	38	40	40	48	45	50	48	--	--	64	59	67	61	62	59
10	55	53	51	51	43	43	41	41	39	38	41	40	47	46	50	49	--	--	62	59	65	61	60	59
11	53	53	51	48	46	43	41	41	40	39	42	38	46	45	49	48	55	--	61	60	66	61	62	59
12	55	53	48	47	46	46	41	41	41	40	42	38	46	45	49	48	56	52	64	59	67	61	61	58
13	56	55	47	46	46	44	41	41	41	41	42	41	48	45	51	49	53	52	61	60	67	62	61	58
14	57	56	46	45	44	44	43	41	41	40	44	41	48	46	53	50	53	52	64	59	67	61	61	59
15	57	57	45	44	44	43	44	43	40	37	44	40	46	46	56	51	52	51	65	58	66	61	62	58
16	57	57	44	43	44	43	44	42	38	36	44	41	48	46	57	52	53	51	65	59	64	61	61	58
17	57	57	43	43	44	44	42	42	38	38	43	41	48	46	57	53	55	51	66	60	66	60	61	59
18	57	57	43	42	44	44	42	42	40	38	44	41	50	47	55	52	54	53	67	60	66	60	61	59
19	57	56	43	42	44	44	42	42	40	39	44	43	52	48	54	53	53	53	66	62	65	60	60	59
20	57	56	43	43	45	44	42	42	39	39	43	43	52	50	55	53	54	52	67	62	66	60	59	59
21	56	56	44	43	47	45	42	42	41	39	43	43	51	50	55	53	56	52	67	62	65	60	60	58
22	56	56	44	44	47	46	43	42	41	41	43	43	51	50	55	53	57	53	67	62	66	60	61	58
23	56	55	44	44	46	44	43	42	41	41	44	43	51	49	55	53	57	54	67	62	65	60	61	58
24	57	55	44	44	44	44	42	42	41	41	44	43	51	48	53	53	58	54	67	61	63	61	61	58
25	56	55	44	44	44	44	42	41	41	40	44	44	50	49	55	52	60	55	66	61	62	60	62	58
26	55	55	45	44	44	44	41	41	41	40	44	43	52	49	52	51	62	55	66	60	62	59	60	59
27	55	54	45	45	44	44	41	41	41	40	44	42	50	49	51	50	62	57	67	61	64	60	61	59
28	54	54	45	45	44	43	41	41	41	41	45	43	52	48	53	51	62	58	67	60	64	59	60	59
29	54	54	45	45	43	42	41	41	41	41	45	44	52	49	54	50	61	58	67	60	64	59	61	59
30	54	49	45	45	42	42	42	39	--	--	45	44	52	50	56	52	58	57	66	60	64	59	61	59
31	50	48	--	--	42	42	39	37	--	--	44	43	--	--	54	51	--	--	65	59	65	59	--	--
Average	56	55	47	46	44	44	42	41	40	39	43	41	48	46	53	51	--	--	64	60	65	60	62	59

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, and 5 miles southeast of town of Blue River, Lane County.
DRAINAGE AREA.--211 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 63°F July 20, 21, 23-25; minimum, 34°F sometime during period Feb. 16 to Mar. 23.
EXTREMES, July 1955 to September 1956.--Water temperatures: Maximum, 63°F July 20, 21, 23-25, 1956; minimum, 34°F sometime during period Feb. 16 to Mar. 23, 1956.
EXTREMES.--Recorder stopped from Feb. 16 to Mar. 23; range 34°F to 42°F during this period. Records of discharge for water year October 1955 to September 1956 are given in WSP 1449.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	48	46	43	42	43	43	41	40	36	35	--	--	42	41	45	42	46	45	56	49	55	53	60	54
2	49	47	44	43	43	43	41	41	36	35	--	--	42	42	44	42	48	45	57	51	54	51	58	52
3	48	46	43	43	43	42	41	41	38	36	--	--	43	41	43	43	47	45	55	51	58	51	57	51
4	47	47	44	43	42	41	41	41	39	38	--	--	43	42	43	43	45	44	56	51	59	52	57	51
5	48	47	45	44	41	40	41	41	40	39	--	--	43	41	43	42	44	43	54	52	58	53	57	51
6	47	45	45	45	41	41	41	39	40	39	--	--	43	41	45	43	46	44	58	51	61	54	55	53
7	47	46	45	44	41	41	40	39	40	39	--	--	43	42	43	43	49	45	60	52	61	54	56	52
8	46	46	45	45	42	41	41	40	39	38	--	--	45	42	43	43	51	46	61	53	61	54	55	51
9	48	46	46	45	42	41	41	40	39	37	--	--	45	42	45	43	51	47	62	54	61	54	54	51
10	48	46	48	46	42	42	42	41	39	37	--	--	44	42	43	43	50	47	61	55	57	53	53	51
11	46	45	46	41	43	42	43	42	40	39	--	--	43	41	43	42	49	45	58	55	60	52	54	51
12	48	45	41	40	43	43	42	42	41	40	--	--	43	41	43	42	51	47	61	54	60	53	54	49
13	48	47	41	40	43	42	42	42	41	39	--	--	45	42	45	42	49	47	58	55	61	54	54	49
14	49	48	41	39	42	42	42	42	39	37	--	--	45	43	47	43	48	47	60	54	60	54	55	50
15	49	48	39	36	42	42	42	41	37	36	--	--	43	42	47	43	47	47	60	55	60	54	55	50
16	49	47	37	37	42	42	42	42	--	--	--	--	44	42	47	43	47	47	61	53	60	54	55	50
17	50	48	39	37	42	42	42	42	--	--	--	--	44	40	46	43	51	47	62	54	59	53	55	51
18	50	49	40	39	42	42	42	42	--	--	--	--	44	41	45	43	49	48	62	54	60	53	55	51
19	50	49	42	40	43	42	43	42	--	--	--	--	44	42	46	43	49	48	61	55	61	54	54	52
20	49	47	42	42	43	43	43	43	--	--	--	--	43	42	46	43	49	47	63	56	62	55	53	51
21	50	48	42	42	43	43	43	43	--	--	--	--	43	42	47	43	51	47	63	55	61	55	53	50
22	49	48	42	42	43	43	43	42	--	--	--	--	43	42	47	44	52	48	62	55	61	55	52	48
23	48	46	42	42	43	43	43	42	--	--	--	--	44	42	45	44	53	49	63	55	61	55	52	48
24	48	46	43	42	43	43	42	41	--	--	43	41	43	41	45	44	52	48	63	56	61	56	53	49
25	48	47	43	43	43	43	41	40	--	--	42	41	42	42	47	43	53	47	63	56	58	54	53	49
26	48	47	43	43	43	43	40	40	--	--	41	40	44	42	46	44	55	49	61	54	54	53	53	50
27	47	46	43	43	43	42	40	39	--	--	42	40	43	42	44	43	56	50	61	54	56	53	53	51
28	47	46	43	43	42	41	40	37	--	--	43	41	42	42	47	43	57	51	60	53	60	54	50	48
29	48	47	43	43	41	39	38	37	--	--	43	42	44	42	49	45	55	50	59	52	58	54	51	47
30	48	45	43	43	40	39	38	37	--	--	43	42	45	42	47	45	55	49	60	52	59	54	53	49
31	45	42	--	--	40	39	37	35	--	--	42	41	--	--	45	45	--	--	59	52	59	53	--	--
Average	48	47	43	42	42	42	41	41	--	--	--	--	43	42	45	43	50	47	60	53	59	54	54	50

WILLAMETTE RIVER BASIN--Continued

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 60°F July 20, 21, 23, 24; minimum, freezing point Feb. 16, 17.
EXTREMES, 1951-56.--Water temperatures: Maximum, 60°F July 20, 21, 23, 24, 1956; minimum, freezing point Dec. 1, 1954, Mar. 5, 1955, Feb. 16, 17, 1956.
REMARKS.--Recorder stopped Dec. 23 to Jan. 9, Mar. 17 to May 1; temperature ranges during these periods, 37°F to 40°F and 36°F to 43°F respectively.
Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	47	45	41	40	41	39	--	--	34	33	37	37			--	--	44	43	53	47	54	51	55	51
2	47	46	41	41	39	39	--	--	35	34	37	36			43	40	47	42	54	49	51	49	53	49
3	47	45	42	41	40	39	--	--	36	35	37	35			42	41	45	43	53	49	53	49	52	48
4	46	45	43	42	40	38	--	--	37	36	35	33			42	41	43	42	54	49	56	50	52	48
5	46	45	43	42	38	37	--	--	38	37	35	34			43	41	44	41	52	50	56	51	53	48
6	45	43	44	43	39	38	--	--	38	38	36	34			44	41	44	43	55	49	57	51	53	49
7	45	44	44	42	39	39	--	--	38	38	36	36			42	41	47	44	56	50	57	51	53	50
8	45	45	44	43	39	39	--	--	38	37	37	36			41	41	48	44	57	51	57	51	53	49
9	46	45	44	44	40	39	--	--	37	36	37	37			44	41	48	45	57	52	57	51	52	49
10	47	46	45	43	40	40	39	38	37	36	38	36			42	41	48	46	58	53	55	50	52	50
11	46	45	43	38	40	39	40	39	38	37	37	34			41	40	48	44	55	52	57	51	52	50
12	47	45	38	38	40	40	40	39	38	37	37	34			43	41	50	44	58	51	57	51	51	48
13	48	46	38	38	40	39	39	39	38	37	38	35			46	41	48	45	56	53	58	51	52	48
14	48	47	38	35	39	38	39	39	37	35	40	38			47	41	47	46	57	51	57	52	53	49
15	48	48	35	34	39	38	39	39	35	33	39	37			47	41	46	44	57	50	57	53	53	49
16	48	47	35	34	40	39	39	39	33	32	40	37			47	41	46	45	57	51	57	51	53	49
17	48	47	36	35	40	40	39	39	34	32	--	--			46	41	50	45	58	51	57	51	53	50
18	48	48	37	35	40	38	39	39	36	34	--	--			45	41	48	46	59	52	57	51	53	50
19	48	48	39	37	39	38	39	39	36	36	--	--			46	41	47	46	58	53	58	53	53	51
20	48	47	40	39	40	39	39	39	36	34	--	--			45	41	46	45	60	54	59	53	53	50
21	47	47	40	40	40	39	39	39	35	34	--	--			46	41	50	44	60	53	58	53	50	49
22	47	47	40	40	39	39	39	39	36	35	--	--			47	41	51	46	59	53	59	54	49	46
23	47	44	40	40	--	--	39	38	37	35	--	--			43	42	51	47	60	53	59	54	49	46
24	46	45	40	40	--	--	38	38	36	35	--	--			43	42	51	46	60	54	58	54	51	48
25	46	46	40	40	--	--	38	37	36	35	--	--			47	41	52	46	59	53	57	54	51	49
26	46	44	40	40	--	--	38	37	36	36	--	--			44	42	53	47	58	52	54	51	51	49
27	44	43	40	40	--	--	38	37	37	36	--	--			42	41	55	49	58	52	53	51	51	50
28	45	43	40	40	--	--	37	36	38	37	--	--			47	41	54	49	57	51	55	51	50	47
29	46	45	41	40	--	--	37	36	38	36	--	--			48	42	53	47	57	51	54	50	49	47
30	46	42	41	41	--	--	37	35	--	--	--	--			46	43	52	47	57	50	54	50	50	49
31	42	40	--	--	--	--	35	34	--	--	--	--			44	42	--	--	56	50	55	50	--	--
Average	46	45	40	39	--	--	--	--	36	35	--	--			44	41	48	45	57	51	56	51	52	49

