Quantity and Quality of Surface Waters of Alaska, October 1950 to September 1953

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1466

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Prepared under the direction of J. V. B. WELLS, *chief, Surface Water Branch,* S. K. LOVE, *chief, Quality of Water Branch*

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PREFACE

This report was prepared by the Geological Survey in the Water Resources Division, C. G. Paulsen, chief. The streamflow records were prepared under the general direction of J. V. B. Wells, chief, Surface Water Branch, and B. J. Peterson, chief, Basic Records Section, the data being collected and computed under the supervision of R. E. Marsh, district engineer, Surface Water Branch, Juneau, Alaska. The quality-of-water records were prepared under the general direction of S. K. Love, chief, Quality of Water Branch, and W. H. Durum, chief, Reports Section, the data being collected and computed under supervision of G. W. Whetstone, district chemist, succeeded by F. B. Walling, Quality of Water Branch, Palmer, Alaska.

CONTENTS

SCOPE OF WORK

This volume contains results of measurements of the flow and the chemical and physical quality of streams in the Territory of Alaska from October 1950 to September 1953. Since the beginning of stream-gaging work in Alaska in 1906, records of flow of streams and ditches have been obtained at about 310 gaging stations for periods ranging from a few months to 37 years. On Sept. 30, 1953, the Geological Survey was maintaining 64 gaging stations. Discharge measurements only were made at many other points during the 1951-53 water years; these are published near the end of the report.

Prior to 1948, records of chemical and physical composition of surface waters in Alaska consisted of a few turbidity measurements of the Copper River near Copper Center, in 1913, and chemical analyses of some surface waters of the Seward Peninsula, in 1914, of Yukon River basin, in 1915, and of the Yukon River at Anvik, 1915 to 1916. In 1948 a continuing chemical-quality program was started by the Geological Survey. Several miscellaneous samples were collected and analyzed that year, and regular sampling stations were established in 1949. During the period covered by this report records of chemical composition of surface waters were obtained at about 175 sites including 15 sites at which daily samples were collected during the open-water period. Sediment records were obtained at 11 sites during the same period.

COOPERATION

Assistance in the form of funds or services was given by the Corps of Engineers, Department of Army, in collecting streamflow records published herein for 12 gaging stations.

Assistance was also furnished by the Bureau of Reclamation of the United States Department of the Interior in the operation of one gaging station and the collection of numerous discharge measurements at points other than regular gaging stations.

DIVISION OF WORK

The stream-gaging work was done by the Water Resources Division of the Geological Survey under the direction of the personnel shown in the preface. The streamflow data were collected and prepared for publication in the Surface Water Branch district office, the address of which is 117 Federal and Territorial Building, Juneau.

The collection of samples for chemical and suspended sediment analyses, and water temperature measurements was under the direction of personnel of Quality of Water Branch assisted by the Surface Water Branch. Chemical and sediment analyses, computation of data, and preparation of records was done by the Quality of Water district office, Palmer, Alaska.

Information of a more detailed nature than that published for most of the gaging stations or sampling stations given in this report is on file in the district offices shown above. Provisional records of discharge prior to publication and other unpublished data concerning the records may usually be obtained from the district offices.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Cubic feet per second per square mile (cfsm) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Runoff in inches is the depth to which an area would be covered if all the water draining from it in a given period were uniformly distributed on its surface. The term is used for comparing runoff with rainfall, which is also usually expressed in inches.

Acre-foot is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet. The term is commonly used in relation to storage for irrigation.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, a long reach of the channel, or an artificial structure.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

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

Part per million (ppm) is a unit weight of constituent in a million unit weights of solution. The unit has a slightly different meaning when applied to sediment concentrations. A part per million of sediment is computed as one million times the ratio of the weight of sediment to the weight of water-sediment mixture.

Hardness as $CaCO_3$ is the calcium and magnesium expressed as an equivalent amount of calcium carbonate.

Carbonate hardness is the hardness caused by calcium and magnesium equivalent to the carbonate and bicarbonate.

Noncarbonate hardness is the hardness caused by calcium and magnesium in excess of the carbonate hardness.

Particle-size analyses are expressed in percentages finer than indicated sizes in millimeters. The size classification used in this report is that recommended by the American Geophysical Union Subcommittee on sediment terminology.[1]

Specific conductance (micromhos at 25°C) is one million times the reciprocal of specific resistance, at 25°C. Specific resistance is the resistance in ohms of a column of water 1 cm long and 1 square cm in cross section.

[1]Lane, E. W., et al., 1947, Report of the Subcommittee on Terminology: Am. Geophys. Union Trans., V. 28, p. 937.

Suspended sediment or suspended load is sediment that moves in suspension in water and is maintained in suspension by the upward components of turbulent currents or as a colloid. 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.

pH is the negative logarithm of the hydrogen ion concentration expressed in grams-moles per liter. However, when determined with a pH meter, which is the procedure normally used in Geological Survey laboratories, pH is an expression of the hydrogen-ion activity or the effective hydrogen-ion concentration.

DOWNSTREAM ORDER OF LISTING GAGING AND SAMPLING STATIONS

Gaging and sampling stations in this report are listed in a downstream direction along the main stem. All stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging or sampling station is situated and the stream to which it is immediately tributary, each indention in the listing of stations in the table of contents of this report represents one rank. This downstream order and system of indention show which gaging or sampling stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each station is situated.

EXPLANATION OF DATA

SURFACE WATER

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of fluctuations. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect determinations of peak discharge (such as slope-area or contracted-opening determinations, computation of flow over dams or weirs, and by other methods), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for

a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is essentially the shifting-control method.

At many gaging stations in Alaska the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins. If the stage-discharge relation is affected by ice, this information is given in a note to the table. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

The streamflow data presented herein comprise a description of the station and a table showing the daily discharge and the monthly and yearly discharge and runoff of the stream. Records are published on basis of the water year which begins on October 1 and ends on September 30.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, general remarks, and notations of revisions of the previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Records available" are given the periods for which there are published records generally equivalent to those at the present site. Under "Gage" are given the type of gage currently in use and the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of records available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given for each water year 1951-53 the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). In a summary paragraph are given the data for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in a separate paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published in a subsequent report. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" has been added to the description of all stations for which revised records have been published. In this paragraph are listed the

reports in which revisions of daily discharge have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are concerned in the revision, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. For stations in Alaska, however, monthly discharge for all stations prior to October 1950, were published in Water-Supply Paper 1372. Revisions of many monthly discharges as well as of previously published daily discharges were included in that report. The periods for which monthly discharge only is available and published in Water-Supply Paper 1372, are noted in the "Records available" paragraph. Therefore, the years for which revisions of monthly discharge only were made are not indicated under the "Revisions (water years)" paragraph. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such fluctuation the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day. For stations equipped with nonrecording gages, the table of daily discharge gives the discharge corresponding to once-daily readings of the gage, or to the mean of twice-daily readings, or to the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of daily discharge, the figures for the maximum day and the minimum day for each month are underlined. If the figure is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Runoff for the month may be expressed in cubic feet per second per square mile (line headed "Cfsm"), or in inches (line headed "In."), or in acre-feet (line headed "Ac-ft"). Figures for cubic feet per second per square mile and runoff in inches are omitted if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches.

In the yearly summary below the monthly summary, the figures of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights of most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in

parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man.

Footnotes to the table of daily discharge indicate periods when discharge was computed or estimated by unusual or special methods during periods of no gage-height record and ice effect, or by other effects that reduce the degree of accuracy of the records. Days on which discharge measurements were made are indicated by asterisk and footnote unless they were made at frequent regular intervals, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

QUALITY OF WATER

In general samples for chemical analysis were collected daily at 15 of the regular sampling stations during the open-water period, and periodically during the period of ice-cover. For the daily stations analyses were made of 10-day composites of daily samples. Three composites were prepared each month by combining equal volumes of daily samples collected from the 1st to the 10th, from the 11th to the 20th, and for the remainder of the month. Samples were collected less frequently at many other stations in Alaska.

Samples collected for chemical analysis were analyzed according to methods regularly used by the Geological Survey. The methods are essentially the same as or are modifications of methods, described in authoritative publications, for mineral analysis of water.[1, 2].

The value reported for dissolved solids is the residue on evaporation after drying at 180°C for 1 hour. Specific conductance is given for most of the analyses and was determined by means of a conductance bridge using a standard potassium chloride solution as reference.

The streamflow data are reported in two ways: For regular daily stations the daily mean discharge is reported, whereas values given for discharge in the tables of miscellaneous analyses are discharge at the time the sample was collected. Footnotes are used to indicate the latter.

Suspended-sediment samples were collected daily during the open-water season at 4 stations, and periodically at 10 stations. Samples were collected periodically during periods of ice-cover at all stations. Daily samples were collected with a US D-49 depth-integrating sampler from a fixed point at one vertical in the cross section. Depth-integrated samples at three or more verticals in the cross section were collected periodically at all sediment stations. Occasionally point-integrated samples were taken with a US P46 sampler.

Sediment concentrations were determined by weighing the solid residue after filtration or evaporation of the samples. For most stations the concentrations reported are instantaneous concentrations or concentration of composites of several daily samples. Monthly sediment loads were estimated for the Susitna River at Gold Creek during the summer of 1953. Mean daily concentrations were obtained for the Nenana River at Healy for the period during which daily samples were taken, by plotting the instantaneous concentration on a copy of the gage-height-recorder chart. The plotted concentrations were connected by a continuous curve. Daily mean concentrations were estimated from the graph. Footnotes

[1] American Public Health Assoc., Standard Methods for the examination of water and sewage, 9th ed. p. 1-112, 1946.
[2] Collins, W. D., Notes on practical water analysis; U. S. Geological Survey Water-Supply Paper 596-H, 1928.

to daily values in the tables are used to indicate methods of computation.

In addition to sediment concentrations and loads, records of particle size are reported also for most of the sediment stations. Generally particle size was determined by a combination of sieve analysis and bottom-withdrawal tube analysis (U. S. Inter-agency, 1943). Sizes larger than 0.062 mm (sand-size) were determined by sieve analysis and those smaller than 0.062 mm were determined by bottom-withdrawal tube analysis. Native or distilled water, as noted in the tables of analyses, was used as the settling medium. Usually distilled water with a dispersing agent was used. Results obtained with distilled water and a dispersing agent as a settling medium approximate the ultimate particle size of the finer fractions, whereas results obtained with native water as the settling medium more nearly simulate the particle size existing in the stream.

For most daily stations, water temperatures were obtained at the time the samples for chemical quality were collected. Where practicable, the water temperatures at a station were determined at about the same time each day in order to minimize diurnal variation of temperature. The thermometer used for temperature determinations was accurate to plus or minus 0.5°F.

The description of the station includes a statement giving the periods for which there are published records of water quality. Extremes for constituents, suspended sediment, and temperature are not given for regular stations owing to the short period of continuous records.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description states the degree of accuracy of the discharge records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more nearly accurate than the daily records.

Figures of cubic feet per second per square mile and runoff in inches are published only for stations in southeastern Alaska; they are not published for stations in the rest of the Territory, because the annual precipitation is generally less than 20 inches. Runoff varies widely in Alaska due to great differences in precipitation not only between sections of the Territory, but also at different elevations in the same areas. Generally speaking, annual precipitation is much greater in southeastern Alaska and along the coast to Seward than in the rest of the Territory. Even in southeastern Alaska annual precipitation may range from about 25 inches in the vicinity of Skagway in the northern part to about 150 inches near Ketchikan in the southern part, and may be as high as 180 inches at the southern tip of Baranof Island, all measured at or near sea level. However, precipitation increases with altitude, reaching a maximum at about 4,000 feet elevation. Consequently, runoff in inches as measured at low elevations on streams draining mountainous areas often totals nearly twice the precipitation measured at or near sea level in the same drainage basin. At nearly every gaging station in southeastern Alaska the measured annual runoff in inches exceeds the annual precipitation as measured at the nearest Weather Bureau station.

A compilation of records of streamflow in Alaska through September 1950 has been published as WSP 1372. Records prior to 1946 were published in Geological Survey bulletins or water-supply papers or in reports of other agencies. Summary tables in WSP 1372 indicate the reports in which this data was originally published. In some cases the earlier reports contain more detailed information than is published in WSP 1372. That report contains a summary of monthly and annual discharges through September 1946 for all previously published records as well as records of daily and monthly discharge for the years 1946-50, which had not been published previously. All records prior to 1946 were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical.

The reports referred to above contain, in addition to records of daily discharge at gaging stations, the results of discharge measurements at many points other than regular gaging stations.

Geological Survey reports containing data on quality of surface waters in Alaska prior to 1948 include the following:

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

Bulletin 770, The data of geochemistry, 1924.

Water-Supply Paper 372, A water-power reconnaisance in south-central Alaska, 1915.

Water-Supply Paper 418, Mineral springs of Alaska, 1917.

Records of chemical quality obtained from 1948 through September 1950 are presented in Water-Supply Paper 1372.

SOUTHEASTERN ALASKA

Winstanley Creek near Ketchikan

Location.--Lat 55°25', long 130°52', on right bank 0.3 mile downstream from Lower Winstanley Lake, 1.1 miles upstream from mouth, and 31 miles east of Ketchikan.

Drainage area.--13 sq mi, approximately.

Records available.--August 1936 to September 1938 (monthly discharge only, published in WSP 1372), August 1947 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 290 ft (by barometer).

Average discharge.--8 years, 148 cfs (107,100 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 855 cfs June 14 (gage height, 3.55 ft); minimum, 14 cfs Mar. 11, 14 (gage height, 0.85 ft).
1951-52: Maximum discharge during water year, 964 cfs Dec. 11 (gage height, 3.73 ft) minimum daily, 15 cfs Jan. 24.
1952-53: Maximum discharge during water year, 770 cfs Sept. 26 (gage height, 3.40 ft); minimum, 18 cfs Jan. 21 (gage height, 0.91 ft).
1936-38, 1947-53: Maximum discharge, 1,430 cfs Sept. 22, 1949 (gage height, 4.38 ft); minimum daily, 7 cfs Jan. 29 to Feb. 2, 1950.
Maximum stage known, 4.85 ft sometime during period October 1938 to July 1947 (discharge, about 1,800 cfs), from high-water mark in gage well.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are poor. Upper and Lower Winstanley Lakes above gage have areas of 465 and 175 acres, respectively.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	44	24	183	25	26	99	140	186	137	61	33
2	75	75	22	142	23	26	107	120	178	140	57	30
3	62	380	21	109	21	25	131	114	180	137	59	27
4	52	521	20	87	20	24	124	114	192	127	64	25
5	46	438	28	75	19	22	112	129	207	116	63	23
6	42	320	55	100	18	20	102	183	217	112	59	21
7	52	236	*73	110	17	20	100	236	217	107	55	20
8	115	172	83	120	22	18	104	262	213	102	52	40
9	247	132	82	120	22	16	102	258	223	96	48	*88
10	269	111	73	120	20	15	107	262	243	91	46	120
11	304	94	67	120	19	15	116	265	333	90	43	120
12	296	83	66	110	18	16	118	288	438	91	41	137
13	250	75	63	100	*17	16	112	288	541	90	39	135
14	207	62	59	90	19	14	102	280	764	85	65	120
15	166	52	56	80	22	16	96	296	672	82	97	102
16	137	45	59	68	29	16	94	337	452	86	118	86
17	111	39	59	60	34	16	96	342	320	94	180	76
18	88	35	100	55	34	17	96	312	254	109	192	67
19	72	32	109	52	35	18	*100	273	207	124	162	57
20	59	29	122	50	35	28	94	247	175	135	168	52
21	58	26	186	49	34	39	88	320	155	135	155	45
22	94	24	236	48	35	46	85	350	151	137	129	40
23	113	24	233	50	30	57	85	320	148	170	109	39
24	124	25	288	60	32	105	86	308	148	151	92	49
25	115	29	265	56	32	204	90	*276	151	127	78	50
26	98	29	207	48	32	195	111	280	151	111	69	48
27	80	29	169	42	29	165	131	269	142	96	59	44
28	69	28	161	38	28	146	172	233	133	84	53	50
29	58	27	226	34	-	151	186	213	133	*73	46	94
30	*51	25	269	30	------	131	168	201	137	69	41	155
31	46	-----	226	27	-----	112	-----	192	------	65	36	------
Total	3,650	3,241	3,707	2,433	721	1,735	3,314	7,708	7,661	3,369	2,536	1,993
Mean	118	108	120	78.5	25.8	56.0	110	249	255	109	81.8	66.4
Cfsm	9.08	8.31	9.23	6.04	1.98	4.31	8.46	19.2	19.6	8.38	6.29	5.11
In.	10.44	9.27	10.60	6.96	2.06	4.96	9.48	22.05	21.92	9.64	7.25	5.70
Ac-ft	7,240	6,430	7,350	4,830	1,430	3,440	6,570	15,290	15,200	6,680	5,030	3,950

Calendar year 1950: Max 521 Min 7 Mean 119 Cfsm 9.15 In. 124.54 Ac-ft 86,370
Water year 1950-51: Max 764 Min 14 Mean 115 Cfsm 8.85 In. 120.33 Ac-ft 83,440

Peak discharge (base, 650 cfs).--June 14 (8 p.m.) 855 cfs (3.55 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Jan. 5 to Feb. 12; discharge estimated on basis of weather records, recorded range in stage, and records for Ella Creek near Ketchikan.

Winstanley Creek near Ketchikan--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	168	96	55	20	152	31	95	104	194	166	56	a130
2	144	83	*50	20	150	29	80	110	210	194	52	a110
3	127	115	46	23	150	28	70	104	201	217	48	a100
4	114	217	48	25	152	26	66	93	244	244	46	a90
5	125	217	46	29	138	25	59	87	398	241	45	a80
6	170	217	43	29	128	24	52	80	368	234	43	a150
7	419	236	42	30	110	23	46	75	292	292	42	a220
8	556	258	42	29	*99	23	42	73	244	331	40	a230
9	462	243	109	29	114	25	39	82	217	327	39	a170
10	381	192	377	26	106	25	41	102	191	285	38	a140
11	391	148	879	25	97	25	42	135	182	248	37	a120
12	381	117	577	24	86	25	50	168	191	227	35	a110
13	419	96	368	25	72	24	67	207	217	207	34	a100
14	363	78	262	24	65	23	97	259	248	188	32	a300
15	265	65	191	23	59	23	160	285	288	171	30	a310
16	198	54	142	22	51	22	469	312	274	148	29	a300
17	151	47	110	22	46	21	501	331	241	126	35	a290
18	109	51	88	22	41	21	376	343	220	112	106	285
19	88	59	69	22	37	21	292	335	238	112	238	*241
20	73	56	57	21	34	20	224	*304	248	142	300	191
21	63	50	50	20	32	19	174	285	244	142	335	152
22	54	46	44	18	29	32	155	292	220	128	312	119
23	46	42	40	17	28	41	135	281	194	117	388	95
24	42	39	37	a15	31	51	117	244	185	108	389	82
25	*39	43	34	a16	34	80	138	217	*182	99	300	179
26	63	51	32	a20	34	130	174	194	182	87	227	424
27	223	60	30	a26	34	207	160	188	182	78	180	742
28	243	67	28	39	34	220	140	194	177	70	a350	776
29	198	66	26	67	33	182	119	204	174	66	a260	656
30	153	59	24	117	------	*148	102	198	168	63	a200	608
31	120	-----	22	150	-----	121	-----	191	------	58	a160	------
Total	6,348	3,168	3,966	995	2,176	1,715	4,282	6,077	6,814	5,228	4,406	7,500
Mean	205	106	128	32.1	75.0	55.3	143	196	227	169	142	250
Cfsm	15.8	8.15	9.85	2.47	5.77	4.25	11.0	15.1	17.5	13.0	10.9	19.2
In.	18.16	9.06	11.35	2.85	6.23	4.91	12.25	17.38	19.49	14.96	12.60	21.46
Ac-ft	12,590	6,280	7,870	1,970	4,320	3,400	8,490	12,050	13,520	10,370	8,740	14,880

Calendar year 1951: Max 879 Min 14 Mean 123 Cfsm 9.46 In. 128.59 Ac-ft 89,160
Water year 1951-52: Max 879 Min 15 Mean 144 Cfsm 11.1 In. 150.70 Ac-ft 104,500

Peak discharge (base, 650 cfs).--Dec. 11 (8 a.m.) 964 cfs (3.73 ft); Sept. 28 (2 a.m.) 831 cfs (3.51 ft).

* Discharge measurement made on this day.

a Doubtful or no gage-height record; discharge estimated on basis of weather records and records for Ella and Manzanita Creeks near Ketchikan.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	501	270	84	52	35	60	56	185	191	214	59	207
2	465	281	78	56	67	55	58	180	214	285	54	174
3	352	335	90	66	106	82	69	201	224	262	49	142
4	259	312	84	84	119	132	106	304	214	220	46	114
5	198	252	*73	86	108	138	110	352	201	180	42	91
6	158	201	63	78	93	142	99	347	191	155	40	77
7	138	163	54	69	*102	281	86	347	180	133	38	67
8	142	130	50	58	93	566	*70	368	185	124	37	75
9	128	106	47	49	124	546	62	356	198	117	37	114
10	110	91	47	42	177	372	58	319	191	108	54	126
11	117	82	50	38	152	270	56	304	185	108	84	119
12	130	91	90	34	148	204	51	352	178	126	84	119
13	121	114	204	30	135	158	47	356	163	145	73	207
14	108	106	248	28	124	121	44	331	152	135	63	241
15	220	91	210	25	104	95	42	300	*142	124	56	238
16	259	91	163	25	86	82	39	270	130	133	51	210
17	511	89	126	24	72	73	42	252	152	238	49	364
18	521	168	99	23	62	63	49	244	163	319	*51	394
19	368	304	78	21	56	56	75	262	148	331	55	319
20	315	274	72	19	58	47	114	262	135	281	55	266
21	277	244	60	18	106	44	140	234	126	238	55	227
22	259	217	55	22	128	42	138	214	117	214	55	a250
23	255	177	55	26	108	47	121	198	114	207	51	a230
24	252	145	75	26	91	73	104	198	114	185	50	a400
25	207	118	77	25	95	77	93	230	114	166	49	a350
26	166	100	75	24	97	72	102	259	114	142	46	a700
27	138	86	67	24	84	66	130	248	114	124	51	a600
28	126	78	63	23	70	65	204	259	114	106	60	a450
29	210	91	60	23	-	66	204	270	114	89	135	a360
30	*288	92	55	23	------	62	188	234	133	77	230	a290
31	304	-----	52	26	-----	58	-----	204	------	67	227	------
Total	7,603	4,899	2,704	1,167	2,800	4,215	2,757	8,440	4,711	5,353	2,086	7,521
Mean	245	163	87.2	37.6	100	136	91.9	272	157	173	67.3	251
Cfsm	18.8	12.5	6.71	2.89	7.69	10.5	7.07	20.9	12.1	13.3	5.18	19.3
In.	21.75	14.01	7.74	3.34	8.01	12.06	7.89	24.14	13.48	15.31	5.97	21.52
Ac-ft	15,080	9,720	5,360	2,310	5,550	8,360	5,470	16,740	9,340	10,620	4,140	14,920

Calendar year 1952: Max 776 Min 15 Mean 149 Cfsm 11.5 In. 155.63 Ac-ft 107,900
Water year 1952-53: Max 700 Min 18 Mean 149 Cfsm 11.5 In. 155.22 Ac-ft 107,600

Peak discharge (base, 650 cfs).--Sept. 26 (time unknown) 770 cfs (3.40 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for Ella and Manzanita Creeks near Ketchikan.

Harding River near Wrangell

Location.--Lat 56°13', long 131°38', on right bank 1 mile upstream from mouth on north shore of Bradfield Canal, 4 miles downstream from Fall Lake, and 34 miles southeast of Wrangell.

Drainage area.--95 sq mi, approximately.

Records available.--August 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (by barometer).

Extremes.--1951: Maximum discharge during period August to September, 2,670 cfs Sept. 9 (gage height, 8.37 ft); minimum, 220 cfs Sept. 28 (gage height, 5.03 ft).
1951-52: Maximum discharge during water year, 6,340 cfs July 8 (gage height, 11.42 ft); minimum not determined.
1952-53: Maximum discharge during water year, 9,820 cfs Oct. 2 (gage height, 13.84 ft), from rating curve extended above 4,500 cfs; minimum not determined.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Fall Lake, at elevation 182 ft, has an area of 170 acres.

Discharge, in cubic feet per second, 1951

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	a700	470	9	547	2,170	17	931	634	25	465	375
2	a800	542	10	616	1,320	18	692	882	26	415	285
3	a850	575	11	770	1,100	19	569	653	27	420	238
4	a700	547	12	738	889	20	1,360	460	28	395	242
5	a640	536	13	692	910	21	1,030	420	29	450	574
6	a580	503	14	1,310	705	22	705	415	30	514	1,090
7	*564	*503	15	1,030	604	23	558	525	31	520	-
8	558	1,660	16	784	604	24	525	686			
Total										21,428	21,117
Mean										691	704
Cubic feet per second per square mile										7.27	7.41
Runoff in inches										8.39	8.27
Runoff in acre-feet										42,500	41,880

Peak discharge (base, 3,500 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Cascade Creek near Petersburg.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	646	160	120					390	1,000	1,740	1,110	1,740
2	530	198	114					415	1,070	1,960	861	1,400
3	470	558	112					395	882	1,550	973	698
4	385	1,320	116					366	1,180	1,300	1,020	520
5	542	672	112				120	334	1,800	1,240	966	430
6	1,400	966	110					325	1,120	1,230	903	775
7	3,220	840	104					325	777	3,620	889	1,450
8	1,760	666	118					385	777	4,760	924	757
9	812	514	231					508	770	2,100	903	498
10	744	338	1,590				112	698	896	1,570	882	410
11	2,240	265	1,560				120	903	1,610	1,880	840	1,050
12	1,170	220	731				155	952	1,830	1,950	889	686
13	875	192	400				245	1,300	1,820	1,950	945	2,090
14	580	172	285				366	1,400	1,780	1,930	718	*3,820
15	400	158	220				558	*1,340	1,300	1,340	712	1,500
16	313	142	189	90	90	100						
17	249	148					2,110	1,470	1,060	994	889	1,250
18	214	170					966	1,500	1,110	980	2,430	1,350
19	195	165					547	1,620	1,190	973	2,420	1,550
20	178	135					405	1,670	*1,340	1,540	2,350	1,430
21	165	118					330	1,310	1,350	1,420	3,440	805
22	*155	120					309	1,180	1,280	1,010	2,620	622
23	148	118					301	1,270	1,280	1,340	1,790	580
24	132	114	110				281	1,060	1,240	1,540	1,170	542
25	126	132					317	791	1,420	1,390	833	866
26	192	165					465	705	1,470	1,140	660	2,860
27	395	162					564	770	1,440	987	558	2,020
28	293	158					390	917	1,240	952	1,050	2,150
29	231	142				(*)	334	1,390	1,450	1,020	3,540	2,180
30	183	128			------		301	1,570	1,790	1,090	1,060	2,430
31	162	-----			-----		289	1,160	1,780	1,100	634	2,800
							-----	1,100	------	1,120	552	------
Total	19,105	9,356	7,762	2,790	2,610	3,100	10,545	29,519	39,052	48,716	39,531	41,259
Mean	616	312	250	90	90	100	352	952	1,302	1,571	1,275	1,375
Cfsm	6.48	3.28	2.63	0.947	0.947	1.05	3.71	10.0	13.7	16.5	13.4	14.5
In.	7.48	3.66	3.04	1.09	1.02	1.21	4.13	11.56	15.29	19.07	15.48	16.15
Ac-ft	37,890	18,560	15,400	5,530	5,180	6,150	20,920	58,550	77,460	96,630	78,410	81,840

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 4,760 Min - Mean 692 Cfsm 7.28 In. 99.18 Ac-ft 502,500

Peak discharge (base, 3,500 cfs).--Oct. 7 (2:30 a.m.) 4,450 cfs (9.96 ft); Oct. 11 (1 p.m.) 4,030 cfs (9.60 ft); July 8 (6:30 a.m.) 6,340 cfs (11.42 ft); Aug. 17 (11 p.m.) 3,890 cfs (9.48 ft); Aug. 20 (12:30 p.m.) 4,080 cfs (9.64 ft); Aug. 28 (6:30 a.m.) 5,480 cfs (10.79 ft); Sept. 14 (1:30 p.m.) 5,150 cfs (10.53 ft); Sept. 25 (12 p.m.) 3,960 cfs (9.54 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Jan. 12 to Feb. 3, Feb. 18 to Mar. 28, Mar. 30 to Apr. 9; discharge estimated on basis of 1 discharge measurement, weather records, and records for Cascade Creek near Petersburg and Medvetcha River near Sitka. Stage-discharge relation affected by ice Dec. 17 to Jan. 11, Feb. 4-17, Mar. 29.

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Harding River near Wrangell--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,630	770	165	145		150	116	757	1,130	2,430	653	868
2	4,360	1,490	165	148		158	122	712	1,330	1,700	604	598
3	1,130	1,280	183			330	148	868	1,340	1,300	610	498
4	634	672	*170			265	220	1,190	1,220	1,040	750	525
5	580	481	155			172	*238	1,340	1,220	1,000	854	569
6	757	430	142			142	201	1,320	1,370	924	724	569
7	564	470	132			180	172	1,360	1,540	1,170	718	455
8	470	361	132			250	165	1,400	1,990	1,360	805	764
9	380	334	130			200	189	1,190	2,190	1,420	574	2,100
10	338	400	128			150	198	959	1,650	1,400	1,440	882
11	2,020	525	124			130	195	798	*1,280	1,770	952	1,020
12	1,240	574	316			120	175	1,070	1,220	1,750	558	987
13	698	410	628			110	160	1,440	1,230	1,170	503	2,200
14	702	352	525			106	148	1,390	1,190	1,130	*646	1,910
15	1,720	289	334			102	145	1,120	1,080	1,350	770	1,350
16	875	281	238		110	106	162	1,020	1,100	1,490	924	1,010
17	1,730	277	183	100		118	234	1,160	1,380	1,960	987	1,540
18	1,300	988	175			110	348	1,320	973	1,570	784	1,280
19	1,270	1,020	165			104	470	1,760	875	1,270	604	*966
20	3,460	525	160			104	514	1,410	875	910	514	896
21	2,020	514	148			98	481	1,040	980	861	498	931
22	1,360	415	140			98	410	966	1,180	819	536	1,520
23	1,040	313	152			104	325	1,020	1,150	777	514	952
24	966	261	186			183	281	1,420	1,240	833	819	3,240
25	604	231	183			180	293	1,870	1,200	861	564	1,810
26	*435	198	180			148	435	1,880	1,280	868	481	1,750
27	498	186	170			138	757	1,680	1,500	847	653	1,560
28	1,640	183	155			142	1,060	1,800	1,510	718	622	861
29	2,580	204	162		-	145	712	1,570	1,740	666	3,440	569
30	1,460	183	152		------	132	634	1,010	2,670	686	2,350	435
31	903	------	140		------	120	-----	917	------	692	1,360	------
Total	41,364	14,617	6,120	3,193	3,080	4,595	9,708	38,757	40,633	36,742	26,811	34,615
Mean	1,334	487	197	103	110	148	324	1,250	1,354	1,185	865	1,154
Cfsm	14.0	5.13	2.07	1.08	1.16	1.56	3.41	13.2	14.3	12.5	9.11	12.1
In.	16.19	5.72	2.40	1.25	1.21	1.80	3.80	15.17	15.91	14.38	10.50	13.55
Ac-ft	82,040	28,990	12,140	6,330	6,110	9,110	19,260	76,870	80,590	72,880	53,180	68,660

Calendar year 1952: Max 4,760 Min - Mean 763 Cfsm 8.03 In. 109.31 Ac-ft 553,800
Water year 1952-53: Max 4,360 Min - Mean 713 Cfsm 7.51 In. 101.88 Ac-ft 516,200

Peak discharge (base, 3,500 cfs).--Oct. 2 (3 a.m.) 9,820 cfs (13.84 ft); Oct. 20 (6:30 a.m.) 5,400 cfs (10.73 ft); Aug. 29 (12:30 p.m.) 5,480 cfs (10.79 ft); Sept. 24 (12 m.) 5,340 cfs (10.68 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 18, 19, Jan. 3 to Mar. 1, Mar. 7-13.

Cascade Creek near Petersburg

Location.--Lat 57°01', long 132°47', on right bank 0.25 mile upstream from mouth on east shore of south arm of Thomas Bay, 2¾ miles downstream from Swan Lake, and 15 miles northeast of Petersburg.

Drainage area.--23.0 sq mi.

Records available.--October 1917 to November 1928 (monthly discharge only January 1921 to November 1928, published in WSP 1372), October 1946 to September 1953. Published as "at Thomas Bay, near Petersburg" October 1917 to September 1928.

Gage.--Water-stage recorder. Altitude of gage is 120 ft (by barometer). Prior to October 1946, at different datum.

Average discharge.--18 years, 247 cfs (178,800 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 1,220 cfs June 14 (gage height, 6.57 ft); minimum daily, 20 cfs Mar. 9, 10.
1951-52: Maximum discharge during water year, 1,800 cfs July 8 (gage height, 7.67 ft); minimum, 24 cfs Mar. 19-21 (gage height, 1.64 ft).
1952-53: Maximum discharge during water year, 1,450 cfs Oct. 1 (gage height, 7.04 ft); minimum daily, 23 cfs Jan. 30 to Feb. 2.
1917-28, 1946-53: Maximum discharge, 3,280 cfs Sept. 11, 1947 (gage height, 10.0 ft, from floodmarks), from rating curve extended above 1,000 cfs; minimum, 11 cfs Mar. 27, 1948 (result of low temperature).

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are fair. Swan Lake, at elevation about 1,500 ft, has an area of 614 acres and a drainage area of 18.9 sq mi.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	131	68	34	49	27	24	31	47	345	490	270	187
2	118	78	33	47	27	24	39	46	380	500	390	190
3	106	181	32	45	27	24	41	53	393	470	*450	201
4	98	306	32	43	26	23	32	58	433	460	372	205
5	89	207	33	42	26	22	30	71	490	493	292	205
6	85	158	48	75	26	21	38	94	517	520	255	*196
7	103	134	43	70	26	21	38	100	544	523	234	199
8	255	113	43	54	26	21	32	115	646	496	230	488
9	280	106	50	54	26	20	34	175	720	493	226	685
10	259	110	44	52	25	20	40	261	952	577	228	550
11	362	98	41	51	25	21	62	320	1,060	608	242	484
12	288	87	49	51	25	21	50	372	1,070	636	259	428
13	228	78	56	50	25	22	41	433	1,040	604	272	428
14	181	73	50	49	25	22	36	439	1,110	565	433	390
15	159	68	46	45	26	21	*36	467	972	520	481	322
16	136	64	51	43	28	21	38	532	668	487	493	285
17	120	62	48	40	27	22	39	544	517	467	559	301
18	107	58	46	38	26	24	44	476	481	496	541	439
19	97	54	44	36	26	40	41	390	401	514	439	385
20	87	52	57	35	26	54	41	343	350	473	553	290
21	109	49	52	34	25	56	43	441	331	484	584	234
22	140	47	47	32	25	41	47	430	360	796	453	196
23	111	45	56	31	25	38	50	365	385	728	355	255
24	110	43	75	30	25	47	50	310	400	517	299	212
25	100	41	58	30	24	47	51	287	580	401	255	165
26	90	40	57	29	24	36	61	306	540	348	226	138
27	85	38	56	29	24	31	59	287	450	315	201	120
28	80	37	59	28	24	30	82	299	440	290	176	111
29	76	36	65	28	-	30	68	308	450	274	170	123
30	73	*35	58	28	------	29	54	315	480	270	176	138
31	70	-----	51	28	------	28	-----	329	------	274	182	------
Total	4,333	2,566	1,514	1,296	717	901	1,348	9,011	17,505	15,089	10,296	8,550
Mean	140	85.5	48.8	41.8	25.6	29.1	44.9	291	584	487	332	285
Cfsm	6.09	3.72	2.12	1.82	1.11	1.27	1.95	12.7	25.4	21.2	14.4	12.4
In.	7.01	4.15	2.45	2.10	1.16	1.46	2.18	14.57	28.30	24.40	16.65	13.82
Ac-ft	8,590	5,090	3,000	2,570	1,420	1,790	2,670	17,870	34,720	29,930	20,420	16,960

Calendar year 1950: Max 1,240 Min - Mean 198 Cfsm 8.61 In. 117.05 Ac-ft 143,600
Water year 1950-51: Max 1,110 Min 20 Mean 200 Cfsm 8.70 In. 118.25 Ac-ft 145,000

Peak discharge (base, 1,100 cfs).--June 14 (2 p.m.) 1,220 cfs (6.57 ft).
* Discharge measurement made on this day.
Note.--Doubtful or no gage-height record Nov. 21-28, Jan. 3-5, Jan. 15 to Feb. 8, Mar. 4-20, June 24 to July 4; discharge estimated on basis of weather records at Petersburg and records for Medvetcha River near Sitka

Cascade Creek near Petersburg--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	74	46	39	*46	28	27	51	333	580	436	630
2	133	108	44	42	38	28	26	50	338	728	420	682
3	142	171	42	38	38	27	26	48	296	643	428	447
4	126	267	42	36	38	27	26	48	348	529	425	333
5	226	265	40	36	37	27	26	47	430	481	380	261
6	836	296	38	35	36	26	26	49	380	458	350	303
7	880	265	38	34	34	26	25	51	308	1,230	343	358
8	760	236	44	34	36	26	25	57	287	1,580	345	272
9	517	173	65	34	40	27	26	71	278	1,070	343	194
10	398	139	139	34	35	26	31	83	278	748	324	*178
11	671	120	111	33	33	26	32	102	343	671	303	388
12	580	105	142	32	33	26	47	171	433	692	306	326
13	401	94	126	31	32	25	58	417	535	713	320	736
14	281	83	111	a30	34	25	55	*414	618	732	290	1,150
15	194	77	100	a29	32	25	58	425	499	598	265	936
16	152	71	89	a29	30	25	131	433	433	484	303	654
17	128	68	78	a28	a29	25	68	428	422	417	a980	511
18	110	68	74	a28	a29	25	62	447	*439	388	a1,100	514
19	97	66	68	a27	a28	24	56	470	439	615	a960	559
20	89	64	65	a27	a28	24	52	439	458	682	1,030	439
21	81	62	64	a27	a28	24	52	464	493	526	784	333
22	77	59	61	a26	a27	36	47	411	520	499	590	285
23	72	57	59	a26	a27	32	46	348	514	529	453	259
24	67	53	57	a26	32	29	51	287	514	529	343	354
25	65	57	54	a25	30	35	70	267	505	481	270	724
26	64	57	50	a25	29	59	62	257	538	430	222	688
27	64	54	48	a28	28	*66	50	261	496	403	336	732
28	62	52	47	a35	28	43	47	322	529	406	685	844
29	59	49	46	52	29	34	47	370	584	414	476	732
30	56	47	44	54	-----	30	46	370	547	411	333	828
31	52	-----	41	48	-----	28	-----	336	------	411	283	------
Total	7,575	3,357	2,073	1,028	944	934	1,401	7,994	13,135	19,078	14,426	15,650
Mean	244	112	66.9	33.2	32.6	30.1	46.7	258	438	615	465	522
Cfsm	10.6	4.87	2.91	1.44	1.42	1.31	2.03	11.2	19.0	26.7	20.2	22.7
In.	12.25	5.43	3.35	1.66	1.53	1.51	2.27	12.93	21.24	30.85	23.33	25.31
Ac-ft	15,020	6,660	4,110	2,040	1,870	1,850	2,780	15,860	26,050	37,840	28,610	31,040

Calendar year 1951: Max 1,110 Min 20 Mean 213 Cfsm 9.26 In. 125.67 Ac-ft 154,100
Water year 1951-52: Max 1,580 Min 24 Mean 239 Cfsm 10.4 In. 141.66 Ac-ft 173,700

Peak discharge (base, 1,100 cfs).--July 8 (5 a.m.) 1,800 cfs (7.67 ft); Aug. 17 or 18 (time and discharge unknown); Aug. 20 (7 a.m.) 1,120 cfs (6.38 ft); Sept. 14 (2 a.m.) 1,200 cfs (6.55 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Medvetcha River near Sitka and weather records for Petersburg.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	972	332	63	50	23	26	24	74	362	774	260	408
2	1,180	382	63	48	23	30	28	77	395	551	250	304
3	628	370	63	50	25	53	36	93	422	465	242	240
4	385	280	60	52	*28	37	36	195	428	352	252	220
5	336	214	56	47	28	30	30	284	438	320	282	264
6	382	186	54	44	25	32	28	358	449	310	292	310
7	300	168	51	41	28	49	28	350	458	340	298	292
8	240	155	49	38	27	48	28	380	544	405	314	340
9	195	151	47	36	32	34	32	368	655	440	304	428
10	186	155	45	34	28	29	34	330	*537	443	579	352
11	304	161	44	33	28	27	32	276	452	494	524	430
12	410	152	88	32	37	26	30	306	422	558	*398	390
13	330	•133	104	31	31	25	28	385	418	476	345	618
14	386	117	87	30	31	25	28	402	432	435	512	854
15	551	98	78	29	28	26	29	365	398	446	832	548
16	422	90	76	28	26	28	32	334	425	470	954	432
17	596	85	73	27	25	28	45	330	435	470	614	509
18	521	161	67	27	25	26	56	334	370	420	438	*506
19	449	168	64	26	26	26	61	385	334	418	338	452
20	769	141	61	25	37	26	62	398	326	378	284	342
21	572	134	59	25	65	25	60	358	336	318	258	292
22	537	124	57	30	39	25	51	328	378	280	236	260
23	428	111	62	30	30	25	44	328	412	266	224	286
24	420	97	65	29	31	31	39	370	430	274	228	590
25	*320	87	66	29	39	30	42	430	420	288	204	537
26	242	78	69	28	30	27	58	482	432	294	177	400
27	292	74	62	27	27	26	74	482	467	300	266	350
28	600	71	59	26	26	27	78	655	497	284	254	250
29	687	69	57	25	-	27	65	607	687	264	1,020	192
30	600	66	54	23	------	25	67	430	985	260	980	158
31	415	-----	52	23	-----	25	-----	358	------	260	614	------
Total	14,655	4,610	1,955	1,023	848	924	1,285	10,852	13,744	12,053	12,773	11,554
Mean	473	159	63.1	33.0	30.3	29.8	42.8	350	458	389	412	385
Cfsm	20.6	6.91	2.74	1.43	1.32	1.30	1.86	15.2	19.9	16.9	17.9	16.7
In.	23.70	7.45	3.16	1.65	1.37	1.49	2.08	17.55	22.22	19.49	20.65	18.68
Ac-ft	29,070	9,140	3,880	2,030	1,680	1,830	2,550	21,520	27,260	23,910	25,330	22,920

Calendar year 1952: Max 1,580 Min 24 Mean 262 Cfsm 11.4 In. 154.94 Ac-ft 190,000
Water year 1952-53: Max 1,180 Min 23 Mean 236 Cfsm 10.3 In. 139.49 Ac-ft 171,100

Peak discharge (base, 1,100 cfs).--Oct. 1 (10:30 p.m.) 1,450 cfs (7.04 ft); Aug. 16 (3 a.m.) 1,160 cfs (6.45 ft); Aug. 29 (11:30 a.m.) 1,180 cfs (6.49 ft). * Discharge measurement made on this day.