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 58°F July 23, 24; minimum, 33°F Feb. 1, 2, 17.
EXTREMES, 1950-56.--Water temperatures: Maximum 58°F July 17, 1951, Aug. 4, 13, 14, 1952, July 23, 24, 1956; minimum, 33°F Mar. 3-7, 1951, Feb. 1, 2, 17, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	47	46	41	41	40	39	38	37	34	33	37	37	40	40	44	41	45	44	51	46	54	51	54	52
2	47	46	41	41	39	39	38	38	34	33	37	37	40	40	43	41	47	44	51	48	51	50	53	50
3	47	45	41	41	39	39	39	38	35	34	37	37	41	40	42	41	46	44	51	48	52	50	52	48
4	45	45	41	41	39	39	39	39	36	35	37	37	40	40	41	41	44	44	52	48	54	50	52	49
5	46	45	41	41	39	37	39	39	37	36	37	37	40	40	43	41	44	43	50	49	54	50	52	50
6	46	45	42	41	38	38	39	38	37	37	38	37	40	40	43	41	43	43	52	48	55	50	52	50
7	45	45	42	42	38	38	38	38	37	37	38	38	40	40	42	41	47	43	53	48	54	50	53	51
8	45	45	43	42	38	38	38	38	37	36	38	38	41	40	42	41	47	45	54	49	54	51	53	50
9	46	45	43	42	39	38	38	38	36	36	38	38	41	40	44	41	47	46	54	50	54	51	52	50
10	46	45	43	43	39	38	37	37	36	36	38	38	41	40	42	42	47	44	55	50	54	51	52	51
11	45	45	43	39	39	38	38	37	37	36	38	37	40	40	42	41	47	44	52	50	55	52	53	51
12	45	45	39	39	39	38	38	38	37	37	37	37	41	40	42	41	49	44	55	50	56	52	52	49
13	46	45	39	39	39	38	38	38	37	37	38	37	41	40	44	41	47	45	54	51	56	54	52	49
14	46	45	39	37	38	37	38	38	37	36	38	38	41	40	45	41	46	46	54	50	55	53	52	50
15	46	46	37	37	38	37	38	38	36	35	38	38	40	40	46	42	46	45	54	50	55	53	53	50
16	46	46	37	37	38	38	38	38	35	34	38	38	41	40	46	42	45	45	55	50	55	53	53	50
17	46	46	37	37	38	38	38	38	34	33	38	38	41	40	45	42	48	45	55	50	55	52	53	51
18	45	45	37	37	38	37	38	38	36	34	39	38	42	40	44	42	47	46	56	51	55	52	53	51
19	46	45	38	37	38	37	38	38	36	36	39	39	42	40	45	42	46	46	56	52	56	53	53	52
20	46	46	39	38	38	38	38	38	36	34	39	39	41	40	45	42	46	45	57	53	57	54	53	51
21	46	46	39	39	38	38	38	38	35	34	39	39	41	40	46	42	48	44	57	52	57	54	51	49
22	46	46	39	39	39	38	38	38	36	36	39	39	41	40	46	42	49	46	57	52	57	54	49	46
23	46	44	39	39	39	39	38	38	37	36	39	39	42	40	44	43	50	47	58	52	57	55	49	46
24	44	44	39	39	39	39	38	37	37	36	39	39	42	40	43	43	49	46	58	53	56	55	50	48
25	45	44	39	39	39	39	37	37	37	37	39	39	41	40	47	43	50	46	57	53	55	54	51	49
26	45	44	40	39	39	39	37	36	37	37	39	39	42	40	45	44	51	46	56	52	54	52	50	49
27	44	44	40	39	39	39	36	36	37	37	39	39	41	41	44	43	52	48	56	52	53	52	51	49
28	44	44	39	39	39	39	36	36	37	37	40	39	41	40	46	43	52	48	55	51	54	52	49	48
29	44	44	40	39	39	38	36	36	37	37	40	40	42	40	48	44	50	46	55	51	54	51	50	48
30	44	41	40	39	38	38	36	34	--	--	40	40	43	40	46	44	50	46	55	50	54	51	51	49
31	41	41	--	--	38	37	34	34	--	--	40	40	--	--	44	43	--	--	54	50	54	51	--	--
Average	45	45	40	39	39	38	38	37	36	36	38	38	41	40	44	42	47	45	54	50	55	52	52	50

WILLAMETTE RIVER BASIN--Continued

NORTH SANTIAM RIVER AT NIAGARA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.8 mile downstream from Big Cliff Dam in Linn County, 2.1 miles east of Niagara, Marion County.
DRAINAGE AREA.--453 square miles.
RECORDS AVAILABLE.--Water temperatures: January 1953 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 53°F Oct. 19-27, Sept. 30; minimum, 36°F Feb. 1-22.
EXTREMES, 1953-56.--Water temperatures: Maximum, 54°F Oct. 8-18, 20, 1954; minimum, 36°F Feb. 1-22, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl alcohol-actuated 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	51	51	52	51	44	44	41	40	37	36	37	37	39	39	46	44	46	44	48	47	48	47	48	48
2	52	51	52	51	44	44	41	40	36	36	37	37	39	39	46	46	48	45	48	47	47	47	49	48
3	52	52	52	50	44	44	40	40	36	36	37	37	39	39	46	46	48	44	48	46	47	47	49	49
4	52	52	51	50	44	44	40	40	36	36	37	37	39	39	48	46	46	44	47	46	47	47	49	49
5	52	52	50	50	44	44	40	40	36	36	37	37	40	40	48	48	44	43	48	47	48	47	49	49
6	52	52	50	50	44	44	40	40	36	36	37	37	40	40	48	46	43	43	48	47	48	48	49	49
7	52	52	50	50	44	44	40	40	36	36	37	37	40	40	46	45	43	43	48	47	48	48	49	49
8	52	52	50	49	44	44	40	40	36	36	37	37	40	40	45	44	43	43	48	47	48	48	50	49
9	52	52	50	49	44	44	40	40	36	36	37	37	41	40	46	44	43	43	48	47	48	48	50	50
10	52	52	50	50	44	43	40	40	36	36	37	37	41	41	45	43	43	43	49	47	48	48	50	49
11	52	50	50	49	43	43	40	39	36	36	37	37	41	41	43	43	44	43	48	47	48	48	49	49
12	50	50	49	48	43	43	39	39	36	36	37	37	41	41	44	43	44	44	47	46	49	48	49	49
13	51	50	49	48	43	42	39	39	36	36	37	37	41	41	45	44	44	44	47	46	48	48	49	49
14	51	50	49	48	42	42	39	39	36	36	37	37	41	41	47	45	44	44	47	46	48	48	49	49
15	52	51	48	48	42	42	39	39	36	36	37	37	41	41	46	45	44	44	47	47	48	48	49	49
16	52	52	48	48	42	42	39	39	36	36	38	37	41	41	47	43	46	46	48	47	48	48	49	49
17	52	52	48	47	42	42	39	39	36	36	38	38	41	41	48	46	49	46	48	46	49	48	49	49
18	52	52	47	47	42	42	39	39	36	36	38	38	41	41	50	44	50	46	48	46	49	48	50	49
19	53	52	47	46	42	42	39	39	36	36	38	38	43	41	49	47	49	46	47	46	48	48	50	50
20	53	53	46	46	42	42	39	39	36	36	38	38	43	43	47	44	49	46	47	46	49	48	50	50
21	53	53	46	45	43	42	39	39	36	36	38	38	43	42	47	44	49	46	47	46	49	49	50	50
22	53	53	45	45	43	43	39	39	37	36	38	38	42	42	49	45	48	47	48	46	49	48	51	50
23	53	53	45	45	43	42	39	39	37	37	38	38	42	42	45	44	48	46	47	46	49	48	51	51
24	53	53	45	45	43	42	39	39	37	37	38	38	43	42	45	43	48	47	47	46	49	48	51	51
25	53	53	45	45	42	42	39	39	37	37	39	38	43	43	50	43	48	46	47	46	49	49	51	51
26	53	53	45	45	42	42	39	38	37	37	39	39	43	43	47	45	47	46	48	47	49	49	52	51
27	53	52	45	45	42	42	38	38	37	37	39	39	43	43	45	43	48	46	47	47	49	48	52	52
28	52	52	45	45	42	42	38	38	37	37	39	39	43	42	47	44	48	46	48	47	48	48	52	52
29	52	52	45	44	42	41	38	38	37	37	39	39	43	42	44	44	48	47	48	48	48	48	52	52
30	52	51	44	44	41	41	38	37	--	--	39	39	44	43	47	44	48	46	48	48	48	48	53	52
31	52	51	--	--	41	41	37	37	--	--	39	39	--	--	46	44	--	--	48	48	49	48	--	--
Average	52	52	48	47	43	43	39	39	36	36	38	38	41	41	46	45	46	45	48	47	48	48	50	50

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum 74° F Aug. 21-23; minimum, 34° F Feb. 1, 2, 17.
EXTREMES, 1953-56.--Water temperatures: Maximum, 74° F Aug. 21-23, 1956; minimum, 34° F Feb. 1, 2, 17, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956
/Recorder with temperature attachment, continuous ethyl-alcohol actuated 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	55	53	44	44	45	44	40	39	35	34	40	39	43	42	47	44	50	48	60	56	65	63	68	63
2	55	54	44	44	43	42	40	39	36	34	41	39	43	43	47	44	53	49	60	58	63	61	67	61
3	54	54	45	44	43	42	40	40	37	36	41	40	45	42	45	44	52	49	61	59	63	60	65	60
4	54	52	46	45	43	42	41	40	37	36	40	39	44	43	44	44	48	48	63	59	66	62	65	59
5	52	50	46	46	42	41	41	41	38	37	40	39	44	42	45	43	48	47	63	61	67	64	65	59
6	50	49	47	46	43	42	41	39	38	38	41	39	44	42	46	44	48	47	63	59	69	66	65	60
7	50	50	47	46	43	43	40	39	39	38	41	40	44	43	46	44	52	48	66	62	69	67	66	60
8	50	50	47	46	43	43	40	40	39	38	41	40	45	43	44	44	54	51	69	64	69	67	66	60
9	50	50	48	47	43	43	40	40	38	37	41	41	45	43	46	44	54	52	69	67	69	67	65	60
10	50	48	49	48	43	43	41	40	38	37	42	40	45	43	46	45	54	51	69	66	67	65	62	60
11	49	48	48	43	44	43	41	41	38	38	41	40	44	42	45	43	54	49	66	63	67	65	61	59
12	50	48	43	42	44	43	41	41	39	38	41	39	45	42	45	43	56	52	67	62	69	65	62	59
13	51	49	42	41	44	42	41	41	39	39	41	40	46	43	47	44	55	53	67	65	69	67	64	59
14	52	51	41	39	42	42	41	41	40	38	43	41	44	43	49	45	53	52	66	63	70	67	65	59
15	53	51	39	37	43	42	42	41	38	37	43	41	44	43	50	47	52	51	67	64	69	67	65	60
16	53	52	38	38	43	43	42	41	37	35	43	41	45	43	49	46	51	51	67	66	69	67	65	60
17	52	51	40	38	43	43	42	41	35	34	43	41	45	42	49	46	55	50	68	67	70	66	65	59
18	52	52	42	40	43	43	42	42	37	35	43	41	46	43	49	46	55	53	70	68	70	66	65	60
19	52	52	44	42	44	43	42	42	38	37	43	42	46	43	49	45	53	51	71	70	71	67	65	61
20	52	51	44	44	44	43	42	42	38	37	42	42	46	43	49	46	51	50	72	71	72	68	64	61
21	52	51	44	44	44	44	42	42	38	37	42	42	45	43	50	47	54	50	73	71	74	69	61	58
22	51	50	44	44	44	44	42	42	39	38	42	42	46	43	51	47	57	53	72	71	74	70	61	56
23	51	50	44	44	44	43	42	40	39	39	42	42	46	43	51	47	56	55	72	71	74	71	60	55
24	50	49	44	44	43	43	40	40	39	38	43	42	46	42	47	46	57	54	73	71	71	69	62	56
25	50	50	45	44	43	43	40	39	39	38	43	42	45	43	50	46	58	54	73	70	69	66	63	56
26	50	49	45	45	43	42	39	39	38	38	42	41	45	44	50	47	61	55	71	69	66	63	62	58
27	49	48	45	45	42	42	39	39	39	38	43	41	45	44	47	46	63	58	70	67	63	62	63	59
28	49	48	45	45	42	42	39	37	39	39	45	42	44	43	51	46	63	59	69	67	65	62	59	56
29	49	48	45	45	42	40	37	37	39	39	44	43	46	44	54	50	62	58	69	66	65	63	59	55
30	49	47	45	45	40	39	37	36	--	--	44	43	47	44	54	51	60	56	68	66	66	63	60	56
31	47	44	--	--	39	39	36	35	--	--	43	42	--	--	51	48	--	--	68	65	67	62	--	--
Average	51	50	44	44	43	42	40	40	38	37	42	41	45	43	48	46	55	52	68	65	68	65	64	59

WILLAMETTE RIVER BASIN

WILLAMETTE RIVER AT SALEM, OREG.

LOCATION.--At bridge on Oregon Highway 22, about 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 1956.
Water temperatures: February 1951 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 58 ppm Feb. 21-29; minimum, 39 ppm Dec. 11-15, 17-21.
Hardness: Maximum, 22 ppm Feb. 1-10; minimum, 14 ppm May 21-31.
Specific conductance: Maximum daily, 70 micromhos Aug. 29; minimum daily, 38 micromhos Dec. 24.
Water temperatures: Maximum, 77°F July 20; minimum, freezing point on several days during February.
EXTREMES, 1951-56.--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, May 21-31, 1956.
Specific conductance: Maximum daily, 133 micromhos Nov. 7, 1954; minimum daily, 34 micromhos Jan. 20, 1953.
Water temperatures: Maximum, 77°F July 20, 1956; minimum, freezing point on several days during February 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1955 to September 1956 given in WSP 1448.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 20-25, 1955	10,460	15	0.05	5.4	1.5	4.0	1.2	28	2.1	2.0	0.1	0.8	0.01	52	0.07	1,470	20	0	29	0.4	60	7.0
Oct. 6-8, 15-19, 26-28	16,350	--	--	--	--	3.7	--	27	--	--	--	--	--	46	.06	2,030	17	0	--	--	55	7.0
Oct. 9-14, 29-31	30,040	--	--	--	--	3.1	--	21	--	--	--	--	--	43	.06	3,490	15	0	--	--	47	6.6
Nov. 1-9	36,340	--	--	--	--	3.0	--	24	--	--	--	--	--	44	.06	4,320	16	0	--	--	51	6.6
Nov. 10-20, 24	34,440	--	--	--	--	3.2	--	24	--	--	--	--	--	50	.07	4,650	17	0	--	--	53	6.6
Nov. 21-23, 25-30	84,860	--	--	--	--	2.8	--	22	--	--	--	--	--	48	.07	11,000	15	0	--	--	50	6.7
Dec. 1-10	77,560	--	--	--	--	2.9	--	23	--	--	--	--	--	47	.06	9,840	17	0	--	--	51	6.5
Dec. 11-15, 17-21	95,120	--	--	--	--	2.5	--	22	--	--	--	--	--	39	.05	10,020	15	0	--	--	46	6.8
Dec. 16, 22-31	150,100	--	--	--	--	2.5	--	20	--	--	--	--	--	50	.07	20,260	15	0	--	--	45	6.5
Jan. 1-18, 1956	98,130	13	.13	4.0	1.3	3.0	.6	22	2.1	2.5	.3	.7	.05	46	.06	12,190	15	0	28	.3	46	6.7
Jan. 19-31	91,620	--	--	--	--	3.0	--	24	--	--	--	--	--	42	.06	10,390	15	0	--	--	47	6.9
Feb. 1-10	24,710	--	--	--	--	4.0	--	30	--	--	--	--	--	55	.07	3,670	22	0	--	--	63	6.7
Feb. 11-20	22,980	--	--	--	--	3.6	--	26	--	--	--	--	--	52	.07	3,230	19	0	--	--	57	6.8
Feb. 21-29	52,760	--	--	--	--	3.4	--	24	--	--	--	--	--	58	.08	8,260	16	0	--	--	52	7.0
Mar. 1-10	58,110	--	--	--	--	3.2	--	23	--	--	--	--	--	52	.07	8,160	16	0	--	--	50	6.6
Mar. 11-20	27,930	--	--	--	--	3.4	--	26	--	--	--	--	--	52	.07	3,920	20	0	--	--	56	6.7
Mar. 21-31	44,710	--	--	--	--	2.9	--	22	--	--	--	--	--	44	.06	5,310	16	0	--	--	46	6.7

Apr. 1-10, 1956 ..	32,620	16	.04	4.4	1.3	3.2	.7	24	2.5	2.0	.2	.7	.01	47	.06	4,140	16	0	29	.3	51	6.5
Apr. 11-20.....	35,220	--	--	--	--	3.0	--	23	--	--	--	--	--	43	.06	4,090	16	0	--	--	47	6.8
Apr. 21-30.....	31,860	--	--	--	--	2.9	--	22	--	--	--	--	--	42	.06	3,610	15	0	--	--	45	6.6
May 1-10	26,030	--	--	--	--	3.0	--	24	--	--	--	--	--	45	.06	3,160	16	0	--	--	47	6.7
May 11-20	32,140	--	--	--	--	3.0	--	22	--	--	--	--	--	45	.06	3,910	15	0	--	--	47	6.6
May 21-31.....	26,220	--	--	--	--	3.0	--	23	--	--	--	--	--	44	.06	3,110	14	0	--	--	46	6.6
June 1-10	22,900	--	--	--	--	3.0	--	24	--	--	--	--	--	42	.06	2,600	16	0	--	--	49	6.5
June 11-20	19,270	--	--	--	--	2.8	--	24	--	--	--	--	--	40	.05	2,080	16	0	--	--	48	6.5
June 21-30	17,480	--	--	--	--	3.3	--	26	--	--	--	--	--	43	.06	2,030	16	0	--	--	51	6.5
July 1-10.....	11,220	18	.04	4.8	1.4	3.7	1.4	27	2.1	2.0	.1	.6	.04	46	.06	1,390	18	0	29	.4	56	6.4
July 11-20	8,706	--	--	--	--	3.9	--	28	--	--	--	--	--	48	.07	1,130	20	0	--	--	60	6.7
July 21-31.....	7,062	--	--	--	--	4.3	--	30	--	--	--	--	--	53	.07	1,010	20	0	--	--	62	6.6
Aug. 1-15.....	6,447	--	--	--	--	4.4	--	30	--	--	--	--	--	53	.07	923	20	0	--	--	63	6.7
Aug. 16-31.....	6,124	--	--	--	--	4.6	--	31	--	--	--	--	--	53	.07	876	20	0	--	--	64	6.7
Sept. 1-16	6,901	--	--	--	--	4.2	--	28	--	--	--	--	--	49	.07	913	19	0	--	--	61	6.6
Sept. 17-30.....	7,738	--	--	--	--	3.9	--	28	--	--	--	--	--	50	.07	1,040	18	0	--	--	59	6.6
Weighted average	37,880	--	--	--	--	3.0	--	23	--	--	--	--	--	47	0.06	4,810	16	0	--	--	49	--

WILLAMETTE RIVER BASIN--Continued

WILLAMETTE RIVER AT SALEM, OREG.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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

LEWIS RIVER AT ARIEL, WASH.

LOCATION.--Temperature recorder at gaging station at Ariel, Cowlitz County, half a mile downstream from Ariel Dam and powerplant, and 3 miles upstream from Cedar Creek.
DRAINAGE AREA.--731 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum not determined; minimum, 36°F Feb. 28, 29, Mar. 1, 2, 11, 12.
EXTREMES, 1950-56.--Water temperatures: Maximum, 61°F Oct. 2-5, 1951; minimum, 36°F Feb. 28, 29, Mar. 1, 2, 11, 12, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	52	52	44	44	39	39	38	38	36	36	39	39	42	42	48	48	--	--	50	50		
2	55	53	52	52	44	44	39	39	38	38	37	36	39	39	42	42	49	48	--	--	50	50		
3	54	53	52	51	44	44	39	39	38	38	37	37	39	39	43	42	49	49	50	49	51	50		
4	54	54	51	51	44	43	39	38	38	38	37	37	39	39	43	43	49	48	50	50	--	--		
5	55	53	51	51	43	43	38	38	38	38	37	37	39	39	43	43	48	48	--	--	--	--		
6	55	53	51	50	43	42	38	38	38	38	37	37	39	38	43	43	48	48	52	51	--	--		
7	55	53	50	49	42	42	38	38	38	38	37	37	40	38	44	43	48	48	51	50	--	--		
8	55	54	50	49	42	42	38	38	38	38	37	37	40	39	44	44	48	48	50	50	--	--		
9	55	53	49	49	42	42	38	38	38	38	37	37	41	40	44	44	48	48	--	--	--	--		
10	54	54	49	49	42	42	38	38	38	38	37	37	40	40	44	44	48	48	--	--	--	--		
11	54	54	49	49	42	41	38	38	38	38	37	36	41	40	44	44	48	48	52	51	--	--		
12	54	54	49	49	41	41	38	38	38	37	37	36	41	41	45	44	49	48	52	51	--	--		
13	54	54	49	48	41	41	38	38	37	37	38	37	41	40	45	45	49	49	52	51	--	--		
14	54	54	48	47	41	40	39	38	37	37	38	38	41	40	45	45	49	49	52	51	--	--		
15	54	54	47	47	40	40	39	38	37	37	38	38	41	41	45	45	49	49	52	51	--	--		
16	54	53	47	47	40	40	39	38	37	37	38	38	41	41	46	45	49	49	52	50	--	--		
17	54	53	47	46	40	40	38	38	37	37	38	38	41	41	46	46	49	49	51	50	--	--		
18	54	53	46	46	40	40	38	38	37	37	38	38	41	41	46	46	49	49	52	50	--	--		
19	53	53	46	46	40	40	38	38	37	37	38	38	41	41	46	46	49	49	52	51	--	--		
20	54	53	46	46	40	40	38	38	37	37	39	38	41	41	46	46	49	49	53	51	--	--		
21	53	53	46	45	40	40	38	38	37	37	39	38	41	41	47	46	49	48	52	51	--	--		
22	53	53	45	44	41	40	38	38	37	37	39	38	41	41	47	47	49	49	--	--	--	--		
23	54	52	45	44	40	40	38	38	37	37	39	39	41	41	47	47	49	49	--	--	--	--		
24	54	53	45	44	40	40	38	38	37	37	39	39	42	41	47	47	49	49	52	52	--	--		
25	53	53	44	44	40	40	38	38	37	37	39	39	42	42	47	47	49	49	52	52	--	--		
26	54	53	44	44	40	40	38	38	37	37	39	39	42	42	47	47	49	49	52	50	--	--		
27	53	53	44	44	40	40	38	38	37	37	39	39	42	42	48	47	49	49	52	51	--	--		
28	53	52	44	44	40	40	38	38	37	36	39	39	42	42	48	48	49	48	52	51	--	--		
29	53	52	44	44	40	40	38	38	37	36	39	39	42	42	48	48	48	48	52	50	--	--		
30	53	52	44	44	40	39	38	38	--	--	39	39	42	42	48	48	49	48	50	50	--	--		
31	52	52	--	--	39	39	38	38	--	--	39	39	--	--	48	48	--	--	50	50	--	--		
Average	54	53	48	47	41	41	38	38	37	37	38	38	41	40	45	45	49	48	--	--	--	--		