Note.--No gage-height record Jan. 8 to Feb. 4; discharge estimated on basis of weather records and records for Sawmill Creek near Sitka.

Scenery Creek near Petersburg

Location.--Lat 57°05', long 132°47', on right bank at east end of Scenery Cove on Thomas Bay, a quarter of a mile upstream from mouth and about 20 miles northeast of Petersburg.

Drainage area.--30.0 sq mi.

Records available.--September 1949 to September 1952. Discharge measurements only in 1953.

Gage.--Water-stage recorder. Altitude of gage is 25 ft (from river-profile map).

Extremes.--1950-51: Maximum discharge during water year, 2,020 cfs June 14 (gage height, 3.77 ft); minimum not determined.
1951-52: Maximum discharge during water year, 3,460 cfs July 7 (gage height, 4.80 ft), from rating curve extended above 1,500 cfs; minimum not determined.
1949-52: Maximum discharge, 4,300 cfs Sept. 23, 1949 (gage height, 5.28 ft), from rating curve extended above 1,500 cfs; minimum not determined.

Remarks.--Records fair except those for periods of doubtful or no gage-height record, which are poor. Scenery Lake, about 3 miles above station, has an area of 544 acres. No regulation or diversion above station. Discharge measurements, in cubic feet per second, made on this site during water year 1953 are as follows:

Oct. 25.....	434	Apr. 4.....	68.8
Dec. 3.....	88.6	Sept.17.....	576

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	180	110					58	135	352	583	317	250
2	165	145					68	130	370	600	383	250
3	155	402					70	145	*395	559	*440	255
4	155	340					58	153	421	540	392	260
5	155	253					56	195	460	583	343	260
6	157	220					68	261	488	616	308	*245
7	189	189					66	277	517	616	291	250
8	370	165					58	314	571	579	283	481
9	322	153					60	343	655	583	280	655
10	328	153					70	380	946	621	280	567
11	495	145					96	417	1,280	646	291	544
12	464	130					82	447	1,240	664	305	502
13	325	115					70	481	1,120	664	314	502
14	250	100					62	484	1,520	625	424	478
15	218	85	60	55	33	38	*65	481	1,080	579	457	434
16	198	75					66	528	711	552	427	401
17	180	65					70	510	548	525	536	389
18	165	58					80	460	492	532	540	492
19	150	52					78	395	421	540	464	484
20	140	48					80	383	376	495	544	437
21	187	44					90	502	364	520	600	398
22	209	41					100	450	386	854	525	358
23	157	38					115	389	398	735	444	346
24	*157	36					120	343	430	555	392	340
25	148	35					135	322	655	453	343	314
26	140	34					155	334	587	417	311	297
27	132	33					147	325	528	401	288	280
28	125	32					182	322	514	373	266	266
29	120	31			-		170	325	544	349	250	255
30	115	*30			------		143	325	571	334	240	266
31	110	------			------		------	325	------	328	245	------
Total	6,361	3,357	1,860	1,705	924	1,178	2,738	10,881	18,940	17,021	11,523	11,256
Mean	205	112	60.0	55.0	33.0	38.0	91.3	351	631	549	372	375
Cfsm	6.83	3.73	2.00	1.83	1.10	1.27	3.04	11.7	21.0	18.3	12.4	12.5
In.	7.89	4.16	2.31	2.11	1.15	1.46	3.39	13.49	23.48	21.10	14.28	13.95
Ac-ft	12,620	6,660	3,690	3,380	1,830	2,340	5,430	21,580	37,570	33,760	22,860	22,330

Calendar year 1950: Max 1,860 Min - Mean 247 Cfsm 8.23 In. 111.90 Ac-ft 179,000
Water year 1950-51: Max 1,520 Min - Mean 240 Cfsm 8.00 In. 108.77 Ac-ft 174,000

Peak discharge (base, 1,600 cfs).--June 14 (11 a.m.) 2,020 cfs (3.77 ft).
* Discharge measurement made on this day.
Note.--Doubtful or no gage-height record Oct. 13, 17-20, 25-31, Nov. 2-30, Dec. 1 to Apr. 25, May 1-3, July 21, Aug. 29 to Sept. 5; discharge estimated on basis of weather records and records for Cascade Creek near Petersburg.

Scenery Creek near Petersburg--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	272	90	48		*64	38	79	120	386	517	464	555
2	264	140	46		50	36	70	[illegible]	398	563	467	701
3	277	245	44		45	35	66	[illegible]	395	587	464	625
4	277	322	43		47	34	62	[illegible]	408	559	460	450
5	343	302	42		49	33	64	110	478	540	453	350
6	1,010	386	41		50	33	67	110	525	521	440	370
7	1,010	334	40		50	33	64	120	464	2,060	430	400
8	871	294	50		55	33	60	120	421	2,520	421	350
9	608	240	100		62	33	60	120	398	1,220	414	300
10	506	190	200		60	35	72	120	386	801	405	*269
11	730	160	170		55	35	90	130	389	711	398	386
12	634	140	120		56	35	107	220	424	692	392	320
13	506	120	100		52	35	130	525	478	716	389	770
14	350	110	94		51	33	139	*506	532	716	383	1,520
15	280	100	88		56	33	145	492	552	621	373	1,120
16	220	90	84	42	51	33	202	488	521	536	370	730
17	180	85	80		47	35	139	488	*495	470	903	567
18	160	80	76		44	33	122	488	488	430	1,200	571
19	140	75	72		41	33	118	495	481	540	1,060	567
20	130	70	70		39	32	113	484	470	616	1,100	457
21	110	67	68		38	32	111	474	478	583	760	392
22	100	64	66		39	48	113	467	488	559	600	355
23	95	62	64		40	88	122	457	492	559	492	328
24	90	60	62		45	90	130	408	495	555	421	367
25	85	65	58		43	92	151	376	492	544	367	701
26	80	62	56		41	*115	189	361	495	521	328	711
27	80	58	52		39	187	163	349	488	499	373	683
28	85	*55	50		38	141	141	355	492	484	646	796
29	80	52	48		38	111	130	373	517	474	579	755
30	75	50	47		------	99	126	386	517	467	495	934
31	70	-----	45		-----	87	-----	395	------	464	447	------
Total	9,718	4,168	2,224	1,302	1,385	1,770	3,345	9,877	14,043	21,645	16,494	17,400
Mean	313	139	71.7	42	47.8	57.1	112	319	468	698	532	580
Cfsm	10.4	4.63	2.39	1.40	1.59	1.90	3.73	10.6	15.6	23.3	17.7	19.3
In.	12.05	5.17	2.76	1.61	1.72	2.19	4.15	12.24	17.41	26.83	20.45	21.57
Ac-ft	19,280	8,270	4,410	2,580	2,750	3,510	6,630	19,590	27,850	42,930	32,720	34,510

Calendar year 1951: Max 1,520 Min - Mean 253 Cfsm 8.43 In. 114.39 Ac-ft 183,000
Water year 1951-52: Max 2,520 Min - Mean 282 Cfsm 9.40 In. 128.15 Ac-ft 205,000

Peak discharge (base, 1,600 cfs).--July 7 (9:30 p.m.) 3,460 cfs (4.80 ft); Aug. 17 (12 p.m.) 2,260 cfs (3.97 ft); Sept. 14 (1:30 a.m.) 1,810 cfs (3.59 ft).

* Discharge measurement made on this day.

Note.--Doubtful or no gage-height record Oct. 14 to Nov. 2, Nov. 9 to Feb. 8, Feb. 18-27, Mar. 2-5, May 1-12, Sept. 4-9; discharge estimated on basis of 2 discharge measurements, weather records, and records for Cascade Creek near Petersburg.

Long River near Juneau

Location.--Lat 58°10'00", long 133°41'50", on right bank three-eighths of a mile upstream from Indian Lake, 1 mile downstream from Long Lake, and 27 miles southeast of Juneau.

Drainage area.--32.5 sq mi.

Records available.--October 1915 to September 1924, October 1926 to May 1933, October 1951 to September 1953. Monthly discharge records only for some periods, published in WSP 1372. Prior to October 1930, published as "below Second Lake, at Port Snettisham."

Gage.--Water-stage recorder. Altitude of gage is 183 ft. Prior to Oct. 1, 1929, at site 600 ft upstream at different datum.

Average discharge.--16 years (1915-24, 1927-32, 1951-53), 459 cfs (332,300 acre-ft per year).

Extremes.--1951-52: Maximum discharge during water year, 3,380 cfs Sept. 14 (gage height, 8.28 ft); minimum not determined.

1952-53: Maximum discharge during water year, 3,760 cfs Aug. 14 (gage height, 8.75 ft); minimum not determined.

1915-24, 1926-33, 1951-53: Maximum discharge, 6,000 cfs Sept. 10, 1927 (gage height, 10.2 ft, site and datum then in use), from rating curve extended above 1,700 cfs by logarithmic plotting; minimum recorded, 22 cfs Mar. 22, 1933.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1372: 1921, drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	190	47	44					145	516	896	878	1,400
2	180	76	42					148	537	1,060	849	1,270
3	170	99	42					145	484	1,070	821	919
4	170	218	42					143	502	932	809	713
5	250	218	40					160	582	777	773	618
							70					
6	900	280	42					190	568	793	737	572
7	1,200	392	46					194	506	1,460	733	628
8	1,100	368	61					179	492	1,970	761	530
9	700	302	104					179	460	1,480	797	410
10	500	233	186					190	506	1,230	789	383
						33						
11	1,000	188	255				100	208	656	1,160	757	677
12	600	152	227				110	320	789	1,180	761	576
13	450	127	*192				130	520	870	1,260	777	1,040
14	350	107	164				150	523	1,010	1,280	737	3,070
15	280	88	141				170	520	878	1,140	688	2,880
				38	38							
16	230	76	b120				350	537	765	955	737	1,760
17	190	76	b110				280	579	729	825	1,600	1,520
18	160	97	b100				*244	628	745	753	1,930	1,640
19	140	90	b90				225	702	777	901	1,650	1,500
20	110	79	85				204	713	849	914	1,930	1,080
21	100	68	80				196	801	924	861	1,640	777
22	95	62	76				186	870	932	*973	1,220	688
23	85	62	72				182	841	914	1,040	1,070	688
24	76	60	68				182	680	896	1,090	874	705
25	70	54	64				198	579	878	1,040	691	1,090
						80						
26	64	56	61				212	506	845	964	*565	1,150
27	59	53	58				198	464	789	910	769	1,000
28	57	50	55				175	478	841	874	1,160	1,320
29	52	47	52				157	358	870	861	865	1,100
30	47	47	50		------		150	576	892	853	649	1,400
31	44	-----	48		-----		-----	544	------	841	680	------
Total	9,619	3,872	2,817	1,178	1,102	1,540	4,499	13,620	22,002	32,343	29,697	33,104
Mean	310	129	90.9	38	38	49.7	150	439	733	1,043	958	1,103
Cfsm	9.54	3.97	2.80	1.17	1.17	1.53	4.62	13.5	22.6	32.1	29.5	33.9
In.	11.01	4.43	3.22	1.35	1.26	1.76	5.15	15.59	25.18	37.01	33.98	37.88
Ac-ft	19,080	7,680	5,590	2,340	2,190	3,050	8,920	27,010	43,640	64,150	58,900	65,660

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 3,070 Min - Mean 425 Cfsm 13.1 In. 177.82 Ac-ft 308,200

Peak discharge (base, 2,000 cfs).--July 8 (5 a.m.) 2,090 cfs (6.46 ft); Aug. 17 (11:30 p.m.) 2,320 cfs (6.81 ft); Sept. 14 (10 a.m.) 3,380 cfs (8.28 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 1-25, Dec. 20 to Apr. 17, Sept. 29, 30; discharge estimated on basis of weather records and records for Cascade Creek near Petersburg.

Long River near Juneau--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,000	924	107	100	35	83	26	235	721	1,500	610	919
2	2,500	1,230	97	113	36	83	27	253	765	1,140	620	741
3	1,400	1,140	94	114	36	104	30	298	797	932	640	680
4	900	805	88	112	37	92	33	371	817	797	680	646
5	850	635	78	92	39	78	38	386	837	717	745	698
6	900	516	68	82	41	79	46	374	837	680	821	773
7	700	425	60	74	43	81	55	359	888	725	896	793
8	600	428	56	68	46	74	66	374	1,030	870	1,020	1,140
9	500	565	54	64	50	63	72	410	1,160	1,200	982	1,140
10	470	551	49	60	55	56	72	446	1,080	1,210	1,390	1,010
11	600	506	48	56	60	51	67	407	928	1,170	1,660	1,050
12	700	436	53	53	66	47	61	428	865	1,120	1,430	1,070
13	800	368	214	50	70	44	55	516	883	1,030	1,280	1,030
14	900	292	323	47	66	42	56	582	861	1,080	2,690	1,750
15	1,000	237	278	45	58	40	68	565	781	1,300	2,850	1,200
16	1,000	229	222	43	54		68	544	837	1,240	1,700	849
17	1,000	227	181	42	50		67	540	896	1,320	1,150	919
18	1,000	349	150	40	52		70	534	789	1,100	924	1,080
19	1,500	484	127	39	*60		85	614	745	942	777	955
20	2,200	407	112	38	74		104	666	725	845	663	919
21	2,000	467	104	38	88		112	642	757	733	586	694
22	*1,600	484	108	43	81		107	628	837	670	534	537
23	1,260	368	103	46	92		107	652	845	680	520	624
24	906	285	114	47	110	30	104	694	870	720	530	1,240
25	649	231	143	46	150		101	741	901	760	502	1,120
26	474	196	155	45	130		114	797	986	830	478	1,230
27	413	166	138	43	110		135	841	1,100	800	540	568
28	1,310	148	119	41	92		188	1,150	1,160	740	624	428
29	1,890	132	118	39	-		190	1,100	1,620	690	1,200	344
30	1,640	118	100	37	------		220	845	1,980	650	1,380	282
31	1,180	-----	89	35	-----		-----	733	------	620	1,140	------
Total	34,842	13,349	3,750	1,792	1,881	1,497	2,544	17,725	28,298	28,811	31,562	26,429
Mean	1,124	445	121	57.8	67.2	48.3	84.8	572	943	929	1,018	881
Cfsm	34.6	13.7	3.72	1.78	2.07	1.49	2.61	17.6	29.0	28.6	31.3	27.1
In.	39.87	15.28	4.29	2.05	2.15	1.71	2.91	20.28	32.38	32.97	36.12	30.24
Ac-ft	69,110	26,480	7,440	3,550	3,730	2,970	5,050	35,160	56,130	57,150	62,600	52,420

Calendar year 1952: Max 3,070 Min - Mean 522 Cfsm 16.1 In. 218.60 Ac-ft 378,900
Water year 1952-53: Max 2,850 Min - Mean 527 Cfsm 16.2 In. 220.25 Ac-ft 381,800

Peak discharge (base, 2,000 cfs).--Oct. 2 (time unknown) 3,430 cfs (8.34 ft); Oct. 20 (time unknown) 2,660 cfs (7.30 ft); Oct. 29 (4:30 p.m.) 2,030 cfs (6.37 ft); June 29 (12 p.m.) 2,140 cfs (6.54 ft); Aug. 14 (9 p.m.) 3,760 cfs (8.75 ft).

* Discharge measurement made on this day.

Note.--Doubtful or no gage-height record Oct. 1-22, Jan. 6 to Feb. 18, Feb. 20, 23-26, Mar. 9 to Apr. 8, July 22 to Aug. 4; discharge estimated on basis of recorded range in stage, weather records, and records for Cascade Creek near Petersburg and Dorothy Creek near Juneau.

Dorothy Creek near Juneau

Location.--Lat 58°13'40", long 134°02'25", on left bank 0.7 mile downstream from Lake Bart, 0.8 mile upstream from mouth, 3 miles downstream from Lake Dorothy, and 14 miles southeast of Juneau.

Drainage area.--15.2 sq mi.

Records available.--October 1929 to September 1953 (monthly discharge only October 1929 to September 1945, published in WSP 1372.

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map). Prior to Sept. 14, 1937, at site 100 ft upstream from mouth at different datum.

Average discharge.--22 years (1929-41, 1942-43, 1944-53), 146 cfs (105,700 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 686 cfs June 12 (gage height, 4.21 ft); minimum, 13 cfs on many days (gage height, 1.47 ft).
1951-52: Maximum discharge during water year, 730 cfs Sept. 15 (gage height, 4.29 ft); minimum daily, 14 cfs Mar. 12-24.
1952-53: Maximum discharge during water year, 910 cfs Aug. 15 (gage height, 4.60 ft); minimum daily, 15 cfs Feb. 1-3.
1929-41, 1942-53: Maximum discharge, 1,780 cfs Nov. 3, 1949 (gage height, 5.85 ft), from rating curve extended above 560 cfs; minimum recorded, 6 cfs Mar. 23, 25, 28, 1933.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Dorothy Lake (area, 952 acres) lies at an altitude of 2,423 ft, less than 4 miles from the mouth of Dorothy Creek; Lieuy Lake (area, 80 acres) lies at an altitude of 1,711 ft; and Bart Lake (area, 250 acres) lies at an altitude of 986 ft.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	187	30	14	16	17	13	20	24	125	264	215	184
2	170	30	14	16	17	13	21	23	128	280	212	187
3	155	51	14	16	16	14	21	25	130	288	215	190
4	140	54	13	16	16	16	20	26	134	294	218	195
5	130	54	13	16	16	16	20	29	138	302	221	198
6	121	54	13	16	16	16	22	34	*150	308	218	207
7	113	53	13	18	16	16	22	40	164	316	215	212
8	121	51	13	17	15	16	21	48	193	316	212	215
9	117	48	13	18	15	16	22	54	224	316	207	230
10	115	45	14	18	15	16	*23	61	284	320	204	258
11	119	43	14	19	15	16	27	69	432	331	201	284
12	117	40	14	19	15	16	27	78	606	342	204	291
13	117	37	*14	19	14	16	26	84	632	346	207	288
14	115	33	14	20	14	16	25	93	617	354	212	294
15	111	31	14	20	14	16	25	98	560	350	221	286
16	106	28	14	20	14	16	25	108	441	339	230	261
17	100	26	15	21	14	16	24	115	370	323	233	251
18	95	25	14	21	14	16	24	119	320	316	236	264
19	88	23	14	21	*14	16	23	125	277	308	230	291
20	*82	22	14	21	14	17	23	128	248	308	227	291
21	79	21	14	20	14	18	23	136	227	335	233	264
22	75	20	15	19	14	17	23	136	212	450	230	242
23	68	19	15	19	14	18	23	138	201	496	227	224
24	64	18	15	19	14	18	22	136	193	436	233	212
25	60	17	15	19	13	19	23	132	207	370	230	198
26	54	17	15	19	13	19	25	132	221	323	224	184
27	49	16	15	18	13	19	25	132	233	288	215	172
28	44	15	15	18	13	20	26	130	236	261	204	155
29	40	15	16	18	-	20	27	130	242	242	195	145
30	36	15	16	18	------	20	25	128	255	227	187	136
31	33	-----	16	18	-----	20	-----	128	------	218	184	------
Total	3,021	951	442	573	409	521	703	2,839	8,400	9,967	6,700	6,811
Mean	97.5	31.7	14.3	18.5	14.6	16.8	23.4	91.6	280	322	216	227
Cfsm	6.41	2.09	0.941	1.22	0.961	1.11	1.54	6.03	18.4	21.2	14.2	14.9
In.	7.39	2.33	1.08	1.40	1.00	1.27	1.72	6.95	20.55	24.39	16.39	16.66
Ac-ft	5,990	1,890	877	1,140	811	1,030	1,390	5,630	16,660	19,770	13,290	13,510

Calendar year 1950: Max 692 Min - Mean 110 Cfsm 7.24 In. 98.63 Ac-ft 79,950
Water year 1950-51: Max 632 Min 13 Mean 113 Cfsm 7.43 In. 101.13 Ac-ft 81,990

Peak discharge (base, 400 cfs).--June 12 (12 p.m.) 686 cfs (4.21 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Nov. 7, 8, Nov. 13 to Dec. 6; discharge estimated on basis of weather records and records for Cascade Creek near Petersburg.

Dorothy Creek near Juneau--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	128	36	22	18	18	17	17	27	136	251	258	277
2	117	40	22	19	17	16	17	27	134	267	251	327
3	109	44	21	19	17	16	17	26	130	277	251	323
4	*102	53	21	*19	17	16	17	25	132	274	248	294
5	102	54	20	19	17	*16	17	25	138	258	245	264
6	111	68	20	19	17	15	17	24	136	245	236	251
7	134	*72	20	19	17	15	17	25	134	280	236	242
8	170	74	20	19	17	15	17	25	132	362	233	227
9	201	72	21	19	18	15	*25	128	419	233	233	212
10	221	69	25	18	18	15	17	30	130	398	230	198
11	277	66	28	17	18	15	17	30	138	374	230	198
12	316	62	26	17	18	14	18	46	150	354	224	187
13	291	60	26	17	18	14	18	71	160	354	218	212
14	251	55	25	17	18	14	19	69	174	362	215	398
15	227	51	25	17	18	14	18	79	180	358	215	698
16	207	48	24	17	18	14	29	87	184	350	212	575
17	184	46	23	17	18	14	25	93	187	323	236	468
18	167	45	23	16	17	14	26	102	193	302	339	477
19	152	42	22	16	17	14	27	108	195	298	419	525
20	138	38	22	16	17	14	27	115	201	288	515	450
21	128	36	22	16	17	14	27	123	212	277	535	370
22	115	33	22	16	17	14	27	130	224	274	454	312
23	104	31	22	16	18	14	27	130	230	284	415	288
24	93	30	22	16	18	14	28	130	236	294	374	274
25	85	28	22	16	18	15	30	132	239	*298	316	305
26	78	27	21	16	17	16	30	128	236	298	267	335
27	68	26	21	16	17	17	28	125	230	294	258	331
28	61	25	20	17	17	17	28	128	230	280	284	339
29	53	24	19	17	17	17	27	136	236	277	*288	335
30	44	23	19	17	------	17	27	138	242	267	264	327
31	39	------	18	18	------	17	------	136	------	261	251	------
Total	4,473	1,378	684	536	506	469	672	2,495	5,407	9,498	8,950	10,019
Mean	144	45.9	22.1	17.3	17.4	15.1	22.4	80.5	180	306	289	334
Cfsm	9.47	3.02	1.45	1.14	1.14	0.993	1.47	5.30	11.8	20.1	19.0	22.0
In.	10.94	3.37	1.67	1.31	1.24	1.15	1.64	6.10	13.23	23.24	21.90	24.51
Ac-ft	8,870	2,730	1,360	1,060	1,000	930	1,330	4,950	10,720	18,840	17,750	19,870

Calendar year 1951: Max 632 Min 13 Mean 119 Cfsm 7.83 In. 106.31 Ac-ft 86,190
Water year 1951-52: Max 698 Min 14 Mean 123 Cfsm 8.09 In. 110.30 Ac-ft 89,410

Peak discharge (base, 400 cfs).--July 9 (11 a.m.) 424 cfs (3.68 ft); Aug. 21 (2 a.m.) 565 cfs (3.98 ft); Sept. 15 (10 a.m.) 730 cfs (4.29 ft). * Discharge measurement made on this day.
Note.--No gage-height record Jan. 10-30, Feb. 18-22; discharge estimated on basis of weather records and records for Cascade Creek near Petersburg.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	342	350	51	26	15	26	18	44	215	482	227	300
2	*441	331	46	26	15	26	19	45	215	419	224	270
3	407	316	44	25	15	26	19	51	215	370	218	*255
4	335	271	40	25	16	26	19	67	215	323	215	242
5	323	236	37	24	16	*25	20	64	218	288	215	239
6	339	218	34	23	17	25	20	64	218	264	218	242
7	320	198	31	22	18	25	21	71	221	251	230	245
8	288	190	29	21	18	25	21	75	230	251	261	267
9	255	190	27	20	18	24	21	82	242	277	305	302
10	230	187	26	19	19	23	21	84	251	312	398	323
11	215	182	25	19	19	23	20	82	255	331	477	339
12	215	174	25	18	19	22	20	87	261	342	515	362
13	209	167	44	18	19	22	19	95	267	346	472	394
14	215	155	39	17	18	21	19	104	284	346	703	446
15	218	145	37	17	18	21	20	108	277	386	833	411
16	209	138	36	17	18	21	20	109	277	415	611	358
17	204	128	34	17	18	20	20	117	267	446	520	327
18	215	128	33	17	18	20	21	121	255	424	400	335
19	255	119	31	17	19	19	22	130	245	382	340	323
20	468	*113	30	17	20	19	22	134	230	350	280	305
21	580	109	28	18	21	18	22	138	224	320	240	271
22	540	104	28	18	22	18	22	143	221	291	210	239
23	424	98	28	18	23	18	22	148	218	271	190	224
24	366	93	28	18	24	18	22	152	221	258	210	230
25	305	87	32	17	25	18	23	157	221	248	190	236
26	258	79	31	17	26	18	26	162	230	245	170	230
27	227	74	30	17	26	18	30	170	242	245	200	218
28	284	68	28	16	26	18	34	201	261	245	200	207
29	468	62	28	16	-	18	36	215	320	239	300	193
30	555	56	27	16	------	18	*40	218	464	233	400	180
31	432	------	26	16	------	18	------	215	------	230	350	------
Total	10,142	4,766	1,013	592	546	657	679	3,653	7,480	9,830	10,322	8,513
Mean	327	159	32.7	19.1	19.5	21.2	22.6	118	249	317	333	284
Cfsm	21.5	10.5	2.15	1.26	1.28	1.39	1.49	7.76	16.4	20.9	21.9	18.7
In.	24.81	11.66	2.48	1.45	1.34	1.61	1.66	8.94	18.30	24.05	25.25	20.83
Ac-ft	20,120	9,450	2,010	1,170	1,080	1,300	1,350	7,250	14,840	19,500	20,470	16,890

Calendar year 1952: Max 698 Min 14 Mean 149 Cfsm 9.80 In. 133.27 Ac-ft 108,000
Water year 1952-53: Max 833 Min 15 Mean 159 Cfsm 10.5 In. 142.38 Ac-ft 115,400

Peak discharge (base, 400 cfs).--Oct. 2 (3 p.m.) 459 cfs (3.76 ft); Oct. 21 (4:30 p.m.) 606 cfs (4.06 ft); Oct. 30 (1 a.m.) 591 cfs (4.03 ft); June 30 (11 p.m.) 496 cfs (3.84 ft); July 17 (11 a.m.) 450 cfs (3.74 ft); Aug. 15 (3 a.m.) 910 cfs (4.60 ft); Sept. 14 (2 p.m.) 454 cfs (3.75 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Jan. 7 to Mar. 4, Aug. 17 to Sept. 2; discharge estimated on basis of weather records, recorded range in stage, and records for stations on nearby streams.

Carlson Creek near Juneau

Location.--Lat 58°19'00", long 134°10'15", on left bank between two unnamed tributaries, 1½ miles upstream from mouth, 1¾ miles downstream from Sheep Fork, and 8¾ miles east of Juneau.

Drainage area.--24.3 sq mi.

Records available.--July 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 130 ft (from topographic map).

Extremes.--1951: Maximum discharge during period July to September, 2,240 cfs July 22 (gage height, 6.12 ft); minimum, 101 cfs Sept. 28 (gage height, 0.26 ft).
1951-52: Maximum discharge during water year, 4,390 cfs Sept. 14 (gage height, 9.40 ft), from rating curve extended above 2,000 cfs; minimum not determined.
1952-53: Maximum discharge during water year, 3,860 cfs Aug. 14 (gage height, 8.65 ft); minimum not determined.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, 1951

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	(e)	303	186	9	(e)	226	642	17	450	405	450	25	369	303	122
2	(e)	353	178	10	(e)	250	357	18	435	359	470	26	345	270	110
3	(e)	257	176	11	(e)	245	572	19	393	301	319	27	329	223	103
4	(e)	262	172	12	(e)	234	279	20	468	646	233	28	289	204	102
5	(e)	226	175	13	(e)	236	879	21	872	458	204	29	268	205	162
6	(e)	276	169	14	(e)	377	365	22	1,440	369	210	30	264	198	245
7	(e)	281	152	15	489	229	268	23	540	592	178	31	323	*212	-
8	(e)	245	601	16	475	272	240	24	408	448	140				
Total													16,277	9,465	8,459
Mean													525	305	282
Cubic feet per second per square mile													21.6	12.6	11.6
Runoff in inches													24.91	14.49	12.95
Runoff in acre-feet													32,280	18,770	16,780

Peak discharge (base, 2,500 cfs).--No peak above base.
* Discharge measurement made on this day.
e Average discharge July 1-14, 580 cfs; no gage-height record during period, discharge estimated on basis of weather records and records for Gold Creek at Juneau.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	154	100						97	432	789	519	1,200
2	128	149						131	486	1,070	445	468
3	122	175						133	*415	*832	450	329
4	115	329		(**)		(*)		113	468	649	422	337
5	603	236	a25					118	575	561	395	*305
6	1,100	396					a35	138	489	842	432	341
7	895	513						170	399	1,810	410	379
8	1,020	315						140	470	1,200	440	266
9	365	210	84					145	462	777	405	215
10	299	141	158					184	789	697	375	328
11	854	109	321			a16		174	1,070	805	357	644
12	486	88	176				61	522	958	890	385	297
13	315	73	105				69	628	904	967	369	2,080
14	228	58	70				92	412	954	850	335	2,640
15	178	47		a17	a16		90	385	638	737	309	1,380
16	142	40					349	435	554	575	679	620
17	112	47					246	462	649	486	1,870	1,110
18	100	68					168	472	717	432	922	1,230
19	113	50					121	572	810	741	1,360	580
20	98	46					108	531	926	582	1,500	365
21	92						103	733	890	628	673	293
22	84						93	814	814	757	483	325
23	72		a25				85	628	797	773	496	261
24	70					a30	93	408	810	713	369	514
25	70	a35					154	355	757	550	301	793
26	68						156	337	620	540	279	501
27	65					90	127	335	592	531	829	586
28	66						104	415	832	486	527	933
29	65						88	507	810	480	317	968
30	61				------	a55	85	519	761	470	250	1,440
31	65	-----			-----		-----	440	------	495	646	------
Total	8,205	3,540	1,539	527	464	810	2,777	11,453	20,848	22,715	17,549	21,728
Mean	265	118	49.6	17	16	26.1	92.6	369	695	733	566	724
Cfsm	10.9	4.86	2.04	0.700	0.658	1.07	3.81	15.2	28.6	30.2	23.3	29.8
In.	12.56	5.42	2.36	0.81	0.71	1.24	4.25	17.53	31.91	34.76	26.86	33.25
Ac-ft	16,270	7,020	3,050	1,050	920	1,610	5,510	22,720	41,350	45,050	34,810	43,100

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 2,640 Min - Mean 306 Cfsm 12.6 In. 171.66 Ac-ft 222,500

Peak discharge (base, 2,500 cfs).--Oct. 8 (2:30 a.m.) 3,000 cfs (7.39 ft); Aug. 17 (8 p.m.) 2,690 cfs (6.86 ft); Sept. 14 (6 a.m.) 4,390 cfs (9.40 ft).
* Discharge measurement on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement, 1 field estimate, weather records, and records for stations on nearby streams.

Carlson Creek near Juneau--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,240	617	93	86			20	291	665	606	299	391
2	1,170	1,360	92	92			40	317	877	600	261	311
3	450	749	86	80			65	351	818	507	279	430
4	422	395	80	68		(*)	77	440	705	432	291	307
5	1,220	369	74	58			95	377	709	420	321	478
6	475	371	68	51			66	274	705	430	383	442
7	347	331	64	46			45	341	805	578	438	452
8	*297	493	60	42			35	365	931	631	442	657
9	238	634	56	40			28	361	836	769	566	661
10	487	422	54	38			25	331	600	575	805	428
11	568	355	52	36			24	262	534	606	1,020	701
12	438	305	57	35			25	355	628	550	638	642
13	319	233	526	33			27	498	628	504	1,040	976
14	542	186	329	31			40	528	596	*859	2,430	823
15	379	149	163	29			68	452	492	967	753	501
16	293	169	120		30	13	64	442	761	781	472	442
17	430	178	110				68	450	673	886	361	805
18	1,730	518	100				73	489	561	554	335	721
19	1,420	*353	93				120	701	564	522	277	575
20	1,780	279	87				159	628	582	452	233	475
21	1,370	420	85				162	507	649	381	217	319
22	1,030	412	87				128	561	693	397	194	287
23	600	279	95				110	638	653	401	295	701
24	544	196	137	25			105	638	673	401	236	1,160
25	395	156	248				105	677	709	438	192	480
26	325	133	204				141	697	828	403	186	337
27	492	122	131				250	657	805	397	274	266
28	1,880	113	105				335	1,250	777	347	397	226
29	1,520	105	94		-		287	713	1,440	323	713	199
30	709	98	83		------		297	489	1,000	321	575	169
31	578	-----	74		-----		-----	589	------	315	442	------
Total	23,688	10,500	3,707	1,165	840	403	3,084	15,669	21,897	16,353	15,365	15,362
Mean	764	350	120	37.6	30	13	103	505	730	528	496	512
Cfsm	31.4	14.4	4.94	1.55	1.23	0.535	4.24	20.8	30.0	21.7	20.4	21.1
In.	36.25	16.07	5.67	1.78	1.29	0.62	4.72	23.98	33.51	25.03	23.52	23.51
Ac-ft	46,980	20,830	7,350	2,310	1,670	799	6,120	31,080	43,430	32,440	30,480	30,470

Calendar year 1952: Max 2,640 Min - Mean 374 Cfsm 15.4 In. 209.31 Ac-ft 271,300
Water year 1952-53: Max 2,430 Min - Mean 351 Cfsm 14.4 In. 195.95 Ac-ft 254,000

Peak discharge (base, 2,500 cfs).--Oct. 1 (11 p.m.) 2,950 cfs (7.30 ft); Oct. 18 (5 p.m.) 3,630 cfs (8.32 ft); Oct. 28 (8:30 a.m.) 2,750 cfs (6.97 ft); Aug. 14 (2 p.m.) 3,860 cfs (8.65 ft); Sept. 24 (4 a.m.) 2,500 cfs (6.55 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 6-12, 17-22, Jan. 5 to Apr. 2, Apr. 7-14; discharge estimated on basis of 1 discharge measurement, weather records, and records for stations on nearby streams.

Sheep Creek near Juneau

Location.--Lat 58°16'30", long 134°18'50", on right bank 0.3 mile upstream from diversion dam of Alaska-Juneau Gold Mining Co.'s Sheep Creek powerplant, 1 mile northeast of Thane, 1¼ miles upstream from mouth, and 4 miles southeast of Juneau.

Drainage area.--4.30 sq mi.

Records available.--January 1911 to December 1913 (monthly discharge only, published in WSP 1372), August 1916 to December 1920, October 1946 to September 1953. Prior to October 1946, published as "near Thane".

Gage.--Water-stage recorder and wooden control. Datum of gage is 643.5 ft above mean sea level (levels by Conservation Division, U. S. Geological Survey). Prior to August 1916, staff gage at same site and datum.

Average discharge.--13 years, 48.1 cfs (34,820 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 292 cfs June 10 (gage height, 1.94 ft); no flow Feb. 15 to Mar. 23.
1951-52: Maximum discharge during water year, 540 cfs Sept. 14 (gage height, 2.74 ft); minimum not determined.
1952-53: Maximum discharge during water year, 337 cfs Aug. 14 (gage height, 2.13 ft); minimum not determined.
1911-13, 1916-20, 1946-53: Maximum discharge, 840 cfs Sept. 8, 1948 (gage height, 3.60 ft), from rating curve extended above 170 cfs; no flow at times at gage site but probably some flow at all times at diversion dam 0.3 mile downstream (records for period 1916-20 based on measurements at diversion dam).