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, Clark County, and 20 miles upstream from mouth.
DRAINAGE AREA.--125 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 73°F July 20; minimum, 33°F Nov. 15-17, Jan. 31, Feb. 1, 2, 16, 17.
EXTREMES, 1950-56.--Water temperatures: Maximum, 74°F Aug. 4, 1952; minimum, 33°F on many days during winter months.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	44	44	43	43	39	38	33	33	38	38	43	42	48	43	53	51	55	51	62	59	62	59
2	52	50	44	44	43	42	41	39	34	33	39	38	43	42	48	43	54	51	55	52	59	55	60	58
3	52	51	45	44	42	41	41	41	35	34	39	38	43	42	47	45	54	51	55	52	55	53	60	57
4	51	49	45	45	41	39	42	41	36	35	38	38	43	42	45	44	51	49	56	54	58	53	60	57
5	49	48	45	43	39	39	43	42	38	36	38	37	42	41	45	44	50	48	56	56	60	57	62	57
6	48	45	45	44	41	39	43	42	39	38	38	37	43	39	45	44	48	48	58	55	61	60	62	58
7	48	47	45	45	41	40	42	42	39	39	38	38	44	43	49	44	50	47	61	57	63	59	62	59
8	47	47	47	45	42	41	42	42	39	38	39	38	45	42	49	45	50	49	65	60	64	60	61	57
9	48	47	47	47	42	42	42	42	38	37	39	38	47	41	46	44	53	50	66	64	63	61	60	58
10	48	48	48	45	43	42	42	42	39	38	39	37	46	43	46	45	53	50	66	61	62	59	58	58
11	48	47	45	41	44	43	42	42	40	39	40	37	45	43	45	43	53	48	61	58	60	57	58	57
12	48	47	41	39	44	43	42	42	40	40	40	36	48	43	45	42	55	50	62	57	66	60	58	56
13	50	48	39	36	43	40	42	42	40	39	40	40	48	42	48	43	55	53	62	61	65	64	58	55
14	50	49	36	34	40	38	42	42	39	38	41	38	45	43	50	45	53	51	61	59	64	61	57	54
15	50	49	34	33	39	38	42	42	38	35	42	39	43	43	52	46	51	49	61	57	63	61	58	54
16	50	48	33	33	40	39	42	42	35	33	43	39	45	43	53	47	52	50	64	58	62	60	58	55
17	51	50	34	33	41	40	42	42	36	33	44	40	47	41	53	47	55	50	65	62	64	59	58	55
18	51	50	37	34	41	36	42	42	38	36	44	41	48	41	54	48	55	52	68	63	66	61	58	54
19	50	50	40	37	39	36	42	42	38	38	43	42	48	42	54	48	52	51	71	66	68	63	58	55
20	50	50	41	40	42	39	42	42	38	38	43	42	48	42	52	48	51	49	73	69	69	65	59	56
21	50	50	41	41	43	42	42	42	38	38	43	42	46	43	52	46	53	47	71	68	71	66	56	54
22	50	49	41	41	43	43	43	42	38	38	43	43	46	43	54	48	53	49	70	67	71	67	55	52
23	49	47	41	41	43	42	43	41	38	38	43	42	46	42	54	50	52	49	71	67	70	67	54	51
24	48	47	42	41	43	43	41	40	38	37	43	42	47	42	50	40	51	48	71	68	67	65	55	52
25	49	48	42	42	43	43	40	39	37	37	43	42	47	43	53	47	53	48	69	66	65	59	59	54
26	49	46	44	42	43	43	39	35	37	37	42	41	47	45	53	48	57	51	67	64	59	57	58	57
27	46	46	44	43	43	42	37	35	37	37	43	41	47	44	48	46	59	55	66	63	57	57	57	55
28	46	46	43	42	42	41	37	37	38	37	45	43	44	43	52	45	59	54	66	61	58	56	55	54
29	47	46	43	42	41	39	38	37	38	38	45	43	44	43	56	51	55	52	65	61	58	58	54	52
30	47	45	43	43	39	38	38	36	--	--	43	42	47	41	57	53	54	51	64	60	58	56	53	52
31	45	44	--	--	38	38	36	33	--	--	42	41	--	--	58	53	--	--	64	60	60	57	--	--
Average	49	48	42	41	42	40	41	40	38	37	41	40	46	42	50	46	53	50	64	61	63	60	58	55

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 63°F July 16, 17, 20; minimum, 35°F Nov. 14-18, Feb. 15-17.
EXTREMES, 1954-56.--Water temperatures: Maximum, 63°F July 16, 17, 20, 1956; minimum, 35°F Nov. 14-18, 1955, Feb. 15-17, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	48	43	43	43	42	39	39	36	36	39	39	42	41	46	43	50	50	58	53	58	55	57	56
2	50	49	43	43	43	42	40	39	36	36	39	39	42	42	46	44	51	50	57	54	55	53	56	54
3	50	50	44	43	42	41	41	40	37	36	39	39	42	42	45	44	51	50	56	54	53	52	55	53
4	50	49	44	44	41	40	41	41	38	37	39	38	42	42	44	44	50	49	57	55	58	53	55	52
5	49	48	44	43	40	40	42	41	39	38	39	38	42	41	45	44	50	49	57	56	60	56	55	53
6	48	47	44	43	40	40	42	41	39	39	39	38	42	40	45	43	49	49	59	56	61	57	55	54
7	47	47	44	44	40	40	41	41	39	39	39	37	42	42	46	44	51	49	60	57	60	58	55	54
8	47	47	45	44	41	40	41	41	39	39	39	37	43	41	45	43	51	51	62	58	61	58	56	54
9	47	47	46	45	41	41	41	41	39	38	39	39	43	41	45	43	52	51	60	59	60	58	55	54
10	47	47	46	45	42	41	41	41	39	38	39	38	44	42	45	43	52	51	59	58	59	57	54	53
11	47	46	45	40	42	42	42	41	39	39	40	38	44	43	44	43	53	51	59	57	58	55	55	54
12	47	46	40	38	42	41	42	41	40	39	39	38	44	42	44	43	55	52	59	55	61	56	56	53
13	47	47	38	37	41	40	42	42	40	40	40	39	44	43	47	44	54	53	60	58	60	57	55	54
14	48	47	37	35	40	39	42	42	40	38	40	40	44	42	48	45	53	52	58	57	58	56	54	53
15	49	48	35	35	39	39	42	42	38	35	40	40	43	42	49	47	53	53	61	56	58	57	55	54
16	49	48	35	35	40	39	42	42	35	35	41	40	43	42	48	46	55	53	63	58	57	55	57	55
17	48	48	35	35	40	40	42	42	36	35	42	40	44	41	48	45	57	54	63	59	59	55	56	55
18	48	48	36	35	40	38	42	42	37	36	42	40	45	42	48	46	56	55	62	59	60	57	55	54
19	48	48	38	36	39	38	42	42	37	37	42	42	45	43	48	46	55	55	62	58	61	58	55	54
20	49	48	39	38	40	39	42	42	38	37	42	41	45	43	48	46	55	54	63	60	62	59	55	54
21	48	48	39	39	42	40	42	42	39	38	41	41	45	43	49	46	56	53	62	59	62	59	54	53
22	48	47	39	39	42	41	42	42	39	38	41	40	45	43	50	48	56	55	62	58	61	60	53	51
23	47	46	39	39	41	41	42	41	39	38	41	40	45	42	50	48	55	54	62	58	60	59	52	50
24	47	46	40	39	41	41	41	40	39	38	41	40	45	43	49	48	55	54	62	58	59	58	53	52
25	48	47	40	40	41	41	40	40	38	38	41	40	45	44	52	48	56	54	61	58	58	56	56	53
26	48	46	41	40	41	41	40	38	38	38	41	40	45	45	51	48	58	55	60	57	56	54	56	54
27	46	45	42	41	41	41	38	37	38	38	41	40	45	44	48	48	59	57	60	56	55	55	54	53
28	45	45	42	42	41	39	38	38	39	38	42	41	43	42	52	47	57	56	60	55	57	54	53	51
29	46	45	42	42	39	39	39	38	39	39	42	42	44	42	54	51	57	56	59	56	57	56	51	51
30	46	44	42	42	39	38	39	37	--	--	42	42	44	42	53	52	56	55	59	55	57	54	52	51
31	44	43	--	--	39	39	37	36	--	--	42	41	--	--	53	49	--	--	59	56	58	55	--	--
Average	48	47	41	40	41	40	41	40	38	38	40	40	44	42	48	46	54	53	60	57	59	56	55	53

COWLITZ RIVER BASIN

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 58°F Aug. 14; minimum, 33°F Nov. 17, Jan. 31, Feb. 1,2.
EXTREMES, 1950-56.--Water temperatures: Maximum, 61°F Aug. 4, 9, 10, 15, 1952; minimum, freezing point Jan. 20, 1954.
REMARKS.--Clock stopped Oct. 19 to Nov. 8, Dec. 3-15, 17-19, Mar. 16 to Apr. 17; temperature ranges during these periods, 40°F to 48°F, 36°F to 39°F, 34°F to 38°F, and 38°F to 47°F respectively. Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature °F of water, water year October 1955 to September 1956

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	45	--	--	40	40	37	36	33	33	38	38	--	--	47	42	46	44	48	47	50	47	54	48
2	48	46	--	--	40	40	37	37	35	33	39	38	--	--	47	43	46	44	51	47	48	47	53	47
3	47	47	--	--	40	39	38	37	37	35	39	36	--	--	44	43	46	44	51	47	50	45	52	45
4	47	46	--	--	--	--	38	38	37	37	36	36	--	--	45	43	44	43	50	47	54	47	53	45
5	47	45	--	--	--	--	39	38	39	37	38	36	--	--	44	42	45	43	49	48	56	58	54	46
6	46	43	--	--	--	--	39	39	39	38	39	37	--	--	43	41	44	44	51	47	55	48	53	47
7	46	45	--	--	--	--	39	39	39	38	38	38	--	--	45	42	44	43	52	47	55	49	54	48
8	45	45	--	--	--	--	39	38	38	37	38	38	--	--	46	42	45	44	53	48	55	49	53	47
9	45	45	44	43	--	--	38	38	38	37	38	37	--	--	46	42	46	44	53	50	56	50	49	47
10	45	44	44	41	--	--	39	38	38	37	40	37	--	--	43	41	45	43	54	50	56	50	50	48
11	44	43	41	37	--	--	39	39	38	37	39	35	--	--	42	41	46	42	52	49	57	51	52	49
12	45	43	37	36	--	--	39	38	38	38	38	36	--	--	43	41	47	43	52	49	56	50	53	48
13	47	45	36	36	--	--	39	38	38	36	40	37	--	--	45	41	46	44	52	49	57	51	53	46
14	47	45	36	34	--	--	38	37	37	34	42	38	--	--	47	42	45	44	51	49	58	52	53	47
15	48	46	34	34	37	36	38	37	35	34	42	38	--	--	47	42	45	44	54	49	56	52	53	47
16	47	45	34	34	38	37	38	38	34	34	--	38	--	--	47	42	45	43	53	49	53	51	54	47
17	48	45	34	33	--	--	39	38	35	34	--	--	44	--	46	42	47	44	54	49	56	48	53	48
18	47	46	35	34	--	--	39	38	38	35	--	--	45	40	45	42	47	44	55	50	56	49	54	48
19	--	--	36	34	--	--	38	38	38	38	--	--	45	40	45	42	46	44	55	50	57	50	53	49
20	--	--	38	36	38	38	39	38	38	38	--	--	45	40	44	42	45	43	55	51	57	50	51	49
21	--	--	38	38	39	38	39	39	38	38	--	--	44	40	46	42	49	44	56	51	57	50	50	48
22	--	--	38	38	39	39	39	39	39	37	--	--	44	41	47	42	47	45	55	51	56	50	51	45
23	--	--	39	38	39	39	39	37	39	38	--	--	44	41	45	43	47	45	56	51	54	51	51	45
24	--	--	39	39	39	39	37	36	38	38	--	--	44	41	44	43	46	44	56	51	54	51	52	48
25	--	--	39	39	39	39	37	36	39	38	--	--	45	42	47	42	47	44	56	51	51	48	54	49
26	--	--	39	39	39	39	36	34	38	38	--	--	45	43	45	43	52	47	54	50	48	47	51	50
27	--	--	40	39	39	38	35	34	38	38	--	--	43	42	44	43	52	48	50	48	49	47	52	49
28	--	--	40	40	38	37	35	35	39	38	--	--	43	42	48	43	51	47	53	47	53	47	49	48
29	--	--	40	40	37	36	36	35	38	38	--	--	45	42	48	44	49	46	53	47	50	48	49	48
30	--	--	40	40	36	36	36	34	--	--	--	--	47	42	48	44	50	46	54	47	53	47	50	48
31	--	--	--	--	36	36	34	33	--	--	--	--	--	--	47	44	--	--	51	48	54	47	--	--
Average	--	--	--	--	--	--	38	37	38	37	--	--	--	--	45	42	47	44	53	49	54	49	52	47

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 62°F Aug. 20-23; minimum, 37°F Nov. 12, Jan. 15, 26, 27.
EXTREMES, 1952-56.--Water temperatures: Maximum, 62°F Aug. 12-16, 19, 20, 1953, Aug. 20-23, 1956; minimum, 37°F Jan. 5, 1954, Nov. 12, 1955, Jan. 15, 26, 27, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	43	43	41	41	38	38	39	39	39	39	41	41	45	45	47	46	50	49	57	56	59	58
2	51	51	43	43	41	41	38	38	39	39	39	39	42	41	45	45	46	45	50	49	56	54	59	57
3	51	51	43	42	41	41	38	38	39	39	39	39	42	42	45	45	47	46	50	50	54	52	58	56
4	51	50	43	43	41	40	38	38	39	39	39	39	42	42	45	44	46	45	50	50	57	53	56	55
5	50	49	43	43	40	40	38	38	39	39	39	39	42	42	44	44	45	45	50	50	59	56	56	55
6	49	48	43	43	40	40	38	38	39	39	39	39	42	42	44	44	45	45	51	50	59	58	57	56
7	48	48	44	43	40	40	38	38	39	39	39	39	43	42	44	44	45	45	51	50	59	57	57	56
8	48	47	44	44	40	40	38	38	39	39	39	39	44	43	44	44	45	44	52	51	59	57	57	56
9	47	46	44	44	40	40	38	38	39	39	39	39	45	44	44	44	45	44	52	52	59	57	57	56
10	46	46	45	44	40	40	38	38	39	39	39	39	45	44	44	44	45	45	52	52	59	58	56	54
11	46	45	44	40	40	40	38	38	39	39	39	39	46	45	44	43	45	44	52	52	60	58	55	55
12	46	45	40	37	40	39	39	38	39	39	39	39	45	44	43	43	46	45	52	52	61	58	56	55
13	46	46	39	39	39	39	39	39	39	39	39	39	45	45	44	43	46	46	52	52	61	59	56	55
14	47	46	40	39	39	38	39	38	39	38	39	39	45	44	45	44	46	46	52	51	61	60	56	55
15	48	47	41	40	38	38	38	37	39	38	40	39	44	44	46	45	46	45	52	51	60	59	56	56
16	48	48	41	41	39	38	38	38	39	39	40	39	44	44	46	45	45	45	53	52	60	58	56	56
17	49	48	41	41	39	39	38	38	39	39	40	40	44	43	46	44	46	45	53	53	58	55	56	56
18	49	49	41	40	39	39	38	38	39	39	41	40	44	44	45	44	46	46	54	53	60	57	56	56
19	49	49	41	40	39	38	38	38	39	39	41	41	44	44	45	44	46	46	55	54	61	59	56	56
20	50	49	41	40	39	39	38	38	39	39	41	40	44	44	45	44	46	45	55	55	62	60	56	56
21	50	50	41	40	39	39	38	38	39	39	40	40	44	44	46	44	47	45	56	55	62	60	56	54
22	50	50	41	40	39	39	38	38	39	39	40	40	44	44	46	45	47	47	56	56	62	60	54	52
23	50	49	41	40	39	39	38	38	39	39	40	40	44	43	45	44	47	47	57	56	62	60	53	52
24	49	49	41	40	39	39	38	38	39	39	40	40	44	43	44	44	47	46	57	56	61	60	53	52
25	49	49	41	40	39	38	38	38	39	39	40	40	44	44	46	44	46	46	58	57	61	59	55	53
26	49	46	41	40	38	38	38	37	39	39	40	40	44	44	46	45	50	46	57	57	59	55	55	55
27	46	45	41	40	38	38	38	37	39	39	40	39	44	44	45	44	51	50	57	57	55	54	55	55
28	45	45	41	40	38	38	38	38	39	39	40	40	44	44	46	45	51	51	57	57	57	54	55	54
29	45	45	41	41	38	38	39	38	39	39	41	40	45	44	47	46	49	49	58	56	57	56	54	52
30	45	44	41	41	38	38	39	38	--	--	42	40	45	44	47	46	--	49	58	56	57	56	52	52
31	44	43	--	--	38	38	39	39	--	--	41	41	--	--	47	46	--	--	58	57	58	56	--	--
Average	48	48	42	41	39	39	38	38	39	39	40	40	44	43	45	44	47	46	54	53	59	57	56	55

COWLITZ RIVER BASIN--Continued

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 May 1956.
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 1955 to September 1956 given in WSP 1448.

Temperature °F of water, October 1955 to May 1956.

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	43	43	41	41	36	36	35	35	37	36	41	41	44	43								
2	49	49	43	42	41	41	37	36	35	35	37	37	41	41	44	43								
3	49	49	43	42	41	40	37	37	35	35	37	37	41	41	44	43								
4	49	48	43	43	40	40	38	37	35	35	37	37	41	41	44	43								
5	48	47	43	43	40	39	38	38	35	35	37	37	41	41	44	43								
6	47	46	44	43	--	--	38	38	36	35	37	37	41	40	44	43								
7	47	47	44	44	--	--	38	38	37	36	37	37	41	41	44	43								
8	47	47	45	44	--	--	38	38	37	37	37	37	41	40	44	43								
9	47	47	45	45	--	--	38	38	37	36	37	37	41	40	44	43								
10	47	47	45	44	--	--	39	38	36	36	37	37	42	41	44	43								
11	47	46	44	40	--	--	39	39	36	36	37	37	42	42	44	43								
12	47	46	40	37	--	--	39	38	36	36	37	37	42	42	43	43								
13	47	47	37	37	--	--	39	38	36	36	38	37	42	42	44	43								
14	48	47	37	36	--	--	39	39	36	36	38	37	42	42	44	43								
15	48	48	36	36	--	--	--	--	36	36	38	37	42	42	44	43								
16	47	46	36	36	--	--	--	--	36	36	38	37	42	42	44	43								
17	47	46	36	36	--	--	--	--	36	36	38	37	42	41	44	43								
18	47	47	36	35	--	--	--	--	36	36	38	38	42	41	45	44								
19	47	47	39	36	--	--	--	--	36	36	39	38	42	42	45	45								
20	47	47	39	39	39	38	--	--	36	36	40	38	42	42	45	44								
21	47	47	39	39	39	38	--	--	36	36	40	40	42	42	45	44								
22	47	46	39	39	39	39	--	--	36	36	40	40	43	42	--	--								
23	46	45	39	39	39	39	--	--	36	36	40	40	43	42	--	--								
24	47	46	39	39	39	39	37	37	36	36	40	40	43	42	--	--								
25	48	46	40	39	39	39	37	37	36	36	40	40	44	43	--	--								
26	46	45	40	40	39	39	37	36	36	36	40	40	44	43	--	--								
27	45	45	41	40	39	38	36	35	36	36	40	40	44	44	--	--								
28	45	45	41	41	38	38	35	35	36	36	40	40	44	44	--	--								
29	45	45	41	41	38	37	35	35	36	36	40	40	44	43	--	--								
30	45	43	41	41	37	36	35	35	--	--	40	40	44	43	--	--								
31	43	43	--	--	37	36	35	35	--	--	41	40	--	--	--	--								
Average	47	46	41	40	--	--	--	--	36	36	38	38	42	42	--	--								

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 65°F Aug. 21, 22; minimum, 33°F Jan. 28 to Feb. 2.
EXTREMES, 1950-56.--Water temperatures: Maximum, 67°F Aug. 5, 9-13, 1952; minimum, 33°F Jan. 28 to Feb. 2, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	52	45	45	42	42	37	36	33	33	37	37	42	42	47	45	49	46	54	49	58	57	60	60
2	53	52	45	45	42	42	37	36	34	33	37	37	42	42	47	46	47	46	52	49	57	53	60	59
3	53	52	45	45	42	42	37	36	34	34	37	37	43	42	46	46	48	46	54	50	53	52	59	58
4	52	50	46	45	42	41	38	37	35	34	37	37	43	43	46	45	46	46	53	51	58	53	58	58
5	50	49	46	45	41	40	38	38	36	35	37	37	43	42	46	45	46	46	52	51	60	57	58	58
6	50	49	45	45	41	41	38	38	37	36	37	37	43	42	47	45	46	46	53	50	61	58	58	58
7	50	49	46	45	41	41	38	38	39	37	38	37	44	43	47	45	48	46	55	51	61	59	59	58
8	49	49	47	46	41	40	38	38	39	38	38	38	46	44	47	46	48	47	56	52	61	59	58	58
9	49	48	47	46	41	41	38	38	39	37	38	38	46	44	47	47	48	47	56	54	61	60	59	57
10	48	47	48	47	41	41	38	38	37	37	38	38	47	45	47	45	48	47	56	53	61	60	57	56
11	47	47	47	41	42	41	38	38	37	37	38	38	47	45	45	44	48	46	55	53	61	59	56	56
12	47	47	41	38	42	41	39	38	38	38	39	38	47	43	45	45	50	47	55	52	63	60	56	55
13	50	47	38	38	41	39	39	39	38	37	40	39	47	45	48	45	50	49	54	52	63	61	57	56
14	50	49	38	37	39	38	39	39	37	36	41	40	46	44	50	47	50	49	53	52	61	61	58	57
15	49	49	37	36	38	38	39	38	36	34	42	40	44	44	51	48	49	47	55	51	61	60	59	58
16	49	49	36	36	39	38	39	39	34	34	43	41	45	43	51	49	47	46	57	53	60	60	59	58
17	49	48	37	36	40	39	39	38	35	34	44	42	45	43	50	48	50	47	57	54	60	58	59	58
18	49	49	37	36	39	38	39	39	35	34	45	43	47	44	48	48	50	49	59	55	61	59	58	58
19	49	49	37	37	38	38	39	39	36	35	45	43	47	45	48	46	50	48	59	56	62	61	58	58
20	50	49	39	37	40	38	39	38	36	36	43	42	46	45	47	46	48	48	60	57	64	62	58	57
21	50	50	40	39	40	39	38	38	37	36	42	42	45	45	47	46	51	47	60	57	65	62	57	56
22	50	50	40	40	40	40	38	37	37	37	42	42	45	45	49	47	52	50	60	57	65	63	56	54
23	50	49	40	39	40	40	38	38	37	37	42	41	45	44	48	47	51	49	60	57	64	62	54	54
24	49	49	40	39	40	40	38	37	37	37	41	41	44	44	47	46	49	48	61	58	62	61	56	54
25	50	49	40	40	40	40	37	36	37	37	41	41	46	44	48	46	49	47	61	58	61	60	57	56
26	49	47	40	40	40	40	36	35	37	37	41	40	46	45	48	46	52	48	61	57	60	57	57	57
27	47	46	41	40	40	40	35	34	37	37	41	40	45	43	46	45	55	52	60	57	57	56	57	55
28	46	46	41	41	40	39	34	33	37	37	42	41	44	43	49	45	54	51	59	57	58	55	55	54
29	47	46	42	41	39	37	33	33	37	37	42	42	45	43	51	49	51	49	59	56	58	58	54	53
30	47	45	42	42	37	36	33	33	--	--	42	42	47	45	51	49	49	48	59	56	59	58	53	53
31	46	45	--	--	36	36	33	33	--	--	42	42	--	--	49	49	--	--	59	57	60	59	--	--
Average	49	48	42	41	40	40	37	37	36	36	40	40	45	44	48	46	49	48	57	54	61	59	57	57

COWLITZ RIVER BASIN--Continued

MILL CREEK NEAR SALKUM, WASH.