Remarks.--Records good except those for periods of no gage-height record, which are fair.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	17	8.5	4.2	1.5	0	2.6	*31	75	80	40	32
2	33	18	7.4	3.8	1.4	0	2.6	29	78	72	42	29
3	30	76	6.8	3.8	1.3	0	3.1	27	80	66	36	28
4	28	41	6.4	*3.7	1.2	0	3.2	30	92	80	36	26
5	27	31	6.4	3.4	1.1	0	3.5	47	112	80	33	25
6	25	29	6.4	3.7	.9	0	5.5	66	112	78	40	24
7	31	27	6.4	7.9	.8	0	6.4	70	108	66	41	23
8	62	24	6.0	7.9	.6	0	6.8	72	158	64	35	46
9	44	22	5.6	9.0	*.6	0	7.6	75	231	68	31	48
10	38	21	5.6	9.3	.5	0	8.2	85	254	68	34	34
11	52	19	5.6	9.3	.3	0	9.6	95	231	66	34	73
12	102	18	5.6	9.3	.2	0	12	105	170	64	33	38
13	*62	17	5.6	9.3	.1	0	15	92	148	60	33	71
14	48	16	5.6	9.0	.1	0	18	122	168	56	44	48
15	42	15	5.6	8.5	0	0	18	125	138	54	31	40
16	38	14	5.6	8.2	0	0	18	122	125	52	31	35
17	33	13	5.6	7.6	0	0	17	138	130	51	41	49
18	30	13	5.2	7.4	0	0	16	128	102	49	40	48
19	28	12	5.2	6.8	0	0	16	135	82	*47	34	38
20	27	11	4.8	6.6	0	0	16	128	72	54	56	33
21	48	11	4.8	5.8	0	0	15	142	68	120	48	30
22	38	11	4.8	5.0	0	0	16	115	64	173	41	29
23	31	10	4.5	4.3	0	0	16	92	62	100	66	29
24	30	10	4.5	3.8	0	.6	17	80	88	70	66	24
25	28	9.5	4.2	3.1	0	1.3	18	78	110	64	50	22
26	25	9.2	3.8	2.4	0	1.8	21	85	82	58	48	20
27	23	*9.0	3.4	2.2	0	2.2	30	80	72	52	40	19
28	21	9.6	3.5	2.2	0	2.5	44	85	78	46	33	18
29	20	9.3	3.7	2.1	-	*2.6	46	85	85	44	35	21
30	18	9.0	3.8	1.8	------	2.8	38	75	82	42	*34	24
31	17	-----	4.2	1.6	-----	2.6	-----	75	------	46	34	------
Total	1,115	551.6	165.1	173.0	10.6	16.4	466.1	2,714	3,457	2,090	1,240	1,024
Mean	36.0	18.4	5.33	5.58	0.38	0.53	15.5	87.5	115	67.4	40.0	34.1
Cfsm	8.37	4.28	1.24	1.30	0.088	0.123	3.60	20.3	26.7	15.7	9.30	7.93
In.	9.64	4.77	1.43	1.50	0.09	0.14	4.03	23.47	29.90	18.08	10.72	8.86
Ac-ft	2,210	1,090	327	343	21	33	924	5,380	6,860	4,150	2,460	2,030

Calendar year 1950: Max 150 Min 0 Mean 30.5 Cfsm 7.09 In. 96.42 Ac-ft 22,110
Water year 1950-51: Max 254 Min 0 Mean 35.7 Cfsm 8.30 In. 112.63 Ac-ft 25,830

Peak discharge (base, 460 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--No gage-height record Nov. 13-27, July 13-18, Aug. 25-29; discharge estimated on basis of recorded range in stage, weather records, and records for Gold Creek near Juneau.

Sheep Creek near Juneau--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	12	8.5					20	90	100	54	164
2	17	17	8.2					22	90	130	49	100
3	17	29	7.8					22	83	120	50	*73
4	15	36	7.4					22	98	80	46	69
5	25	32	7.1					22	115	70	40	62
6	62	58	6.8					22	98	90	43	65
7	73	68	6.4					25	85	300	40	67
8	69	55	6.4				3.4	25	88	160	42	54
9	46	45	6.8					27	83	*105	37	46
10	49	38	17					33	115	102	35	56
11	73	32	48			0.6		36	155	108	34	76
12	56	27	25					98	150	105	36	50
13	46	24	22					112	155	105	32	234
14	40	21	19					83	198	95	33	289
15	35	19	18					78	131	83	33	178
16	29	17	17	2.9	1.2		7.0	90	105	71	69	127
17	25	20	15				*13	100	108	63	131	136
18	24	25	14				23	100	112	58	73	155
19	22	19	13		(*)		23	139	112	98	105	111
20	22	*16	12				24	128	115	67	115	78
21	20	15	12				21	169	112	73	76	62
22	19	14	11				19	167	105	81	67	55
23	17	13	10				18	131	100	81	73	46
24	16	13	9.5				18	105	98	76	58	46
25	15	12	9.0				19	85	90	65	50	64
26	15	11	8.5			3.8	26	76	71	62	44	51
27	14	11	8.1				25	81	75	62	120	82
28	14	10	*7.8				22	93	100	56	93	147
29	13	9.8	7.5				21	105	95	52	62	111
30	12	9.0	7.3		------		21	105	90	52	52	153
31	12	-----	7.1		-----		-----	90	------	54	95	------
Total	931	727.8	383.2	89.9	34.8	50.6	351.0	2,411	3,222	2,824	1,887	3,007
Mean	30.0	24.3	12.4	2.9	1.2	1.63	11.7	77.8	107	91.1	60.9	100
Cfsm	6.98	5.65	2.88	0.674	0.279	0.379	2.72	18.1	24.9	21.2	14.2	23.3
In.	8.05	6.29	3.31	0.78	0.30	0.44	3.04	20.85	27.87	24.42	16.32	26.01
Ac-ft	1,850	1,440	760	178	69	100	696	4,780	6,390	5,600	3,740	5,960

Calendar year 1951: Max 254 Min 0 Mean 36.3 Cfsm 8.44 In. 114.44 Ac-ft 26,250
Water year 1951-52: Max 300 Min - Mean 43.5 Cfsm 10.1 In. 137.68 Ac-ft 31,560

Peak discharge (base, 460 cfs).--Sept. 14 (6:30 a.m.) 540 cfs (2.74 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Nov. 7-19, Dec. 15 to Apr. 16, June 27 to July 8; discharge estimated on basis of 2 discharge measurements, recorded range in stage, weather records at Juneau, and records for Gold Creek near Juneau.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*167	88	22					57	102	86	30	62
2	139	164	21					59	113	78	28	53
3	91	130	20		*4.0			68	113	64	28	68
4	71	97	19				4.5	99	111	53	29	*51
5	150	91	18			2.0		81	102	51	30	55
6	91	86	17					62	99	51	42	51
7	71	71	16					71	105	59	53	51
8	59	86	15	10	6.0		5.0	66	111	*64	44	55
9	48	108	15				6.4	62	102	86	72	71
10	64	86	14				6.8	57	76	74	111	57
11	66	71	13				7.1	53	68	78	108	66
12	55	62	13				7.4	*71	74	64	105	62
13	44	51	38				7.4	108	81	55	111	68
14	88	42	30				7.8	108	74	99	187	84
15	64	38	23				8.5	86	57	127	130	71
16	57	36	21			1.0	8.9	78	86	122	99	68
17	*78	34	18				9.3	78	88	127	76	105
18	136	66	*18		6.5		10	91	66	102	64	111
19	127	51	17				13	122	62	94	51	105
20	167	44	16				22	111	59	78	43	91
21	122	62	16				29	94	62	64	38	71
22	116	57	15				32	97	66	59	33	62
23	91	46	15	5.0			30	102	57	57	46	111
24	76	40	15				28	102	59	55	36	119
25	62	34	24				27	108	64	57	30	81
26	51	31	23		*3.8	1.5	33	108	76	51	30	68
27	51	29	21		3.8		57	105	74	51	42	62
28	113	27	19		2.5		76	184	71	42	60	53
29	125	25	18		-		59	127	184	37	116	44
30	105	23	17		------		59	91	127	34	76	39
31	94	-----	16		-----		-----	99	------	32	64	------
Total	2,839	1,876	583	230.0	157.6	46.5	581.1	2,805	2,589	2,151	2,012	2,115
Mean	91.6	62.5	18.8	7.42	5.63	1.50	19.4	90.5	86.3	69.4	64.9	70.5
Cfsm	21.3	14.5	4.37	1.73	1.31	0.349	4.51	21.0	20.1	16.1	15.1	16.4
In.	24.55	16.23	5.04	1.99	1.36	0.40	5.03	24.26	22.39	18.60	17.40	18.29
Ac-ft	5,630	3,720	1,160	456	313	92	1,150	5,560	5,140	4,270	3,990	4,200

Calendar year 1952: Max 300 Min - Mean 52.4 Cfsm 12.2 In. 165.85 Ac-ft 38,020
Water year 1952-53: Max 187 Min - Mean 49.3 Cfsm 11.5 In. 155.54 Ac-ft 35,680

Peak discharge (base, 460 cfs).--No peak above base. * Discharge measurement made on this day.
Note.--No gage-height record Dec. 30 to Feb. 25, Mar. 1 to Apr. 7; discharge estimated on basis of 1 discharge measurement, weather records, and records for Gold Creek at Juneau.

Gold Creek at Juneau

Location.--Lat 58°18'25", long 134°24'05", on left bank 10 ft downstream from highway bridge, 150 ft upstream from Alaska Electric Light and Power Co. dam and diversion, half a mile northeast of Juneau, and 1 mile upstream from mouth.

Drainage area.--9.76 sq mi. At site used September 1946 to September 1948, 10.3 sq mi.

Records available.--July 1916 to December 1920, October 1946 to September 1953. Discharge measurements only in water year 1949, published in WSP 1372.

Gage.--Water-stage recorder. Altitude of gage is 245 ft (from topographic map). July 20, 1916, to Dec. 31, 1920, water-stage recorder at site 50 ft upstream at different datum. Sept. 11, 1946, to Sept. 30, 1948, staff gage at site 0.7 mile downstream at different datum.

Average discharge.--10 years (1916-20, 1946-48, 1949-53), 106 cfs (76,740 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, about 700 cfs June 10; no flow Mar. 4-12.
1951-52: Maximum discharge during water year, 1,360 cfs Sept. 13 (gage height, 5.92 ft); minimum daily, 1.7 cfs Mar. 13-21.
1952-53: Maximum discharge during water year, 926 cfs Oct. 19 (gage height, 4.77 ft); minimum not determined.
1916-20, 1946-48, 1949-53: Maximum discharge, 2,600 cfs Sept. 26, 1918 (gage height, 6.8 ft, site and datum then in use), from rating curve extended above 520 cfs; no flow Mar. 3-13, 1951.

Remarks.--Records fair except those for periods of doubtful or no gage-height record, which are poor. One small diversion above station for domestic water supply.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	*23	9.0	7.0	2.1	0.6	6.8	30	138	204	116	74
2	*48	29	8.5	6.8	2.0	.4	6.6	26	147	199	131	74
3	42	199	8.0	6.8	1.9	.2	6.6	25	156	174	100	76
4	39	104	7.5	6.8	1.8	0	7.2	33	184	209	98	76
5	34	61	7.0	6.8	1.8	0	8.0	54	225	214	85	76
6	33	52	7.0	6.8	1.7	0	9.0	89	250	212	108	74
7	58	46	7.0	7.0	1.7	0	10	94	244	194	118	62
8	154	41	6.5	7.0	1.6	0	12	110	312	176	100	152
9	104	37	6.5	7.0	1.6	0	13	118	500	188	87	152
10	83	35	6.0	7.0	1.6	0	15	181	650	207	96	104
11	171	30	6.0	6.8	1.5	0	17	178	*600	201	96	168
12	*241	27	6.0	6.6	1.5	*0	20	217	*420	188	89	96
13	152	23	5.8	6.4	1.5	.2	23	174	292	184	94	186
14	106	21	5.8	6.0	1.5	.5	25	300	327	178	138	127
15	92	18	5.6	5.6	1.6	.9	26	292	247	154	89	98
16	78	15	5.6	5.3	1.6	1.2	26	283	212	156	87	94
17	64	*13	5.6	5.0	1.6	1.5	25	318	217	147	98	144
18	54	12	*5.4	4.7	1.6	1.8	24	266	186	144	108	129
19	46	11	5.4	*4.5	1.5	2.1	23	312	152	131	83	96
20	44	11	5.4	4.2	1.5	2.5	23	292	133	154	144	78
21	89	11	5.6	4.0	*1.4	3.0	22	348	129	275	140	74
22	74	11	5.6	3.8	1.4	3.5	22	247	131	391	100	71
23	54	11	5.8	3.5	1.3	4.0	23	174	133	212	154	74
24	*46	11	6.0	3.3	1.3	4.5	25	133	174	154	144	56
25	41	10	6.2	3.1	1.2	5.0	28	127	275	138	102	46
26	36	10	*6.4	2.9	1.1	*5.8	31	149	194	133	98	41
27	32	10	6.6	2.7	1.0	6.4	38	133	164	127	89	37
28	28	10	6.6	2.6	.8	7.0	54	144	186	112	78	36
29	24	10	6.8	2.5	-	7.5	55	154	204	110	83	49
30	22	9.5	7.0	2.3	------	7.8	40	133	209	110	79	71
31	23	------	7.0	2.2	------	7.4	------	135	------	116	81	------
Total	2,168	911.5	199.2	157.0	42.7	73.8	664.2	5,269	7,391	5,492	3,213	2,691
Mean	69.9	30.4	6.43	5.06	1.52	2.38	22.1	170	246	177	104	89.7
Cfsm	7.16	3.11	0.659	0.518	0.156	0.244	2.26	17.4	25.2	18.1	10.7	9.19
In.	8.26	3.47	0.76	0.60	0.16	0.28	2.53	20.08	28.16	20.93	12.24	10.25
Ac-ft	4,300	1,810	395	311	85	146	1,320	10,450	14,660	10,890	6,370	5,320

Calendar year 1950: Max 366 Min 0.2 Mean 72.8 Cfsm 7.46 In. 148.68 Ac-ft 52,840
Water year 1950-51: Max 650 Min 0 Mean 77.5 Cfsm 7.94 In. 107.72 Ac-ft 56,060

Peak discharge (base, 600 cfs).--June 10 (time unknown) about 700 cfs.
* Discharge measurement or observation of no flow made on this day.
Note.--Doubtful or no gage-height record Nov. 15 to Apr. 28, June 9-12; discharge estimated on basis of 8 discharge measurements, weather records at Juneau, and records for Sheep Creek near Juneau.

SOUTHEASTERN ALASKA

Gold Creek at Juneau--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	25	11	9.0	2.7	1.9	5.2	26	164	225	*174	350
2	41	51	9.9	8.0	2.7	1.9	4.8	31	171	318	166	196
3	41	67	9.3	7.5	2.6	1.9	4.4	30	144	272	176	154
4	37	96	9.3	7.0	2.6	1.8	4.4	28	164	196	156	147
5	98	67	*9.3	6.6	2.5	1.8	3.9	26	191	164	144	144
6	204	108	9.3	6.2	2.5	1.8	3.0	30	161	204	154	149
7	220	137	9.3	5.8	2.5	1.8	3.0	33	135	*660	152	142
8	174	100	12	5.5	2.4	1.8	3.0	27	154	370	164	124
9	86	73	18	5.2	2.4	1.8	3.0	31	144	247	149	106
10	86	57	42	4.9	2.3	1.8	5.2	38	214	230	145	115
11	186	45	102	4.7	2.3	1.8	4.8	44	283	*261	145	170
12	133	37	60	4.5	2.3	1.8	7.0	144	286	278	144	140
13	82	32	41	4.3	2.2	1.7	12	174	292	292	137	569
14	67	26	26	4.1	2.2	1.7	23	140	315	261	133	733
15	56	23	20	4.0	2.2	1.7	25	121	220	228	130	470
16	45	21	19	3.8	2.2	1.7	113	130	184	196	204	289
17	37	27	17	3.6	2.1	1.7	58	144	194	174	462	390
18	31	36	16	3.5	2.1	1.7	*44	154	222	156	252	470
19	30	25	15	3.4	2.1	*1.7	35	207	236	239	360	269
20	29	22	14	3.3	2.1	1.7	30	188	252	199	520	199
21	27	20	13	3.2	2.0	1.7	27	241	244	217	272	178
22	24	18	12	3.0	2.0	3.0	24	252	228	244	214	184
23	19	18	12	2.9	2.0	2.5	24	204	214	241	214	161
24	19	16	11	2.8	2.0	2.8	28	144	207	230	171	201
25	19	15	10	2.7	*2.0	6.6	41	117	196	194	144	230
26	18	16	10	2.6	2.0	13	42	111	171	188	135	196
27	18	14	9.5	2.6	1.9	24	36	124	178	194	275	228
28	18	14	9.0	2.5	1.9	12	30	154	228	176	207	340
29	17	13	*8.6	2.5	1.9	9.3	26	181	217	166	147	290
30	15	12	8.2	2.7	------	6.6	24	184	207	164	130	*500
31	17	-----	7.8	*2.8	-----	5.7	-----	159	------	176	244	------
Total	1,940	1,231	580.5	135.2	64.7	122.7	693.7	3,617	6,216	7,360	6,220	7,834
Mean	62.6	41.0	18.7	4.36	2.23	3.96	23.1	117	207	237	201	261
Cfsm	6.41	4.20	1.92	0.447	0.228	0.406	2.37	12.0	21.2	24.3	20.6	26.7
In.	7.39	4.69	2.21	0.52	0.25	0.47	2.64	13.78	23.69	28.04	23.70	29.85
Ac-ft	3,850	2,440	1,150	268	128	243	1,380	7,170	12,330	14,600	12,340	15,540

Calendar year 1951: Max 650 Min 0 Mean 78.8 Cfsm 8.07 In. 109.52 Ac-ft 56,990
Water year 1951-52: Max 733 Min 1.7 Mean 98.4 Cfsm 10.1 In. 137.23 Ac-ft 71,440

Peak discharge (base, 600 cfs).--July 7 (time and discharge unknown); Aug. 17 (7 p.m.) 956 cfs (4.90 ft); Aug. 20 (time and discharge unknown); Sept. 13 (7 p.m.) 1,360 cfs (5.92 ft); Sept. 30 (11 a.m.) 661 cfs (4.10 ft). * Discharge measurement made on this day.

Note.--Doubtful or no gage-height record Dec. 17 to Mar. 21, July 7, 8, Aug. 10, 11, 19, 20, Sept. 1, 11, 12, 15, 17, 18, 28-30; discharge estimated on basis of 6 discharge measurements, weather records, and records for Sheep Creek near Juneau.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	449	204	31	23		2.8	2.8	88	211	204	92	137
2	365	348	30	23		4.2	5.8	90	264	190	85	115
3	166	284	*28	22	*6.5	8.4	8.9	120	264	162	88	158
4	110	190	26	21		5.2	11	169	232	134	95	118
5	330	172	24	18		3.3	20	140	228	137	110	152
6	152	155	22	14		3.0	13	100	218	149	155	134
7	110	131	21	13		3.0	9.3	110	239	197	172	134
8	88	152	19	12	9.0	2.7	7.6	105	264	204	152	158
9	68	218	18	12		2.2	6.8	100	242	246	354	186
10	120	186	18	11			6.1	90	180	200	236	149
11	137	152	17	11			6.4	85	169	218	260	183
12	102	125	16	10			6.4	140	200	194	225	186
13	75	108	115	*10			5.8	222	200	169	253	236
14	152	90	82	9.5			6.1	204	194	270	340	250
15	108	78	50	9.0			9.3	162	155	274	267	194
16	82	75	35			2.0	12	152	204	253	211	172
17	112	71	30				12	162	214	281	172	253
18	274	146	27				15	180	172	200	166	228
19	316	122	26		9.5	(*)	25	*228	169	180	134	204
20	*522	102	25				43	218	166	158	110	183
21	309	155	24				39	180	186	131	98	137
22	284	131	23				35	190	190	137	88	120
23	214	108	22				31	200	176	140	140	222
24	186	85	21	8.0		3.3	29	200	183	140	108	281
25	146	71	57			3.6	26	208	197	155	88	183
26	118	57	51			2.7	28	222	236	140	85	143
27	134	50	35		*6.1	2.3	75	222	236	149	131	120
28	302	43	28		3.3	2.2	110	358	225	125	152	100
29	309	38	*28		-	2.3	90	250	428	108	256	90
30	242	35	25		------	2.0	90	180	309	105	176	73
31	204	-----	22		-----	2.2	------	183	------	102	149	------
Total	6,286	3,882	998	346.5	238.9	83.4	785.3	5,258	6,551	5,452	5,148	4,999
Mean	203	129	32.2	11.2	8.53	2.69	26.2	170	218	176	166	167
Cfsm	20.8	13.2	3.30	1.15	0.874	0.276	2.68	17.4	22.3	18.0	17.0	17.1
In.	23.95	14.79	3.80	1.32	0.91	0.32	2.99	20.04	24.96	20.77	19.62	19.05
Ac-ft	12,470	7,700	1,980	687	474	165	1,560	10,430	12,990	10,810	10,210	9,920

Calendar year 1952: Max 733 Min 1.7 Mean 119 Cfsm 12.2 In. 165.48 Ac-ft 86,150
Water year 1952-53: Max 522 Min - Mean 110 Cfsm 11.3 In. 152.52 Ac-ft 79,400

Peak discharge (base, 600 cfs).--Oct. 2 (12:30 a.m.) 818 cfs (4.53 ft); Oct. 19 (11:30 p.m.) 926 cfs (4.77 ft); Aug. 14 (3 p.m.) 650 cfs (4.15 ft); Sept. 24 (4 a.m.) 733 cfs (4.34 ft).
* Discharge measurement made on this day.

Note.--No gage-height record Dec. 15-24, Jan. 8 to Feb. 26, Mar. 10-23, Apr. 30 to May 3, May 5-12; discharge estimated on basis of 3 discharge measurements, weather records, recorded range in stage, and records for stations on nearby streams.

Lemon Creek near Juneau

Location.--Lat 58°23'30", long 134°25'15", on left bank a quarter of a mile upstream from Canyon Creek, 4½ miles upstream from mouth, and 6 miles north of Juneau.

Drainage area.--12.1 sq mi.

Records available.--August 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 650 ft (from topographic map).

Extremes.--1951: Maximum discharge during period August to September, 980 cfs Sept. 18 (gage height, 2.85 ft); minimum, 61 cfs Sept. 28 (gage height, 0.58 ft).
1951-52: Maximum discharge during water year, 2,080 cfs Sept. 14 (gage height, 4.08 ft), from rating curve extended above 520 cfs by logarithmic plotting; minimum not determined.
1952-53: Maximum discharge during water year, 1,770 cfs Aug. 14 (gage height, 3.77 ft), from rating curve extended above 520 cfs by logarithmic plotting; minimum not determined.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, 1951

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	410	441	9	354	637	17	320	592	25	316	107
2	484	410	10	490	358	18	346	720	26	309	82
3	379	415	11	508	513	19	320	467	27	295	66
4	309	484	12	457	276	20	451	279	28	316	64
5	282	513	13	496	543	21	484	295	29	*451	72
6	316	525	14	618	467	22	384	279	30	358	82
7	362	410	15	*431	415	23	713	306	31	441	
8	342	604	16	346	496	24	513	152			
Total										12,601	11,070
Mean										406	369
Cubic feet per second per square mile										33.6	30.5
Runoff in inches										38.73	34.02
Runoff in acre-feet										24,990	21,960

Peak discharge (base, 1,200 cfs).--No peak above base.
* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	25							79	218	298	902
2	55	38							78	254	285	543
3	53	63							63	246	312	320
4	46	70							94	229	298	269
5	124	41							109	202	269	248
6	295	70							*80	226	309	243
7	379	55							63	354	323	177
8	379	30							78	415	*379	128
9	205								79	350	342	104
10	*183								158	354	285	110
11	370								215	379	292	195
12	193								215	384	316	137
13	129								212	379	326	631
14	93	10						40	179	358	320	1,480
15	72		5.0	1.5	1.0	1.5	7.0		146	392	273	748
16	59								129	316	362	342
17	52								150	282	706	457
18	45								172	243	692	657
19	40	(*)							179	282	637	402
20	35								202	276	798	285
21	32								205	346	*537	263
22	29								197	388	425	354
23	27								193	379	388	346
24	25								197	338	298	662
25	24	6.0							193	289	229	720
26	22								179	302	210	420
27	21							47	197	298	550	338
28	20						(*)	76	243	282	484	519
29	19							117	223	282	289	379
30	19				------			96	226	273	212	490
31	19	-----			-----		-----	82	------	298	422	------
Total	3,127	568.0	155.0	46.5	29.0	46.5	210.0	1,458	4,733	9,614	11,866	12,869
Mean	101	18.9	5.0	1.5	1.0	1.5	7.0	47.0	158	310	383	429
Cfsm	8.35	1.56	0.413	0.124	0.083	0.124	0.579	3.88	13.1	25.6	317	35.5
In.	9.61	1.75	0.48	0.14	0.09	0.14	0.65	4.48	14.55	29.55	36.47	39.55
Ac-ft	6,200	1,130	307	92	58	92	417	2,890	9,390	19,070	23,540	25,530

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 1,480 Min - Mean 122 Cfsm 10.1 In. 137.46 Ac-ft 88,720

Peak discharge (base, 1,200 cfs).--Sept. 1 (7 a.m.) 1,240 cfs (3.17 ft); Sept. 14 (6 a.m.) 2,080 cfs (4.08 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Oct. 20 to Nov. 2, Nov. 9 to May 26 (stage-discharge relation affected by ice during part of period); discharge estimated on basis of 2 discharge measurements, weather records, and records for Gold Creek at Juneau.

Lemon Creek near Juneau--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	447	210						40	220	406	306	408
2	510	251						45	295	366	292	313
3	229	150						50	273	306	354	485
4	181	101						65	254	257	402	418
5	664	86						55	243	243	457	638
6	384	80						50	257	266	496	500
7	273	75						55	295	410	611	431
8	223	105						53	334	484	618	454
9	156	140						52	289	549	637	444
10	158	122						51	229	561	790	*344
11	257	75						50	229	567	988	608
12	231	*55						60	282	496	618	685
13	148	45						130	285	425	671	741
14	190	34						110	282	720	1,460	480
15	*148	28						105	240	980	932	327
			10	3.0	2.0	1.5	12					
16	104	24						104	263	692	520	252
17	121	21						105	240	637	462	367
18	535	58						119	226	484	431	341
19	910	42						152	226	502	367	327
20	865	32						148	248	392	296	267
21	531	45						133	289	*342	255	208
22	316	42						150	279	338	228	158
23	215	35						162	279	374	306	195
24	177	31						166	295	388	296	444
25	124	27						177	338	502	306	288
26	86	24						195	446	441	252	202
27	151	21						188	457	370	375	134
28	1,030	18						263	441	350	396	102
29	865	16			-			195	741	342	671	96
30	379	15			------			156	531	334	706	84
31	234	------			------		------	183	------	312	458	------
Total	10,842	2,008	310	93.0	56.0	46.5	360	3,567	9,306	13,836	15,957	10,741
Mean	350	66.9	10	3.0	2.0	1.5	12	115	310	446	515	358
Cfsm	28.9	5.53	0.826	0.248	0.165	0.124	0.992	9.50	25.6	36.9	42.6	29.6
In.	33.32	6.17	0.95	0.29	0.17	0.14	1.11	10.96	28.60	42.53	49.04	33.01
Ac-ft	21,500	3,980	615	184	111	92	714	7,080	18,460	27,440	31,650	21,300

Calendar year 1952: Max 1,480 Min - Mean 148 Cfsm 12.2 In. 166.06 Ac-ft 107,200
Water year 1952-53: Max 1,460 Min - Mean 184 Cfsm 15.2 In. 206.29 Ac-ft 133,100

Peak discharge (base, 1,200 cfs).--Oct. 19 (11:30 p.m.) 1,590 cfs (3.57 ft); Oct. 28 (12 m.) 1,260 cfs (3.20 ft); Aug. 14 (2:30 p.m.) 1,770 cfs (3.77 ft).

* Discharge measurement made on this day.

Note.--No gage height record Nov. 7, 15-17, Nov. 23 to May 14 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of weather records and records for Gold Creek at Juneau.

Purple Lake Outlet near Metlakatla

Location.--Lat 55°06', long 131°26', on Annette Island, on right bank 1,200 ft downstream from outlet of Purple Lake, 2½ miles upstream from mouth, and about 6 miles east of Metlakatla.

Drainage area.--6.8 sq mi, approximately.

Records available.--July 1947 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 310 ft (by barometer). Prior to Aug. 22, 1953, at different datums.

Average discharge.--6 years, 83.4 cfs (60,380 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 380 cfs June 13 (gage height, 3.58 ft, datum then in use); minimum daily, 6.5 cfs Sept. 7.
1951-52: Maximum discharge during water year, 423 cfs Dec. 9 or 10 (gage height, 4.80 ft, datum then in use); minimum, 2.2 cfs Aug. 15, 16 (gage height, 0.35 ft, datum then in use).
1952-53: Maximum discharge during water year not determined; minimum, 8.4 cfs Aug. 15 (gage height, 0.22 ft, datum then in use).
1947-53: Maximum discharge, 716 cfs Apr. 27, 1949 (gage height, 5.15 ft, datum then in use), from rating curve extended above 380 cfs; minimum daily, 2 cfs Jan. 30 to Feb. 1, 1950.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	73	34	117	24	47	45	40	60	26	15	8.5
2	50	137	30	94	25	44	65	35	57	24	16	8.0
3	44	215	27	78	23	41	95	32	53	23	20	7.5
4	38	193	24	65	22	37	75	32	52	21	48	7.2
5	34	178	57	56	21	32	60	32	50	19	35	7.0
6	33	195	139	68	20	29	50	35	49	18	27	6.6
7	83	146	126	117	22	27	45	40	47	16	22	6.5
8	67	113	130	120	41	25	48	45	45	15	19	10
9	98	94	128	174	39	22	45	50	59	14	16	100
10	131	82	106	217	35	20	46	55	102	13	14	80
11	118	72	92	185	32	28	46	60	283	12	13	72
12	103	63	84	156	30	30	45	65	297	11	12	68
13	102	56	108	133	35	28	42	75	333	9.3	20	64
14	114	49	102	108	61	33	40	85	337	8.5	90	60
15	94	41	88	90	73	34	39	120	241	7.8	60	56
16	80	36	89	77	116	32	38	130	172	10	40	50
17	68	32	84	65	105	39	37	100	129	12	50	42
18	58	29	98	60	118	48	36	80	103	13	40	*38
19	50	25	100	51	128	54	35	75	85	13	35	33
20	44	22	124	46	108	67	35	80	73	13	40	29
21	67	19	203	47	91	88	34	200	64	13	33	26
22	127	17	188	55	77	98	34	*144	57	32	27	22
23	106	18	205	52	79	140	34	123	52	36	22	22
24	141	35	233	52	89	180	40	128	46	33	19	22
25	122	47	174	49	79	250	50	125	43	30	17	20
26	102	56	133	43	68	140	75	119	39	27	15	17
27	*88	52	117	39	59	90	100	102	35	*24	13	15
28	76	47	125	34	53	88	105	90	32	21	12	23
29	65	43	175	31	-	80	75	79	30	19	11	54
30	69	38	158	28	------	66	50	73	28	17	10	57
31	72	-----	135	26	-----	52	-----	66	------	16	9.0	------
Total	2,481	2,223	3,616	2,533	1,673	1,989	1,564	2,515	3,053	566.6	820.0	1,031.3
Mean	80.0	74.1	117	81.7	59.8	64.2	52.1	81.1	102	18.3	26.5	34.4
Cfsm	11.8	10.9	17.2	12.0	8.79	9.44	7.66	11.9	15.0	2.69	3.90	5.06
In.	13.57	12.16	19.78	13.85	9.15	10.88	8.55	13.75	16.70	3.10	4.48	5.64
Ac-ft	4,920	4,410	7,170	5,020	3,320	3,950	3,100	4,990	6,060	1,120	1,630	2,050

Calendar year 1950: Max 308 Min 2.0 Mean 78.1 Cfsm 11.5 In. 155.81 Ac-ft 59,640
Water year 1950-51: Max 337 Min 6.5 Mean 65.9 Cfsm 9.69 In. 131.61 Ac-ft 47,740

Peak discharge (base, 300 cfs).--June 13 (9 p.m.) 380 cfs (3.58 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Mar. 21 to May 21, July 29 to Sept. 17; discharge estimated on basis of recorded range in stage, weather records at Annette, and records for Mahoney Creek near Ketchikan.

SOUTHEASTERN ALASKA

Purple Lake Outlet near Metlakatla

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53									45	7.2	50
2	49									90	6.8	45
3	44									85	6.4	40
4	39									101	6.0	35
5	94									89	5.4	30
6	147									77	4.8	50
7	256									93	4.5	80
8	246									89	4.1	65
9	179									76	3.9	55
10	149									64	3.5	50
11	161									54	3.1	50
12	180									46	2.8	50
13	189									39	2.5	60
14	149								65	36	2.4	80
15	114									31	2.3	*96
		75	75	70	90	65	100	75				
16	89									27	2.5	103
17	68							(*)		23	19	114
18	54									21	28	111
19	50									19	42	95
20	44									16	96	77
21	39									15	144	64
22	36									14	154	53
23	35									13	131	44
24	*32									12	111	46
25	30									11	91	220
26	60									11	73	316
27	80								*34	10	80	365
28	70								32	9.7	100	341
29	60								28	8.9	120	289
30	55				-----				26	8.5	80	226
31	50	-----			-----		-----		-----	7.5	60	-----
Total	2,901	2,250	2,325	2,170	2,610	2,015	3,000	2,325	1,810	1,241.6	1,397.2	3,300
Mean	93.6	75	75	70	90	65	100	75	60.3	40.1	45.1	110
Cfsm	13.8	11.0	11.0	10.3	13.2	9.56	14.7	11.0	8.87	5.90	6.63	16.2
In.	15.87	12.31	12.7	11.87	14.27	11.02	16.41	12.72	9.90	6.79	7.64	18.05
Ac-ft	5,750	4,460	4,610	4,300	5,180	4,000	5,950	4,610	3,590	2,460	2,770	6,550

Calendar year 1951: Max - Min 6.5 Mean 63.6 Cfsm 9.35 In. 127.00 Ac-ft 46,060
Water year 1951-52: Max - Min 2.3 Mean 74.7 Cfsm 11.0 In. 149.57 Ac-ft 54,230

Peak discharge (base, 300 cfs).--Oct 7 (2 p.m.) 301 cfs (4.14 ft); Dec. 9 or 10 (time unknown) 423 cfs (4.80 ft); Sept. 27 (11 p.m.) 405 cfs (4.71 ft). * Discharge measurement made on this day.

Note.--No gage-height record Oct. 25 to June 26, Aug. 27 to Sept. 14; discharge estimated on basis of 1 discharge measurement, weather records, recorded range in stage, and records for stations on nearby streams.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	175	a100	52	99	69	64	90	80	29	55	21	39
2	158	a250	50	103	a100	57	a95	80	29	55	19	34
3	121	a220	63	a120	a200	72	a110	111	29	50	18	30
4	95	152	61	a140	a180	89	a160	a400	29	44	16	26
5	77	118	54	111	a150	89	a170	a350	28	40	15	24
6	66	95	46	87	a120	103	*135	a250	27	36	14	21
7	59	82	42	69	a130	a150	106	a170	26	32	12	19
8	55	69	*38	58	a110	a250	87	a130	24	29	11	39
9	47	59	46	51	a150	a250	76	a110	24	26	10	96
10	41	57	48	44	a250	a170	68	a120	22	23	12	86
11	42	66	50	39	a200	a130	61	a250	21	22	12	120
12	38	*87	125	34	a170	101	54	a350	*20	24	11	144
13	35	87	156	30	a220	83	48	a250	19	36	10	174
14	32	74	135	27	a190	80	44	a200	18	58	9.2	140
15	54	64	108	25	a150	82	40	a150	17	53	8.8	136
16	63	95	87	27	a120	79	39	113	16	65	9.8	120
17	130	93	70	26	95	69	40	91	18	a85	11	256
18	123	185	59	24	79	60	44	79	18	110	13	199
19	127	192	52	23	83	55	67	75	18	88	14	148
20	a300	139	49	22	98	54	134	67	17	73	14	127
21	a200	111	63	26	a180	51	128	59	16	66	23	137
22	a150	89	63	42	a160	49	114	53	16	61	*28	122
23	a170	73	a100	42	a140	a100	95	48	15	54	26	104
24	a140	61	a160	38	a130	a180	79	44	14	48	36	128
25	a110	52	a140	36	a120	a160	72	42	13	42	41	125
26	a90	45	a110	38	104	a140	101	39	13	38	37	237
27	a75	40	91	41	85	a120	108	37	12	34	34	209
28	a90	38	84	39	72	112	116	37	12	30	32	156
29	a160	57	105	40	-	a120	107	36	11	28	44	126
30	a130	55	94	38	------	102	91	32	27	24	48	104
31	*a110	-----	90	48	-----	89	-----	30	------	22	44	------
Total	3,263	2,905	2,491	1,587	3,855	3,310	2,679	3,883	598	1,451	653.8	3,426
Mean	105	96.8	80.4	51.2	138	107	89.3	125	19.9	46.8	21.1	114
Cfsm	15.4	14.2	11.8	7.53	20.3	15.7	13.1	18.4	2.93	6.88	3.10	16.8
In.	17.85	15.89	13.62	8.68	21.08	18.10	14.65	21.24	3.27	7.94	3.58	18.74
Ac-ft	6,470	5,760	4,940	3,150	7,650	6,570	5,310	7,700	1,190	2,880	1,300	6,800

Calendar year 1952: Max - Min - Mean 77.9 Cfsm 11.5 In. 156.03 Ac-ft 56,580
Water year 1952-53: Max 400 Min 8.8 Mean 82.5 Cfsm 12.1 In. 164.64 Ac-ft 59,720

Peak discharge (base, 300 cfs).--Oct 20 (time and discharge unknown); May 4 (time and discharge unknown); May 12 (time and discharge unknown). * Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Falls Creek near Ketchikan.

Perseverance Creek near Wacker

Location.--Lat 55°24'40", long 131°40'05", on Revillagigedo Island, on right bank 500 ft downstream from Perseverance Lake, half a mile upstream from Connell Lake, 2 miles east of Wacker, and 4 miles north of Ketchikan.

Drainage area.--2.81 sq mi.

Records available.--October 1931 to September 1939 (monthly discharge only, published in WSP 1372), October 1946 to September 1953.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 600 ft (from topographic map). Prior to October 1946, at site 100 ft upstream at different datum.

Average discharge.--14 years (1931-38, 1946-53), 36.3 cfs (26,280 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 409 cfs June 11 (gage height, 4.51 ft), from rating curve extended above 150 cfs; minimum daily, 2.0 cfs Sept. 6.
1951-52: Maximum discharge during water year, 356 cfs Oct. 7 (gage height, 4.20 ft), from rating curve extended above 150 cfs; minimum daily, 0.8 cfs Aug. 14, 15.
1952-53: Maximum discharge during water year, 344 cfs May 12 (gage height, 4.13 ft), from rating curve extended above 150 cfs; minimum, 0.7 cfs Aug. 9 (gage height, 1.34 ft).
1931-39, 1946-53: Maximum discharge, 543 cfs Oct. 30, 1949 (gage height, 5.26 ft), from rating curve extended above 150 cfs; minimum, 0.5 cfs Aug. 5, 6, 8, 1947 (gage height, 1.08 ft).