LOCATION.--Temperature recorder at gaging station, half a mile upstream from mouth and 1¼ miles southeast of Salkum, Lewis County.
DRAINAGE AREA.--20.9 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1956.
EXTREMES, July 1955 to September 1956.--Water temperatures: Maximum, 73° F July 20, 1956; minimum, 35° F Nov. 15, 16, 1955, Feb. 16, 17, Mar. 10, 11, 1956.
REMARKS.--Records of discharge for the period July to September 1955 given in WSP 1398 and for the water year October 1955 to September 1956 given in WSP 1448.

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	55	52	63	59	64	56	11	61	56	64	57	63	57	21	64	57	64	55	55	50
2	56	50	62	56	66	57	12	64	58	61	58	60	53	22	63	57	64	55	55	50
3	57	53	64	57	67	58	13	68	59	63	55	57	55	23	60	56	61	55	58	53
4	57	54	65	56	67	58	14	69	60	63	55	56	55	24	59	56	59	56	56	51
5	57	52	66	57	67	59	15	68	60	62	56	55	54	25	59	56	58	56	56	50
6	57	54	68	59	68	62	16	63	59	65	57	55	53	26	59	56	61	55	54	51
7	59	52	68	60	63	60	17	64	55	64	56	55	53	27	59	56	62	53	54	53
8	59	56	66	61	60	59	18	63	58	65	56	56	51	28	58	56	63	54	54	52
9	58	57	64	56	64	58	19	63	57	64	59	57	51	29	58	57	64	56	55	52
10	57	56	66	57	59	57	20	63	57	66	59	56	53	30	58	57	--	--	53	50
														31	63	58	64	58	--	--
Average															61	56	64	57	59	54

MILL CREEK NEAR SALKUM, WASH.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

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	49	49	45	45	40	38	37	37	38	38	43	42	53	48	62	60	58	52	59	57	64	64
2	54	52	49	49	45	44	41	40	37	37	39	38	43	43	55	51	61	58	58	55	58	56	64	60
3	54	53	51	49	44	43	42	41	39	37	38	36	43	43	55	51	61	56	57	55	56	55	61	58
4	54	51	52	51	43	41	43	42	38	38	36	36	43	43	52	50	56	54	59	56	60	55	61	58
5	51	50	52	49	41	40	44	43	40	38	36	36	43	42	53	50	55	54	59	58	62	58	--	--
6	51	48	51	49	42	41	44	44	41	40	--	--	45	40	54	50	54	54	58	57	62	60	--	--
7	51	49	51	50	42	42	44	43	41	41	--	--	45	43	57	51	55	54	60	54	62	60	--	--
8	49	49	52	51	43	42	43	43	41	41	36	36	47	43	59	54	55	55	64	58	64	61	62	61
9	50	49	52	51	44	43	43	43	41	40	36	36	50	43	58	55	57	55	64	63	64	61	62	60
10	50	49	52	49	44	44	44	43	40	40	36	35	50	44	57	54	57	56	64	62	63	62	61	60
11	50	49	49	44	48	44	45	43	41	40	36	35	50	47	54	50	58	53	63	60	62	59	61	61
12	51	49	44	40	48	43	45	45	41	41	37	36	51	45	52	50	61	55	62	58	65	61	61	60
13	51	50	40	39	43	41	45	45	41	41	39	37	52	45	55	48	60	57	62	60	66	64	60	59
14	53	51	39	36	41	40	45	45	41	39	40	38	51	46	59	53	57	57	60	59	64	63	60	59
15	54	53	36	35	41	40	46	45	39	36	40	38	48	45	61	54	57	55	61	57	63	63	61	60
16	53	50	36	35	41	41	46	46	36	35	41	39	48	45	64	57	55	55	63	58	63	63	63	61
17	52	50	37	36	42	41	46	45	36	35	43	40	50	43	67	59	59	55	65	59	64	61	63	62
18	51	51	39	37	42	39	45	45	38	36	45	41	53	45	68	62	59	57	68	61	66	62	62	61
19	54	51	40	39	42	39	45	45	37	37	45	43	55	48	68	62	57	57	71	65	67	64	61	60
20	54	53	42	40	44	42	46	45	37	37	43	42	56	50	64	59	57	54	73	69	67	65	61	61
21	54	54	42	41	45	44	46	46	38	37	42	42	55	51	60	54	56	52	70	66	68	65	61	59
22	54	52	41	41	45	44	47	46	38	38	42	42	54	50	63	56	59	55	69	64	69	66	59	56
23	52	50	42	41	44	44	47	45	38	38	42	42	52	47	63	59	58	55	69	65	69	66	58	56
24	53	52	44	42	44	44	45	43	38	37	42	42	52	47	59	58	55	53	69	65	67	66	61	58
25	54	53	45	44	45	44	43	42	37	37	42	42	54	48	62	55	56	53	68	63	67	64	63	61
26	53	51	44	44	45	44	42	42	37	37	42	40	54	50	61	56	62	55	65	61	64	62	63	63
27	51	50	45	43	44	43	42	40	38	37	41	39	52	49	56	54	63	60	63	59	62	62	63	60
28	52	50	45	44	43	41	41	40	39	38	43	41	50	48	59	53	63	57	62	58	62	60	60	59
29	52	51	45	44	41	39	40	39	38	38	43	43	50	47	64	57	58	55	62	58	61	61	59	58
30	52	49	45	45	39	39	40	39	--	--	43	43	52	45	69	61	55	53	59	57	62	60	58	58
31	49	49	--	--	39	38	39	37	--	--	43	42	--	--	69	62	--	--	59	57	64	62	--	--
Average	52	51	45	44	43	42	44	43	39	38	40	39	50	46	60	55	58	55	63	60	64	61	61	60

COWLITZ RIVER BASIN--Continued

TOUTLE RIVER NEAR SILVER LAKE, WASH.

LOCATION.--Temperature recorder at gaging station just downstream from highway bridge, 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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 66°F July 19, Aug. 21; minimum, 34°F Nov. 14-16, Jan. 31.
EXTREMES, 1950-56.--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 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	45	45	42	42	38	37	--	--	37	37	42	40	48	43	50	48	58	51	56	54	62	57
2	53	51	46	44	42	41	39	38	--	--	38	37	41	40	49	44	50	46	56	52	54	51	60	55
3	53	51	46	46	41	40	39	39	--	--	38	36	42	40	48	45	49	47	57	53	54	50	60	53
4	52	50	46	45	40	39	40	39	--	--	36	35	42	41	46	45	49	46	57	54	59	51	60	53
5	50	48	45	44	40	39	40	40	--	--	36	35	42	39	47	44	47	46	56	54	61	54	61	53
6	49	47	46	45	41	40	40	39	--	--	37	35	42	39	47	44	47	46	60	54	61	56	61	54
7	48	48	46	45	40	40	39	39	--	--	37	36	42	41	50	44	49	46	63	54	60	56	60	56
8	48	48	47	46	41	40	39	39	--	--	37	36	42	40	50	45	49	48	65	57	62	56	61	54
9	48	48	48	47	41	41	39	39	--	--	37	36	45	40	49	46	49	48	63	59	61	56	58	55
10	48	47	48	45	42	41	40	39	--	--	37	35	44	41	48	45	49	47	63	57	60	58	58	54
11	47	46	45	40	43	42	40	40	--	--	37	35	44	42	46	43	54	47	61	58	61	57	57	55
12	48	46	40	37	43	41	40	39	39	38	37	35	46	41	46	43	55	48	63	57	--	--	58	54
13	49	47	37	36	41	39	40	40	38	37	38	37	47	42	50	43	54	51	61	57	--	--	59	53
14	50	47	36	34	39	39	40	39	37	36	40	38	45	42	51	45	52	50	59	57	--	--	59	53
15	50	49	34	34	40	39	41	40	36	--	40	37	44	43	52	46	50	49	--	56	--	--	58	55
16	49	48	35	34	40	40	41	40	--	--	41	37	45	42	53	47	51	49	--	--	--	--	--	--
17	49	48	36	35	40	40	40	40	--	--	41	38	46	41	52	46	55	49	--	--	--	--	--	--
18	49	49	38	36	40	39	40	40	--	--	42	38	48	42	51	46	54	51	--	--	--	--	--	--
19	51	50	39	38	41	39	40	40	--	--	41	39	48	43	50	46	52	51	66	60	65	--	--	--
20	51	50	40	39	42	41	41	40	38	36	40	39	47	44	48	45	52	49	65	60	65	60	--	--
21	51	50	40	40	42	42	41	41	38	37	40	39	46	42	50	43	56	48	65	58	66	60	--	--
22	51	49	40	40	42	41	41	40	37	36	40	39	45	42	51	45	55	51	64	58	65	60	--	--
23	49	47	40	40	41	41	41	39	38	37	39	39	46	41	50	46	53	50	65	59	63	59	--	--
24	51	49	41	40	41	41	39	38	38	37	39	38	46	41	47	46	53	49	65	60	61	59	--	--
25	51	49	41	41	41	41	38	38	37	36	39	39	47	42	52	45	55	49	63	58	60	56	--	--
26	49	48	42	41	41	41	38	36	36	36	39	38	46	44	50	45	60	52	63	57	56	55	58	56
27	48	47	42	42	41	40	36	35	37	36	40	38	45	43	46	44	60	55	62	56	56	55	56	53
28	48	47	42	42	40	39	37	36	37	37	40	39	45	42	52	43	58	53	62	55	60	53	54	53
29	48	48	42	42	39	38	37	37	37	37	41	40	46	42	54	47	55	52	--	56	58	54	53	52
30	48	45	42	42	38	37	37	36	--	--	41	40	47	42	55	48	53	51	--	--	60	53	54	52
31	45	45	--	--	37	37	36	34	--	--	41	40	--	--	53	49	--	--	59	56	62	55	--	--
Average	50	48	42	41	41	40	39	39	--	--	39	37	45	41	50	45	52	49	62	56	--	--	--	--

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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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 65°F Aug. 20-25; minimum, 37°F Feb. 17-21.
EXTREMES,1950-56.--Water temperatures: Maximum, 72°F Aug. 21, 1951; minimum, freezing point on Jan. 29, 30, 1951.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1446.

Temperature (°F) of water, water year October 1955 to September 1956

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	46	46	43	43	43	43	40	39	38	38	39	39	43	43	50	50	54	54	61	60	61	60
2	55	55	46	46	44	43	43	43	39	39	38	38	39	39	45	43	50	48	54	54	61	59	61	61
3	55	55	46	46	44	44	43	43	39	39	38	38	40	39	45	45	48	48	54	54	59	58	61	60
4	55	55	46	46	44	44	43	43	39	39	38	38	41	40	45	45	48	48	55	54	58	58	60	60
5	55	53	46	46	44	44	43	43	40	39	38	38	41	41	45	45	48	48	55	55	60	58	60	59
6	53	53	46	46	44	44	43	43	40	40	38	38	41	41	45	45	49	48	55	55	61	60	60	59
7	53	52	46	46	44	44	43	43	41	40	38	38	41	41	45	45	49	49	56	55	62	61	60	60
8	52	51	46	46	44	44	43	43	41	40	38	38	42	41	45	45	49	49	58	56	63	62	60	59
9	51	50	46	46	44	44	43	42	41	40	38	38	43	42	45	45	49	49	58	58	62	62	59	59
10	50	49	46	46	44	44	42	42	41	40	38	38	43	43	45	45	49	49	58	58	62	62	59	59
11	49	48	46	44	44	44	43	42	41	41	39	38	44	43	46	45	50	49	58	58	62	62	59	59
12	48	48	44	41	44	44	43	43	41	41	39	39	43	42	45	44	50	50	58	58	62	62	59	59
13	48	48	41	40	44	43	43	43	41	41	40	39	42	42	44	44	51	50	58	58	62	62	59	58
14	49	48	40	39	43	43	43	43	41	41	41	40	42	42	46	44	51	51	59	58	62	62	59	58
15	50	49	39	38	43	43	43	43	41	39	41	41	42	41	47	46	51	51	59	59	62	62	58	58
16	50	50	39	38	44	43	43	43	39	38	41	40	41	41	48	47	51	50	59	59	63	62	58	58
17	50	50	39	38	44	44	43	42	38	37	41	41	41	41	48	48	50	50	60	59	62	62	59	58
18	50	50	39	38	44	44	42	42	37	37	42	41	41	41	48	48	51	50	61	60	62	62	59	59
19	50	50	39	38	44	44	42	42	37	37	42	42	42	41	49	48	51	51	62	61	63	62	59	59
20	50	50	39	38	44	44	42	42	37	37	42	42	42	42	48	48	51	51	63	62	65	63	59	59
21	50	50	39	38	44	44	42	42	38	37	42	42	42	42	48	47	51	51	63	62	65	65	59	59
22	50	50	39	39	44	44	43	42	38	38	42	42	42	42	47	47	52	51	63	62	65	64	59	59
23	50	50	42	39	44	44	43	42	38	38	42	41	42	41	47	47	53	52	63	62	65	65	59	58
24	50	50	43	42	44	44	43	43	38	38	41	41	41	41	47	47	53	53	63	63	65	65	58	58
25	50	50	43	43	44	44	43	43	38	38	41	41	42	41	48	46	53	53	63	63	65	63	59	58
26	50	50	43	43	44	44	43	42	38	38	41	40	43	42	48	48	53	53	63	63	63	62	59	59
27	50	48	43	43	44	44	42	41	38	38	40	39	43	43	48	47	55	53	63	62	62	60	59	59
28	48	48	43	43	44	44	41	41	38	38	39	39	43	42	47	47	55	55	62	62	60	59	59	58
29	48	48	43	43	44	44	41	41	38	38	39	39	43	42	50	50	55	55	62	62	59	59	59	57
30	48	47	43	43	44	44	41	41	--	--	39	39	42	42	50	50	55	54	62	61	59	59	57	56
31	47	46	--	--	44	43	41	40	--	--	39	39	--	--	50	50	--	--	61	61	60	59	--	--
Average	51	50	43	42	44	44	43	42	39	39	40	40	42	41	47	46	51	51	59	59	62	61	59	59

COWLITZ RIVER BASIN--Continued

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 80°F from recorded range in temperature during period July 19-30; minimum, freezing point Nov. 15-17, Jan. 31, Feb. 1-3.
EXTREMES, 1950-56.--Water temperatures: Maximum, 81°F Aug. 4, 1952; minimum, freezing point Mar. 5, Nov. 15-17, 1955, Jan. 31, Feb. 1-3, 1956.
REMARKS.--Clock stopped July 19-30, Aug. 6-16; temperature ranges during these periods 61°F to 80°F and 59°F to 70°F respectively. Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	45	44	44	39	36	32	32	41	41	46	44	54	47	58	55	67	57	64	60	66	62
2	54	52	46	45	44	43	40	39	32	32	42	41	46	45	54	48	58	54	65	60	63	56	64	57
3	54	53	46	45	43	42	42	40	34	32	42	40	46	45	53	50	57	53	62	58	59	54	63	56
4	53	51	46	46	42	39	43	42	34	34	41	39	47	46	51	49	55	51	64	60	65	57	64	56
5	51	49	46	44	40	39	42	42	37	34	40	39	47	44	53	49	56	54	64	61	68	61	65	57
6	50	47	47	44	42	40	42	41	38	37	40	38	47	42	53	50	54	52	67	60	--	63	64	58
7	49	49	47	46	42	41	41	41	39	38	40	39	48	47	57	50	57	51	69	60	--	--	63	61
8	49	49	48	46	43	42	41	40	38	37	40	39	48	46	58	53	57	56	73	63	--	--	64	57
9	49	48	48	48	43	43	41	40	37	36	40	39	48	44	57	53	57	56	73	68	--	--	63	61
10	48	48	48	46	43	42	42	41	39	37	41	39	48	45	56	51	57	54	69	66	--	--	62	59
11	48	47	46	41	46	43	42	41	39	39	40	37	49	48	53	49	59	51	68	65	--	--	62	58
12	49	47	41	37	46	43	42	41	40	39	41	37	50	47	53	48	62	54	68	63	--	--	63	58
13	49	47	37	35	43	40	42	42	40	39	42	40	50	46	57	49	60	57	68	63	--	--	63	57
14	50	48	35	33	40	39	42	41	39	37	42	38	50	46	58	52	59	57	63	61	--	--	63	59
15	51	50	33	32	40	39	44	42	37	33	43	39	47	45	60	53	57	54	69	60	--	--	62	61
16	50	48	32	32	40	40	44	43	33	33	44	40	47	43	63	54	58	55	70	63	--	--	66	61
17	50	47	33	32	40	40	43	42	35	33	45	41	50	42	62	56	63	57	71	62	67	59	63	60
18	49	49	36	33	40	38	43	42	37	35	46	42	51	45	62	57	61	58	75	64	70	61	63	60
19	50	49	40	36	41	38	43	42	38	37	46	45	51	47	60	56	58	57	--	--	71	64	63	60
20	51	50	41	40	44	41	43	43	38	38	45	43	51	46	58	55	58	54	--	--	72	65	63	60
21	51	50	41	41	45	44	43	43	40	38	45	44	51	47	59	51	62	54	--	--	73	65	60	57
22	50	48	41	40	45	44	44	43	40	39	45	44	50	46	61	54	61	58	--	--	70	65	58	53
23	48	46	41	40	44	43	44	41	40	39	44	44	51	45	59	55	61	57	--	--	67	65	58	53
24	49	47	43	41	43	43	41	39	40	39	44	44	52	45	55	53	59	55	--	--	67	64	62	58
25	51	49	43	43	43	43	40	38	40	39	45	44	52	48	61	52	62	55	--	--	65	63	65	61
26	49	47	43	43	43	42	38	35	40	39	45	42	52	49	59	53	67	57	--	--	63	63	65	61
27	47	46	45	43	42	41	36	35	40	39	44	41	50	46	54	50	69	64	--	--	63	63	61	56
28	48	46	45	43	41	39	36	36	41	40	45	43	48	45	59	49	66	61	--	--	63	62	57	56
29	48	48	44	44	39	38	37	36	41	41	45	45	49	45	64	55	61	59	--	--	62	60	56	54
30	48	46	44	44	38	36	37	34	--	--	46	45	52	44	67	59	60	59	--	--	63	56	57	54
31	46	46	--	--	37	36	34	32	--	--	46	44	--	--	64	58	--	--	68	60	65	58	--	--
Average	50	48	42	41	42	41	41	40	38	37	43	40	49	45	58	52	60	56	--	--	--	--	62	58

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, August to September 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum recorded, 67°F Aug. 20.
EXTREMES, 1950-56.--Water temperatures: Maximum, 68°F Aug. 19-21, 1950; minimum, 34°F Mar. 7, 1951.
REMARKS.-- Thermograph unit not operating during October 1955 to August 1956. Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature °F of water, August to September 1956

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	56	61	56	7	65	59	58	55	13	63	61	57	53	19	66	60	60	56	25	62	60	60	56
2	58	56	58	52	8	65	59	59	53	14	63	60	57	55	20	67	62	58	56	26	60	58	59	56
3	58	56	59	52	9	64	60	57	56	15	61	60	57	56	21	66	60	57	54	27	60	58	56	51
4	61	55	59	52	10	61	59	57	56	16	62	59	59	56	22	65	61	54	50	28	60	54	54	53
5	63	58	60	53	11	63	57	57	55	17	64	58	58	55	23	62	61	55	50	29	60	57	53	53
6	64	59	59	54	12	66	59	57	54	18	65	58	59	56	24	63	60	57	55	30	60	53	54	53
																				31	61	54	--	--
Average																					63	58	58	54

ELOKOMIN RIVER BASIN

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 74°F July 19; minimum, freezing point Feb. 17.
EXTREMES, 1950-56.--Water temperatures: Maximum, 74°F July 19, 1956; minimum, freezing point Feb. 17, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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	46	43	43	38	37	35	34	38	38	43	41	54	49	57	55	63	54	61	57	65	61
2	52	51	48	47	43	43	39	38	35	34	40	38	43	42	54	50	58	54	59	56	60	55	64	57
3	52	51	48	48	43	42	40	39	36	35	40	38	43	42	53	52	57	53	60	55	59	55	63	56
4	52	49	48	48	42	41	41	40	36	36	38	38	43	43	52	51	56	51	59	56	64	55	64	56
5	49	48	48	46	41	40	41	41	38	36	38	38	43	41	52	50	54	52	58	57	65	58	65	57
6	49	47	47	46	41	40	41	40	39	38	38	37	43	40	54	50	53	52	61	56	67	60	64	58
7	47	47	47	47	41	41	40	40	39	39	38	36	44	43	57	51	52	51	66	56	67	60	63	59
8	49	47	48	47	42	41	40	40	39	37	38	36	46	43	58	53	54	52	70	58	68	61	61	55
9	47	47	49	48	42	42	40	40	37	37	39	38	49	43	58	54	55	53	67	63	66	61	61	58
10	47	47	49	47	42	42	40	40	38	37	39	38	49	43	56	53	54	53	64	61	64	61	59	57
11	47	47	47	42	44	42	41	40	39	38	38	37	49	47	53	49	59	52	61	59	66	58	58	57
12	48	47	42	39	44	43	41	41	39	39	39	37	50	46	52	49	60	53	68	59	68	61	60	55
13	49	48	39	38	43	41	41	41	39	39	40	39	51	47	54	47	57	55	64	60	65	61	60	55
14	49	48	38	36	41	40	41	41	39	37	40	38	50	47	57	50	56	55	61	59	65	60	59	57
15	49	49	36	35	40	40	42	41	37	33	41	38	48	46	60	52	55	53	67	57	64	61	59	57
16	50	49	37	35	40	40	42	42	33	33	41	38	48	44	64	55	57	54	70	60	65	62	61	57
17	51	50	37	36	41	40	42	42	35	32	42	39	50	44	65	58	61	54	71	61	69	62	61	58
18	51	51	38	36	41	35	42	42	37	35	43	41	52	46	61	58	58	56	73	62	68	61	62	58
19	51	51	42	38	39	36	42	42	38	37	43	42	53	48	59	57	56	55	74	65	69	63	61	59
20	51	51	43	42	41	39	42	42	38	38	42	41	53	49	59	56	59	54	73	67	71	65	61	57
21	51	51	43	43	42	41	42	42	38	38	41	41	53	50	61	53	60	52	70	65	71	65	58	56
22	51	49	43	43	43	42	43	42	38	38	41	41	52	48	63	55	60	56	72	64	70	65	56	52
23	49	48	43	43	42	42	43	41	38	38	41	41	52	47	59	57	59	55	73	65	68	65	57	52
24	51	50	43	43	42	42	41	40	38	37	42	41	51	47	61	56	59	52	71	65	66	64	58	56
25	52	51	43	43	42	42	40	40	37	37	43	42	52	47	63	55	59	53	69	63	66	64	61	57
26	51	49	43	43	42	42	40	38	37	37	43	41	53	50	60	56	65	54	67	61	64	61	60	57
27	49	48	43	43	42	41	38	37	38	37	42	41	52	49	56	54	65	59	66	58	62	61	57	54
28	48	48	43	43	41	40	37	37	38	38	43	42	49	49	61	51	61	57	65	57	64	57	55	53
29	48	48	43	43	40	39	38	37	38	38	43	43	50	48	64	54	58	56	64	58	63	59	54	53
30	48	47	43	43	39	38	38	36	--	--	43	42	53	47	65	57	57	54	64	57	63	56	56	54
31	47	47	--	--	38	37	36	34	--	--	42	41	--	--	62	57	--	--	61	56	66	58	--	--
Average	50	49	44	43	42	41	40	40	37	37	41	39	49	46	58	53	58	54	66	60	66	60	60	56