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	18	8.0	32	5.7	14	17	26	40	16	4.4	2.7
2	6.5	119	6.0	24	5.7	14	30	20	39	14	5.2	2.5
3	4.0	165	*3.7	18	5.7	15	42	20	44	13	7.2	2.4
4	2.5	142	2.1	13	5.2	15	31	22	52	11	19	2.2
5	5.6	76	15	12	4.2	13	25	30	58	9.5	16	2.1
6	11	59	49	28	3.7	13	22	55	54	8.5	10	2.0
7	44	38	39	52	3.2	13	22	72	53	7.9	7.4	3.0
8	51	26	34	43	25	12	23	65	50	7.0	6.3	27
9	67	20	33	52	20	11	24	61	86	6.4	5.5	125
10	84	17	26	67	15	10	25	65	177	6.1	5.0	60
11	130	17	19	44	12	15	28	66	332	6.0	4.7	36
12	75	15	18	32	10	18	28	71	235	5.7	4.3	30
13	60	16	30	26	8.5	18	26	58	239	5.2	4.3	24
14	68	15	29	21	7.5	19	22	77	230	4.7	39	18
15	43	13	23	16	15	22	20	116	91	4.4	29	12
16	28	11	27	13	*46	21	20	110	46	4.7	20	8.9
17	19	9.6	24	9.2	40	22	*18	78	30	4.9	28	*8.0
18	14	8.6	28	7.4	33	27	20	66	23	5.7	18	7.0
19	11	7.6	28	6.9	34	30	18	55	20	6.3	11	6.0
20	13	6.6	37	9.2	30	41	16	64	18	6.4	13	5.4
21	40	6.0	52	13	26	54	15	198	19	7.0	10	4.8
22	123	5.5	59	18	22	44	15	97	23	59	7.7	4.5
23	54	9.6	58	20	20	48	17	62	24	40	6.4	6.0
24	50	15	75	21	28	71	18	64	23	19	5.5	25
25	34	24	45	20	26	71	20	71	22	11	5.0	19
26	*22	24	31	17	22	43	64	63	18	7.9	4.5	13
27	15	20	26	14	18	30	89	50	16	6.4	4.1	10
28	11	15	36	12	16	35	104	*41	15	5.5	3.7	25
29	8.6	12	59	9.8	-	35	85	39	18	4.9	3.4	65
30	9.1	9.8	53	8.0	------	26	40	42	18	4.7	3.1	63
31	12	-----	38	6.3	------	19	-----	42	------	*4.7	2.9	------
Total	1,123.0	940.3	1,010.8	684.8	509.4	839	924	1,966	2,113	323.5	313.6	619.5
Mean	36.2	31.3	32.6	22.1	18.2	27.1	30.8	63.4	70.4	10.4	10.1	20.6
Cfsm	12.9	11.1	11.6	7.86	6.48	9.64	11.0	22.6	25.1	3.70	3.59	7.33
In.	14.86	12.44	13.38	9.06	6.74	11.10	12.23	26.02	27.97	4.28	4.15	8.20
Ac-ft	2,230	1,870	2,000	1,360	1,010	1,660	1,830	3,900	4,190	642	622	1,230

Calendar year 1950: Max 334 Min - Mean 32.4 Cfsm 11.5 In. 156.35 Ac-ft 23,430
Water year 1950-51: Max 332 Min 2.0 Mean 31.1 Cfsm 11.1 In. 150.43 Ac-ft 22,540

Peak discharge (base, 250 cfs).--June 11 (8 a.m.) 409 cfs (4.51 ft).
* Discharge measurement made on this day.

SOUTHEASTERN ALASKA

Perseverance Creek near Wacker--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	8.4	18	3.0	76	8.4	14	35	96	33	a2.1	11
2	24	9.8	15	18	60	7.0	12	39	106	80	a1.9	14
3	22	56	18	35	70	6.6	11	30	66	52	a1.8	7.0
4	17	58	32	31	70	6.2	11	24	185	63	a1.8	5.2
5	98	36	23	24	52	5.7	*9.8	21	112	45	a1.6	4.8
6	159	60	*17	19	46	4.8	9.3	18	60	38	a1.6	46
7	258	72	17	17	32	5.2	8.0	16	a35	90	a1.5	63
8	134	72	33	14	49	6.6	7.0	17	a32	72	a1.4	39
9	49	45	228	14	58	8.8	6.6	22	a35	45	a1.3	22
10	38	25	220	11	36	8.8	10	28	a32	30	a1.2	16
11	76	17	128	9.3	28	8.0	16	51	a36	24	a1.0	19
12	66	12	54	9.3	22	7.0	50	149	a36	19	a1.0	17
13	116	9.8	28	11	16	6.2	82	138	a38	17	a.9	20
14	66	8.4	19	8.8	15	5.7	84	91	a41	15	a.8	141
15	34	6.6	14	8.0	13	4.8	96	72	a47	12	a.8	87
16	20	5.7	11	6.6	11	4.8	250	64	a38	9.8	a4.0	51
17	14	8.8	9.3	9.8	8.8	5.7	116	66	a35	8.8	63	56
18	11	21	7.5	8.4	6.6	6.2	62	68	a36	8.4	75	34
19	8.8	20	6.2	7.0	4.8	5.7	37	58	a65	8.4	62	24
20	7.5	16	5.2	6.2	a5.0	4.8	24	45	*50	7.5	154	16
21	6.6	12	4.8	5.2	a5.0	4.8	20	49	39	6.6	110	13
22	5.2	9.3	4.4	4.8	a5.5	19	22	*79	31	6.2	86	*9.3
23	*4.4	8.0	3.9	4.4	a5.0	22	26	55	27	5.7	38	7.5
24	3.9	8.0	3.4	3.9	24	27	24	38	27	5.2	26	7.5
25	3.0	12	3.4	3.9	26	41	70	34	27	4.8	17	138
26	26	22	3.9	5.2	18	82	79	33	26	3.9	12	151
27	40	31	3.4	46	13	116	42	34	24	3.0	34	205
28	27	33	3.0	112	*11	64	29	49	24	2.7	90	112
29	19	28	2.7	191	9.8	34	24	55	25	2.4	42	98
30	14	22	2.7	145	------	22	20	68	22	2.4	23	58
31	11	-----	2.7	103	-----	17	-----	55	------	2.1	14	------
Total	1,412.4	752.8	941.5	894.8	796.5	575.8	1,271.7	1,601	1,453	722.9	848.7	1,492.3
Mean	45.6	25.1	30.4	28.9	27.5	18.6	42.4	51.6	48.4	23.3	27.4	49.7
Cfsm	16.2	8.93	10.8	10.3	9.79	6.62	15.1	18.4	17.2	8.29	9.75	17.7
In.	18.69	9.96	12.46	11.84	10.54	7.62	16.83	21.19	19.23	9.57	11.23	19.75
Ac-ft	2,800	1,490	1,870	1,770	1,580	1,140	2,520	3,180	2,880	1,430	1,680	2,960

Calendar year 1951: Max 332 Min 2.0 Mean 31.2 Cfsm 11.1 In. 150.86 Ac-ft 22,600
Water year 1951-52: Max 258 Min 0.8 Mean 34.9 Cfsm 12.4 In. 168.91 Ac-ft 25,300

Peak discharge (base, 250 cfs).--Oct. 7 (4:30 p.m.) 356 cfs (4.20 ft); Dec. 9 (3 p.m.) 269 cfs (3.69 ft); Apr. 16 (10 a.m.) 291 cfs (3.82 ft). * Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, and records for Ward Creek near Wacker.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	65	13	24		11	13	38	26	76	3.6	20
2	86	107	12	27		8.8	21	40	34	49	3.3	16
3	39	81	24	36		13	35	96	35	31	2.7	14
4	23	38	22	45		32	48	210	32	20	2.4	12
5	16	23	17	32		30	36	186	29	16	1.8	10
6	14	17	13	22		31	22	148	27	13	1.6	9.0
7	12	15	11	15	50	90	15	86	27	11	1.3	7.7
8	11	9.8	9.8	12		261	12	67	32	9.3	1.3	13
9	8.8	9.3	12	10		170	11	61	34	8.4	1.1	76
10	8.0	12	11	8.5		59	11	71	27	75	8.6	44
11	9.3	19	11	7.0		29	*11	155	24	8.0	11	51
12	11	27	109	6.0		17	10	258	23	15	9.0	61
13	9.8	25	143	5.0		13	8.8	118	19	24	7.3	79
14	8.8	18	81	4.0	*30	11	8.4	67	18	45	6.1	50
15	20	14	42		22	10	8.0	43	16	31	5.2	43
16	24	26	24		16	11	8.4	33	19	37	7.7	40
17	72	27	16	3.0	12	11	11	31	27	82	*16	161
18	55	158	12		9.8	8.8	19	34	*23	52	15	67
19	58	122	11		13	8.0	43	49	19	40	13	37
20	125	50	9.3		28	8.0	80	42	16	26	13	39
21	165	31	14		96	8.0	68	31	15	20	12	50
22	82	22	17		71	7.5	43	30	14	16	14	49
23	72	16	85		36	10	29	30	14	12	12	37
24	44	12	128		25	38	20	37	13	11	16	73
25	25	10	62		34	32	17	44	13	9.5	18	52
26	17	8.4	44	6.0	28	24	31	43	12	8.2	14	186
27	19	7.5	28		18	26	53	37	12	7.7	12	114
28	53	7.5	21		13	24	79	44	11	6.5	12	49
29	142	12	24		-	22	52	34	12	5.6	26	30
30	102	14	21		------	19	38	26	60	4.8	30	22
31	66	-----	19		-----	16	-----	25	------	3.9	26	------
Total	1,456.7	1,003.5	1,066.1	337.5	1,101.8	1,059.1	861.6	2,214	683	706.4	323.0	1,511.7
Mean	47.0	33.4	34.4	10.9	39.4	34.2	28.7	71.4	22.8	22.8	10.4	50.4
Cfsm	16.7	11.9	12.2	3.88	14.0	12.2	10.2	25.4	8.11	8.11	3.70	17.9
In.	19.28	13.28	14.11	4.47	14.58	14.02	11.40	29.30	9.04	9.35	4.27	20.01
Ac-ft	2,890	1,990	2,110	669	2,190	2,100	1,710	4,390	1,350	1,400	641	3,000

Calendar year 1952: Max 250 Min 0.8 Mean 36.0 Cfsm 12.8 In. 174.47 Ac-ft 26,130
Water year 1952-53: Max 261 Min 1.1 Mean 33.8 Cfsm 12.0 In. 163.11 Ac-ft 24,440

Peak discharge (base, 250 cfs).--Nov. 18 (4 p.m.) 296 cfs (3.85 ft); Mar. 8 (10 p.m.) 295 cfs (3.85 ft); May 4 (7:30 a.m.) 252 cfs (3.59 ft); May 12 (2 a.m.) 344 cfs (4.13 ft); Sept. 26 (3:30 p.m.) 265 cfs (3.66 ft). * Discharge measurement made on this day.
Note.--No gage-height record Jan. 7 to Feb. 13; discharge estimated on basis of weather records, recorded range in stage, and records for stations on nearby streams.

Ward Creek near Wacker

Location.--Lat 55°25'50", long 131°40'00", on Revillagigedo Island, on right bank three-quarters of a mile downstream from Connell Lake Dam, 2¼ miles northeast of Wacker, and 5½ miles north of Ketchikan. Prior to June 20, 1952, at site three-quarters of a mile upstream.

Drainage area.--14.0 sq mi. At sites Oct. 1, 1948, to June 19, 1952, 12.8 sq mi.

Records available.--October 1948 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Prior to June 20, 1952, water-stage recorder at several sites three-quarters of a mile upstream at various datums. June 20, to Dec. 11, 1952, staff gage at present site and datum.

Average discharge.--5 years, 139 cfs (100,600 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 1,250 cfs June 11 (gage height, 4.55 ft, site and datum then in use); minimum, 3.4 cfs Sept. 6 (gage height, 0.76 ft, site and datum then in use).

1951-52: Maximum discharge during water year, 2,600 cfs Apr. 16 (gage height, 6.83 ft, site and datum then in use); minimum observed, 2.3 cfs Sept. 21 (gage height, 1.00 ft), caused by construction work above station.

1952-53: Maximum discharge during water year, 1,060 cfs May 11 (gage height, 7.28 ft), from rating curve extended above 230 cfs; minimum, 0.6 cfs Sept. 23 (gage height, 0.90 ft), caused by construction work above station.

1948-53: Maximum discharge, that of Apr. 16, 1952; minimum, that of Sept. 23, 1953.

Remarks.--Records good prior to June 20, 1952, except those for periods of no gage-height record, which are fair. Records fair after June 20, 1952, except those for periods of ice effect or no gage-height record and those above 350 cfs, which are poor. No regulation or diversion above station. Connell Lake Dam under construction during 1952-53 water years.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	82	18	139	16	25	55	89	137	73	13	5.5
2	22	647	17	75	16	22	150	87	126	63	21	5.0
3	18	582	14	52	16	21	350	112	152	63	35	4.8
4	17	370	13	36	16	20	150	112	183	51	180	4.8
5	15	248	200	34	16	18	110	175	192	51	87	4.2
6	26	227	734	190	16	18	90	279	171	48	44	3.6
7	485	97	249	496	17	20	95	305	162	42	33	4.6
8	268	60	210	202	30	20	98	251	141	34	24	156
9	389	49	214	262	30	20	108	240	209	33	18	663
10	447	48	98	423	18	21	110	254	426	36	16	173
11	624	44	58	197	16	21	115	262	953	35	13	93
12	238	42	65	110	16	21	145	285	530	33	10	98
13	227	42	135	87	16	20	130	207	659	29	13	73
14	265	40	118	54	18	21	105	259	805	24	157	51
15	120	34	71	40	85	22	95	341	262	18	89	36
16	75	27	135	34	*190	22	90	317	132	25	63	28
17	52	26	106	26	146	22	110	254	97	24	120	23
18	39	21	148	24	85	35	130	227	84	34	69	18
19	31	18	124	22	110	69	120	178	76	39	45	*16
20	26	17	302	20	89	210	82	251	75	36	69	14
21	143	14	526	22	60	204	89	698	85	40	48	13
22	501	12	377	29	42	166	98	288	102	187	33	11
23	150	14	474	28	37	122	*108	178	102	112	25	16
24	254	84	570	26	68	204	110	268	95	58	18	173
25	118	164	195	22	61	157	126	326	89	39	13	61
26	*66	139	112	18	42	97	357	222	73	29	12	33
27	51	60	97	17	33	65	469	155	68	23	10	25
28	42	35	254	16	27	160	406	132	71	16	9.0	66
29	34	27	582	15	-	160	217	135	84	13	8.0	305
30	44	21	383	16	------	78	135	146	85	13	7.0	178
31	85	-----	185	16	-----	60	-----	146	------	*13	6.0	-----
Total	4,898	3,271	6,783	2,748	1,332	2,141	4,553	7,159	6,426	1,334	1,308.0	2,355.5
Mean	158	109	219	88.6	47.6	69.1	152	231	214	43.0	42.2	78.5
Cfsm	12.3	8.52	17.1	6.92	3.72	5.40	11.9	18.0	16.7	3.36	3.30	6.13
In.	14.23	9.50	19.71	7.98	3.87	6.22	13.23	20.80	18.67	3.88	3.80	6.84
Ac-ft	9,720	6,490	13,450	5,450	2,640	4,250	9,030	14,200	12,750	2,650	2,590	4,670

Calendar year 1950: Max 1,460 Min - Mean 133 Cfsm 10.4 In. 140.80 Ac-ft 96,130
Water year 1950-51: Max 953 Min 3.6 Mean 121 Cfsm 9.45 In. 128.73 Ac-ft 87,890

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 14, Mar. 28 to Apr. 16; discharge estimated on basis of weather records, recorded range in stage, and records for Perseverance Creek near Wacker.

Ward Creek near Wacker--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	21	95	9.0	308	34	40	293	270	98	12	31
2	65	33	71	65	214	29	37	207	305	226	10	30
3	58	465	104	130	345	25	45	124	210	148	9.5	25
4	49	257	178	104	314	24	*66	95	791	170	9.5	18
5	280	130	76	85	259	23	48	82	354	148	9.0	16
6	497	373	*49	61	202	20	37	69	173	110	8.5	20
7	1,240	308	93	55	126	20	30	68	112	292	8.0	176
8	464	293	294	41	364	23	27	93	108	254	7.7	132
9	118	159	1,120	40	222	39	28	122	114	132	7.4	57
10	118	69	894	33	148	39	48	164	106	92	6.5	43
11	318	44	521	25	155	31	84	256	122	80	5.3	57
12	302	31	175	24	93	27	346	646	157	70	5.3	54
13	480	25	84	29	71	24	469	492	155	62	4.7	99
14	214	21	55	24	137	20	465	341	162	54	4.1	400
15	85	17	41	18	78	18	990	288	187	42	4.1	300
16	51	15	33	18	a55	18	1,960	262	135	35	5.3	256
17	35	126	28	30	a40	24	415	276	132	32	97	187
18	27	204	22	24	a30	25	222	273	135	33	207	106
19	24	95	17	18	a17	22	135	207	214	33	207	65
20	22	48	16	16	a20	18	91	166	*145	30	362	44
21	18	31	16	a15	a19	18	87	195	132	24	344	20
22	16	25	14	a14	a19	94	112	*354	115	24	218	*27
23	*14	21	13	a13	a20	95	159	185	101	25	116	23
24	12	21	13	a12	70	97	139	122	109	24	77	49
25	10	119	13	a12	a95	180	444	116	106	19	49	402
26	158	222	13	20	a60	312	352	120	108	17	34	326
27	164	217	12	344	a45	437	139	139	89	16	97	682
28	89	187	11	646	*36	225	100	178	101	17	273	550
29	57	108	10	923	36	100	104	185	100	15	117	466
30	35	85	9.5	676	-----	63	95	254	90	13	54	331
31	27	-----	9.5	426	-----	48	-----	180	-----	12	54	-----
Total	5,140	3,770	4,100.0	3,950.0	3,598	2,172	7,314	6,552	5,138	2,347	2,422.9	4,992
Mean	166	126	132	127	124	70.1	244	211	171	75.7	78.2	166
Cfsm	13.0	9.84	10.3	9.92	9.69	5.48	19.1	16.5	13.2	5.91	5.59	11.9
In.	14.93	10.95	11.91	11.48	10.45	6.31	21.25	19.04	14.63	6.23	6.44	13.26
Ac-ft	10,200	7,480	8,130	7,830	7,140	4,310	14,510	13,000	10,190	4,660	4,810	9,900

Calendar year 1951: Max 1,240 Min 3.6 Mean 116 Cfsm 9.06 In. 123.08 Ac-ft 84,040
Water year 1951-52: Max 1,960 Min 4.1 Mean 141 Cfsm 10.8 In. 146.88 Ac-ft 102,200

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, and records for Perseverance Creek near Wacker.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	150	198	55	133	89	48	69	169	96	151	13	64
2	129	700	62	132	301	43	172	178	115	117	12	42
3	130	216	205	174	394	79	242	434	108	80	11	31
4	239	105	92	146	259	169	286	620	99	57	10	25
5	192	82	48	81	134	136	175	472	93	46	9.0	21
6	54	70	47	41	105	138	99	319	90	16	8.0	19
7	47	50	34		182	266	71	239	93	8.3	7.4	18
8	44	38	32		122	640	58	190	112	45	7.4	20
9	38	70	34		406	442	60	231	109	72	7.1	332
10	32	126	32		412	177	63	231	88	24	47	160
11	30	227	*55	b25	199	101	*62	556	77	69	58	96
12	35	205	738		329	69	56	676	71	75	35	144
13	37	140	414		205	52	47	269	64	86	25	194
14	39	*72	190		*162	53	41	184	60	142	19	134
15	193	52	98		112	79	38	139	53	90	*17	92
16	148	123	56	48	79	97	44	120	57	86	21	84
17	347	96	38	51	64	86	70	122	72	175	48	145
18	244	730	27	56	52	65	113	126	*65	123	56	117
19	730	285	24	52	66	52	221	164	56	90	49	157
20	680	123	25	40	150	33	378	142	50	66	45	124
21	690	92	58	45	504	7.1	240	101	48	50	40	116
22	213	42	64	184	290	6.2	163	101	49	40	37	117
23	198	37	356	110	132	19	108	108	74	34	32	52
24	132	34	456	65	94	268	84	134	46	31	41	160
25	79	35	186	42	126	138	76	154	38	28	51	148
26	70	32	162	38	122	28	180	142	113	24	38	234
27	82	29	86	46	84	36	218	123	70	25	32	292
28	342	27	66	31	60	74	259	126	50	24	34	259
29	580	61	188	29	-	126	188	105	49	20	72	224
30	315	58	113	76	-----	112	194	79	120	17	99	152
31	205	-----	86	49	-----	81	-----	84	-----	15	96	-----
Total	6,444	4,155	4,127	1,894	5,234	3,720.3	4,075	6,838	2,285	1,926.3	1,076.9	3,773
Mean	208	138	133	61.1	187	120	136	221	76.2	62.1	34.7	126
Cfsm	14.9	9.86	9.50	4.36	13.4	8.57	9.71	15.8	5.44	4.44	2.48	9.00
In.	17.12	11.04	10.96	5.03	13.90	9.88	10.82	18.16	6.07	5.12	2.86	10.02
Ac-ft	12,780	8,240	8,190	3,760	10,380	7,380	8,080	13,560	4,530	3,820	2,140	7,480

Calendar year 1952: Max 1,960 Min 4.1 Mean 145 Cfsm 10.9 In. 148.21 Ac-ft 105,600
Water year 1952-53: Max 738 Min 6.2 Mean 125 Cfsm 8.93 In. 120.98 Ac-ft 90,340

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Mahoney Creek near Ketchikan

Location.--Lat 55°25'30", long 131°30'45", on Revillagigedo Island, on right bank an eighth of a mile upstream from mouth, an eighth of a mile downstream from Mahoney Lake, and 8 miles northeast of Ketchikan.

Drainage area.--5.70 sq mi.

Records available.--September 1920 to October 1933 (monthly discharge only January 1921 to October 1933, published in WSP 1372), October 1947 to September 1953. Prior to October 1930, published as "at George Inlet".

Gage.--Water-stage recorder. Altitude of gage is 45 ft (by barometer). Prior to October 1947, at different datum.

Average discharge.--18 years (1920-25, 1926-33, 1947-53), 107 cfs (77,460 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 970 cfs June 11 (gage height, 3.37 ft); minimum, 8.4 cfs Feb. 7 (gage height, 0.47 ft).
1951-52: Maximum discharge during water year 866 cfs Oct. 7 (gage height, 3.29 ft); minimum, 10 cfs Jan. 1 (gage height, 0.57 ft).
1952-53: Maximum discharge during water year, 842 cfs Oct. 20 (gage height, 3.34 ft); minimum, 10 cfs Jan. 21 (gage height, 0.62 ft).
1920-25, 1926-33, 1947-53: Maximum discharge, 2,400 cfs Oct. 2, 1930 (gage height, 4.60 ft, datum then in use), from rating curve extended above 1,100 cfs; minimum daily, 1.5 cfs Jan. 30 to Feb. 1, 1950.

Remarks.--Records good. Mahoney Lake at elevation 76 ft has an area of 163 acres.

Revisions (water years).--WSP 1372: 1923(M), drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	40	16	56	13	16	35	55	120	213	73	36
2	25	215	14	43	12	15	47	49	116	190	88	37
3	22	588	13	35	11	14	80	46	127	170	118	36
4	19	389	12	28	10	13	63	46	157	124	285	35
5	18	181	15	24	9.6	12	53	53	187	124	173	34
6	17	126	87	30	9.0	12	45	80	181	142	101	32
7	160	65	117	98	8.4	a 11	40	122	173	157	76	32
8	238	46	102	74	10	a10	44	127	167	124	68	131
9	341	37	92	96	10	a9.5	41	131	184	114	63	362
10	357	33	*62	146	10	a9.0	41	145	327	140	61	154
11	285	30	45	82	*10	a14	43	154	817	170	63	82
12	181	27	38	61	10	a16	43	167	430	176	65	74
13	193	24	58	47	9.6	a13	43	147	480	165	74	66
14	200	22	67	38	12	a18	39	167	700	152	285	56
15	100	20	50	31	15	19	38	230	285	131	184	45
16	60	18	56	29	26	19	37	252	159	152	145	38
17	44	16	54	28	36	25	38	197	116	140	162	34
18	35	15	55	28	38	20	39	167	101	142	114	*31
19	28	13	47	26	59	17	39	145	96	135	77	28
20	24	12	92	24	48	22	37	154	96	120	84	26
21	39	11	181	22	37	36	35	378	114	109	76	24
22	238	10	165	20	30	39	*35	256	159	226	63	22
23	133	10	141	20	24	52	36	170	190	184	55	22
24	119	19	241	20	26	126	36	193	187	124	51	40
25	68	17	151	21	25	179	40	249	179	100	48	51
26	48	21	87	21	22	94	71	234	159	90	46	43
27	38	22	66	20	20	63	142	*167	140	80	44	34
28	33	20	82	19	18	65	152	129	147	*74	41	43
29	*28	19	173	17	-	60	101	116	193	70	39	209
30	28	17	162	16	------	49	71	124	226	71	36	173
31	35	-----	84	14	------	39	------	127	------	76	35	------
Total	3,183	2,083	2,625	1,234	568.6	1,106.5	1,604	4,777	6,713	4,185	2,893	2,030
Mean	103	69.4	84.7	39.8	20.3	35.7	53.5	154	224	135	93.3	67.7
Cfsm	81.1	12.2	14.9	6.98	3.56	6.26	9.39	27.0	39.3	23.7	16.4	11.9
In.	20.77	13.59	17.13	8.05	3.71	7.22	10.47	31.17	43.80	27.31	18.88	13.24
Ac-ft	6,310	4,130	5,210	2,450	1,130	2,190	3,180	9,480	13,320	8,300	5,740	4,030

Calendar year 1950: Max 927 Min 1.5 Mean 99.4 Cfsm 17.4 In. 236.80 Ac-ft 71,980
Water year 1950-51: Max 817 Min 8.4 Mean 90.4 Cfsm 15.9 In. 215.34 Ac-ft 65,470

Peak discharge (base, 950 cfs).--June 11 (6 a.m.) 970 cfs (3.37 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of Ketchikan weather records and records for Purple Lake near Metlakahtla.

Mahoney Creek near Ketchikan--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	29	40	10	139	18	33	66	207	191	109	50
2	77	28	35	13	83	17	29	79	224	320	92	48
3	56	253	34	17	79	16	*28	58	161	247	85	44
4	45	287	47	22	69	15	26	48	459	307	103	39
5	209	136	40	24	77	14	24	42	375	224	117	36
6	363	210	34	25	73	14	22	38	191	164	124	136
7	681	204	38	26	55	13	21	36	117	291	117	247
8	356	185	65	26	73	13	19	35	87	315	129	176
9	131	122	*243	26	73	13	18	37	90	221	144	92
10	103	64	307	26	*56	13	18	44	95	173	127	60
11	243	45	315	23	63	12	19	86	107	173	107	64
12	247	35	161	22	50	12	42	287	134	182	88	64
13	299	29	80	22	42	11	136	303	167	182	80	128
14	179	24	52	20	44	11	185	218	176	188	73	470
15	87	21	41	19	39	11	200	188	179	161	64	232
16	56	20	34	18	33	10	566	170	139	134	66	200
17	42	27	28	18	28	11	287	170	119	119	303	200
18	35	60	24	17	24	11	150	179	122	109	345	134
19	29	56	21	16	21	11	90	*173	182	111	214	94
20	26	42	19	16	19	11	60	141	182	111	470	65
21	23	34	18	15	17	11	50	141	144	92	400	*51
22	21	28	17	14	16	16	51	232	122	92	283	42
23	20	23	16	12	18	19	64	170	113	124	167	37
24	18	22	15	12	21	22	57	113	119	139	119	38
25	17	28	14	11	23	28	121	88	124	115	80	479
26	27	65	14	11	21	45	136	79	*144	97	60	385
27	92	87	13	18	21	111	76	87	156	87	65	548
28	*82	83	12	56	20	87	55	129	161	95	235	311
29	57	57	12	218	19	60	50	164	173	107	161	287
30	43	45	11	320	------	45	43	204	144	111	87	182
31	35	------	11	204	------	38	------	179	------	111	59	------
Total	3,812	2,349	1,811	1,297	1,314	749	2,676	3,984	4,913	5,093	4,673	4,939
Mean	123	78.3	58.4	41.8	45.3	24.2	89.2	129	164	164	151	165
Cfsm	21.6	13.7	10.2	7.33	7.95	4.25	15.6	22.6	28.8	28.8	26.5	28.9
In.	24.87	15.33	11.82	8.46	8.57	4.89	17.46	25.99	32.06	33.23	30.49	32.22
Ac-ft	7,560	4,660	3,590	2,570	2,610	1,490	5,310	7,900	9,740	10,100	9,270	9,800

Calendar year 1951: Max 817 Min 8.4 Mean 90.6 Cfsm 15.9 In. 215.87 Ac-ft 65,630
Water year 1951-52: Max 681 Min 10 Mean 103 Cfsm 18.1 In. 245.39 Ac-ft 74,600

Peak discharge (base, 950 cfs).--No peak above base.
* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	213	228	21	69	19	22	32	92	85	287	66	63
2	325	674	21	70	54	20	40	103	101	194	85	50
3	124	304	32	87	119	20	55	225	122	127	65	42
4	63	122	35	103	103	26	94	512	115	97	67	37
5	45	65	31	75	63	30	76	390	117	94	72	33
6	40	48	26	50	50	33	49	259	122	99	70	31
7	37	42	22	37	82	60	37	210	127	111	67	29
8	34	36	21	29	49	243	30	188	167	124	65	58
9	31	32	*22	24	102	221	27	167	188	134	60	448
10	28	29	22	23	*141	105	26	182	156	134	91	172
11	28	47	22	20	80	58	24	219	134	158	101	144
12	32	119	86	18	103	42	*22	448	119	224	73	199
13	32	105	239	16	83	34	20	275	113	224	56	330
14	29	59	178	15	62	31	19	191	111	255	50	176
15	57	43	88	13	46	31	18	139	101	184	50	144
16	80	52	52	12	37	30	18	113	97	156	*63	111
17	248	52	39	12	32	30	20	105	*127	255	99	353
18	176	408	31	12	28	28	26	113	119	176	95	185
19	167	304	27	11	26	24	76	153	99	139	77	90
20	515	113	26	11	37	24	156	147	90	111	64	92
21	325	73	27	11	142	22	111	109	88	103	58	270
22	185	54	27	15	122	22	80	92	92	109	57	239
23	173	43	115	17	83	22	55	97	103	94	50	122
24	129	36	210	17	45	50	42	122	109	83	105	275
25	72	32	107	16	42	57	38	153	117	77	147	182
26	48	26	74	18	38	57	91	164	115	80	88	466
27	42	22	51	18	32	57	113	141	119	85	63	293
28	113	21	41	18	26	49	179	144	122	77	55	129
29	470	21	59	17	-	53	127	134	131	77	81	80
30	247	21	55	17	------	46	97	95	235	72	115	60
31	*161	------	46	17	------	38	------	82	------	67	87	------
Total	4,269	3,231	1,854	886	1,806	1,585	1,798	5,564	3,641	4,187	2,322	4,903
Mean	138	108	59.8	28.6	64.5	51.1	59.9	179	121	135	74.9	163
Cfsm	24.2	18.9	10.5	5.02	11.3	8.96	10.5	31.4	21.2	23.7	13.1	28.6
In.	27.85	21.08	12.10	5.78	11.78	10.34	11.73	36.30	23.76	27.32	15.15	31.99
Ac-ft	8,470	6,410	3,680	1,760	3,580	3,140	3,570	11,040	7,220	8,300	4,610	9,720

Calendar year 1952: Max 674 Min 10 Mean 107 Cfsm 18.8 In. 254.40 Ac-ft 77,350
Water year 1952-53: Max 674 Min 11 Mean 98.8 Cfsm 17.3 In. 235.18 Ac-ft 71,500

Peak discharge (base, 950 cfs).--No peak above base.
* Discharge measurement made on this day.

Falls Creek near Ketchikan

Location.--Lat 55°36'50", long 131°20'55", on Revillagigedo Island, on left bank 1,100 ft upstream from mouth on east shore of Carroll Inlet, 1.1 miles downstream from Swan Lake, and 22 miles northeast of Ketchikan.

Drainage area.--36.5 sq mi.

Records available.--August 1916 to January 1926, September 1927 to December 1933, October 1946 to September 1953. Monthly discharge only January 1921 to January 1926, September 1927 to December 1933, published in WSP 1372. Prior to October 1930, published as Swan Lake Outlet at Carroll Inlet.

Gage.--Water-stage recorder. Altitude of gage is 130 ft (from topographic map). August 1916 to January 1926 and September 1927 to November 1933, at site 1,000 ft upstream at different datum.

Average discharge.--22 years (1916-25, 1927-33, 1946-53), 460 cfs (333,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 2,810 cfs June 14 (gage height, 5.58 ft); minimum, 35 cfs Mar. 11 (gage height, 1.90 ft).
1951-52: Maximum discharge during water year, 3,700 cfs Apr. 16 (gage height, 6.25 ft); minimum, 54 cfs Jan. 24, 25, Mar. 21 (gage height, 2.01 ft).
1952-53: Maximum discharge during water year, 2,580 cfs Oct. 20 (gage height, 5.40 ft); minimum, 68 cfs Jan. 20, 21 (gage height, 2.07 ft).
1916-26, 1927-33, 1946-53: Maximum discharge, about 5,500 cfs Nov. 1, 1917; minimum daily, 19 cfs Feb. 21-25, 1925.

Remarks.--Records good. Swan Lake has an area of 1,050 acres.

Revisions (water years).--WSP 1372: 1918, drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	231	162	100	405	59	80	198	395	662	740	210	112
2	192	369	92	303	57	73	217	345	649	727	214	108
3	171	1,020	82	234	54	70	294	340	675	668	231	102
4	153	1,310	75	195	52	66	269	360	768	578	321	100
5	135	925	120	171	50	61	231	463	831	545	326	95
6	135	720	360	217	49	57	207	708	845	552	281	90
7	509	503	468	380	49	54	198	852	845	564	231	88
8	985	365	420	395	52	50	210	859	824	509	207	169
9	1,090	285	410	370	52	49	204	852	845	463	192	761
10	1,240	234	335	395	52	47	210	866	1,050	491	183	803
11	1,160	214	269	390	50	49	220	888	1,910	533	177	597
12	985	192	231	330	*50	52	228	955	2,200	552	168	521
13	789	180	234	273	49	50	231	918	2,200	533	168	458
14	656	162	224	224	61	50	224	918	2,540	491	355	360
15	497	145	204	192	80	52	228	1,000	1,920	436	503	277
16	375	132	210	171	110	52	231	1,080	1,160	410	497	217
17	285	120	220	150	130	54	249	1,030	880	390	623	186
18	224	108	245	135	132	57	290	948	727	474	552	168
19	189	100	245	125	140	64	285	824	623	545	425	153
20	165	92	365	118	135	98	265	768	564	527	452	140
21	174	82	590	115	125	140	249	1,160	558	491	405	128
22	375	73	656	110	115	156	*249	1,110	610	642	326	115
23	380	73	610	108	108	177	265	918	656	649	257	132
24	370	92	734	108	112	281	277	895	688	521	217	380
25	316	132	630	102	108	480	281	895	701	415	192	345
26	253	145	463	92	102	441	370	866	668	350	171	265
27	210	142	370	85	92	365	491	*782	616	303	159	207
28	*195	130	395	78	85	321	642	708	604	*249	145	192
29	174	120	630	70	-	312	597	688	656	224	132	375
30	159	110	720	68	------	261	491	662	714	210	122	552
31	159	-----	558	61	-----	217	-----	662	------	217	115	------
Total	12,931	8,437	11,265	6,170	2,310	4,336	8,601	24,715	29,189	14,999	8,557	8,196
Mean	417	281	363	199	82.5	140	287	797	973	484	276	273
Cfsm	11.4	7.70	9.95	5.45	2.26	3.84	7.86	21.8	26.7	13.3	7.56	7.48
In.	13.18	8.60	11.48	6.29	2.35	4.42	8.76	25.18	29.74	15.28	8.72	8.35
Ac-ft	25,650	16,730	22,340	12,240	4,580	8,600	17,060	49,020	57,900	29,750	16,970	16,260

Calendar year 1950: Max 2,550 Min 23 Mean 413 Cfsm 11.3 In. 153.67 Ac-ft 299,100
Water year 1950-51: Max 2,540 Min 47 Mean 383 Cfsm 10.5 In. 142.35 Ac-ft 277,100

Peak discharge (base, 1,800 cfs).--June 11 (3 p.m.) 2,140 cfs (5.05 ft); June 14 (2 p.m.) 2,810 cfs (5.58 ft).

* Discharge measurement made on this day.

Falls Creek near Ketchikan--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	515	186	220	75	720	102	186	385	727	708	316	316
2	410	180	198	78	558	95	168	480	782	902	290	312
3	335	558	189	85	533	90	159	452	754	859	269	265
4	277	978	198	100	527	82	150	385	1,430	910	257	220
5	321	782	186	105	463	80	142	330	1,800	838	261	201
6	682	873	171	108	420	75	130	294	1,160	761	257	420
7	1,820	1,020	171	108	355	73	120	273	845	1,070	245	768
8	2,100	948	210	105	330	75	112	281	688	1,350	245	682
9	1,110	796	662	102	335	78	105	340	642	1,140	242	474
10	761	558	1,500	100	298	75	105	441	616	902	238	355
11	754	400	2,280	92	263	75	108	590	668	817	228	321
12	803	312	1,300	88	245	73	153	845	768	803	220	298
13	1,020	238	810	90	217	70	261	1,010	852	789	217	441
14	852	201	552	85	204	66	485	1,090	880	761	201	1,050
15	597	177	395	80	195	64	740	1,080	925	682	186	978
16	420	159	294	75	174	64	2,970	1,050	810	584	180	866
17	321	192	234	78	156	66	2,350	1,070	720	509	265	803
18	242	308	195	75	140	66	1,160	1,080	701	452	571	656
19	201	316	168	73	125	61	775	*1,010	754	452	775	515
20	174	257	153	70	115	57	558	888	775	468	1,270	390
21	153	220	142	66	108	54	425	873	747	425	1,820	*308
22	140	186	128	59	100	80	370	1,050	694	415	1,410	242
23	130	168	122	57	92	95	330	955	649	430	932	204
24	122	153	120	54	120	112	326	782	662	436	714	186
25	112	186	115	54	128	138	446	668	668	405	503	446
26	180	253	108	57	122	189	604	630	688	360	380	948
27	425	285	102	80	115	308	515	636	662	330	365	1,640
28	405	303	95	171	112	360	415	701	662	321	910	1,470
29	340	277	88	468	108	303	350	775	701	330	768	1,300
30	261	242	82	852	------	249	308	768	656	335	521	1,190
31	217	-----	78	845	-----	217	-----	752	------	335	380	------
Total	16,200	11,712	11,266	4,535	7,378	3,592	15,026	21,964	24,086	19,879	15,436	18,265
Mean	523	390	363	146	254	116	501	709	803	641	498	609
Cfsm	14.3	10.7	9.95	4.00	6.96	3.18	13.7	19.4	22.0	17.6	13.6	16.7
In.	16.51	11.93	11.48	4.62	7.52	3.66	15.31	22.38	24.54	20.25	15.73	18.61
Ac-ft	32,130	23,230	22,350	9,000	14,630	7,120	29,800	43,560	47,770	39,430	30,620	36,230

Calendar year 1951: Max 2,540 Min 47 Mean 401 Cfsm 11.0 In. 149.01 Ac-ft 290,100
Water year 1951-52: Max 2,970 Min 54 Mean 463 Cfsm 12.7 In. 172.54 Ac-ft 335,900

Peak discharge (base, 1,800 cfs).--Oct. 8 (12:30 a.m.) 2,710 cfs (5.50 ft); Dec. 11 (4 a.m.) 2,580 cfs (5.40 ft); Apr. 16 (4:30 p.m.) 3,700 cfs (6.25 ft); June 5 (6 a.m.) 1,910 cfs (4.86 ft); Aug. 21 (7 a.m.) 2,020 cfs (4.95 ft); Sept. 27 (5 p.m.) 2,020 cfs (4.95 ft).

* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	962	782	159	253	98	165	195	610	604	1,030	207	436
2	1,160	1,530	159	265	174	159	195	604	708	992	195	340
3	789	1,340	186	380	400	201	220	796	740	775	189	265
4	527	845	189	430	539	245	308	1,600	701	584	186	217
5	390	578	174	375	425	238	330	1,620	662	485	180	189
6	326	430	159	298	335	257	281	1,430	642	430	180	171
7	277	355	148	234	340	452	234	1,210	642	415	171	156
8	238	277	142	195	281	925	217	1,050	714	436	165	276
9	204	228	140	171	340	955	201	918	789	446	165	918
10	183	224	138	153	446	694	*198	796	734	441	214	775
11	195	298	135	135	385	485	192	817	675	463	245	616
12	217	458	402	122	*390	365	186	1,440	636	545	220	630
13	204	491	1,680	112	395	273	174	1,320	597	578	195	992
14	214	390	1,270	100	365	224	159	1,060	*558	564	180	970
15	370	298	831	90	303	201	150	918	509	491	171	888
16	441	261	539	82	238	186	150	803	491	527	*174	761
17	803	245	385	78	204	180	177	754	604	656	198	1,050
18	803	756	277	78	183	168	224	768	558	668	228	902
19	796	1,110	214	73	165	156	365	859	480	701	220	682
20	2,160	768	195	68	168	145	497	831	446	590	228	630
21	1,460	564	180	68	308	138	503	714	425	497	217	831
22	992	441	171	92	365	132	452	656	415	452	210	970
23	873	345	234	102	303	142	380	623	410	405	195	789
24	789	269	395	95	242	257	321	694	420	370	210	948
25	558	217	380	88	238	298	285	845	425	340	214	970
26	400	189	340	85	228	277	395	880	430	312	201	1,250
27	345	165	281	85	204	257	610	845	458	330	195	1,530
28	400	159	234	82	180	242	810	845	468	298	201	985
29	831	174	257	78	-	238	714	817	509	257	430	708
30	992	174	253	75	------	234	630	675	714	231	590	503
31	810	-----	231	78	-----	217	-----	584	------	217	527	------
Total	19,709	14,361	10,478	4,620	8,242	9,106	9,753	28,382	17,164	15,526	7,101	21,348
Mean	636	479	338	149	294	294	325	916	572	501	229	712
Cfsm	17.4	13.1	9.26	4.08	8.05	8.05	8.90	25.1	15.7	13.7	6.27	19.5
In.	20.08	14.63	10.68	4.71	8.40	9.28	9.94	28.92	17.49	15.82	7.24	21.75
Ac-ft	39,090	28,480	20,780	9,160	16,350	18,060	19,340	56,290	34,040	30,800	14,080	42,340

Calendar year 1952: Max 2,970 Min 54 Mean 477 Cfsm 13.1 In. 178.01 Ac-ft 346,500
Water year 1952-53: Max 2,160 Min 68 Mean 454 Cfsm 12.4 In. 168.94 Ac-ft 328,800

Peak discharge (base, 1,800 cfs).--Oct. 20 (7 a.m.) 2,580 cfs (5.40 ft); Nov. 2 (8 p.m.) 1,840 cfs 4.80 ft); Dec. 13 (2:30 p.m.) 1,880 cfs (4.83 ft). * Discharge measurement made on this day.

Fish Creek near Ketchikan

Location.--Lat 55°23'30", long 131°11'40", on Revillagigedo Island, on right bank 50 ft upstream from outlet of Low Lake, 600 ft upstream from mouth at head of Thorne Arm, and 18 miles east of Ketchikan.

Drainage area.--32.1 sq mi, excludes that of Granite Lake drainage basin.

Records available.--May 1915 to October 1935, October 1938 to September 1953. Monthly discharge only January to October 1935, and October 1938 to September 1945, published in WSP 1372. Prior to October 1930 published as "near Sea Level, Revillagigedo Island" or "at Thorne Arm."

Gage.--Water-stage recorder. Altitude of gage is 20 ft (by barometer). May 1915 to November 1935 at same site at different datum.

Average discharge.--35 years, 415 cfs (300,400 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 2,270 cfs June 14 (gage height, 3.62 ft); minimum, 35 cfs Mar. 10 (gage height, 0.60 ft).
1951-52: Maximum discharge during water year, 2,420 cfs Apr. 16 (gage height, 3.74 ft); minimum, 47 cfs Jan. 1 (gage height, 0.70 ft).
1952-53: Maximum discharge during water year, 1,760 cfs Mar. 9 (gage height, 3.16 ft); minimum, 46 cfs Jan. 21 (gage height, 0.69 ft).
1915-35, 1938-53: Maximum discharge, 4,600 cfs Nov. 1, 1917 (gage height, 5.33 ft, datum then in use), from rating curve extended above 1,400 cfs; minimum daily, 20 cfs Sept. 9, 10, 1928.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are fair. Lakes in the basin are as follows: Basin Lake (240 acres), Mirror Lake (1,350 acres), Third Lake (180 acres), Big Lake (358 acres), and Low Lake (55 acres).

Revisions (water years).--WSP 1372: 1918.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	153	98	527	54	68	215	395	507	481	128	64
2	169	300	87	395	50	64	267	327	500	494	128	60
3	137	902	78	300	50	60	372	294	494	481	135	56
4	114	1,380	72	230	46	56	316	283	534	431	176	54
5	100	1,110	164	185	42	53	272	310	598	364	220	50
6	94	848	419	185	40	50	235	419	642	372	220	47
7	196	569	548	288	40	46	215	589	650	372	190	46
8	450	413	562	384	43	41	251	620	642	355	158	65
9	839	327	488	395	50	40	235	605	658	322	140	272
10	1,050	272	384	462	48	37	246	605	848	305	124	474
11	1,280	235	310	494	47	42	262	628	1,310	327	110	431
12	1,220	200	256	395	46	50	262	665	1,570	338	98	401
13	965	180	241	344	45	52	246	681	1,730	344	93	378
14	737	158	241	288	64	54	220	673	2,180	327	148	332
15	541	132	230	241	110	60	205	762	1,860	294	300	272
16	407	110	256	205	132	60	210	965	1,220	327	413	215
17	316	96	272	171	*205	65	215	965	830	305	527	171
18	246	82	361	128	190	78	*235	884	628	294	488	*135
19	190	75	361	110	230	85	246	745	520	338	378	114
20	148	70	443	93	190	104	235	658	449	372	361	98
21	144	64	779	89	144	148	220	857	419	389	338	87
22	288	58	875	89	114	162	215	974	431	419	278	78
23	494	59	822	93	98	251	215	822	455	527	225	80
24	598	85	902	100	110	443	220	*745	481	455	180	153
25	455	140	788	98	110	689	241	762	494	361	140	241
26	355	171	590	91	96	642	407	762	494	288	118	230
27	283	171	468	82	85	500	541	689	449	241	100	180
28	230	158	488	73	73	500	665	598	425	200	89	153
29	*185	140	713	67	-	449	612	541	431	*166	80	210
30	*166	118	813	62	------	338	500	520	462	148	73	355
31	158	-----	689	58	-----	256	-----	507	------	135	68	------
Total	12,770	8,776	13,798	6,722	2,552	5,543	8,796	19,830	22,911	10,592	6,224	5,502
Mean	412	293	445	217	91.1	179	293	640	764	342	201	183
Cfsm	12.8	9.13	13.9	6.76	2.84	5.58	9.13	19.9	23.8	10.7	6.26	5.70
In.	14.79	10.17	15.99	7.79	2.96	6.42	10.19	22.97	26.54	12.27	7.21	6.37
Ac-ft	25,330	17,410	27,370	13,330	5,060	10,990	17,450	39,330	45,440	21,010	12,350	10,910

Calendar year 1950: Max 1,710 Min 23 Mean 378 Cfsm 11.8 In. 159.90 Ac-ft 273,800
Water year 1950-51: Max 2,180 Min 37 Mean 340 Cfsm 10.6 In. 143.67 Ac-ft 246,000

Peak discharge (base, 1,800 cfs).--June 14 (6 p.m.) 2,270 cfs (3.62 ft).
* Discharge measurement made on this day.

Fish Creek near Ketchikan--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	413	144	251	47	779	87	241	361	620	481	185	316
2	366	135	210	56	635	80	*195	488	689	822	176	262
3	294	332	148	68	658	75	180	488	673	929	158	225
4	241	665	251	98	598	70	195	401	920	902	144	190
5	251	705	220	107	548	67	176	338	1,370	902	135	158
6	407	635	185	107	474	62	153	294	1,190	721	135	220
7	1,110	745	195	107	395	62	132	278	848	902	132	468
8	1,440	866	*246	98	443	67	110	256	635	1,050	128	562
9	1,010	762	583	100	*437	73	100	256	590	1,030	121	443
10	713	548	1,400	93	384	72	96	294	555	779	118	338
11	650	384	2,050	85	338	70	104	384	520	642	110	283
12	754	283	1,380	82	288	67	200	555	507	590	104	283
13	1,060	215	839	87	251	64	338	697	576	562	98	338
14	956	166	541	82	256	60	514	804	642	520	93	729
15	628	135	395	76	220	58	927	822	762	488	89	1,000
16	431	107	294	70	180	56	2,120	813	770	425	85	830
17	316	135	220	75	144	59	1,980	813	612	378	89	762
18	241	215	176	70	118	59	1,300	*822	548	338	402	620
19	185	288	140	70	98	58	839	788	548	310	770	500
20	144	267	114	65	87	56	576	721	576	316	1,010	*389
21	121	215	98	59	78	54	431	681	583	305	1,590	310
22	100	171	87	56	72	89	401	770	*548	278	1,400	246
23	91	135	78	52	70	98	372	830	488	272	992	195
24	82	118	73	50	132	121	344	689	474	272	705	166
25	75	220	72	50	135	176	443	612	474	272	507	473
26	140	300	70	52	124	283	576	562	488	251	378	1,180
27	*283	305	67	89	110	527	500	520	488	220	300	2,090
28	349	316	64	205	100	569	419	514	474	200	745	1,960
29	300	305	59	507	93	449	349	576	481	195	875	1,510
30	241	278	54	822	------	355	305	598	474	190	590	1,250
31	185	-----	50	893	-----	294	-----	628	------	190	413	------
Total	13,577	10,095	10,610	4,478	8,245	4,337	14,616	17,653	19,123	15,732	12,777	18,296
Mean	438	336	342	144	284	140	487	569	637	507	412	610
Cfsm	13.6	10.5	10.7	4.49	8.85	4.36	15.2	17.7	19.8	15.8	12.8	19.0
In.	15.73	11.70	12.29	5.19	9.55	5.02	16.93	20.45	22.16	18.23	14.80	21.20
Ac-ft	26,930	20,020	21,040	8,880	16,350	8,600	28,990	35,010	37,930	31,200	25,340	36,290

Calendar year 1951: Max 2,180 Min 37 Mean 337 Cfsm 10.5 In. 142.44 Ac-ft 243,900
Water year 1951-52: Max 2,120 Min 47 Mean 409 Cfsm 12.7 In. 173.25 Ac-ft 296,600

Peak discharge (base, 1,800 cfs).--Dec. 11 (6 a.m.) 2,200 cfs (3.56 ft); Apr. 16 (9 p.m.) 2,420 cfs (3.74 ft); Sept. 27 (12 p.m.) 2,290 cfs (3.63 ft). * Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,030	762	171	246	60	210	235	507	443	920	118	481
2	1,280	974	171	283	100	185	344	514	481	1,150	110	384
3	974	1,070	230	384	300	185	378	665	576	857	100	294
4	628	804	235	468	500	256	494	1,220	555	590	98	230
5	443	555	200	437	480	305	400	1,410	507	455	91	180
6	349	431	166	355	430	327	300	1,260	481	378	87	148
7	300	344	140	280	420	500	*250	1,090	462	332	85	128
8	272	278	*128	230	384	1,300	220	992	474	310	82	153
9	235	215	140	190	425	1,330	200	884	520	300	76	604
10	195	200	128	150	541	1,010	180	830	520	294	104	830
11	180	205	148	130	*437	628	180	857	481	294	140	689
12	195	283	407	110	455	425	170	1,240	443	316	158	650
13	200	378	796	95	443	322	162	1,150	419	372	148	762
14	185	349	1,100	85	431	294	148	965	389	395	124	754
15	283	283	779	75	372	267	135	804	*378	378	107	650
16	366	283	520	70	310	220	128	665	355	338	104	576
17	875	251	372	65	272	200	140	590	384	462	124	902
18	1,070	514	278	58	241	176	180	569	413	590	*144	1,060
19	848	983	215	52	205	153	305	598	407	673	166	745
20	1,330	804	180	48	210	135	507	642	361	612	171	576
21	1,240	576	190	46	278	118	548	562	332	488	190	598
22	1,040	455	171	70	389	114	507	507	316	407	215	729
23	804	361	225	90	407	205	431	481	300	344	205	705
24	642	283	355	80	349	338	361	481	294	305	195	965
25	488	220	355	75	322	327	305	569	300	267	200	1,190
26	378	180	316	70	310	344	332	650	300	241	190	1,330
27	300	148	267	70	272	322	407	642	300	215	205	1,620
28	272	132	225	65	235	294	590	620	310	195	272	1,210
29	520	180	256	60	-	332	612	620	316	176	443	830
30	920	185	262	55	------	300	541	555	407	153	658	576
31	*938	-----	235	55	-----	272	-----	462	------	135	590	------
Total	18,780	12,686	9,361	4,547	9,578	11,594	9,690	23,601	12,224	12,942	5,702	20,549
Mean	606	423	302	147	342	374	323	761	407	417	184	685
Cfsm	18.9	13.2	9.41	4.58	10.7	11.7	10.1	23.7	12.7	13.0	5.73	21.3
In.	21.76	14.70	10.85	5.27	11.10	13.43	11.23	27.34	14.16	14.99	6.61	23.81
Ac-ft	37,250	25,160	18,570	9,020	19,000	23,000	19,220	46,810	24,250	25,670	11,310	40,760

Calendar year 1952: Max 2,120 Min 47 Mean 426 Cfsm 13.3 In. 180.84 Ac-ft 309,600
Water year 1952-53: Max 1,620 Min 46 Mean 414 Cfsm 12.9 In. 175.25 Ac-ft 300,000

Peak discharge (base, 1,800 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Doubtful or no gage-height record Jan. 7 to Feb. 7, Mar. 7, Apr. 5-12; discharge estimated on basis of recorded range in stage, weather records and records for Falls Creek near Ketchikan.

Ella Creek near Ketchikan

Location.--Lat 55°30'20", long 131°01'25", on Revillagigedo Island, on left bank 1 mile downstream from Lower Ella Lake, 1.5 miles upstream from mouth at Ella Bay, and 28 miles northeast of Ketchikan.

Drainage area.--19.7 sq mi.

Records available.--October 1927 to September 1938 (monthly discharge only, published in WSP 1372), August 1947 to September 1953. Prior to October 1930 published as "at Behm Canal."

Gage.--Water-stage recorder. Altitude of gage is 150 ft (by barometer). Prior to August 1947, at different datum.

Average discharge.--17 years, 246 cfs (178,100 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 925 cfs June 14 (gage height, 4.17 ft); minimum, 29 cfs Sept. 7 (gage height, 1.30 ft).
1951-52: Maximum discharge during water year, 1,160 cfs Apr. 16 (gage height, 4.63 ft); minimum, 15 cfs Aug. 16 (gage height, 1.10 ft).
1952-53: Maximum discharge during water year, 1,150 cfs Sept. 26 (gage height, 4.62 ft); minimum, 35 cfs Aug. 9 (gage height, 1.37 ft).
1927-38, 1947-53: Maximum discharge recorded, 1,720 cfs Dec. 7, 1930 (gage height, 5.60 ft, datum then in use); minimum daily, 12 cfs Sept. 7-12, 1930, Jan. 30 to Feb. 2, 1950.

Remarks.--Records good. Ella Lake, 1 mile above station, has an area of 1,930 acres.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	133	79	400	61	73	210	299	314	167	70	47
2	171	*247	72	333	56	68	260	274	305	158	68	44
3	151	447	66	285	53	65	279	268	299	160	69	40
4	133	487	59	247	48	61	247	260	308	145	87	36
5	122	404	94	221	45	54	226	282	314	139	86	34
6	111	378	277	279	40	49	208	324	308	133	76	32
7	179	324	279	327	39	46	200	354	308	123	69	34
8	271	279	271	296	49	42	213	357	291	111	65	96
9	324	247	*268	302	49	39	198	357	321	106	61	203
10	439	226	241	327	46	37	200	372	364	104	61	156
11	618	200	216	311	41	42	206	382	533	99	58	149
12	677	181	198	282	39	54	206	408	562	94	53	154
13	545	162	206	263	*38	53	198	389	672	84	49	*149
14	467	143	188	236	54	54	188	412	855	79	104	137
15	386	123	171	210	79	59	181	455	690	69	111	123
16	324	109	181	191	121	56	181	533	566	73	149	111
17	274	97	183	171	125	58	183	512	467	86	186	100
18	236	87	203	156	123	72	188	516	400	97	165	92
19	203	76	200	139	145	73	179	467	350	100	154	81
20	176	68	296	125	131	102	169	443	311	106	171	72
21	186	61	427	114	118	129	*165	579	288	107	156	66
22	293	54	471	114	107	125	162	516	268	158	139	61
23	236	54	483	118	100	174	165	467	255	149	123	65
24	266	76	541	125	111	332	167	512	241	133	111	107
25	244	127	475	118	106	412	174	*491	228	120	99	100
26	218	125	404	107	95	375	263	479	206	106	87	87
27	200	116	354	97	87	337	324	431	198	97	78	79
28	179	106	396	89	81	327	396	389	183	84	69	81
29	158	99	541	79	-	305	375	368	181	76	63	158
30	143	87	558	72	------	271	340	350	174	*73	58	169
31	*137	-----	479	65	-----	236	-----	330	------	78	52	------
Total	8,267	5,323	8,877	6,199	2,187	4,180	6,651	12,576	10,780	3,414	2,947	2,863
Mean	267	177	286	200	78.1	135	222	406	359	110	95.1	95.4
Cfsm	13.6	8.98	14.5	10.2	3.96	6.85	11.3	20.6	18.2	5.58	4.83	4.84
In.	15.61	10.05	16.76	11.70	4.13	7.89	12.56	23.74	20.31	6.45	5.56	5.40
Ac-ft	16,400	10,560	17,610	12,300	4,340	8,290	13,190	24,940	21,340	6,770	5,850	5,680

Calendar year 1950: Max 677 Min 12 Mean 200 Cfsm 10.2 In. 138.16 Ac-ft 145,100
Water year 1950-55: Max 855 Min 32 Mean 203 Cfsm 10.3 In. 140.16 Ac-ft 147,300

Peak discharge (base, 700 cfs).--Oct. 11 (11 p.m.) 745 cfs (3.81 ft); June 14 (11 a.m.) 925 cfs (4.17 ft).
* Discharge measurement made on this day.

Ella Creek near Ketchikan--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	158	122	169	48	400	87	181	327	357	221	47	213
2	143	127	158	59	375	81	162	361	375	305	42	191
3	135	271	*149	69	396	75	158	330	361	288	40	169
4	122	299	169	90	416	70	151	293	558	333	37	147
5	169	268	156	100	396	66	139	266	584	311	36	131
6	268	311	143	100	393	62	127	247	504	299	34	206
7	528	364	141	100	*344	61	118	231	427	393	30	271
8	491	439	176	95	361	63	106	226	382	416	28	244
9	420	386	459	97	344	68	97	238	347	364	26	213
10	389	324	713	87	314	66	100	255	318	321	24	186
11	420	277	820	79	296	63	109	291	305	291	23	176
12	427	236	636	76	266	59	167	364	305	263	20	167
13	592	206	504	89	241	68	231	382	308	236	20	249
14	495	181	404	79	226	52	296	408	330	216	19	347
15	400	156	340	72	208	49	396	416	350	188	17	291
16	333	139	288	66	183	48	970	427	321	167	17	308
17	277	179	247	73	162	50	905	439	299	151	53	302
18	234	223	213	69	141	52	780	447	291	139	87	*282
19	208	218	186	69	127	49	632	420	293	133	183	258
20	181	188	165	65	114	46	512	*396	282	129	274	226
21	160	165	147	57	102	46	439	412	274	116	337	198
22	143	147	129	52	92	62	400	491	255	109	354	174
23	127	133	118	47	87	72	368	463	241	102	330	154
24	113	122	111	44	127	89	333	386	*231	95	308	149
25	*104	141	102	46	127	122	408	364	226	84	266	340
26	167	191	94	49	116	193	451	344	216	76	231	483
27	218	198	81	70	107	282	386	333	208	69	223	677
28	198	206	73	162	102	145	340	333	206	65	400	654
29	174	193	63	318	95	236	302	333	198	61	327	659
30	154	181	58	364	------	221	277	340	186	57	279	571
31	135	-----	52	412	-----	203	-----	324	------	52	241	------
Total	8,083	6,591	7,264	3,203	6,658	2,906	10,041	10,885	9,538	6,050	4,353	8,636
Mean	261	220	234	103	230	93.7	335	351	318	195	140	288
Cfsm	13.2	11.2	11.9	5.23	11.7	4.76	17.0	17.8	16.1	9.90	7.11	14.6
In.	15.26	12.44	13.71	6.05	12.57	5.49	18.96	20.55	18.01	11.42	8.22	16.30
Ac-ft	16,030	13,070	14,410	6,350	13,210	5,760	19,920	21,590	18,920	12,000	8,630	17,130

Calendar year 1951: Max 855 Min 32 Mean 202 Cfsm 10.3 In. 139.15 Ac-ft 146,200
Water year 1951-52: Max 970 Min 17 Mean 230 Cfsm 11.7 In. 158.98 Ac-ft 167,000

Peak discharge (base, 700 cfs).--Oct. 7 (5:30 p.m.) 900 cfs (4.12 ft); Dec. 10 (8 p.m.) 915 cfs (4.15 ft); Apr. 16 (12:30 p.m.) 1,160 cfs (4.63 ft). * Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	562	412	130	175	94	130	166	279	211	196	69	177
2	588	566	132	203	196	130	179	279	222	186	64	155
3	467	528	159	276	273	179	193	389	219	170	59	139
4	378	428	149	276	260	219	248	659	211	153	54	125
5	321	352	135	260	227	208	233	641	198	139	50	114
6	279	296	*123	216	206	239	206	596	191	127	45	106
7	255	254	114	179	230	440	184	558	186	118	41	100
8	234	214	109	153	214	745	*168	520	191	110	39	135
9	206	186	109	137	*292	682	164	492	184	102	36	233
10	181	181	106	120	302	541	153	488	172	95	59	203
11	174	172	109	104	266	432	147	516	166	92	68	208
12	176	201	236	94	299	349	135	664	153	98	61	248
13	160	214	404	82	279	286	125	575	145	102	56	302
14	147	186	416	72	263	248	118	520	137	101	51	260
15	208	166	349	65	227	214	110	460	130	96	47	273
16	216	177	289	65	201	191	109	408	*135	102	49	257
17	416	168	242	64	179	184	118	378	143	186	60	508
18	354	442	203	59	161	161	137	356	135	189	68	416
19	361	448	179	55	151	145	189	370	128	239	*68	352
20	512	374	161	51	159	132	251	327	123	211	65	324
21	554	331	153	51	254	123	270	292	117	191	68	382
22	480	279	143	125	254	117	260	276	112	175	72	356
23	460	239	191	120	211	125	236	260	107	159	69	345
24	408	203	251	107	191	181	211	270	102	143	71	584
25	334	177	225	96	191	184	198	279	101	130	71	492
26	276	153	203	92	177	184	236	273	100	120	67	865
27	245	137	184	89	157	181	273	263	98	112	83	755
28	*242	132	164	82	141	172	316	273	95	102	102	601
29	393	149	179	79	-	198	292	248	94	94	198	500
30	420	139	179	75	------	186	279	222	135	86	201	412
31	412	-----	166	78	-----	179	-----	211	------	78	189	------
Total	10,419	7,904	5,892	3,700	6,055	7,685	5,904	12,342	4,441	4,202	2,300	9,927
Mean	336	263	190	119	216	248	197	398	148	136	74.2	331
Cfsm	17.1	13.4	9.64	6.04	11.0	12.6	10.0	20.2	7.51	6.90	3.77	16.8
In.	19.67	14.92	11.12	6.98	11.43	14.51	11.15	23.30	8.38	7.93	4.34	18.74
Ac-ft	20,670	15,680	11,690	7,340	12,010	15,240	11,710	24,480	8,810	8,330	4,560	19,690

Calendar year 1952: Max 970 Min 17 Mean 236 Cfsm 12.0 In. 163.28 Ac-ft 171,600
Water year 1952-53: Max 865 Min 36 Mean 221 Cfsm 11.2 In. 152.47 Ac-ft 160,200

Peak discharge (base, 700 cfs).--Oct. 1 (10 p.m.) 736 cfs (3.79 ft); Oct. 21 (11:30 a.m.) 805 cfs (3.93 ft); Nov. 18 (4 a.m.) 708 cfs (3.73 ft); Mar. 8 (10 p.m.) 790 cfs (3.90 ft); May 4 (8 a.m.) 700 cfs (3.71 ft); May 12 (12:30 a.m.) 722 cfs (3.76 ft); Sept. 26 (3 p.m.) 1,150 cfs (4.62 ft).
* Discharge measurement made on this day.

Manzanita Creek near Ketchikan

Location.--Lat 55°36', long 130°59', on Revillegigedo Island, on right bank a quarter of a mile upstream from mouth at Manzanita Bay, East Behm Canal, 2 miles downstream from Manzanita Lake, and 31 miles northeast of Ketchikan.

Drainage area.--33.9 sq mi.

Records available.--October 1927 to September 1937 (monthly discharge only, published in WSP 1372), August 1947 to September 1953. Prior to October 1930, published as "near Manzanita Bay."

Gage.--Water-stage recorder. Altitude of gage is 140 ft (by barometer).

Average discharge.--16 years, 457 cfs (330,900 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 2,570 cfs June 14 (gage height, 6.91 ft); minimum, 93 cfs Mar. 16, 17 (gage height, 1.42 ft).
1951-52: Maximum discharge during water year, 2,550 cfs Oct. 7 (gage height, 6.89 ft); minimum, 112 cfs Mar. 21 (gage height, 1.62 ft).
1952-53: Maximum discharge during water year, 2,770 cfs Oct. 1 (gage height, 7.13 ft); minimum daily, 140 cfs Jan. 19-21.
1927-37, 1947-53: Maximum discharge, 3,870 cfs Oct. 13, 1949 (gage height, 8.19 ft), from rating curve extended above 1,600 cfs by logarithmic plotting; minimum daily determined, 90 cfs Jan. 31 to Feb. 3, 1950.
A discharge of 4,480 cfs occurred sometime during the period 1938-47 (gage height, 8.7 ft, from floodmark in well).

Remarks.--Records good except those for periods of no gage-height record, which are poor. There are two lakes above gage, Manzanita Lake (1,610 acres) and January Lake on North Fork Manzanita Creek.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	498	*289	160	580	130	114	204	361	752	600	253	154
2	448	550	156	500	130	111	272	367	740	564	255	149
3	406	934	150	440	120	110	286	379	756	572	253	143
4	373	844	145	380	120	108	244	397	780	518	281	140
5	343	676	200	330	120	104	234	495	788	501	251	136
6	320	642	349	360	110	102	234	579	780	488	240	132
7	646	550	276	400	110	98	234	586	780	464	230	130
8	724	488	*281	370	120	96	240	597	756	442	220	274
9	728	448	260	380	120	95	244	623	872	435	212	426
10	1,030	432	240	400	120	95	260	665	948	435	206	274
11	1,200	400	230	360	120	96	272	712	1,360	435	196	272
12	1,120	364	220	330	110	96	264	756	1,420	426	190	309
13	898	337	230	300	110	96	255	716	1,850	416	184	286
14	812	309	220	270	*125	95	251	788	2,360	394	340	*255
15	700	286	200	250	148	96	264	872	1,800	379	251	238
16	615	269	210	230	171	94	272	979	1,420	379	318	226
17	546	253	210	210	156	94	279	912	1,190	364	329	214
18	484	240	220	190	142	104	304	884	1,030	432	272	208
19	438	228	210	180	160	113	274	824	902	403	274	196
20	400	214	400	170	148	157	*267	832	832	406	315	188
21	435	198	600	160	135	188	272	1,130	792	370	262	180
22	661	188	680	160	130	145	274	966	760	557	247	171
23	488	184	700	170	126	171	284	898	748	442	232	214
24	550	186	750	170	142	318	281	1,030	720	394	220	262
25	458	222	650	160	138	367	286	966	700	367	210	206
26	416	210	640	150	126	262	410	*966	653	340	200	194
27	385	194	580	150	120	234	406	876	631	320	190	184
28	355	184	640	140	117	274	495	840	615	302	182	214
29	326	176	800	140	-	267	429	812	608	286	173	436
30	307	167	760	140	------	228	388	792	604	*279	166	332
31	299	-----	660	130	-----	210	-----	772	------	267	159	------
Total	17,409	10,662	12,027	8,300	3,624	4,738	8,679	23,372	28,947	12,977	7,311	6,743
Mean	562	355	388	268	129	153	289	754	965	419	236	225
Cfsm	16.6	10.5	11.4	7.91	3.81	4.51	8.53	22.2	28.5	12.4	6.96	6.64
In.	19.10	11.70	13.19	9.11	3.98	5.20	9.52	25.64	31.76	14.24	8.02	7.40
Ac-ft	34,530	21,150	23,860	16,460	7,190	9,400	17,210	46,360	57,420	25,740	14,500	13,370

Calendar year 1950: Max 1,260 Min 90 Mean 399 Cfsm 11.8 In. 159.85 Ac-ft 289,000
Water year 1950-51: Max 2,360 Min 94 Mean 397 Cfsm 11.7 In. 158.86 Ac-ft 287,200

Peak discharge (base, 1,700 cfs).--June 14 (12:30 p.m.) 2,570 cfs (6.91 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Dec. 3, 4, Dec. 9 to Feb. 13, Mar. 4, 5; discharge estimated on basis of recorded range in stage, weather records at Ketchikan, and records for nearby streams.

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Manzanita Creek near Ketchikan--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	299	269	269	186	400	162	190	600	884	728	296	451
2	267	294	253	194	367	156	180	600	868	889	284	413
3	274	657	244	198	406	151	180	543	848	792	274	376
4	244	579	*269	208	432	148	188	505	1,310	852	269	349
5	426	498	244	204	416	143	178	478	1,300	788	262	326
6	575	612	230	190	*410	139	167	458	1,080	756	253	536
7	1,220	672	236	186	355	139	160	442	948	966	247	543
8	816	788	281	178	403	140	156	467	884	1,030	240	451
9	692	631	696	176	376	148	154	501	828	894	234	400
10	661	532	1,130	169	346	140	164	532	808	824	228	370
11	788	471	988	162	343	136	173	597	812	796	222	410
12	804	426	772	159	318	130	284	692	832	752	214	373
13	1,040	385	665	164	296	127	309	792	852	716	206	631
14	780	355	582	157	294	124	391	828	907	684	198	840
15	669	326	522	152	279	121	662	848	938	631	190	604
16	593	304	471	148	258	120	1,780	876	840	586	188	724
17	525	364	429	149	247	120	1,060	912	804	550	484	*612
18	467	435	388	146	232	119	961	925	784	518	448	638
19	429	382	358	143	220	116	824	884	820	515	593	518
20	391	329	337	138	212	114	732	864	772	478	898	464
21	364	299	312	132	200	114	669	*916	772	451	938	426
22	334	279	294	128	192	149	653	1,050	712	442	880	391
23	309	264	276	125	190	139	600	938	*696	426	700	361
24	289	251	264	122	238	162	579	880	684	406	634	361
25	272	304	253	121	204	194	692	836	676	382	546	808
26	540	349	242	121	190	302	688	808	661	364	488	930
27	435	320	232	142	178	358	600	796	650	349	525	1,390
28	370	318	222	279	175	253	554	812	657	337	868	1,260
29	332	294	212	438	167	220	512	800	657	329	590	1,240
30	302	276	202	435	------	206	498	828	619	318	522	1,120
31	281	-----	194	445	-----	*198	-----	792	------	307	471	------
Total	15,788	12,263	12,067	5,895	8,344	4,988	14,938	22,800	24,903	18,856	13,390	18,316
Mean	509	409	389	190	288	161	498	735	830	608	432	611
Cfsm	15.0	12.1	11.5	5.60	8.50	4.75	14.7	21.7	24.5	17.9	12.7	18.0
In.	17.32	13.45	13.24	6.47	9.15	5.47	16.39	25.01	27.32	20.69	14.69	20.09
Ac-ft	31,320	24,320	23,930	11,690	16,550	9,890	29,630	45,220	49,390	37,400	26,560	36,330

Calendar year 1951: Max 2,360 Min 94 Mean 397 Cfsm 11.7 In. 158.88 Ac-ft 287,200
Water year 1951-52: Max 1,780 Min 114 Mean 471 Cfsm 13.9 In. 189.29 Ac-ft 342,200

Peak discharge (base, 1,700 cfs).--Oct. 7 (7 p.m.) 2,550 cfs (6.89 ft); Apr. 16 (10 a.m.) 2,330 cfs (6.64 ft); Sept. 29 (11:30 a.m.) 1,890 cfs (6.07 ft). * Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,400	844	294	309	180	230	310	501	623	653	240	267
2	1,320	1,200	302	355	250	220	330	515	692	575	230	242
3	992	1,020	332	442	400	250	350	712	638	498	222	230
4	828	844	291	403	320	300	400	988	612	464	216	218
5	712	732	269	343	270	270	380	956	604	435	208	208
6	638	665	255	307	230	260	350	956	579	419	200	200
7	593	597	*242	276	270	500	310	970	590	403	192	204
8	536	536	236	250	*247	900	290	943	612	388	188	366
9	484	481	236	230	315	850	*272	860	593	376	178	529
10	448	474	230	210	320	700	251	868	568	367	234	358
11	498	464	228	200	274	550	242	1,010	550	367	200	413
12	426	536	685	190	352	470	232	1,160	529	403	188	481
13	385	512	752	180	294	400	222	1,050	505	382	178	529
14	388	448	615	170	300	350	214	997	484	367	173	488
15	532	410	495	160	270	310	210	925	451	355	164	529
16	484	429	429	160	240	290	222	864	*484	388	175	467
17	898	400	385	150	220	270	258	836	505	579	194	881
18	634	994	352	150	210	260	279	824	451	484	194	615
19	754	724	326	140	210	240	364	876	422	478	*190	575
20	974	608	307	140	230	230	406	792	406	413	180	557
21	1,120	579	304	140	330	220	385	744	397	400	182	704
22	860	508	289	220	330	220	370	712	385	385	175	665
23	907	461	419	210	310	230	332	704	376	370	167	642
24	784	419	388	200	300	350	318	760	370	361	184	1,120
25	661	385	337	190	280	350	326	776	367	332	175	840
26	586	352	323	180	260	350	400	752	364	315	164	1,570
27	557	329	299	180	250	340	491	724	364	312	206	1,300
28	593	318	281	170	240	330	508	764	355	289	192	1,030
29	*961	358	315	170	-	370	461	684	358	274	403	864
30	872	312	289	160	------	350	481	638	495	260	329	744
31	820	-----	284	160	-----	330	-----	631	------	249	299	------
Total	22,645	16,939	10,789	6,745	7,702	11,290	9,964	25,492	14,729	12,341	6,420	17,836
Mean	730	565	348	218	275	364	332	822	491	398	207	595
Cfsm	21.5	16.7	10.3	6.43	8.11	10.7	9.79	24.2	14.5	11.7	6.11	17.6
In.	24.84	18.58	11.84	7.40	8.45	12.39	10.93	27.97	16.16	13.54	7.04	19.57
Ac-ft	44,920	33,600	21,400	13,380	15,280	22,390	19,760	50,560	29,210	24,480	12,730	35,380

Calendar year 1952: Max 1,780 Min 114 Mean 499 Cfsm 14.7 In. 200.54 Ac-ft 362,600
Water year 1952-53: Max 1,570 Min 140 Mean 446 Cfsm 13.2 In. 178.71 Ac-ft 323,100

Peak discharge (base, 1,700 cfs).--Oct. 1 (10 p.m.) 2,770 cfs (7.13 ft); Oct. 21 (10 a.m.) 2,290 cfs (6.59 ft); Nov. 18 (3:30 p.m.) 1,880 cfs (6.06 ft); Sept. 24 (9 a.m.) 1,830 cfs (6.05 ft); Sept. 26 (3:30 p.m.) 2,150 cfs (6.48 ft). * Discharge measurement made on this day.

Note.--No gage-height record Jan. 8 to Feb. 7, Feb. 14 to Apr. 8; discharge estimated on basis of recorded range in stage, weather records, and records for Ella and Winstanley Creeks near Ketchikan.

Reynolds Creek near Hydaburg

Location.--Lat 55°12'50", long 132°36'10", on Prince of Wales Island, on left bank a quarter of a mile upstream from mouth at Copper Harbor on Hetta Inlet, three-quarters of a mile downstream from Lake Mellen, and 9 miles east of Hydaburg.

Drainage area.--5.7 sq mi, approximately.

Records available.--May 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 50 ft (by barometer).

Extremes.--1951: Maximum discharge during period May to September, 209 cfs June 11 (gage height, 2.58 ft); minimum, 6.5 cfs Sept. 6 (gage height, 1.60 ft).
1951-52: Maximum discharge during water year, 388 cfs Apr. 16 (gage height, 3.15 ft), from rating curve extended above 130 cfs; minimum, 7.5 cfs Aug. 16 (gage height, 1.16 ft).
1952-53: Maximum discharge during water year, 274 cfs Sept. 26 (gage height, 2.68 ft), from rating curve extended above 130 cfs; minimum, 15 cfs Aug. 9 (gage height, 1.30 ft).

Remarks.--Records poor. There are three lakes above gage, Lake Mellen (168 acres), Summit Lake (396 acres), and Lake Marge (93 acres).

Discharge, in cubic feet per second, May to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	79	55	12	8.2
2								-	79	55	12	7.9
3								-	81	53	12	7.6
4								-	87	50	17	7.2
5								-	97	44	14	6.8
6								-	100	42	14	6.5
7								-	97	40	12	8.2
8								-	94	38	12	21
9								-	103	35	11	76
10								-	125	31	10	69
11								-	194	29	9.3	64
12								-	161	25	9.0	57
13								-	164	22	11	53
14								-	191	19	38	44
15								-	164	18	25	37
16								-	128	17	21	*31
17								-	108	16	21	25
18								-	89	16	19	22
19								-	79	17	18	21
20								-	71	16	25	19
21								-	66	19	33	16
22								-	64	60	22	14
23								-	64	55	18	15
24								-	64	42	15	20
25								-	62	35	14	17
26								-	60	*25	12	14
27								-	57	20	12	12
28								†89	55	17	11	14
29								-	55	14	10	22
30					------			81	55	14	9.3	29
31		-----			-----		-----	*81	------	12	9.0	------
Total								-	2,893	951	487.6	764.4
Mean								-	96.4	30.7	15.7	25.5
Cfsm								-	16.9	5.39	2.75	4.47
In.								-	18.88	6.20	3.18	4.99
Ac-ft								-	5,740	1,890	967	1,520

Calendar year	: Max	Min	Mean	Cfsm	In.	Ac-ft
Water year	: Max	Min	Mean	Cfsm	In.	Ac-ft

Peak discharge (base, 200 cfs).--June 11 (4 a.m.) 209 cfs (2.58 ft).
* Discharge measurement made on this day.
† Result of discharge measurement.

Reynolds Creek near Hydaburg--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	35	55	15	55	21	33	60	100	68	22	44
2	33	55	44	17	50	19	30	56	109	89	21	44
3	33	97	53	21	49	18	29	48	96	78	21	37
4	27	108	55	27	50	18	29	44	142	83	20	32
5	44	89	44	26	49	17	28	39	168	76	18	33
6	62	97	38	25	59	16	25	37	129	76	17	87
7	119	103	64	26	39	17	24	34	98	113	15	80
8	117	128	76	26	47	18	21	34	91	127	14	74
9	84	103	111	29	49	21	21	37	83	98	13	59
10	84	81	161	27	45	19	26	47	74	83	12	52
11	105	64	113	25	43	18	27	63	76	76	11	49
12	125	60	78	25	38	17	38	131	89	70	11	59
13	137	50	62	27	38	17	52	131	94	66	9.8	87
14	103	40	53	25	45	16	57	133	92	62	8.7	121
15	81	35	48	25	38	15	75	129	98	57	8.1	96
16	66	33	43	23	34	16	269	123	89	53	8.1	104
17	55	50	38	22	30	19	218	*127	80	48	12	104
18	44	55	31	21	27	21	162	127	78	45	28	82
19	42	44	30	21	25	19	109	115	87	45	35	68
20	35	37	29	21	23	18	80	98	85	52	45	*59
21	31	31	25	19	21	18	66	102	82	45	45	50
22	27	25	23	18	19	34	60	125	74	41	52	44
23	25	22	23	17	21	33	66	115	68	38	50	38
24	*20	22	23	15	35	32	66	91	64	36	49	50
25	18	48	21	15	32	36	94	78	64	35	43	119
26	64	60	21	17	28	45	85	70	64	33	36	98
27	81	64	19	27	*25	50	62	72	*60	30	42	138
28	66	62	18	37	25	45	52	107	64	28	87	123
29	57	55	18	52	23	*41	47	106	66	27	68	133
30	46	48	17	66	------	37	43	100	63	25	55	131
31	38	-----	15	60	-----	34	-----	87	------	24	47	------
Total	1,898	1,801	1,449	817	1,062	765	1,994	2,666	2,627	1,827	923.7	2,295
Mean	61.2	60.0	46.7	26.4	36.6	24.7	66.5	86.0	87.6	58.9	29.8	76.5
Cfsm	10.7	10.5	8.19	4.63	6.42	4.33	11.7	15.1	15.4	10.3	5.23	13.4
In.	12.38	11.75	9.45	5.33	6.93	4.99	13.01	17.39	17.14	11.92	6.03	14.97
Ac-ft	3,760	3,570	2,870	1,620	2,110	1,520	3,960	5,290	5,210	3,620	1,830	4,550

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 269 Min 8.1 Mean 55.0 Cfsm 9.65 In. 131.29 Ac-ft 39,910

Peak discharge (base, 200 cfs).--Dec. 10 (2:30 p.m.) 230 cfs (2.65 ft); Apr. 16 (10 a.m.) 388 cfs (3.15 ft).

* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	115	145	25	75	36	34	42	80	76	51	21	47
2	148	197	26	69	60	42	78	88	78	51	20	40
3	91	165	36	86	73	67	78	182	76	47	19	36
4	68	*104	35	92	69	76	100	238	75	43	18	33
5	57	72	29	75	53	60	73	229	73	40	17	31
6	55	62	25	58	59	60	*53	200	71	39	16	30
7	47	56	22	44	69	120	44	170	73	38	16	30
8	38	45	21	40	54	247	39	138	76	36	16	48
9	32	39	22	36	100	202	37	140	80	35	15	88
10	29	50	*21	33	96	125	36	145	76	34	34	69
11	27	57	21	30	71	86	33	168	71	34	31	104
12	26	75	78	28	98	67	32	215	*69	39	25	102
13	25	69	92	26	*76	53	30	192	66	45	22	142
14	28	52	76	25	67	56	28	160	60	62	20	122
15	62	43	59	23	53	60	27	122	56	54	21	108
16	57	44	47	23	48	62	29	102	54	57	23	96
17	80	44	38	21	44	47	33	90	69	67	22	155
18	64	127	32	20	38	43	47	92	69	60	38	104
19	100	140	29	19	43	42	59	135	59	54	39	80
20	188	94	30	18	54	39	69	122	54	47	51	71
21	188	87	42	23	116	36	71	98	53	43	*43	86
22	135	69	36	43	88	33	59	86	50	43	39	80
23	113	55	91	38	67	39	52	80	47	40	37	75
24	85	45	180	30	56	58	43	86	43	37	39	118
25	63	38	200	25	60	52	47	98	43	34	36	104
26	52	33	188	26	54	52	75	102	43	32	33	220
27	50	29	120	26	44	59	92	98	43	31	32	212
28	113	27	102	24	38	50	116	108	41	29	31	130
29	145	31	112	25	-	53	98	102	43	26	60	100
30	170	26	86	24	------	46	88	84	47	24	62	85
31	162	-----	78	27	-----	43	-----	78	------	23	56	------
Total	2,613	2,120	1,999	1,152	1,784	2,109	1,708	4,028	1,834	1,295	952	2,746
Mean	84.3	70.7	64.5	37.2	63.7	68.0	56.9	130	61.1	41.8	30.7	91.5
Cfsm	14.8	12.4	11.3	6.53	11.2	11.9	9.98	22.8	10.7	7.33	5.39	16.1
In.	17.05	13.83	13.04	7.52	11.64	13.76	11.14	26.28	11.97	8.45	6.21	17.92
Ac-ft	5,180	4,200	3,960	2,280	3,540	4,180	3,390	7,990	3,640	2,570	1,890	5,450

Calendar year 1952: Max 269 Min 8.1 Mean 59.3 Cfsm 10.4 In. 141.63 Ac-ft 43,050
Water year 1952-53: Max 247 Min 15 Mean 66.7 Cfsm 11.7 In. 158.81 Ac-ft 48,270

Peak discharge (base, 200 cfs).--Oct. 20 (1 a.m.) 224 cfs (2.63 ft); Nov. 1 (11 p.m.) 218 cfs (2.61 ft); Dec. 25 (1 a.m.) 230 cfs (2.53 ft); Mar. 8 (8 p.m.) 271 cfs (2.67 ft); May 4 (5 a.m.) 256 cfs (2.62 ft); Sept. 26 (4 p.m.) 274 cfs (2.68 ft).

* Discharge measurement made on this day.

Sawmill Creek near Sitka

Location.--Lat 57°03'05", long 135°13'40", on Baranof Island, on left bank 100 ft downstream from Sitka Public Utilities abandoned hydroelectric plant, 500 ft upstream from mouth, 1½ miles downstream from Blue Lake, and 4 miles east of Sitka.

Drainage area.--39.0 sq mi.

Records available.--September 1920 to December 1922, February 1928 to September 1942, October 1945 to September 1953. Prior to October 1945, monthly discharge only, published in WSP 1372. Prior to October 1930 published as Medvetcha River near Sitka.

Gage.--Water-stage recorder. Altitude of gage is about 4 ft above mean sea level. Prior to Apr. 12, 1947, staff gages or water-stage recorders at several sites within 1,500 ft of present site at various datums.

Average discharge.--24 years (1920-22, 1928-42, 1945-53), 494 cfs (357,600 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 2,010 cfs June 15 (gage height, 5.08 ft); minimum, 9.1 cfs Mar. 4 (gage height, 0.47 ft).
1951-52: Maximum discharge during water year, 6,380 cfs Sept. 14 (gage height, 9.57 ft), from rating curve extended above 2,600 cfs by logarithmic plotting; minimum, 40 cfs Jan. 26 (gage height, 0.85 ft).
1952-53: Maximum discharge during water year, 3,980 cfs Oct. 2 (gage height, 7.28 ft); minimum, 48 cfs Feb. 1 (gage height, 1.07 ft).
1920-22, 1928-42, 1945-53: Maximum discharge, 7,100 cfs Sept. 8, 1948 (gage height, 10.20 ft), from rating curve extended above 2,600 cfs by logarithmic plotting; minimum, that of Mar. 4, 1951.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Blue Lake, 1.6 miles upstream, has an area of 495 acres.

Cooperation.--Water-stage recorder inspected by employees of Sitka Public Utilities.

Revisions (water years).--WSP 1372: 1929(M).

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	211	105	48	82	38	30	70	223	505	786	335	373
2	186	105	47	81	37	30	81	195	509	781	359	342
3	163	486	46	79	35	30	97	160	521	743	356	316
4	149	800	44	74	34	21	92	195	584	757	329	296
5	135	537	44	73	33	38	90	217	659	805	299	287
6	142	369	46	82	33	38	97	326	786	786	280	303
7	567	271	47	118	32	35	97	477	845	776	283	329
8	1,200	214	47	128	32	30	122	601	790	733	287	614
9	1,020	180	46	128	32	24	166	659	781	691	303	1,400
10	786	160	48	116	30	24	166	714	933	700	316	1,150
11	911	152	46	105	30	26	205	728	1,170	724	332	1,030
12	1,100	154	50	103	29	26	214	724	938	714	345	850
13	800	*147	53	99	28	29	189	628	820	682	349	766
14	580	128	51	94	28	28	160	614	1,210	628	405	673
15	420	114	48	86	28	26	142	632	1,780	571	380	513
16	319	101	48	*79	32	26	130	614	1,140	546	335	435
17	258	a92	47	73	34	27	130	592	771	529	412	412
18	208	a86	46	68	33	30	147	567	636	517	571	922
19	174	a80	46	64	34	*51	160	521	554	466	493	1,060
20	152	a75	46	61	32	66	166	542	469	439	628	668
21	303	a72	47	58	32	68	171	880	495	466	982	485
22	401	a68	50	55	35	64	183	810	554	682	790	408
23	329	a66	48	51	43	70	192	601	614	687	781	710
24	274	a63	50	48	39	73	195	462	654	597	825	597
25	226	a60	50	47	37	76	192	420	880	477	618	401
26	189	a58	50	44	34	82	205	431	855	416	513	299
27	163	57	51	43	32	82	217	450	691	380	466	236
28	140	54	54	43	32	79	248	466	705	342	401	195
29	126	53	61	40	-	76	277	466	728	329	380	192
30	116	50	68	39	------	73	258	481	776	332	373	242
31	106	-----	81	38	-----	70	-----	489	------	335	390	------
Total	11,854	4,957	1,554	2,299	928	1,448	4,859	15,905	23,371	18,417	13,916	16,524
Mean	382	165	50.1	74.2	33.1	46.7	162	513	779	594	449	551
Cfsm	9.79	4.23	1.28	1.90	0.849	1.20	4.15	13.2	20.0	15.2	11.5	14.1
In.	11.30	4.73	1.48	2.19	0.88	1.38	4.63	15.17	22.29	17.56	13.27	15.76
Ac-ft	23,510	9,830	3,080	4,560	1,840	2,870	9,640	31,550	46,360	36,530	27,600	32,770

Calendar year 1950: Max 1,670 Min - Mean 327 Cfsm 8.38 In. 113.95 Ac-ft 237,000
Water year 1950-51: Max 1,780 Min 21 Mean 318 Cfsm 8.15 In. 110.64 Ac-ft 230,100

Peak discharge (base, 2,700 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for nearby mainland stations.

Sawmill Creek near Sitka--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	92	106	90	54	64	81	152	458	654	632	2,440
2	239	163	103	124	53	61	78	154	442	650	567	1,750
3	226	345	97	108	53	58	73	154	423	636	597	922
4	208	1,110	90	105	61	57	70	152	497	580	610	588
5	271	865	90	94	62	55	66	152	673	550	580	477
6	778	776	87	90	70	54	62	154	668	614	584	584
7	1,540	938	86	87	70	*55	60	160	546	1,950	584	592
8	1,350	875	92	84	74	58	58	163	513	2,100	584	473
9	855	641	110	82	87	54	60	183	550	1,230	592	366
10	605	439	333	74	84	51	66	290	571	850	542	322
11	1,020	316	738	67	87	50	67	431	840	840	567	687
12	1,020	245	628	68	92	50	72	771	1,060	950	571	762
13	1,180	*202	427	70	87	47	81	1,160	1,050	1,130	601	3,590
14	830	166	309	64	86	46	92	955	820	1,090	550	4,980
15	521	142	230	60	81	47	147	766	700	906	473	3,160
16	359	126	189	55	76	50	497	673	659	880	420	1,830
17	271	135	154	64	72	48	571	705	682	766	628	1,140
18	214	192	126	60	66	46	462	786	815	664	840	911
19	171	174	114	55	62	44	349	805	977	845	738	776
20	147	147	108	52	58	43	293	757	994	977	762	580
21	132	130	105	50	57	43	248	747	900	800	719	454
22	122	118	97	48	53	55	217	771	855	790	646	412
23	110	114	97	47	51	54	198	728	762	845	558	408
24	101	110	96	44	61	55	195	588	728	810	435	450
25	96	114	87	43	62	62	198	*505	743	705	356	563
26	94	130	82	42	62	72	217	477	659	646	303	529
27	90	137	76	43	60	87	211	497	584	654	342	501
28	99	135	76	43	67	89	195	628	668	654	700	714
29	97	126	70	47	70	89	180	719	771	659	592	733
30	90	118	66	50	------	87	160	636	714	673	442	1,190
31	84	-----	64	54	-----	82	-----	529	------	659	542	------
Total	13,168	9,321	5,133	2,064	1,978	1,813	5,324	16,348	21,322	26,757	17,657	32,884
Mean	425	311	166	66.6	68.2	58.5	177	527	711	863	570	1,100
Cfsm	10.9	7.97	4.26	1.71	1.75	1.50	4.54	13.5	18.2	22.1	14.6	28.2
In.	12.56	8.89	4.89	1.97	1.89	1.73	5.08	15.59	20.33	25.52	16.84	31.36
Ac-ft	26,120	18,490	10,180	4,090	3,920	3,600	10,560	32,430	42,290	53,070	35,020	65,220

Calendar year 1951: Max 1,780 Min 21 Mean 343 Cfsm 8.79 In. 119.47 Ac-ft 248,500
Water year 1951-52: Max 4,980 Min 42 Mean 420 Cfsm 10.8 In. 146.65 Ac-ft 305,000

Peak discharge (base, 2,700 cfs).--Sept. 1 (1 p.m.) 3,180 cfs (6.42 ft); Sept. 14 (2:30 a.m.) 6,380 cfs (9.57 ft).

* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,070	795	200	229	50	213	79	a450	825	691	485	632
2	2,940	1,480	187	248	50	264	86	a500	960	618	470	509
3	1,350	1,230	181	251	51	387	96	a550	1,060	558	450	470
4	724	757	172	226	56	306	129	a700	982	517	497	485
5	714	529	150	181	56	251	150	654	880	517	567	493
6	743	550	135	147	57	255	141	563	850	542	554	489
7	542	641	120	123	75	242	129	533	850	610	537	450
8	427	650	112	109	84	210	115	546	928	733	554	517
9	352	1,080	106	106	112	175	112	542	972	885	580	571
10	335	900	96	104	112	147	112	493	840	933	1,450	513
11	641	815	91	101	106	126	115	458	743	1,030	2,010	592
12	1,050	714	98	98	138	109	115	542	800	1,170	1,380	636
13	805	563	299	96	153	101	115	944	805	966	1,030	1,280
14	1,530	427	509	96	153	86	115	1,030	728	757	2,350	1,390
15	1,820	335	412	93	132	84	123	766	632	682	1,760	805
16	870	316	316	88	115	84	147	597	575	628	911	554
17	597	322	251	86	101	79	191	558	618	636	614	521
18	588	747	210	79	88	77	274	623	584	614	558	922
19	1,100	977	181	66	98	72	339	860	542	584	525	1,230
20	1,690	733	162	*57	123	70	359	890	542	554	458	845
21	1,570	1,200	159	59	184	66	335	733	597	509	390	628
22	1,200	994	162	72	178	68	306	646	696	481	339	509
23	855	677	181	72	191	66	280	659	677	481	383	525
24	752	481	194	68	219	68	248	691	710	517	521	1,520
25	542	369	216	66	335	65	248	719	743	563	473	1,470
26	408	303	235	66	299	63	299	752	895	618	405	1,080
27	345	271	223	65	251	61	a400	705	994	610	366	850
28	1,320	264	207	59	203	61	a450	916	966	558	383	605
29	2,020	251	239	56	-	63	a450	1,030	933	501	1,710	458
30	1,430	226	239	54	------	63	a400	810	815	458	1,450	366
31	900	-----	223	51	-----	77	-----	719	------	439	865	------
Total	32,230	19,597	6,266	3,272	3,770	4,059	6,458	21,179	23,742	19,960	25,025	21,915
Mean	1,040	653	202	106	135	131	215	683	791	644	807	730
Cfsm	26.7	16.7	5.18	2.72	3.46	3.36	5.51	17.5	20.3	16.5	20.7	18.7
In.	30.73	18.69	5.98	3.12	3.60	3.87	6.16	20.20	22.64	19.03	23.86	20.90
Ac-ft	63,930	38,870	12,430	6,490	7,480	8,050	12,810	42,010	47,090	39,590	49,640	43,470

Calendar year 1952: Max 4,980 Min 42 Mean 503 Cfsm 12.9 In. 175.71 Ac-ft 365,400
Water year 1952-53: Max 2,940 Min 50 Mean 514 Cfsm 13.2 In. 178.78 Ac-ft 371,900

Peak discharge (base, 2,700 cfs).--Oct. 2 (1 a.m.) 3,980 cfs (7.28 ft); Oct. 14 (8:30 p.m.) 2,870 cfs (6.08 ft); Aug. 14 (3:30 p.m.) 2,970 cfs (6.19 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, and records for Cascade Creek near Petersburg.

Maksoutof River near Port Alexander

Location.--Lat 56°30', long 134°58', on Baranof Island, on left bank half a mile upstream from mouth at head of north arm of Sandy Bay and 21 miles northwest of Port Alexander.
Drainage area.--26 sq mi, approximately.
Records available.--June 1951 to September 1953.
Gage.--Water-stage recorder. Altitude of gage is 30 ft (by barometer).
Extremes.--1951: Maximum discharge during period June to September, 895 cfs Sept. 10 (gage height, 5.21 ft); minimum, 116 cfs Sept. 29 (gage height, 2.53 ft).
1951-52: Maximum discharge during water year, 2,380 cfs Sept. 14 (gage height, 7.50 ft), from rating curve extended above 930 cfs by logarithmic plotting; minimum, 68 cfs Oct. 31 (gage height, 1.97 ft).
1952-53: Maximum discharge during water year, 1,430 cfs Oct. 21 (gage height, 6.17 ft); minimum, 68 cfs Jan. 20, 21 (gage height, 1.97 ft).
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. There are three major lakes above station, Rezanof Lake (1,025 acres), Khvostot Lake (350 acres), and Maksoutof Lake (512 acres).

Discharge, in cubic feet per second, 1951

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-	474	181	156	11	-	417	158	845	21	-	325	450	169
2	-	498	189	144	12	-	417	150	683	22	-	456	*441	156
3	-	537	205	131	13	-	408	150	537	23	-	477	441	239
4	-	498	215	124	14	-	390	187	420	24	-	450	480	219
5	-	474	207	120	15	-	360	241	330	25	-	393	417	187
6	-	465	199	123	16	-	335	290	258	26	*480	332	378	159
7	-	459	189	125	17	-	320	325	227	27	477	290	322	135
8	-	456	181	261	18	-	315	354	221	28	474	252	270	120
9	-	441	175	675	19	-	325	345	207	29	468	223	229	120
10	-	423	165	672	20	-	312	411	189	30	471	203	199	125
										31	-	191	173	-
Total											-	11,916	8,317	8,276
Mean											-	384	268	276
Cubic feet per second per square mile											-	14.8	10.3	10.6
Runoff in inches											-	17.04	11.90	11.84
Runoff in acre-feet											-	23,640	16,500	16,420

Peak discharge (base, 1,200 cfs).--No peak above base.
* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	76	241	160	227	99	114	235	506	465	381	881
2	146	105	203	360	183	91	105	312	512	498	381	868
3	146	470	169	241	153	82	98	298	523	495	399	695
4	165	1,150	159	203	162	80	92	252	639	456	420	544
5	245	1,230	139	159	191	79	85	229	890	420	411	456
6	456	1,520	126	147	183	*74	81	250	895	441	396	480
7	778	1,350	149	137	177	91	77	250	739	1,220	384	492
8	1,110	1,090	255	144	248	103	75	229	667	1,740	375	471
9	910	827	447	177	325	92	76	239	604	1,300	369	411
10	715	586	751	160	290	83	118	290	530	895	360	354
11	739	423	845	140	312	76	120	342	523	695	345	480
12	840	315	711	140	300	74	123	735	568	624	340	530
13	1,630	248	562	140	255	75	167	1,030	628	618	332	1,340
14	1,450	*195	429	130	268	71	268	900	671	643	322	2,300
15	890	154	328	110	248	74	426	778	624	679	305	1,920
16	582	144	250	110	219	79	960	695	558	679	290	1,270
17	411	351	195	134	181	83	890	655	523	621	369	915
18	292	489	150	118	150	87	735	651	537	540	420	809
19	213	408	126	110	130	85	596	655	614	572	486	659
20	162	325	116	110	112	80	568	635	683	582	618	523
21	134	252	106	100	99	78	520	624	687	554	621	417
22	117	203	98	95	91	137	441	920	643	512	628	332
23	104	211	98	90	91	136	405	872	579	492	614	280
24	91	233	99	88	146	128	432	699	530	489	526	262
25	83	417	87	86	150	175	450	576	502	474	429	336
26	79	486	100	85	134	231	435	*502	483	447	342	381
27	79	489	81	86	116	270	360	498	456	420	325	438
28	83	453	79	90	113	221	300	554	450	402	420	600
29	80	378	129	110	111	177	258	614	459	393	369	614
30	75	308	122	193	------	144	227	590	465	387	330	731
31	70	------	98	237	------	125	------	530	------	384	348	------
Total	13,005	14,886	7,439	4,390	5,365	3,480	9,602	16,639	17,688	19,137	12,655	20,791
Mean	420	496	240	142	185	112	320	537	590	617	408	693
Cfsm	16.2	19.1	9.23	5.46	7.12	4.31	12.3	20.7	22.7	23.7	15.7	26.7
In.	18.60	21.29	10.64	6.28	7.67	4.98	13.73	23.80	25.30	27.37	18.10	29.74
Ac-ft	25,800	29,530	14,760	8,710	10,640	6,900	19,050	33,000	35,080	37,960	25,100	41,240

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 2,300 Min 70 Mean 396 Cfsm 15.2 In. 207.50 Ac-ft 287,800

Peak discharge (base, 1,200 cfs).--Oct. 13 (4 p.m.) 1,760 cfs (6.66 ft); Nov. 6 (9 a.m.) 1,580 cfs (6.40 ft); July 8 (4 a.m.) 1,800 cfs (6.72 ft); Sept. 14 (1 p.m.) 2,380 cfs (7.50 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 11-16, 19-28, Feb. 19, Mar. 6, 14, 20.

Maksoutof River near Port Alexander--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	994	818	143	495	76	340		500	506	450		350
2	1,370	1,160	136	465	106	468		550	516	444		320
3	1,120	1,110	153	462	171	764		600	548	414		310
4	760	809	150	402	203	526		700	548	375		300
5	635	582	143	340	165	393		700	530	345		280
6	502	526	135	278	164	468		*675	516	335		*262
7	*405	474	122	223	223	558		624	506	330		241
8	325	438	117	181	233	444		576	506	335		260
9	265	607	120	154	318	332		530	520	372		298
10	245	711	113	b125	250	245		492	520	408		305
11	270	995	112	b105	223			506	492	441		396
12	295	1,100	227	b90	384			621	468			465
13	290	940	429	b80	372			910	456			695
14	550	667	465	b70	348			1,010	444			845
15	719	489	372	b70	295			782	423			711
							250				390	
16	604	456	295	b75	248			663	420			565
17	520	447	231	77	207			558	558			506
18	456	881	191	74	171			554	512			444
19	644	910	160	71	225			679	447			384
20	1,250	876	189	69	390			735	396			338
21	1,380	965	265	74	554	140		671	372	450		360
22	1,120	755	265	b85	399			576	369			387
23	858	600	417	b85	378			512	381			414
24	727	465	506	b80	390			477	393			659
25	565	357	735	b80	568			471	396			711
26	438	278	760	b85	441			477	411			1,050
27	369	233	671	b80	340			474	420			1,110
28	607	213	572	b75	268			523	435			845
29	1,120	189	621	b80	-			600	453			624
30	1,160	162	572	b75	------			600	459			489
31	925	-----	506	b75	-----		-----	540	------			------
Total	21,488	19,213	9,893	4,780	8,110	7,478	7,500	18,886	13,921	13,249	12,090	14,924
Mean	693	640	319	154	290	241	250	609	464	427	390	497
Cfsm	26.7	24.6	12.3	5.92	11.2	9.27	9.62	23.4	17.8	16.4	15.0	19.1
In.	30.74	27.48	14.15	6.84	11.60	10.70	10.73	27.01	19.91	18.95	17.29	21.35
Ac-ft	42,620	38,110	19,620	9,480	16,090	14,830	14,880	37,460	27,610	26,280	23,980	29,600

Calendar year 1952: Max 2,300 Min 71 Mean 438 Cfsm 16.8 In. 229.34 Ac-ft 318,000
Water year 1952-53: Max 1,380 Min 69 Mean 415 Cfsm 16.0 In. 216.75 Ac-ft 300,600

Peak discharge (base, 1,200 cfs).--Oct. 2 (1 p.m.) 1,410 cfs (6.14 ft); Oct. 21 (5 a.m.) 1,430 cfs (6.17 ft); Oct. 29 (9 p.m.) 1,260 cfs (5.89 ft); Nov. 2 (9 p.m.) 1,220 cfs (5.82 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Mar. 11 to May 5, July 12 to Sept. 5; discharge estimated on basis of weather records, recorded range in stage, and records for stations on nearby streams.

Deer Lake Outlet near Port Alexander

Location.--Lat 56°31', long 134°40', on Baranof Island, on right bank at tidewater at Mist Cove, an eighth of a mile downstream from Deer Lake and 19 miles north of Port Alexander.
Drainage area.--9.2 sq mi, approximately.
Records available.--June 1951 to September 1953.
Gage.--Water-stage recorder. Altitude of gage is about 1 ft above mean sea level.
Extremes.--1951: Maximum discharge during period June to September, 316 cfs June 15 (gage height, 2.88 ft); minimum, 72 cfs Sept. 6 (gage height, 2.00 ft).
1951-52: Maximum discharge during water year, 402 cfs Sept. 14 (gage height, 3.05 ft); minimum, 40 cfs Jan. 26, Apr. 9 (gage height, 1.63 ft).
1952-53: Maximum discharge during water year, 552 cfs Oct. 21 (gage height, 3.32 ft); minimum not determined.
Remarks.--Records fair except those for periods of no gage-height record, which are poor. There are two lakes above gage, Deer Lake (968 acres), and Deer Upper Lake (139 acres).

Discharge, in cubic feet per second, 1951

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	(e)	193	134	97	11	(e)	193	106	200	21	218	169	173	119
2	(e)	197	136	92	12	(e)	190	102	190	22	214	180	*169	111
3	(e)	197	136	86	13	(e)	190	108	183	23	207	180	163	108
4	(e)	193	134	80	14	311	186	136	173	24	204	173	156	98
5	(e)	193	130	76	15	316	183	143	166	25	204	169	148	92
6	(e)	193	125	73	16	302	180	158	156	26	204	163	140	84
7	(e)	193	123	78	17	*283	176	163	148	27	200	158	132	77
8	(e)	193	119	110	18	265	176	163	143	28	197	153	127	82
9	(e)	193	113	193	19	244	173	166	136	29	193	145	119	95
10	(e)	190	110	200	20	229	*169	169	*130	30	193	140	111	97
										31	-	136	106	-
Total											7,234	5,517	4,218	3,673
Mean											241	178	136	122
Cubic feet per second per square mile											26.2	19.3	14.8	13.3
Runoff in inches											29.24	22.30	17.05	14.85
Runoff in acre-feet											14,350	10,940	8,370	7,290

Peak discharge (base, 350 cfs).--No peak above base.
* Discharge measurement made on this day.
e Average discharge for June 1-13, 250 cfs; no gage-height record during period; discharge estimated on basis of weather records and records for Sawmill Creek near Sitka.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	84	153	58	69	68	49	153	214	193	169	150
2	108	113	145	62	68	64	47	158	214	197	169	150
3	106	190	138	60	69	61	47	156	211	193	166	145
4	104	253	130	63	70	61	47	150	261	186	163	156
5	134	265	121	60	77	59	43	145	297	180	163	145
6	158	365	113	61	77	*54	44	140	292	186	*161	163
7	197	370	125	60	84	56	42	138	274	249	161	169
8	236	370	143	65	97	55	41	134	261	292	158	169
9	225	335	150	67	100	52	40	132	249	287	158	163
10	218	297	169	64	104	50	42	132	232	270	156	161
11	222	270	180	65	111	47	44	136	232	261	153	163
12	240	240	176	66	115	47	51	153	232	257	150	166
13	365	218	169	54	123	48	72	180	232	253	145	240
14	355	200	163	51	134	44	97	190	229	253	145	392
15	316	186	158	48	132	45	125	193	222	244	140	397
16	274	176	148	48	125	44	176	197	218	240	138	386
17	240	204	138	65	115	44	190	200	214	229	145	365
18	218	218	127	46	106	44	190	204	214	222	150	340
19	200	204	121	45	97	45	180	207	222	214	158	311
20	183	190	113	44	90	44	183	204	225	211	180	278
21	166	176	106	43	87	46	193	207	225	204	193	257
22	156	163	98	42	83	51	186	240	222	204	207	232
23	143	156	94	42	89	49	197	249	214	200	207	214
24	134	150	89	41	90	49	207	*240	211	197	200	*211
25	121	163	83	41	87	47	207	229	207	193	190	229
26	115	169	77	40	82	50	200	218	204	190	180	229
27	106	169	72	44	77	51	190	211	200	186	173	257
28	97	169	68	47	76	51	180	214	197	183	169	261
29	89	166	63	56	71	51	166	211	197	180	163	270
30	82	161	60	67	------	50	156	211	193	176	158	278
31	76	------	58	70	------	47	------	207	------	173	150	------
Total	5,490	6,390	3,748	1,685	2,705	1,574	3,632	5,739	6,815	6,703	5,118	7,047
Mean	177	213	121	54.4	93.3	50.8	121	185	227	216	165	235
Cfsm	19.2	23.2	13.2	5.91	10.1	5.52	13.2	20.1	24.7	23.5	17.9	25.5
In.	22.19	25.83	15.15	6.81	10.93	6.36	14.68	23.20	27.55	27.10	20.69	28.49
Ac-ft	10,890	12,670	7,430	3,340	5,370	3,120	7,200	11,380	13,520	31,300	10,150	13,980

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 397 Min 40 Mean 155 Cfsm 16.8 In. 228.98 Ac-ft 112,400

Peak discharge (base, 350 cfs).--Oct. 13 (4 p.m.) 386 cfs (3.02 ft); Nov. 6 (11 a.m.) 380 cfs (3.01 ft); Sept. 14 (11 a.m.) 402 cfs (3.05 ft).
* Discharge measurement made on this day.

Deer Lake Outlet near Port Alexander--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	345	436						153	211	180	140	156
2	424	540						156	211	176	136	148
3	370	496						193	211	173	134	143
4	325	408						229	210	169	130	136
5	297	350						240	210	166	130	130
6	274	335						240	210	163	127	123
7	249	311					100	236	210	161	123	119
8	225	287						232	210	161	121	125
9	211	302			115			225	210	163	119	132
10	200	335						225	205	166	132	136
11	200	350						253	200	173	136	176
12	190	355						335	190	193	134	211
13	180	340						408	180	204	136	265
14	183	311					86	386	175	207	197	270
15	193	335	150	80		115	84	355	175	207	225	261
16	183	330					83	320	170	207	222	244
17	183	320			*136		82	297	205	211	222	236
18	193				130		83	287	190	211	225	225
19	287				136		89	302	175	204	236	214
20	424				158		100	292	*169	200	229	204
21	540				176		104	278	169	193	222	204
22	474				173		104	261	169	190	211	200
23	414				173		102	253	169	183	197	193
24	375	225			176		98	244	169	176	*200	214
25	335				180		100	240	169	173	193	225
26	297				173		121	236	173	169	183	306
27	287				170		130	232	176	163	173	325
28	350				165		143	225	176	158	163	306
29	436				-		148	222	180	153	169	283
30	408				------		150	218	183	148	169	257
31	375	-----			------		------	211	------	145	163	------
Total	9,427	9,066	4,650	2,480	3,786	3,565	3,107	7,984	5,660	5,546	5,297	6,167
Mean	304	302	150	80	135	115	104	258	189	179	171	206
Cfsm	33.0	32.8	16.3	8.70	14.7	12.5	11.3	28.0	20.5	19.5	18.6	22.4
In.	38.11	36.65	18.80	10.03	15.30	14.41	12.56	32.27	22.88	22.42	21.41	24.93
Ac-ft	18,700	17,980	9,220	4,920	7,510	7,070	6,160	15,840	11,230	11,000	10,510	12,230

Calendar year 1952: Max 540 Min 40 Mean 175 Cfsm 19.0 In. 259.37 Ac-ft 127,300
Water year 1952-53: Max 540 Min - Mean 183 Cfsm 19.9 In. 269.77 Ac-ft 132,400

Peak discharge (base, 350 cfs).--Oct. 2 (1 p.m.) 436 cfs (3.11 ft); Oct. 21 (7 a.m.) 552 cfs (3.32 ft); Oct. 29 (10 a.m.) 458 cfs (3.15 ft); Nov. 2 (7 a.m.) 546 cfs (3.31 ft); Nov. 12 (3 p.m.) 360 cfs (2.97 ft); May 13 (4 p.m.) 414 cfs (3.07 ft)

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 18 to Feb. 16, Feb. 27 to Apr. 13, June 4-19; discharge estimated on basis of weather records, recorded range in stage, and records for Maksoutof River near Port Alexander.

Takatz Creek near Baranof

Location.--Lat 57°08'35", long 134°51'50", on Baranof Island, on left bank at tidewater at Takatz Bay, 2 miles downstream from Takatz Lake and 4 miles north of Baranof.

Drainage area.--17.5 sq mi.

Records available.--July 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is about 4 ft above mean sea level.

Extremes.--1951: Maximum discharge during period July to September, 2,440 cfs Sept. 9 (gage height, 4.66 ft), from rating curve extended above 660 cfs by logarithmic plotting; minimum, 98 cfs Sept. 28 (gage height, 2.21 ft).
1951-52: Maximum discharge during water year, 4,820 cfs Sept. 14 (gage height, 5.79 ft), from rating curve extended above 660 cfs by logarithmic plotting; minimum not determined.
1952-53: Maximum discharge during water year, 3,440 cfs Oct. 1 (gage height, 5.16 ft), from rating curve extended above 660 cfs by logarithmic plotting; minimum not determined.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Takatz Lake has an area of 425 acres.

Discharge, in cubic feet per second, 1951

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	680	270	290	11	712	290	391	21	422	322	*255
2	640	322	265	12	694	290	306	22	552	328	255
3	640	295	260	13	584	328	361	23	391	316	350
4	680	265	255	14	457	478	311	24	338	311	270
5	700	250	246	15	429	385	260	26	295	270	206
6	720	246	260	16	400	409	250	26	285	260	153
7	650	246	275	17	409	385	270	27	280	260	114
8	600	246	736	18	457	361	403	28	270	255	118
9	600	255	1,660	19	*379	379	373	29	270	260	210
10	685	275	515	20	344	429	255	30	265	270	203
								31	250	306	-
Total									15,078	9,562	10,076
Mean									486	308	336
Cubic feet per second per square mile									27.8	17.6	19.2
Runoff in inches									32.04	20.32	21.41
Runoff in acre-feet									29,910	18,970	19,990

Peak discharge (base, 2,300 cfs).--Sept. 9 (2:30 a.m.) 2,440 cfs (4.66 ft).
* Discharge measurement made on this day.
Note.--No gage-height record July 1-8; discharge estimated on basis of weather records and records for Medvetcha River near Sitka.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	222	62	60				23	64	260	457	508	758
2	185	128	54				22	81	246	422	443	530
3	199	1,540	50				21	66	238	361	436	316
4	196	942	45				20	60	385	338	450	250
5	450	538	44				19	56	403	333	443	306
6	913	904	42				18	55	316	668	492	478
7	862	500	58				*17	65	265	2,200	508	355
8	568	361	98				17	72	242	1,470	538	270
9	328	250	68				17	105	234	640	492	222
10	300	192	162				24	153	280	522	429	206
11	443	139	156				26	159	409	616	478	311
12	703	105	107				42	214	508	730	515	295
13	1,810	85	83				100	250	515	979	560	3,020
14	464	71	76				136	250	391	851	443	3,440
15	260	61	68				144	250	338	584	355	1,430
16	196	61	60	20	20	17	280	250	344	515	344	882
17	139	178	52				188	275	367	478	485	500
18	*105	150	44				131	306	403	403	471	415
19	83	94	39				100	328	457	397	379	333
20	70	76	35				109	316	508	471	576	260
21	61	64	33				105	328	508	478	492	242
22	56	56	32				85	403	492	545	552	238
23	50	54	31				109	333	443	649	391	246
24	46	61	30				136	285	464	624	290	415
25	43	116	28				139	246	485	568	250	*632
26	44	156	26				105	234	436	522	242	464
27	41	116	25				81	238	391	515	250	568
28	40	105	24				68	275	492	538	367	464
29	36	88	22				62	285	545	530	311	485
30	35	72	21				58	260	485	*515	250	592
31	32	-----	20				-----	242	-----	508	280	-----
Total	8,980	7,325	1,663	620	580	527	2,402	6,504	11,850	19,427	13,020	18,923
Mean	290	244	53.6	20	20	17	80.1	210	395	627	420	631
Cfsm	16.6	13.9	30.6	1.14	1.14	0.971	4.58	12.0	22.6	35.8	24.0	36.1
In.	19.08	15.57	3.53	1.32	1.23	1.12	5.10	13.82	25.18	41.29	27.67	40.21
Ac-ft	17,810	14,530	3,300	1,230	1,150	1,050	4,760	12,900	23,500	38,530	25,820	37,530

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 3,440 Min - Mean 251 Cfsm 14.3 In. 195.12 Ac-ft 182,100

Peak discharge (base, 2,300 cfs).--Oct. 13 (6 a.m.) 2,330 cfs (4.60 ft); Nov. 3 (5:30 p.m.) 3,140 cfs (5.02 ft); July 7 (11 a.m.) 2,510 cfs (4.70 ft); Sept. 14 (3 a.m.) 4,820 cfs (5.79 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Dec. 18 to Jan. 1, Jan. 13 to Apr. 3 (stage-discharge relation affected by ice Jan. 2-12); discharge estimated on basis of weather records and records for Sawmill Creek near Sitka.