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 1956.
EXTREMES, 1955-56.--Water temperatures: Maximum, 67°F July 19, 23; minimum, 33°F Feb. 17.
EXTREMES, 1950-56.--Water temperatures: Maximum, 67°F July 19, 23, 1956; minimum, 33°F Feb. 17, 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1448.

Temperature (°F) of water, water year October 1955 to September 1956

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			--	--	39	38	36	35			--	--	53	47	56	54	59	52	58	55	61	58
2	52	52			--	--	39	39	36	35			--	--	55	48	57	54	55	54	57	55	60	55
3	52	52			--	--	40	39	37	36			--	--	53	50	55	53	56	52	57	55	61	55
4	52	51			--	--	41	40	37	37			--	--	51	50	54	52	57	54	61	54	61	55
5	51	50			--	--	41	41	38	37			--	--	52	50	53	52	55	54	62	56	62	56
6	50	48			--	--	41	40	39	38			--	--	53	49	52	50	55	53	63	57	60	56
7	50	50			--	--	40	40	39	39			--	--	57	50	51	50	60	52	62	55	58	56
8	50	49			44	44	40	40	38	37			--	--	57	52	51	51	63	55	63	57	59	54
9	49	49			44	44	40	40	38	37			--	--	57	52	51	50	59	57	61	57	58	57
10	50	49			44	44	40	40	--	--			--	--	53	50	51	49	59	56	60	58	57	56
11	49	49			--	--	41	40	--	--			--	--	51	48	53	49	57	56	63	57	56	54
12	50	49			--	--	41	41	--	--			--	--	52	48	55	50	62	56	64	57	57	53
13	50	50			44	44	41	41	--	--			--	--	54	47	52	51	58	56	60	58	58	53
14	50	50			44	43	41	41	38	37			49	48	56	49	52	52	57	55	61	58	57	56
15	50	50			43	43	41	41	37	34			49	47	59	50	52	51	62	54	61	59	57	56
16	50	49			44	43	41	41	34	34			48	45	61	52	53	51	63	57	61	59	59	57
17	51	50			44	44	41	41	36	33			51	44	62	53	55	51	64	56	64	57	59	56
18	51	51			44	36	42	41	--	--			51	46	59	55	54	52	66	57	64	57	59	56
19	51	51			41	38	42	42	--	--			54	47	55	54	53	52	67	59	64	59	58	56
20	51	50			42	41	42	42	--	--			53	48	55	52	53	51	66	60	65	60	57	55
21	51	50			42	42	42	42	--	--			51	50	59	50	56	49	65	60	66	60	56	53
22	51	50			42	42	42	42	--	--			52	49	60	52	55	53	66	60	64	60	56	51
23	50	48			42	41	42	40	--	--			53	47	56	53	53	51	67	60	61	61	56	51
24	50	50			41	41	40	40	--	--			53	47	57	53	54	50	66	60	61	60	56	56
25	51	50			41	41	40	40	--	--			54	48	61	52	55	51	64	58	62	60	57	55
26	50	49			41	41	40	39	--	--			54	50	55	53	59	53	63	58	60	59	56	52
27	49	48			41	40	39	38	--	--			51	49	56	52	60	55	63	56	60	58	54	50
28	48	48			40	40	38	38	--	--			50	48	59	51	57	54	63	55	61	56	54	52
29	--	--			40	39	38	38	--	--			50	47	62	52	56	54	62	56	61	58	52	52
30	--	--			39	38	38	37	--	--			52	46	63	54	55	53	61	55	62	56	53	51
31	--	--			38	38	37	36	--	--			--	--	57	55	--	--	59	54	63	56	--	--
Average	50	50			--	--	40	40	--	--			--	--	56	51	54	52	61	56	62	58	57	54

ROGUE RIVER BASIN

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 1956.
Water temperatures: January 1953 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 93 ppm Mar. 11-20; minimum, 59 ppm May 21-31.
Hardness: Maximum, 42 ppm Mar. 11-20; minimum, 24 ppm May 21-31.
Specific conductance: Maximum daily, 206 micromhos Apr. 26; minimum daily, 61 micromhos May 28.
Water temperatures: Maximum, 71° F July 10, 22, 24, 25; minimum, 36° F Feb. 2.
EXTREMES, 1953-56.--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 micromhos Jan. 19, 1953.
Water temperatures: Maximum, 73° F Aug. 7, 8, 1955; minimum, 36° F Feb. 2, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1955 to September 1956 given in WSP 1448.

Chemical analyses, in parts per million, water year October 1955 to September 1956

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, 1955	1,176			7.9	2.9	5.6		50	1.7	2.6		0.3	--	73	0.11	248	32	0	26	0.4	92	7.2
Oct. 11-20.....	1,593			8.5	3.0	6.0		52	2.3	3.3		.3	0.00	84	.11	361	34	0	26	.4	97	7.1
Oct. 21-31.....	1,443			7.9	3.0	5.7		52	2.0	2.3		.5	--	79	.11	308	32	0	26	.4	94	7.2
Nov. 1-10.....	1,652			8.3	3.4	5.7		52	2.3	2.8		.0	--	80	.11	357	35	0	26	.4	94	7.0
Nov. 11-20	3,171			8.7	2.9	5.6		49	2.4	2.5		.2	.04	81	.11	693	34	0	26	.4	92	7.0
Nov. 21-30.....	4,722			8.3	2.9	5.5		47	2.9	2.8		.5	--	86	.12	1,100	33	0	26	.4	92	7.0
Dec. 1-10.....	6,699			9.1	2.9	5.0		46	3.2	2.8		.4	--	84	.11	1,520	35	0	24	.4	94	6.9
Dec. 11-20.....	10,300			8.3	3.1	4.4		47	2.6	2.5		.5	.10	86	.12	2,390	33	0	21	.3	90	6.9
Dec. 21-31.....	27,300			8.3	3.1	4.2		46	2.6	2.0		.5	--	84	.11	6,190	33	0	21	.3	86	7.0
Jan. 1-4, 10, 12, 28-31, 1956....	7,810			9.3	3.0	5.0		50	2.8	3.0		.6	--	87	.12	1,830	36	0	23	.4	93	6.9
Jan. 5-9, 11, 13-16	15,680			8.7	3.1	4.5		46	2.6	2.2		.9	.02	89	.12	3,770	34	0	23	.3	88	6.9
Jan. 17-27.....	19,110			7.7	2.5	4.1		42	2.0	1.5		.6	--	77	.10	3,970	30	0	23	.3	75	--
Feb. 1-10.....	5,285			9.5	3.0	4.8		50	3.3	2.2		.6	--	81	.11	1,150	36	0	22	.4	92	6.8
Feb. 11-20	4,741			9.1	3.5	4.6		50	3.3	2.2		.5	.01	83	.11	1,060	37	0	21	.3	92	7.1
Feb. 21-29.....	15,750			9.7	3.5	4.7		52	3.3	2.5		1.0	--	86	.12	3,660	39	0	20	.3	97	7.1
Mar. 1-10	7,640			9.9	3.6	5.0		54	3.2	3.0		.6	--	89	.12	1,840	40	0	21	.4	99	7.6
Mar. 11-20	6,553			11	3.6	5.1		58	3.1	2.2		.5	.02	93	.13	1,650	42	0	20	.3	104	7.5
Mar. 21-31	7,356			9.1	3.1	4.6		51	2.6	2.2		.5	--	83	.11	1,650	35	0	21	.3	91	7.2
Apr. 1-9, 19....	5,440			9.9	3.7	5.0		56	3.3	2.5		.4	--	84	.11	1,230	40	0	21	.4	102	7.5
Apr. 10-18, 20..	6,216			8.3	3.1	4.6		49	2.8	2.2		.3	.01	75	.10	1,260	33	0	22	.3	110	--

Apr. 21-30, 1956	6,390			8.7	3.1	4.6		51	2.7	2.0		.4	--	76	.10	1,310	34	0	21	.3	93	7.3
May 1-10	6,388			6.9	2.5	4.2		42	2.1	2.0		.3	--	65	.09	1,120	28	0	23	.3	75	7.0
May 11-20	7,150			6.6	2.7	4.0		41	1.8	1.5		.3	--	65	.09	1,250	28	0	23	.3	73	7.1
May 21-31	5,616			5.8	2.2	3.5		37	1.7	1.5		.3	--	59	.08	895	24	0	22	.3	68	6.8
June 1-10	5,045			6.6	2.2	3.7		40	2.0	1.5		.3	--	61	.08	831	26	0	22	.3	69	6.9
June 11-20	4,089			6.6	2.2	4.0		41	2.1	1.5		.4	--	64	.09	707	26	0	22	.3	72	7.0
June 21-30	3,189			6.9	2.8	4.1		43	2.0	1.8		.5	--	68	.09	586	29	0	22	.3	77	7.0
July 1-10	2,278			7.3	3.0	4.6		45	2.1	1.8		.5	--	74	.10	455	31	0	24	.4	83	7.1
July 11-20	1,978			6.6	2.7	4.6		45	1.4	1.8		.4	--	73	.10	390	28	0	24	.4	77	7.1
July 21-31	1,672			6.9	2.9	4.9		46	1.5	1.8		.5	--	77	.10	348	29	0	25	.4	83	7.1
Aug. 1-15	1,535			7.5	2.6	5.3		48	1.6	1.5		.2	--	76	.10	315	29	0	27	.4	85	7.1
Aug. 16-31	1,568			7.3	2.8	5.2		48	1.3	1.5		.2	0.02	76	.10	322	30	0	27	.4	85	7.3
Sept. 1-15	1,397			7.9	2.9	5.9		52	1.7	2.0		.2	--	79	.11	298	32	0	27	.5	90	7.2
Sept. 16-30	1,567			8.3	3.1	5.4		51	1.6	2.5		.3	.04	78	.11	330	33	0	24	.4	93	7.3
Weighted average	5,938			8.4	3.0	4.6		47	2.5	2.1		0.5	--	80	0.11	1,280	34	0	22	0.3	88	--

ROGUE RIVER BASIN--Continued

ROGUE RIVER AT GRANTS PASS, OREG.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement at approximately 12 m./

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

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