Takatz Creek near Baranof--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,840	980	55	203		70	58	218	457	545	397	290
2	1,700	968	58	171		72	54	218	515	485	373	270
3	397	443	81	162		147	52	306	576	464	373	270
4	238	255	74	111		105	60	328	530	436	450	280
5	242	210	62	86		92	48	311	500	429	508	285
6	234	234	56	68		98	49	311	492	429	464	285
7	214	222	51	b60		100	47	306	530	508	422	280
8	192	300	52	b54		88	48	311	658	640	379	361
9	156	508	57	52	45	76	48	300	694	770	385	478
10	192	538	51	50		65	49	285	552	740	552	367
11	275	545	51			60	50	350	464	810	568	703
12	344	409	92			55	48	508	485	1,280	422	1,050
13	250	275	210			51	47	608	500	721	457	1,640
14	545	210	147			84	*46	508	457	576	1,820	730
15	450	165	100			109	47	385	397	545	725	379
16	250	153	79			83	52	333	379	576	361	311
17	234	156	65		49	60	64	328	391	552	311	328
18	403	338	57		42	55	88	333	373	436	355	422
19	1,720	285	54		57	52	109	436	373	403	443	397
20	1,180	246	76		77	50	116	422	373	379	344	328
21	1,130	280	107	35	85	50	105	373	500	355	280	355
22	478	255	90		71	50	86	361	576	355	270	290
23	355	210	134		72	48	77	385	576	415	328	295
24	300	162	290		77	50	71	409	616	471	*508	676
25	218	121	265		128	50	81	436	600	500	361	667
26	174	114	206		105	57	210	443	760	522	311	1,590
27	210	83	153		86	58	210	422	957	508	290	485
28	830	68	162		72	51	255	443	893	436	295	306
29	968	62	238		-	57	222	436	810	401	576	270
30	429	56	181		------	54	214	355	649	379	522	230
31	285	-----	210		------	55	-----	379	------	385	338	------
Total	16,433	8,833	3,564	1,752	1,641	2,133	2,711	11,547	16,633	16,451	14,188	14,618
Mean	530	294	115	56.5	58.6	68.8	90.4	372	554	531	458	487
Cfsm	30.3	16.8	6.57	3.23	3.35	3.93	5.17	21.3	31.7	30.3	26.2	27.8
In.	34.92	18.77	7.57	3.72	3.49	4.53	5.76	24.54	35.35	34.96	30.15	31.07
Ac-ft	32,590	17,520	7,070	3,480	3,250	4,230	5,380	22,900	32,990	32,630	28,140	28,990

Calendar year 1952: Max 3,440 Min - Mean 281 Cfsm 16.1 In. 218.20 Ac-ft 203,600
Water year 1952-53: Max 1,840 Min - Mean 303 Cfsm 17.3 In. 234.83 Ac-ft 219,200

Peak discharge (base, 2,300 cfs).--Oct. 1 (5 p.m.) 3,440 cfs (5.16 ft); Oct. 19 (6 p.m.) 2,980 cfs (4.94 ft); Nov. 1 (7 p.m.) 2,550 cfs (4.72 ft); Aug. 14 (1:30 p.m.) 2,530 cfs (4.67 ft); Sept. 12 (7:30 p.m.) 2,380 cfs (4.59 ft); Sept. 26 (10 a.m.) 2,490 cfs (4.65 ft).

* Discharge measurement made on this day.

Hasselborg Creek near Angoon

Location.--Lat 57°39'40", long 134°14'55" on Admiralty Island, on right bank at outlet of Hasselborg Lake, 16 miles northeast of Angoon.

Drainage area.--56.2 sq mi.

Records available.--June 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 295 ft (from topographic map).

Extremes.--1951: Maximum discharge observed during period June to September, 360 cfs June 26 (gage height, 2.00 ft); minimum, 103 cfs Sept. 7 (gage height, 1.49 ft).
1951-52: Maximum discharge, 1,640 cfs Sept. 14 (gage height, 3.33 ft), from rating curve extended above 660 cfs; minimum not determined.
1952-53: Maximum discharge, 1,260 cfs Oct. 2 (gage height, 3.02 ft); minimum, 77 cfs Jan. 19-21, Feb. 1, 2 (gage height, 1.44 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Hasselborg Lake has an area of 3,500 acres.

Discharge, in cubic feet per second, 1951

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-	300	132	136	11	-	215	141	215	21	-	154	220	186
2	-	294	154	128	12	-	210	132	220	22	-	235	215	172
3	-	289	158	120	13	-	195	128	267	23	-	262	*215	195
4	-	284	167	115	14	-	186	141	284	24	-	245	*225	177
5	-	278	167	111	15	-	177	149	267	25	-	220	215	149
6	-	262	172	111	16	-	163	154	240	26	360	195	210	132
7	-	256	177	111	17	-	154	167	230	27	342	177	200	120
8	-	235	172	120	18	-	149	181	235	28	318	163	181	115
9	-	225	158	172	19	-	141	186	225	29	312	145	167	120
10	-	215	154	195	20	-	136	205	205	30	*312	136	158	124
										31	-	128	149	-
Total											-	6,424	5,350	5,197
Mean											-	207	173	173
Cubic feet per second per square mile											-	3.68	3.08	3.08
Runoff in inches											-	4.25	3.54	3.44
Runoff in acre-feet											-	12,740	10,610	10,310

Peak discharge (base, 1,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	88	145			66	149	342	591	394	177	342
2	120	141	136			66	*149	336	575	428	172	401
3	115	230	124			64	132	336	538	435	172	367
4	115	394	124			64	128	324	538	414	167	324
5	124	428	120			*62	124	318	615	401	158	300
6	210	545	115			62	111	324	623	408	154	336
7	471	680	124			62	107	348	575	689	149	414
8	664	698	136			b64	103	354	552	875	149	414
9	615	655	177			b66	100	380	515	785	141	374
10	545	552	240			b64	107	457	508	672	141	342
11	714	450	306			b62	111	515	568	583	136	330
12	680	367	318			b62	124	647	631	530	128	318
13	607	312	300			b62	154	970	*647	493	128	606
14	530	262	278			b62	225	1,030	647	450	115	1,500
15	435	220	250			b62	324	990	647	408	103	1,580
				80	80							
16	367	190	210			b62	940	970	599	380	107	1,360
17	294	200	190			b62	1,140	980	552	342	158	1,140
18	256	267	170			b62	960	960	530	318	210	990
19	200	262	160			b62	785	920	515	312	262	830
20	167	225	155			b64	639	866	508	306	387	672
21	149	200	150			b65	575	848	500	294	450	545
22	136	181	140			88	538	857	486	284	408	450
23	124	167	135			96	500	848	464	278	380	380
24	96	154	130			103	493	758	442	267	348	367
25	92	149	125			103	508	672	421	256	312	500
26	92	163	120			124	522	591	414	240	272	575
27	88	177	115			145	493	575	394	230	267	607
28	85	177	110			167	450	599	401	215	367	664
29	81	167	105			177	408	647	401	205	342	631
30	77	158	105		------	172	374	655	394	*195	306	767
31	*70	-----	100		-----	163	-----	623	------	181	284	------
Total	8,443	8,859	5,113	2,480	2,320	2,665	11,473	20,040	15,791	12,268	7,050	18,426
Mean	272	295	165	80	80	86.0	382	646	526	396	227	614
Cfsm	4.84	5.25	2.94	1.42	1.42	1.53	6.80	11.5	9.36	7.05	4.04	10.9
In.	5.59	5.86	3.38	1.64	1.54	1.76	7.59	13.26	10.45	8.12	4.67	12.19
Ac-ft	16,750	17,570	10,140	4,920	4,600	5,290	22,760	39,750	31,320	24,330	13,980	36,550

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 1,580 Min - Mean 314 Cfsm 5.59 In. 76.05 Ac-ft 228,000

Peak discharge (base, 1,000 cfs).--Apr. 17 (4 a.m.) 1,170 cfs (2.94 ft); May 14 (4 a.m.) 1,050 cfs (2.83 ft); Sept. 14 (5 p.m.) 1,640 cfs (3.33 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 16 to Mar. 7; discharge estimated on basis of weather records and records for Cascade Creek near Petersburg.

Hasselborg Creek near Angoon--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	893	821	185	318	80	175	170	560	522	348	123	312
2	1,220	1,060	170	354	77	170	180	583	522	388	119	288
3	1,060	1,100	175	342	80	212	202	607	515	367	111	276
4	848	902	180	330	89	212	258	740	493	324	103	258
5	839	732	170	300	95	202	318	830	465	294	*99	246
6	848	655	155	270	107	202	306	785	451	270	99	234
7	714	615	135	234	135	202	276	785	437	252	103	224
8	591	575	127	175	150	190	252	785	451	252	111	264
9	486	631	*119	150	196	170	224	767	458	252	119	381
10	444	647	111	119	218	150	212	714	437	246	145	444
11	522	631	103	111	212	135	212	680	409	240	155	583
12	530	591	123	95	240	119	207	740	388	258	175	631
13	486	560	330	83	282	107	196	821	374	276	229	714
14	500	500	522	80	282	107	190	857	354	264	451	706
15	615	437	500	80	264	115	185	785	330	252	714	599
16	545	388	437	83	229	119	190	698	318	246	647	515
17	538	367	360	83	207	119	202	647	318	282	545	500
18	583	508	306	80	175	107	224	623	300	336	465	486
19	672	689	258	80	160	103	276	664	294	336	388	472
20	980	664	240	77	155	95	342	672	282	312	330	444
21	1,050	639	218	83	165	89	374	631	276	282	294	409
22	1,010	583	212	92	160	89	367	607	270	258	270	367
23	866	508	212	92	155	89	360	591	270	234	264	367
24	866	437	212	89	165	103	354	607	264	212	282	538
25	732	374	282	86	207	115	336	615	258	202	276	599
26	599	318	330	92	224	127	360	623	258	185	246	607
27	522	282	318	89	212	145	423	615	264	165	229	560
28	839	252	312	80	190	160	522	647	258	155	212	486
29	1,130	229	312	83	-	170	545	655	282	150	258	416
30	1,120	202	312	80	------	175	552	599	324	140	300	354
31	940	------	288	80	------	170	------	538	------	127	306	------
Total	23,588	16,897	7,714	4,390	4,911	4,443	8,815	21,071	10,842	7,905	8,168	13,280
Mean	761	563	249	142	175	143	294	680	361	255	263	443
Cfsm	13.5	10.0	4.43	2.53	3.11	2.54	5.23	12.1	6.42	4.54	4.68	7.88
In.	15.61	11.18	5.10	2.91	3.25	2.94	5.83	13.94	7.17	5.23	5.41	8.79
Ac-ft	46,790	33,510	15,300	8,710	9,740	8,810	17,480	41,790	21,500	15,680	16,200	26,340

Calendar year 1952: Max 1,580 Min - Mean 384 Cfsm 6.83 In. 93.11 Ac-ft 279,100
Water year 1952-53: Max 1,220 Min 77 Mean 362 Cfsm 6.44 In. 87.36 Ac-ft 261,800

Peak discharge (base, 1,000 cfs).--Oct. 2 (11 a.m.) 1,260 cfs (3.02 ft); Oct. 21 (6 p.m.) 1,100 cfs (2.87 ft); Oct. 29 (7 p.m.) 1,220 cfs (2.98 ft); Nov. 3 (1 a.m.) 1,150 cfs (2.92 ft).
* Discharge measurement made on this day.

Gakona River at Gakona

Location.--Lat 62°18'05", long 145°18'20", near center of span on downstream side of bridge on Glenn Highway at Gakona, 500 ft upstream from mouth and 1.9 miles northeast of junction of Richardson and Glenn Highways.

Drainage area.--620 sq mi, approximately.

Records available.--Discharge: August to September 1948, October 1949 to September 1953.
Chemical analyses: February 1952 to September 1953.
Water temperatures: October 1952 to September 1953.
Sediment records: May to September 1953.

Gage.--Wire-weight gage read once daily. Datum of gage is 1,403.03 ft above mean sea level. Aug. 8 to Sept. 13, 1948, staff gage at same site and datum.

Extremes.--1950-51: Maximum discharge observed during water year, 3,760 cfs Sept. 20 (gage height, 5.92 ft); maximum gage height observed, 6.19 ft Apr. 19 (backwater from ice); minimum discharge not determined.
1951-52: Maximum discharge during water year, 5,990 cfs July 31 (gage height, 6.60 ft, from graph based on gage readings); minimum not determined.
1952-53: Maximum discharge during water year, 6,080 cfs Aug. 4 (gage height, 6.72 ft, from graph based on gage reading); no flow for part of Mar. 25, caused by temporary storage behind ice jam upstream.
1948, 1949-53: Maximum discharge, that of Aug. 4, 1953; minimum, that of Mar. 25, 1953.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Some diurnal fluctuation caused by glacier melt at the source.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a320							1,200	a1,700	2,720	a3,200	2,710
2	a310							1,300	1,940	2,720	a2,800	2,070
3	*302							1,400	a1,700	2,850	a2,600	2,210
4	310							1,500	1,420	2,960	a2,500	a2,400
5	310							1,500	1,510	2,930	a2,500	a2,600
6	310							1,600	1,840	2,710	a2,500	a2,700
7	310		(*)					1,600	3,340	3,050	a2,500	*2,280
8	310	90		60	50	60	80	1,600	a2,900	2,990	a2,400	a2,000
9	278							1,600	1,990	a2,600	*2,370	a1,900
10	278							1,500	a1,800	a2,800	2,370	a1,800
11	296							1,500	a1,700	3,050	a2,600	1,720
12	257							1,400	1,580	3,560	2,930	1,470
13	274							1,400	a1,400	3,470	3,030	1,300
14	310							1,300	a1,200	3,300	2,750	1,390
15	238		60					1,300	a1,100	3,110	2,840	1,550
16	196							1,200	a1,000	3,340	2,840	1,900
17	200							1,200	a1,200	3,100	2,790	2,640
18	190						85	1,100	a1,500	3,170	2,410	3,280
19	180							1,100	a1,300	*3,280	2,230	3,700
20	180							a1,000	*1,140	2,910	1,950	3,760
21	180						110	970	a1,000	2,700	2,020	3,730
22	150				60		130	994	1,280	2,340	2,370	3,090
23	140	75					170	934	1,280	2,310	1,880	2,480
24	130			55		70	250	934	1,880	2,380	2,020	2,070
25	120						350	934	2,400	2,380	1,780	1,840
26	110						500	934	1,790	2,480	1,450	1,490
27	110						*660	a1,100	1,790	2,780	1,380	1,420
28	100						820	a1,200	1,980	a2,900	1,760	1,390
29	100				-		960	1,370	2,080	a3,100	1,860	1,230
30	100				-		1,100	a1,400	2,620	3,430	2,400	1,080
31	100							a1,500		a3,500	3,190	
Total	6,699	2,475	1,860	1,780	1,530	2,020	6,675	39,570	51,370	90,920	74,220	65,200
Mean	216	82.5	60.0	57.4	54.6	65.2	222	1,276	1,712	2,933	2,394	2,173
Ac-ft	13,290	4,910	3,690	3,530	3,030	4,010	13,240	78,490	101,900	180,300	147,200	129,300

Calendar year 1950: Max 3,350 Min - Mean 742 Ac-ft 537,000
Water year 1950-51: Max 3,760 Min - Mean 943 Ac-ft 682,900

* Discharge measurement made on this day.
a Doubtful or no gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for other stations.
Note.--Stage-discharge relation affected by ice Oct. 17 to May 19 (no gage-height record Nov. 3 to Dec. 6, Dec. 8 to Apr. 17, Apr. 20-24, 26, May 11, 12, 18; discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations).

Gakona River at Gakona--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,080	300							3,800	2,450	5,050	1,200
2	1,060	320							3,440	2,470	4,690	1,260
3	904	330							3,300	3,000	3,440	1,240
4	922	340							3,120	2,810	2,290	914
5	952	340						250	2,780	2,550	2,080	1,010
6	940	330							2,420	2,320	1,910	951
7	856	320							2,290	2,150	2,330	884
8	820	310							1,860	1,950	2,580	793
9	792	300							1,470	1,840	2,860	856
10	750	290							1,690	1,980	2,820	766
11	720	280							2,360	1,940	2,540	786
12	680	270							2,590	1,880	2,450	773
13	640	260							2,560	2,070	2,420	780
14	600	250							2,360	2,330	2,150	799
15	560	240							2,480	1,950	1,980	786
16	520	240	180	170	170	170	170	320	2,540	2,120	2,460	722
17	470								2,450	2,330	2,150	699
18	420								2,540	2,430	1,920	621
19	380								2,650	2,660	1,430	560
20	340								2,520	2,700	1,380	666
21	310								2,380	3,840	1,520	722
22	300								2,320	3,660	1,590	944
23	290							1,600	2,270	3,350	*1,290	944
24	290	220							2,340	5,030	1,290	921
25	320								2,340	3,900	1,080	884
26	350							3,500	2,320	2,550	1,110	842
27	350	(*)				(*)		4,170	2,560	2,520	951	740
28	340							5,190	2,630	2,660	914	*722
29	320							5,210	2,820	*4,070	877	693
30	310							*4,980	2,800	5,430	914	716
31	290	------			------		-----	4,510	------	5,430	1,340	------
Total	17,876	7,800	5,580	5,270	4,930	5,270	5,100	41,260	76,000	88,370	63,786	25,194
Mean	577	260	180	170	170	170	170	1,331	2,533	2,851	2,058	840
Ac-ft	35,460	15,470	11,070	10,450	9,780	10,450	10,120	81,840	150,700	175,300	126,500	49,970

Calendar year 1951: Max 3,760 Min - Mean 999 Ac-ft 723,000
Water year 1951-52: Max 5,430 Min - Mean 947 Ac-ft 687,100

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 10 to May 26 (no gage-height record Nov. 17 to May 4; discharge estimated on basis of 2 discharge measurements, weather records, and records for stations on nearby streams).

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	681	390						2,500	1,460	2,200	3,840	a1,600
2	693	410						**2,600	1,370	2,250	4,780	1,090
3	699	420						2,600	2,080	2,090	5,480	a1,000
4	786	440						2,500	1,640	2,020	*5,720	a1,200
5	753	430						2,300	1,610	1,800	3,860	1,350
6	766	410						2,000	1,820	1,980	3,320	1,680
7	740	380						1,700	2,110	*2,120	4,050	a1,400
8	722	350	260					1,500	2,400	1,810	4,030	1,100
9	661	320						1,400	2,340	1,950	2,870	1,040
10	681	300						1,300	2,340	2,190	1,920	1,010
11	740	280					70	1,200	1,920	2,460	1,710	809
12	780	260						1,100	1,720	2,820	1,890	724
13	863	230						1,090	*1,920	2,380	1,370	910
14	849	210						1,170	1,850	2,710	a1,400	*1,000
15	827	185						1,290	1,510	2,890	*1,640	1,120
16	687	153		130	90	60		1,310	1,680	3,300	a1,700	a1,000
17	620	110						*1,330	1,880	3,320	1,880	816
18	560	115						1,320	1,980	3,420	1,680	724
19	449	130						1,300	1,940	3,130	1,460	659
20	481	141					120	1,640	2,300	2,920	1,370	620
21	*488	164	(*)				140	1,460	2,530	2,590	1,450	600
22	490	233					170	1,380	2,410	2,600	1,670	a580
23	449	279					210	1,700	2,530	3,030	2,840	559
24	438	295	190				350	1,620	2,580	3,140	a2,700	a520
25	450	333				(*)	750	1,580	2,930	3,130	a2,600	483
26	450	343					1,500	1,300	3,240	3,290	2,420	470
27	460	366					2,100	1,290	3,440	3,960	2,250	478
28	470	370					2,200	1,240	3,400	*4,160	1,920	442
29	450	370			-		2,300	1,100	*3,030	4,050	1,460	a430
30	420	360			--		2,300	918	2,600	3,940	a1,200	a430
31	390	------			------	(**)	-----	1,280	------	3,810	1,680	------
Total	18,993	8,777	6,940	4,030	2,520	1,860	13,470	48,018	66,560	87,460	78,160	25,844
Mean	613	293	224	130	90	60	449	1,549	2,219	2,821	2,521	861
Ac-ft	37,670	17,410	13,770	7,990	5,000	3,690	26,720	95,240	132,000	173,500	155,000	51,260

Calendar year 1952: Max 5,430 Min - Mean 956 Ac-ft 694,000
Water year 1952-53: Max 5,720 Min - Mean 994 Ac-ft 719,200

* Discharge measurement made on this day. ** Field estimate made on this day.
a No gage-height record; discharge interpolated.
Note.--Stage-discharge relation affected by ice Oct. 17, 18, 22, Oct. 25 to Nov. 14, Nov. 28 to May 12 (no gage-height record Nov. 1, Dec. 6 to Apr. 19; discharge estimated on basis of 2 discharge measurements, 1 field estimate, and weather records).

GAKONA RIVER AT GAKONA

Chemical analyses, in parts per million, February 1952 to September 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium, magnesium	Noncarbonate			
1952																			
Feb. 6	170		13	0.01	54	10	14		187	31	14	0.0	0.4	236	176	23	384	7.6	5
Apr. 18	170		13	.01	47	10	13		171	28	12	.0	.2	209	158	18	346	7.7	3
May 12	320		11	.04	41	9.5	11		150	27	10	.2	.3	184	141	18	302	7.7	10
June 3	3,300		6.3	.33	21	3.8	1.3		68	9.5	3.0	.1	.8	94	68	12	130	7.2	50
July 17	2,330		7.8	.02	30	6.4	3.2	1.6	95	27	2.2	.0	.4	125	102	24	211	7.6	5
Aug. 26	1,110		10	.02	33	5.9	4.0	1.4	95	28	2.5	.1	.3	132	107	29	216	7.0	5
Sept. 29	693		11	.06	32	7.0	5.9	1.4	106	25	4.0	.1	.2	139	109	22	228	7.2	20
1952																			
Oct. 30	420		10	0.02	35	8.5	8.7	1.9	129	26	3.5	0.0	0.4	158	124	18	272	7.2	4
Dec. 10	260		14	.03	50	13	15	2.5	197	38	11	.0	.5	241	180	17	393	6.9	3
1953																			
Jan. 28	130		16	.01	62	12	21	3.6	235	32	19	.1	1.5	283	205	12	469	7.6	2
Feb. 27	90		23	.04	88	18	32	6.4	340	48	30	.0	.6	414	298	17	661	7.6	4
Mar. 31	60		31	.02	80	21	36	5.9	318	58	35	--	.2	424	287	26	646	8.1	3
Apr. 30	2,300		9.0	.06	30	5.0	7.7	2.2	106	16	6.0	--	.6	129	97	10	219	7.4	20
May 14-20	1,337		7.1	.10	26	4.6	5.0	1.6	87	15	1.8	.1	1.0	105	84	12	180	6.9	35
May 21-31	1,352		6.7	.09	27	4.0	4.4	1.7	93	16	1.5	.0	.6	108	84	8	185	7.0	25
June 1-10	1,917		6.4	.11	31	4.0	4.1	1.8	98	21	1.2	.1	.6	119	94	14	206	7.2	20
June 11-20	1,870		6.2	.09	33	4.5	4.3	1.8	100	25	1.2	.1	.6	126	101	19	218	7.1	20
June 21-30	2,869		5.9	.10	32	3.9	3.8	2.2	96	25	1.2	.0	.4	122	96	17	208	7.1	30
July 1-10	2,041		6.4	.02	32	6.3	3.8	2.1	99	27	1.2	.0	1.2	129	106	25	231	7.5	18
July 11-20	2,935		6.4	.02	33	6.4	3.6	2.3	107	28	1.5	.0	.7	135	109	21	237	7.5	15
July 21-31	3,427		7.1	.04	41	3.7	3.6	2.4	114	32	1.2	.1	.4	148	118	24	252	7.2	7
Aug. 1-10	3,987		7.1	.05	43	5.4	3.5	2.5	120	40	1.2	.0	.6	162	130	31	264	7.0	15
Aug. 11-20	1,610		7.0	.03	36	4.7	4.3	2.1	106	32	1.2	.0	.8	140	109	22	235	7.3	13
Aug. 21, 29	1,455		7.7	--	36	5.2	4.4	1.9	104	28	3.0	--	.8	136	111	26	234	6.8	5
Sept. 1-10	1,247		9.2	.04	34	5.9	6.1	1.8	109	27	3.2	.1	.5	142	109	20	240	6.7	10
Sept. 11, 13, 15	946		8.9	.03	35	6.3	7.4	2.0	111	27	5.8	.1	1.3	149	113	22	249	6.7	10
Sept. 21-30	499		--	--	--	--	--	--	--	--	-	--	--	--	--	--	--	--	--

GAKONA RIVER AT GAKONA--Continued

Temperature (°F) of water, water year October 1952 to September 1953

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

GAKONA RIVER AT GAKONA--Continued

Periodic determinations of suspended-sediment discharge, May to September 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
May 27	1,310	696	2,460
June 9	2,260	2,200	13,400
June 15	1,380	897	3,340
July 1	2,230	3,220	19,400
July 8	1,720	1,460	6,780
July 24	3,220	6,680	58,100
July 28	4,120	6,650	74,000
Aug. 11	1,920	2,150	11,100
Aug. 19	1,450	1,100	4,310
Aug. 26	2,640	5,220	37,200
Sept. 28	450	17	21

Particle-size analyses of suspended sediment, July to August 1953
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
1953																	
July 8	1:20 p.m.	1,720		1,460	1,530	13	19	31	43	51	63	73	88		98	100	BSWCM
July 24	1:55 p.m.	3,220		6,360	6,670	--	19	--	42	--	78	90	97		100		PSWCM
Aug. 19	2:00 p.m.	1,450		1,120	1,590	19	27	42	54	67	78	85	94		100		BSWCM

GULKANA RIVER NEAR GULKANA

LOCATION.--At bridge on Richardson Highway, 1.8 miles southwest of Junction of Richardson and Glenn Highways, and approximately 2.5 miles upstream from mouth.
DRAINAGE AREA. 1,980 sq. mi.approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to July 1953.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, October 1952 to July 1953

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium magnesium	Noncarbonate			
1952																		
Oct. 30		10	0.03	20	5.2	6.0	1.3	74	6.4	11	0.4	0.6	97	71	10	158	6.8	15
Dec. 10		13	.03	28	6.5	9.2	1.6	111	6.3	15	.0	.6	135	98	6	230	7.0	10
1953																		
Jan. 27		15	.02	28	6.4	9.0	1.5	112	6.6	16	.1	.9	139	97	5	229	6.4	2
Feb. 27		30	.06	54	18	20	5.0	238	15	30	.1	1.2	291	208	13	466	7.3	4
Mar. 31		13	.01	31	6.7	10	1.6	114	9.3	20	--	.3	148	105	12	240	7.7	3
Apr. 30		8.1	.09	20	4.1	5.9	2.1	72	4.5	12	--	.3	110	66	7	155	7.5	55
May 14		6.5	.08	14	3.3	3.6	1.3	53	2.5	6.8	--	.8	79	48	5	107	7.0	50
June 16		7.1	.08	17	3.8	5.3	.9	69	4.8	8.0	.0	.6	82	59	1	138	7.4	22
July 30		5.9	.06	22	5.1	7.4	1.6	90	4.4	6.5	.0	.4	98	76	2	181	7 7	25

GULKANA RIVER AT GULKANA

LOCATION.--At bridge on Richardson Highway, at Gulkana, and 14 miles north of junction of Richardson and Glenn Highways.
RECORDS AVAILABLE.--Chemical analyses: March to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, March to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Mar. 25		15	0.03	27	7.1	10		106	5.3	18	0.1	0.5		135			97	10	18		224	7.2	10
Apr. 18		15	.03	28	6.6	8.2		102	6.4	17	.1	.4		132			97	13	15		224	7.4	8
May 13		12	.05	24	6.6	7.5		95	5.1	14	.1	.4		127			87	9	16		199	7.2	30
June 3		5.8	.02	11	3.7	2.2		42	5.4	4.5	.1	1.0		67			43	8	10		81.8	6.6	70
July 17		9.7	.03	16	4.6	5.2	1.1	69	7.4	7.0	.1	.6		86			58	2	16		132	7.0	15
Aug. 26		8.4	.01	20	5.6	5.8	1.0	82	7.0	9.0	.2	.4		98			73	6	15		157	7.4	10
Sept. 29		10	.03	22	4.9	4.2	1.0	83	9.7	9.0	.1	.6		102			75	7	11		158	7.6	30

Tazlina River near Glennallen

Location.--Lat 62°03'20", long 145°25'35", in W½ sec. 9, T. 3 N., R. 1 W., near left bank on downstream side of bridge on Richardson Highway, 2 miles upstream from mouth, 4 miles downstream from Moose Creek, and 5 miles southeast of Glennallen.

Drainage area.--2,670 sq mi, approximately.

Records available.--Discharge: August 1949 to September 1950, October 1951 to September 1953. Discharge measurements only in 1951.
Chemical analyses: February 1952 to August 1953.
Sediment records: May to September 1953.

Gage.--Wire-weight gage read twice daily. Datum of gage 1,109.13 ft above mean sea level, adjustment of 1952.

Extremes.--1951-52: Maximum discharge observed during water year, 17,600 cfs Aug. 5 (gage height, 7.84 ft); minimum not determined.
1952-53: Maximum discharge observed during water year, 34,400 cfs July 30 (gage height, 10.50 ft); minimum not determined.
1949-50, 1951-53: Maximum discharge observed, 44,000 cfs Sept. 4, 1950 (gage height, 11.60 ft); minimum not determined.

Remarks.--Records good except those for periods of ice effect of no gage-height record, which are poor. Discharge measurements, in cubic feet per second, made at this site during water year 1951 are as follows:

Oct. 3	3,480	Apr. 27	678	July 19	18,100
Dec. 19	640	May 6	1,650	Aug. 18	13,700
Mar. 12	257	June 7	3,120	Sept. 9	19,800

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								a330	2,600	a11,000	17,000	7,340
2								a360	2,560	a11,000	a17,000	7,590
3								a400	2,550	a11,000	17,400	7,310
4								a450	2,480	a11,000	17,300	7,310
5								b500	2,510	a10,000	17,200	7,030
6								b520	2,550	a10,000	16,600	6,750
7		(*)						a580	2,550	a9,800	16,700	a6,300
8								a630	2,550	9,620	17,200	6,120
9								a680	2,550	a9,300	a17,000	5,850
10								b720	a2,600	a9,100	17,000	5,480
11								b740	a2,700	a9,000	17,600	a5,000
12								760	a2,800	a9,000	17,400	*4,650
13								760	a3,000	a9,300	16,800	4,360
14								773	a3,200	a9,600	16,400	a4,200
15	a3,000	a1,200	a530	a350	a300	a290	a270	742	a3,400	a9,900	15,200	4,110
16								760	a3,600	a10,000	14,600	3,890
17								897	3,820	a10,000	a14,000	3,750
18								981	a4,200	a10,000	13,200	3,610
19						(*)		1,220	a4,500	a10,000	12,300	3,320
20								1,790	a4,800	a11,000	11,500	3,400
21								1,940	a5,200	a11,000	11,500	3,370
22								2,160	a5,600	a11,000	11,000	a3,400
23								2,240	a6,000	a12,000	10,600	3,400
24								2,360	a6,500	*12,700	10,100	3,400
25								*2,560	a7,000	13,500	9,890	3,580
26								2,550	a7,700	a13,000	9,790	3,610
27								2,420	a8,400	13,700	9,580	3,590
28								2,400	a9,000	13,900	8,780	a3,600
29								2,420	a9,500	15,600	8,400	3,690
30								2,420	a10,000	15,500	8,340	3,890
31								2,470	------	16,400	7,590	------
Total	93,000	36,000	16,430	10,850	8,700	8,990	8,100	40,533	136,420	347,920	424,970	142,900
Mean	3,000	1,200	530	350	300	290	270	1,308	4,547	11,220	13,710	4,763
Ac-ft	184,500	71,400	32,590	21,520	17,260	17,830	16,070	80,400	270,600	690,100	842,900	283,400

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 17,600 Min - Mean 3,483 Ac-ft 2,529,000

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated or estimated on basis of 2 discharge measurements, weather records, and records for Klutina River at Copper Center.
b Stage-discharge relation affected by ice.

Tazlina River near Glennallen--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,820	2,500						700	3,590	*14,600	30,400	11,000
2	3,800	2,140						800	3,660	14,900	27,600	10,900
3	3,560	2,380						900	3,860	15,100	27,400	11,700
4	3,640	a2,300						*1,000	4,160	a15,000	*28,100	9,990
5	3,790	*2,240						1,100	*4,480	15,000	28,100	9,820
6	*3,960	a2,200						1,300	4,880	14,800	a27,000	9,480
7	4,070	a2,100						1,500	5,710	a14,000	25,500	9,320
8	a4,200						300	1,600	5,640	14,000	23,100	9,290
9	4,240							a1,700	6,020	a14,000	22,400	9,960
10	4,260							1,700	6,310	13,700	21,000	a9,400
11	4,160							1,650	6,920	13,000	19,800	8,970
12	4,070							1,520	7,060	12,800	17,800	12,000
13	3,800							1,620	7,420	a13,000	16,800	13,200
14	3,640							1,640	*7,230	13,100	*15,900	12,100
15	3,560		1,400	900	500	320		1,570	7,480	13,200	14,900	11,600
16	3,480							1,570	7,260	13,600	14,800	a11,000
17	3,400							*1,620	7,650	14,700	18,000	9,850
18	3,320							1,680	7,620	15,100	18,000	*9,350
19	a3,200	1,600						1,760	7,650	16,400	13,100	8,810
20	3,030							1,790	8,250	17,600	a12,000	8,250
21	3,020							1,910	8,520	16,800	10,900	7,280
22	3,250		(*)					2,170	9,100	17,000	11,000	6,680
23	3,430						400	2,390	9,820	16,300	11,300	a6,400
24	3,280							2,400	9,990	17,200	11,600	6,160
25	3,180					(*)		2,660	10,600	17,200	a12,000	5,800
26	3,100							a2,800	a11,000	17,800	11,400	5,570
27	2,890							2,930	12,200	19,000	11,200	5,080
28	2,690							2,960	a13,000	19,800	11,100	4,730
29	2,690				-			3,000	13,900	25,400	11,200	4,360
30	2,620				------			3,160	14,300	32,800	11,500	4,070
31	2,530	------	------	------	------	------	------	3,400	------	*33,100	11,400	------
Total	107,680	52,660	43,400	27,900	14,000	9,920	10,500	58,500	235,280	520,000	546,300	262,120
Mean	3,474	1,755	1,400	900	500	320	350	1,887	7,843	16,770	17,620	8,737
Ac-ft	213,600	104,400	86,080	55,340	27,770	19,680	20,830	116,000	466,700	‡1,031	‡1,084	519,900

Calendar year 1952: Max 17,600 Min - Mean 3,642 Ac-ft 2,644,000
Water year 1952-53: Max 33,100 Min - Mean 5,173 Ac-ft 3,745,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge interpolated.
Note.--Stage-discharge relation affected by ice Nov. 8 to May 8 (no gage-height record Nov. 9-13, Dec. 12-15, 24, 25, 30, 31, Jan. 2-11, 13, 26, Feb. 5 to Apr. 15, Apr. 25, 28; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams).

TAZLINA RIVER NEAR GLENNALLEN

Chemical analyses, in parts per million, February 1952 to August 1953

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Feb. 7	300	4.4	0.03	25	3.8	2.6		71	15	6.2	0.1	0.9		100			78	20	7		166	7.3	6
Mar. 25	290	4.4	.01	25	3.4	6.8		75	15	9.8	.0	.3		102			76	15	16		175	7.4	5
Apr. 18	270	5.2	.02	25	3.8	7.5		80	17	9.5	.0	.2		109			80	15	17		187	7.4	5
May 12	760	4.9	.12	19	4.7	5.4		74	9.0	5.5	.1	.6		99			67	6	15		144	7.2	50
June 4	2,480	4.9	.20	17	3.3	5.4		59	12	4.5	--	.5		77			56	8	17		121	7.2	25
July 8	9,620	4.7	.05	17	2.5	2.0	0.7	55	12	1.2	.1	.3		68			52	7	8		114	7.1	20
Sept. 13	4,360	3.8	.08	20	2.9	3.2	.8	58	14	6.5	.0	.2		80			62	14	10		139	7.2	5
Sept. 30	3,890	3.5	.14	19	2.8	2.4	.8	56	14	4.0	--	.2		74			59	13	8		128	7.0	5
1952																							
Oct. 30	2,620	3.1	0.02	19	1.6	2.5	1.0	56	14	0.8	0.0	0.4		70			54	8			117	7.1	3
Dec. 12	1,400	4.6	.04	18	1.3	3.1	1.0	52	11	2.0	.2	.2		67			50	7			115	6.7	3
1953																							
Jan. 28	900	3.9	.02	22	2.4	3.5	.9	66	13	4.0	.0	.3		83			65	11			141	7.4	3
Feb. 18	500	3.8	.11	23	2.3	4.2	1.1	68	16	5.0	.0	.3		89			66	10			151	7.4	3
Mar. 31	320	4.4	.03	25	2.6	5.7	1.1	75	17	7.0	--	.4		100			73	12			174	7.2	4
Apr. 30	400	4.7	.04	21	3.6	5.4	1.5	74	11	5.5	--	.4		90			68	7			154	7.5	15
May 27	2,930	2.7	.02	17	1.7	2.5	1.1	53	12	2.0	.0	.3		65			49	6			112	6.9	2
June 16	7,260	3.3	.02	18	1.6	3.1	.6	54	13	2.5	.0	.3		69			52	8			117	7.3	15
July 30	32,800	4.0	.03	22	2.3	2.3	.7	69	13	.0	.0	.3		79			64	8			139	7.5	7
Aug. 20	12,000	3.6	.03	18	1.8	2.2	.5	54	12	1.0	.0	.3		66			52	8			114	5.9	3

TAZLINA RIVER NEAR GLENNALLEN--Continued

Periodic determinations of suspended-sediment discharge , May to September 1953

Date	Water discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
May 27	2,790	50	377
June 9	6,260	115	1,940
June 15	7,480	58	1,170
June 25	10,500	172	4,880
July 8	14,000	77	2,910
July 21	16,400	152	6,730
July 30	34,400	1,310	122,000
July 31	34,000	1,260	116,000
Aug. 11	19,800	214	11,400
Aug. 20	13,100	129	4,560
Sept. 28	4,820	72	937

COPPER RIVER AT COPPER CENTER

LOCATION.--200 feet east of Territorial School, Copper Center.
RECORDS AVAILABLE.--Chemical analyses: May to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, May to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
May 12		14	0.05	30	7.6	12		96	15	26	0.1	0.5		153			106	27	19		255	7.2	20
June 17		8.1	.22	19	3.6	6.7		62	13	8.0	.2	.6		90			62	11	19		137	7.4	20
July 7		8.0	.09	21	3.6	4.7	1.0	66	14	6.2	.1	.3		91			67	13	13		153	7.1	5
July 17		8.4	.01	21	3.5	4.7	1.0	67	16	5.5	.0	.5		94			66	11	13		156	7.2	5
Sept. 13		10	.20	27	7.6	11	1.2	92	19	18	.0	.4		140			99	23	19		223	7.3	8
Sept. 30		13	.08	27	5.5	13	1.1	91	17	19	.1	.3		141			90	15	24		232	7.2	10

Klutina River at Copper Center

Location.--Lat 61°57'10", long 145°18'20", in SW¼ sec. 18, T. 2 N., R. 1 E., near center of span on downstream side of bridge on Richardson Highway, 0.7 mile south of Copper Center, three-quarters of a mile upstream from mouth, and 24 miles downstream from Klutina Lake.

Drainage area.--880 sq mi, approximately.

Records available.--Discharge: May to August 1908 (gage heights only), June to October 1913, August 1949 to September 1953.
Chemical analyses: March 1952 to September 1953.
Water temperatures: October 1952 to September 1953.
Sediment records: May to September 1953.

Gage.--Wire-weight gage read once daily. Altitude of gage is 1,000 ft (from topographic map). May 19 to Aug. 31, 1908, June 17 to Oct. 31, 1913, staff gages at sites a quarter of a mile downstream at different datums.

Extremes.--1950-51: Maximum discharge observed during water year, 7,210 cfs Sept. 6 (gage height, 8.53 ft); maximum gage height observed, 12.83 ft Nov. 18 (backwater from ice); minimum discharge not determined.
1951-52: Maximum discharge observed during water year, 7,400 cfs Aug. 1 (gage height, 8.86 ft); minimum not determined.
1952-53: Maximum discharge observed during water year, 9,040 cfs June 29 (gage height, 9.24 ft); maximum gage height observed, 15.55 ft May 9 (backwater from ice); minimum discharge not determined.
1913, 1949-53: Maximum discharge observed, that of June 29, 1953; maximum gage height observed, that of May 9, 1953, minimum discharge not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Revisions.--WSP 1372: Drainage area.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a1,400							270	1,180	2,880	4,630	4,590
2	a1,400							300	1,300	3,160	4,470	4,900
3	a1,300							340	1,610	3,450	4,380	5,000
4	*1,280							390	1,410	3,690	4,310	5,200
5	1,230							460	1,550	4,080	4,450	6,110
6	1,190							540	1,780	4,540	4,350	7,210
7	1,190							620	2,280	4,930	4,360	6,930
8	1,130	420	320				230	684	2,720	5,220	4,300	*6,760
9	1,100							801	2,880	5,660	4,190	6,320
10	1,060							822	3,040	5,860	4,190	5,560
11	1,040							865	3,140	6,200	4,190	4,670
12	1,020							940	3,070	6,480	4,090	5,120
13	985							970	2,980	6,720	4,210	4,850
14	962					(*)		992	2,940	6,390	4,280	4,730
15	910							1,030	2,820	6,500	4,360	4,710
16	872			250	230	240		1,040	2,690	6,660	4,330	4,710
17	872							1,060	2,620	*6,860	4,350	4,690
18	858							1,060	2,550	7,190	*4,350	5,210
19	843							1,050	2,400	7,040	4,280	5,840
20	858		(*)					1,040	2,250	6,720	4,060	6,230
21	836							978	2,220	6,500	3,900	5,250
22	836							985	2,170	6,390	3,900	4,820
23	801	340	260				250	978	2,340	6,330	3,580	4,850
24	760							978	2,390	6,170	3,550	5,000
25	730							955	2,400	5,960	3,520	5,230
26	700							1,000	2,420	5,760	3,480	5,600
27	660							962	2,430	5,980	3,420	5,720
28	630							1,020	2,640	5,180	3,370	5,560
29	600				-			1,040	2,710	5,080	3,420	4,910
30	570				------			1,060	2,860	4,380	3,760	4,590
31	540	------	------		------	------	------	1,140	------	4,810	4,080	------
Total	29,163	11,400	8,960	7,750	6,440	7,440	7,200	26,370	71,790	172,770	126,110	160,870
Mean	941	380	289	250	230	240	240	851	2,393	5,573	4,068	5,362
Ac-ft	57,840	22,610	17,770	15,370	12,770	14,760	14,280	52,300	142,400	342,700	250,100	319,100

Calendar year 1950: Max 5,880 Min - Mean 1,566 Ac-ft 1,134,000
Water year 1950-51: Max 7,210 Min - Mean 1,743 Ac-ft 1,262,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.
Note.--Stage-discharge relation affected by ice Oct. 24 to May 7 (no gage-height record Nov. 19 to Dec. 19, Dec. 21 to Apr. 17; discharge estimated on basis of 2 discharge measurements, weather records, and records for stations on nearby streams).

ALASKA WEST OF LONGITUDE 141°

Klutina River at Copper Center--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,080								1,100	5,110	7,360	2,670
2	3,680								1,130	5,030	6,750	2,600
3	3,510								1,170	4,980	6,460	2,600
4	3,090								1,180	4,910	6,040	2,540
5	2,920								1,250	4,760	5,760	2,470
		800						240				
6	2,880								1,260	4,620	5,940	2,380
7	2,610								1,260	4,200	5,740	2,260
8	2,210								1,260	4,210	5,680	2,170
9	1,710								1,240	4,280	5,560	2,130
10	1,500								1,280	4,060	5,640	2,010
11	1,300								1,350	3,860	5,840	1,950
12	1,200								1,440	4,060	5,740	1,830
13	1,100								1,500	4,110	5,480	1,830
14	1,000								1,570	4,210	5,170	a1,700
15	920								1,720	4,400	5,060	*1,710
		580	270	190	160	150	140	410				
16	880								2,030	4,500	4,860	1,590
17	850								2,150	4,520	4,660	1,520
18	820								2,260	4,550	4,420	1,440
19	790								2,390	4,590	3,970	1,400
20	770								2,500	a4,600	a3,700	1,460
21	760							520	2,680	a4,700	3,550	1,460
22	760							570	3,040	a4,800	3,480	1,640
23	780							650	3,220	a5,000	3,370	a1,700
24	800							710	3,540	a5,300	3,250	a1,700
25	830							*750	3,910	5,600	3,070	a1,700
		440										
26	840							840	4,110	*5,400	3,020	a1,800
27	830							840	4,310	5,580	2,900	a1,800
28	800							910	4,780	5,800	2,790	a1,900
29	760							980	4,890	6,140	2,710	a1,900
30	730							1,000	5,210	6,910	2,610	1,900
31	720	------			------		------	1,100	------	7,290	2,720	------
Total	46,430	18,200	8,370	5,890	4,640	4,650	4,200	15,370	70,730	152,080	143,300	57,590
Mean	1,498	607	270	190	160	150	140	496	2,358	4,906	4,623	1,920
Ac-ft	92,090	36,100	16,600	11,680	9,200	9,220	8,330	30,490	140,300	301,600	284,200	114,200

Calendar year 1951: Max 7,210 Min - Mean 1,808 Ac-ft 1,309,000
Water year 1951-52: Max 7,360 Min - Mean 1,452 Ac-ft 1,054,000

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records and records for Tazlina River near Glennallen.
Note.--Stage-discharge relation affected by ice Oct. 10 to June 1 (no gage-height record Nov. 19 to May 21; discharge estimated on basis of weather records).

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,860	1,230							3,080	*8,730	7,820	3,720
2	1,800	1,220							3,140	8,490	7,650	3,640
3	1,700	1,200							3,550	8,250	7,860	3,560
4	1,670	1,140							3,790	7,310	*8,100	3,440
5	1,830	*1,170							*4,140	7,170	7,770	3,440
6	*2,150	1,130						370	4,210	7,040	7,340	3,270
7	2,190	1,100							4,550	6,730	7,240	3,380
8	2,310	1,140							4,880	6,560	7,020	3,480
9	2,400	1,110							5,480	6,290	6,870	3,300
10	2,340	1,100							5,580	6,180	6,430	3,240
11	2,300	1,070							5,620	6,080	5,780	3,100
12	2,190	1,040						550	5,580	6,040	5,740	3,090
13	2,110							626	5,820	6,400	*5,780	2,900
14	2,030							710	*5,980	6,400	5,520	2,780
15	1,980							815	5,290	6,600	5,270	2,680
			710	500	400	260	250					
16	1,900							970	5,620	6,690	5,200	2,480
17	1,800							*925	5,480	6,820	4,910	2,450
18	1,760							902	5,420	6,950	4,760	2,310
19	1,700							1,050	5,660	6,950	4,760	2,250
20	1,660							1,100	5,740	a7,100	4,540	2,080
21	1,620	760						1,160	5,860	a7,200	4,400	*2,110
22	1,590							1,270	6,080	a7,100	4,210	1,970
23	1,530							1,400	6,140	a6,900	4,110	1,810
24	1,450					(*)		1,500	6,450	a7,000	4,180	1,830
25	1,400							1,710	6,710	a7,100	4,040	1,710
26	1,360							1,680	7,290	a7,200	4,010	1,670
27	a1,300							1,880	7,650	a7,200	4,060	1,660
28	a1,300							2,080	8,370	a7,400	4,110	1,480
29	1,300				-			2,240	8,810	a7,600	4,140	1,480
30	1,280							2,280	8,610	*8,010	3,970	1,410
31	1,260	------			------		------	2,620	------	7,720	3,800	------
Total	55,070	27,330	22,010	15,500	11,200	8,060	7,500	31,538	170,580	219,210	171,390	77,720
Mean	1,776	911	710	500	400	260	250	1,017	5,686	7,071	5,529	2,591
Ac-ft	109,200	54,210	43,660	30,740	22,210	15,990	14,880	62,550	338,300	434,800	339,900	154,200

Calendar year 1952: Max 7,360 Min - Mean 1,538 Ac-ft 1,116,000
Water year 1952-53: Max 8,810 Min - Mean 2,239 Ac-ft 1,621,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for stations on nearby streams.
Note.--Stage-discharge relation affected by ice Nov. 13 to May 11 (no gage-height record Nov. 20, 29, Dec. 9 to May 3, May 7; discharge estimated on basis of 1 discharge measurement, weather records, and records for stations on nearby streams).

KLUTINA RIVER AT COPPER CENTER

Chemical analyses, in parts per million, March 1952 to September 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1952																			
Mar. 25	150		4.9	0.03	17	2.5	2.6		56	8.4	2.5	0.0	0.3	67	53	7	112	7.4	5
Apr. 18	140		5.6	.12	17	2.9	3.8		60	9.7	2.2	.0	.2	71	54	5	116	7.3	8
May 12	410		6.5	.17	16	3.3	8.6		65	12	4.0	.2	.4	83	53	1	121	7.2	20
June 3	1,170		6.7	.05	14	2.6	2.1	0.7	48	12	1.8	.1	.4	64	46	6	92.3	6.8	8
July 8	4,280		4.5	.20	14	2.6	1.2	.7	44	12	.2	.1	.5	58	46	10	93.6	7.0	8
Sept. 13	1,760		11	.20	15	1.5	1.4	1.0	47	8.9	.8	.1	.5	64	44	6	91.8	6.8	10
Sept. 30	1,900		5.8	.13	15	2.4	1.9	.6	49	9.2	.5	.1	.3	60	47	7	95.4	7.2	5
1952																			
Oct. 30	1,280		3.8	0.04	15	1.9	1.8	1.0	48	12	0.8	0.0	0.3	60	45	6	95.7	6.8	4
Dec. 12	710		5.3	.04	16	1.4	2.2	1.4	51	12	1.0	.0	.4	65	45	4	103	6.9	5
1953																			
Jan. 16	500		5.8	.02	18	2.6	2.4	.7	64	11	2.5	.0	.4	75	57	5	123	6.3	2
Feb. 18	400		4.8	.25	18	2.4	2.8	1.2	60	11	1.8	.0	.5	72	54	5	115	7.5	15
Mar. 31	260		5.4	.01	20	2.9	9.4	1.1	64	11	16	--	.3	98	62	10	167	7.7	2
Apr. 30	250		5.4	.06	16	3.1	2.5	1.5	61	7.1	1.0	--	.3	67	54	4	112	7.3	25
May 14-20	925		4.6	.04	14	1.6	2.0	1.2	48	9.9	1.0	--	.4	62	42	2	95.7	6.8	10
May 21-31	1,802		4.1	.03	13	1.7	1.6	1.1	44	7.5	.2	--	.4	55	39	3	86.7	6.7	6
June 1-10	4,240		5.1	.07	13	2.2	1.5	1.2	44	7.4	.2	0.0	.7	60	42	5	86.0	6.9	16
June 11-20	5,621		4.4	.06	14	1.6	1.6	1.0	45	8.2	.2	.0	.5	59	42	5	88.5	7.0	13
June 21-30	7,197		4.4	.07	16	.9	1.6	1.1	50	7.1	.0	.0	.8	65	44	3	99.7	7.0	27
July 1-10	7,275		4.4	.06	18	1.3	1.6	1.1	55	9.7	.2	.0	.6	70	50	5	108	7.2	25
July 11-20	6,603		5.2	.01	16	1.3	1.7	.8	50	8.6	.5	.0	.8	59	45	4	100	6.7	10
July 21-30	7,312		6.4	--	17	1.4	3.2	.7	52	8	.8	--	2.3	65	48	6	110	6.4	10
Aug. 1-10	7,410		4.8	.01	15	1.6	1.6	.8	48	8.6	.2	.0	.4	57	44	5	95.9	6.7	10
Aug. 11-20	5,226		2.3	.03	15	1.1	1.4	.5	46	8.4	.5	.0	.5	58	42	4	95.0	6.8	3
Aug. 21-31	4,094		4.7	.02	14	1.4	1.5	.7	44	8.9	.2	.1	.5	54	41	5	90.8	6.6	10
Sept. 1-10	3,447		4.3	.04	15	1.1	1.5	.8	45	7	1.0	.0	.5	59	42	5	91.4	6.3	10
Sept. 11-20	2,612		4.1	--	14	1.4	1.6	.4	45	8	.8	--	.4	53	41	4	91.1	6.4	10
Sept. 21-30	1,713		4.2	.07	14	1.5	1.5	.6	44	8	1.0	.0	.5	59	41	5	92.0	6.4	10

KLUTINA RIVER AT COPPER CENTER--Continued

Temperature (°F) of water, water year October 1952 to September 1953

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

Periodic determinations of suspended-sediment discharge, May to September 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
May 27	1,920	78	404
June 9	5,340	268	3,860
June 16	5,540	131	1,960
June 25	7,130	219	4,220
July 8	6,870	339	6,290
July 21	a7,200	280	5,440
July 30	8,030	294	6,370
Aug. 14	5,520	86	1,280
Aug. 20	4,690	67	848
Sept. 28	1,810	37	181

a Mean daily discharge

Tonsina River at Tonsina

Location.--Lat 61°39'50", long 145°10'50", near center of span on downstream side of bridge on Richardson Highway at Tonsina, 0.5 mile upstream from Bernard Creek and 0.7 mile upstream from Squirrel Creek.

Drainage area.--420 sq mi, approximately.

Records available.--Discharge: May 1950 to September 1953.
Chemical analyses: February 1952 to September 1953.
Water temperatures: October 1952 to September 1953.
Sediment records: May to August 1953.

Gage.--Wire-weight gage read once daily. Altitude of gage is 1,500 ft (from topographic map).

Extremes.--1950-51: Maximum discharge observed during water year, 5,170 cfs Sept. 6 (gage height, 5.93 ft); minimum not determined.
1951-52: Maximum discharge observed during water year, 5,300 cfs July 31 (gage height, 5.99 ft); minimum not determined.
1952-53: Maximum discharge observed during water year, 7,240 cfs June 27 (gage height, 6.60 ft); minimum not determined.
1950-53: Maximum discharge observed, that of June 27, 1953; minimum not determined.

Remarks.--Records fair except those for periods of ice, no gage-height record, or shifting control, which are poor. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	430							100	811	2,200	1,880	2,070
2	415							b110	1,050	2,370	1,900	2,070
3	370							130	1,060	2,740	1,870	2,500
4	*400							b150	1,280	3,100	1,900	2,890
5	362							b180	1,640	3,390	1,900	4,380
		120										
6	362							220	2,220	3,210	1,840	4,940
7	357							b260	*2,920	3,490	1,820	4,240
8	344		110	100	85	85		318	3,190	3,600	1,840	*3,420
9	334							380	3,350	3,640	1,900	2,530
10	318							447	2,970	3,830	1,870	1,970
11	348							502	2,370	3,570	1,980	1,840
12	348							595	2,160	3,810	1,900	1,670
13	310					(*)		631	1,800	3,830	1,940	1,550
14	290							662	1,520	3,740	2,080	1,630
15	266							649	1,310	3,700	2,040	1,930
							90					
16	262							649	1,160	3,660	2,020	1,910
17	254							668	1,370	3,620	1,900	2,990
18	229							668	1,200	*3,460	1,980	4,420
19	226							631	1,100	3,370	*1,860	3,390
20	229							619	956	3,210	1,770	4,340
		110										
21	226							601	964	2,920	1,620	4,600
22	199				90			601	892	2,500	1,350	4,340
23	b190							518	1,040	2,220	1,500	3,870
24	b180		100	90		90		508	1,200	2,180	1,600	3,240
25	b180							474	1,360	2,080	1,620	3,190
26	b170							530	1,580	2,010	1,500	2,620
27	b160							518	1,610	2,010	1,330	1,780
28	b150							553	1,640	1,970	1,590	1,750
29	b150	(*)			-			631	1,750	2,100	1,730	1,600
30	b140				--			613	1,970	1,910	1,910	1,410
31	b140	------			------		------	714	------	1,870	2,180	------
Total	8,339	3,400	3,250	2,940	2,445	2,715	2,700	14,830	49,443	91,110	56,120	85,080
Mean	269	113	105	94.8	87.3	87.6	90.0	478	1,648	2,939	1,810	2,836
Ac-ft	16,540	6,740	6,450	5,830	4,850	5,390	5,360	29,410	98,070	180,700	111,300	168,800

Calendar year 1950: Max - Min - Mean - Ac-ft -
Water year 1950-51: Max 4,940 Min - Mean 883 Ac-ft 639,400

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 30, Nov. 3-28, Nov. 30 to May 1, May 3, 6 (stage-discharge relation affected by ice during entire period), June 18, 19, 24, July 1, 4, 8, 15, 22, 29, Aug. 5, 12, 23, 26, Sept. 3, 29; discharge estimated on basis of discharge measurements, weather records, and records for other stations. Shifting-control method used Oct. 1-22.

Tonsina River at Tonsina--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,310	385						a95	410	3,390	4,520	
2	1,260	464						a100	390	3,210	4,040	
3	1,090	491						a110	410	2,900	3,440	
4	956	480						a120	425	a2,600	2,940	
5	972	480						a140	547	2,300	2,620	a850
6	988	485						a160	530	2,040	a2,300	
7	832	a490						a180	513	1,880	2,180	
8	769	485						a200	513	1,600	2,180	
9	769	442						a220	524	1,260	2,210	
10	762	436						a230	662	a1,000	a2,300	
11	694	b400						a230	674	839	2,220	a610
12	727	b370						226	762	741	a2,000	a600
13	643	b360						215	924	a1,300	a1,800	*583
14	607	b350						205	1,040	a2,000	a1,700	577
15	589	b330	a150	a100	a90	a85	a85	262	a1,400	2,920	1,520	559
16	589							278	1,750	2,550	a1,400	
17	496							302	2,420	2,000	a1,300	
18	a480							a360	2,940	a1,800	a1,200	
19	469							410	3,260	1,910	a1,200	
20	430							400	2,790	a2,400	a1,100	
21	b400							352	a2,700	2,620	a1,100	
22	a380					(*)		322	a3,000	2,840	a1,000	
23	b380	a250						334	3,260	2,890	a1,000	a800
24	b410							322	3,660	2,900	a1,000	
25	458							*322	3,740	2,960	a1,100	
26	380							278	a3,800	*2,840	a1,300	
27	a370							302	3,990	a3,000	a1,500	
28	366							334	4,060	a3,300	1,500	
29	366							a360	4,040	3,680	a1,400	
30	b360							390	a3,600	4,460	a1,300	
31	b370							415		5,220	a1,200	
Total	19,672	10,198	4,650	3,100	2,610	2,635	2,550	8,174	58,734	77,350	57,570	23,429
Mean	635	340	150	100	90	85	85	264	1,958	2,495	1,857	781
Ac-ft	39,020	20,230	9,220	6,150	5,180	5,230	5,060	16,210	116,500	153,400	114,200	46,470

Calendar year 1951: Max 4,940 Min - Mean 937 Ac-ft 678,200
Water year 1951-52: Max 5,220 Min - Mean 740 Ac-ft 536,900

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for other stations. b Stage-discharge relation affected by ice.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		540						240	2,700	*4,620	3,660	1,520
2		530						250	3,000	4,020	*3,340	1,430
3	1,300	520						260	3,400	4,070	3,640	1,490
4		510						280	3,700	3,610	3,750	1,470
5		*491						300	4,320	2,740	3,580	1,690
6	1,600	500						320	4,360	2,920	3,240	1,740
7	*1,610	510						330	4,280	2,840	2,720	1,870
8	1,600	513					65	350	4,860	2,660	2,410	1,730
9	1,400	510						380	*5,530	2,410	2,290	1,640
10	1,200	500						410	5,360	2,680	2,340	1,270
11	1,030							440	4,830	2,600	2,230	1,350
12								480	4,380	2,550	*1,970	1,490
13								520	4,340	2,930	1,830	1,250
14								540	4,000	3,890	1,590	1,200
15								580	3,580	3,770	1,700	1,050
16	860		300	170	120	70		*643	3,240	3,470	1,550	1,010
17								640	2,930	3,680	1,640	960
18				(*)				640	3,590	3,610	1,510	859
19								700	4,380	3,980	1,590	842
20								780	4,160	2,920	1,600	776
21		350						880	4,660	2,710	1,450	*776
22								1,000	5,510	2,920	1,340	753
23							110	1,100	5,470	3,030	1,510	707
24						(*)		1,200	5,630	2,820	1,490	677
25								1,400	6,410	2,930	1,630	656
26	630							1,400	7,000	3,560	1,680	649
27								1,620	7,070	4,000	1,650	580
28								1,800	6,630	3,970	1,730	567
29					-			2,000	5,710	3,980	1,840	535
30								2,200	5,510	3,910	1,900	468
31								2,400		3,930	1,730	
Total	29,610	12,124	9,300	5,270	3,360	2,170	2,625	26,083	140,540	103,730	66,130	33,005
Mean	955	404	300	170	120	70	87.5	841	4,685	3,346	2,133	1,100
Ac-ft	58,730	24,050	18,450	10,450	6,660	4,300	5,210	51,730	278,800	205,700	131,200	65,460

Calendar year 1952: Max 5,220 Min - Mean 785 Ac-ft 569,600
Water year 1952-53: Max 7,070 Min - Mean 1,189 Ac-ft 860,700

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 1-6, 8-10, Oct. 12 to Nov. 4, Nov. 6, 7, Nov. 9 to May 17 (stage-discharge relation affected by ice during most of period), May 13-15, 17-26, May 28 to June 4; discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby streams.

TONSINA RIVER AT TONSINA

Chemical analyses, in parts per million, February 1952 to September 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1952																			
Feb. 7	90		7.7	0.04	16	2.4	4.0		58	7.0	2.2	0.0	0.5	67	50	2	111	7.6	6
Mar. 25	85		8.7	.03	18	3.1	3.1		65	6.7	2.8	.0	.3	75	58	4	124	7.4	4
Apr. 18	85		8.7	.07	18	3.4	3.8		68	7.4	2.5	.0	.2	78	59	3	124	7.4	7
May 12	226		6.8	.06	14	3.3	1.2		53	5.1	1.2	.1	.5	69	48	5	93.0	7.3	50
June 3	410		7.4	.18	13	2.1	4.2		44	12	1.0	.0	.4	62	41	5	82.4	7.0	20
July 18	1,800		4.3	.19	10	1.6	1.0	0.6	30	9.1	.5	.0	.5	43	32	7	63.5	7.0	20
Sept. 30	800		5.7	.15	10	1.6	1.6	1.0	34	7.7	1.2	--	.5	46	32	4	73.2	6.7	10
1952																			
Oct. 30	630		5.1	0.10	12	1.4	1.7	1.0	38	8.4	0.2	0.0	0.4	49	37	6	75.6	6.4	12
Dec. 11	300		8.1	.06	15	2.5	2.4	.9	54	11	1.2	.0	.7	68	48	4	99.7	7.3	8
1953																			
Jan. 16	170		7.2	.03	15	2.2	2.1	.7	54	9.7	1.5	.0	.4	65	46	2	102	6.3	7
Feb. 18	120		7.8	.04	20	2.8	--	--	57	9.5	--	.1	.3	--	61	14	--	7.0	5
Mar. 31	70		7.2	.24	18	2.6	2.5	1.0	62	8.9	1.8	.0	.4	73	55	4	121	7.3	23
Apr. 30	110		5.8	.08	14	2.4	1.9	2.1	53	5.9	.0	--	.9	90	46	3	100	7.8	50
May 14	540		5.7	.07	13	1.7	1.9	1.1	46	4.8	.2	.0	.5	64	39	2	91.7	6.7	30
May 27	1,620		4.8	.03	12	.9	1.5	1.0	37	7.1	.5	.0	.5	47	34	3	74.3	6.8	2
June 8, 10	5,110		3.8	--	9.3	.5	1.5	.7	28	5.0	.0	--	.4	35	25	2	60.5	6.9	15
June 11-20	3,943		5.2	.01	9.2	.9	1.3	.6	29	6.3	.2	.1	.5	39	27	3	63.1	6.4	8
June 21-30	5,960		5.1	.25	9.0	.9	1.4	.7	29	7.2	.2	.0	.5	40	26	2	59.9	6.6	10
July 1-10	3,257		5.2	0.27	9.1	0.8	1.4	.7	29	6.6	.0	.1	.5	39	26	2	59.2	6.6	8
July 11	2,600		4.3	--	9.6	.3	1.5	1.0	30	4.5	--	--	--	36	25	1	61.7	6.9	15
July 21-31	3,433		4.1	.11	9.2	.5	1.6	.8	29	5.8	.5	.0	.4	37	25	1	60.1	6.9	20
Aug. 1-10	3,097		4.8	.16	9.0	.9	1.5	.7	29	6.7	.2	.0	.5	39	26	2	59.9	6.6	7
Aug. 11-14	1,905		3.7	.19	9.5	.6	1.5	.6	30	3.5	.5	.0	.4	35	26	2	61.5	7.0	20
Sept. 19, 20	809		4.4	.06	11	.9	1.8	.6	33	6.3	.0	--	.5	42	31	4	66.9	7.0	25
Sept. 21-30	637		4.6	.21	11	1.0	1.7	.7	33	10	.0	.0	.5	46	32	4	72.8	6.9	20

TONSINA RIVER AT TONSINA

Temperature (°) of water, water year October 1952 to September 1953

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

Periodic determinations of suspended-sediment, May to August 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
May 27	1,620	49	214
June 9	5,890	134	2,130
June 16	3,680	32	320
June 25	6,250	147	2,480
July 9	2,400	84	544
July 22	2,920	57	449
July 30	a3,910	53	560
Aug. 20	1,640	52	230

a Mean daily discgarge.

Copper River near Chitina

Location.--Lat 61°28', long 144°28', on right bank at head of Woods Canyon, half a mile downstream from Taral Creek and abandoned Indian village of Taral, 2¼ miles upstream from Tenas Creek, and 3¾ miles south of Chitina. Prior to June 2, 1952, at site a quarter of a mile upstream.

Drainage area.--20,600 sq mi, approximately.

Records available.--July to September 1950, May to November 1952. Discharge measurements only in 1951 and December 1952 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 400 ft (from topographic map). Prior to June 2, 1952, staff gage at site a quarter of a mile upstream at datum 1.4 ft higher.

Extremes.--1952: Maximum discharge during period of May to November, 159,000 cfs July 30 (gage height, 22.56 ft); minimum not determined.
1950, 1952: Maximum discharge, that of July 30, 1952; minimum not determined.
Maximum stage known since 1950, 28.3 ft in July 1951, at present datum, from floodmarks (discharge, 220,000 cfs). Minimum discharge observed, 4,760 cfs Mar. 31, 1950, result of discharge measurement.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Some diurnal fluctuation caused by glacier melt at the source. Discharge measurements, in cubic feet per second, made at this site during water years 1951, 1953, are as follows:

Date	Discharge	Date	Discharge	Date	Discharge
1950		1951-Con.		1953-Con.	
Oct. 8	17,700	Aug. 8	104,000	May 3	37,700
		Sept.10	86,900	11	23,400
1951				16	25,300
May 5	22,700	1952		June 3	70,800
June 22	44,500	Oct. 7	45,700	30	176,000
July 11	218,000	Nov. 4	21,900	Aug. 1	209,000
21	138,000			13	103,000
Aug. 7	119,000	1953		Sept.22	34,900
		Mar. 18	5,720		

Discharge, in cubic feet per second, 1952

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1		42,600	121,000	142,000	61,400	16	*10,800	58,400	89,600	101,000	31,600
2		32,000	93,800	133,000	65,100	17	12,300	64,700	90,700	90,700	31,100
3		31,700	83,800	126,000	65,000	18	15,400	68,200	88,600	78,000	30,700
4		*31,800	79,200	122,000	63,200	19	20,100	71,400	87,900	72,600	31,600
5		38,700	77,800	122,000	59,500	20	24,400	74,400	87,500	69,200	31,900
6	(*)	38,800	78,000	123,000	53,200	21	28,300	77,300	94,600	67,400	34,100
7	a10,000	30,100	77,100	124,000	46,800	22	31,500	77,000	105,000	66,400	42,400
8		28,400	73,200	124,000	41,800	23	37,000	78,600	118,000	64,400	a52,300
9		26,200	67,100	122,000	38,900	24	*41,000	84,000	132,000	63,600	a52,000
10		27,600	64,400	122,000	36,400	25	42,400	82,900	*133,000	61,700	a49,000
11		35,200	68,300	121,000	35,300	26	41,100	79,800	121,000	60,400	a48,000
12		44,200	73,700	124,000	33,800	27	38,800	86,500	116,000	62,200	a47,000
13		48,000	80,700	120,000	*32,300	28	39,800	91,300	123,000	60,400	a48,000
14		52,700	92,000	110,000	32,100	29	44,100	94,700	135,000	57,200	a50,000
15	10,700	52,400	94,000	103,000	32,400	30	49,000	101,000	154,000	54,600	51,900
						31	48,400	-	153,000	53,800	-
Total							675,100	‡1,750.6	‡3,053	‡2,921.6	‡1,328.8
Mean							21,780	58,350	98,480	94,250	44,290
Runoff in acre-feet							‡1,339	‡3,472	‡6,056	‡5,795	‡2,636

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of 1 discharge measurement, weather records, and records for stations on tributary streams.

Discharge, in cubic feet per second, 1952

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	44,100	18,800	9	38,500	22,600	17	25,500	b17,000	25	17,000	b13,000
2	37,300	23,100	10	35,500	21,300	18	22,900	b17,000	26	16,200	b13,000
3	32,900	24,400	11	35,400	22,600	19	20,700	b16,000	27	17,700	a13,000
4	31,800	*21,700	12	34,900	21,100	20	19,300	b15,000	28	18,300	a12,000
5	43,200	21,000	13	32,800	a20,000	21	19,000	b15,000	29	18,400	a12,000
6	49,500	24,700	14	30,400	a19,000	22	20,300	b14,000	30	19,600	a12,000
7	*46,800	25,000	15	28,700	a18,000	23	21,800	b14,000	31	18,500	-
8	42,600	23,100	16	27,100	a18,000	24	19,300	b13,000			
Total										886,000	540,400
Mean										28,580	18,010
Runoff in acre-feet										‡1,757	‡1,072

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of weather records and records for tributary streams.
b Stage-discharge relation affected by ice.

Power Creek near Cordova

Location.--Lat 60°35'15", long 145°37'05", on left bank at old bridge site, 1 mile upstream from Eyak Lake and 5½ miles northeast of Cordova.

Drainage area.--20.5 sq mi.

Records available.--July to November 1913 (fragmentary), August 1947 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 33.5 ft above mean sea level (river-profile survey). July to November 1913, staff gage half a mile upstream at different datum.

Average discharge.--6 years, 260 cfs (188,200 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 3,650 cfs Sept. 4 (gage height, 6.44 ft), from rating curve extended above 1,450 cfs by logarithmic plotting; minimum not determined.
1951-52: Maximum discharge during water year, 3,490 cfs July 30 (gage height, 6.33 ft), from rating curve extended above 1,450 cfs by logarithmic plotting; minimum not determined.
1952-53: Maximum discharge during water year, 2,400 cfs Oct. 4 (gage height, 5.55 ft); minimum not determined.
1947-53: Maximum discharge recorded, 5,540 cfs Sept. 25, 1949 (gage height, 7.65 ft), from rating curve extended above 1,450 cfs by logarithmic plotting; minimum not determined.

Remarks.--Records fair except those above 1,500 cfs and those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	190									456	415	312
2	153									442	396	708
3	168									574	346	1,510
4	158									702	307	3,160
5	145								a280	778	352	1,190
6	*138									808	476	644
7	129									778	511	539
8	121	a60	a42							718	476	1,220
9	118									666	456	623
10	130								*504	652	442	456
11	222					a35			539	652	396	1,010
12	156								396	659	402	402
13	153								307	616	442	1,160
14	132								267	539	415	2,840
15	118								290	553	340	2,020
16	109			a25	a29		a34	a120	307	567	318	1,720
17	101								377	518	340	2,510
18	94	a46							352	476	285	a1,200
19	108								296	*469	262	a700
20	184								307	415	233	a1,400
21	134	*b47							312	488	226	a600
22	110					*28			352	483	666	a900
23	102		a33						415	476	673	a500
24	101								436	442	377	a400
25	90								422	371	359	a300
26	84	a46							429	352	318	a700
27	81					a29			429	302	365	a500
28	76								456	298	456	a800
29	75				-				469	609	409	a400
30	72				- - -				476	504	462	a300
31	a70	- - - - -			- - - - -		- - - - -		- - - - -	359	377	- - - - -
Total	3,822	1,591	1,158	775	812	1,024	1,020	3,720	10,658	16,720	12,298	30,724
Mean	123	53.0	37.4	25.0	29.0	33.0	34.0	120	355	539	397	1,024
Ac-ft	7,580	3,160	2,300	1,540	1,610	2,030	2,020	7,380	21,140	33,160	24,390	60,940

Calendar year 1950: Max 1,710 Min - Mean 208 Ac-ft 150,400
Water year 1950-51: Max 3,160 Min - Mean 231 Ac-ft 167,200

Peak discharge (base, 2,000 cfs).--Sept. 4 (5 p.m.) 3,650 cfs (6.44 ft); Sept. 14 (8 p.m.) 3,300 cfs (6.19 ft); Sept. 17 (1 p.m.) 2,790 cfs (5.82 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, 3 discharge measurements, weather records, and records for other stations.

b Stage-discharge relation affected by ice.

Power Creek near Cordova--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								27	249	553	999	1,400
2								30	267	511	800	462
3								34	258	436	659	318
4								41	229	390	588	249
5								41	280	449	581	187
		500										
6								50	240	588	567	156
7								45	195	1,340	1,240	132
8							17	42	201	1,330	785	122
9								42	226	808	581	118
10								48	310	688	567	118
11		170						50	429	718	567	119
12		*151						48	429	725	588	127
13		130						47	449	1,410	*525	151
14		115						*45	409	1,340	429	229
15		106						45	371	830	377	153
	250		50	35	25	20						
16		99						46	365	702	449	132
17		95						50	422	539	318	158
18		90						54	504	567	262	187
19		85						87	553	560	226	158
20		80						121	574	659	236	879
21								150	581	725	226	1,750
22								208	518	800	215	1,430
23							23	190	511	800	218	574
24								170	602	800	215	422
25								158	553	680	436	383
		85										
26								149	504	602	504	396
27								156	623	630	402	244
28								190	688	1,150	236	352
29								178	659	2,410	211	276
30					--			178	616	2,440	190	263
31								195		1,620	844	
Total	7,750	6,971	1,550	1,085	725	620	600	2,915	12,815	27,800	15,041	11,645
Mean	250	232	50.0	35.0	25.0	20.0	20.0	94.0	427	897	485	388
Ac-ft	15,370	13,830	3,070	2,150	1,440	1,230	1,190	5,780	25,420	55,140	29,830	23,100

Calendar year 1951: Max 3,160 Min - Mean 258 Ac-ft 186,500
Water year 1951-52: Max 2,440 Min - Mean 245 Ac-ft 177,600

Peak discharge (base, 2,000 cfs).--July 30 (4 p.m.) 3,490 cfs (6.33 ft); Sept. 1 (5:30 a.m.) 2,180 cfs (5.34 ft); Sept. 21 (12:30 a.m.) 2,050 cfs (5.23 ft). * Discharge measurement made on this day

Note.--No gage-height record Oct. 1 to Nov. 11, Nov. 17 to May 13; discharge estimated on basis of 2 discharge measurements, recorded range in stage, weather records, and records for Solomon Gulch near Valdez.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	484	230						100	366	631	690	606
2	222	220						110	440	568	1,570	430
3	550	220						110	538	544	1,230	806
4	2,060	220						120	514	544	830	1,730
5	1,300	300						140	460	508	538	1,170
6	940	330						160	440	532	635	736
7	780	300						180	502	*574	1,580	470
8	630	310		56	28	34	33	210	532	729	1,760	366
9	*715	300						230	496	538	1,130	306
10	919	440						260	465	508	736	275
11	496	350						280	*475	568	538	514
12	350	*280						290	604	666	480	440
13	306	240						330	550	645	599	600
14	580	180						*386	465	586	765	430
15	991	140						326	435	550	460	360
			85									
16	800	130						275	430	538	440	330
17	540	120						266	410	465	410	350
18	350	120						292	440	455	370	320
19	240	160						306	445	465	330	*342
20	270	250						314	455	430	300	272
21	310	350						300	538	425	280	236
22	390	540		(*)	38	(*)		275	610	470	260	233
23	320	500					67	269	687	556	290	462
24	250	470		45		30		300	806	598	310	514
25	220	420						289	1,030	631	310	322
26	300	360						266	1,140	631	*318	242
27	450	190						278	1,120	556	346	205
28	650	120						300	964	490	679	175
29	950	110			-			330	806	480	435	158
30	660	110						362	680	470	318	142
31	400							366		465	470	
Total	18,423	8,010	2,635	1,560	914	990	1,500	8,020	17,843	16,816	19,207	13,542
Mean	594	267	85	50.3	32.6	31.9	50.0	259	595	542	620	451
Ac-ft	36,540	15,890	5,230	3,090	1,810	1,960	2,980	15,910	35,390	33,350	38,100	26,860

Calendar year 1952: Max 2,440 Min - Mean 280 Ac-ft 202,900
Water year 1952-53: Max 2,060 Min - Mean 300 Ac-ft 217,100

Peak discharge (base, 2,000 cfs).--Oct. 4 (10 p.m.) 2,400 cfs (5.55 ft); Sept. 4 (5 a.m.) 2,160 cfs (5.37 ft). * Discharge measurement made on this day.

Note.--No gage-height record Oct. 5-8, Oct. 16 to May 13, Aug. 16-25, Sept. 12-18; discharge estimated on basis of 3 discharge measurements, recorded range in stage, weather records, and records for Solomon Gulch near Valdez.

Solomon Gulch near Valdez

Location.--Lat 61°05', long 146°19', on right bank at tidewater, half a mile downstream from small lake and 3 miles southwest of Valdez.

Drainage area.--19 sq mi, approximately.

Records available.--July to December 1948, October 1949 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 1 ft above mean sea level. Prior to May 22, 1950, staff gage at same site and datum.

Extremes.--1950-51: Maximum discharge during water year, 2,420 cfs Sept. 4 (gage height, 6.50 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum recorded, 0.5 cfs Dec. 31 (gage height, 3.10 ft).
1951-52: Maximum discharge during water year, 1,710 cfs July 29 (gage height, 6.07 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum daily, 7 cfs Apr. 3-9, 11-14.
1952-53: Maximum discharge during water year, 1,220 cfs Oct. 4 (gage height, 5.75 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum daily, 8 cfs Feb. 10, 11, 16.
1948, 1949-53: Maximum discharge, that of Sept. 4, 1951; minimum, that of Dec. 31, 1950.

Remarks.--Records good except those for periods of shifting control, which are fair, and those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	43	17	2.5				22	150	310	196	230
2	68	41	17	1.5				21	140	328	235	466
3	60	40	16	2.0				*22	140	418	240	841
4	55	37	15	3.0		10			130	426	196	1,530
5	*52	34	14	2.5	1.5				130	426	245	750
6	51	30	14	3.0					140	434	*292	420
7	47	26	14	3.0		11			200	442	328	350
8	44	22	15	2.5		13			320	430	328	750
9	43	18	16	1.5		14			466	400	298	400
10	44	19	16	1.0		10			375	380	286	300
11	47	17	16	1.0		8.5			310	390	255	620
12	51	15	15	1.0					270	390	275	270
13	54	15	13						250	380	292	650
14	51	16	10						235	350	265	1,400
15	48	16	10		2.5		10		230	360	270	1,000
16	44	16	10						250	370	209	850
17	43	16	9.0			5.5		57	265	360	196	1,200
18	43	17	8.0						245	340	188	700
19	41	17	7.5						222	*328	170	440
20	43	17	7.0						230	292	163	700
21	41	18	6.5						245	280	170	400
22	40	19	6.0	1.0		4.5			270	310	307	480
23	44	20	6.0			5.5			334	368	375	330
24	47	21	6.0			6.0			347	310	255	250
25	45	19	6.0		7.0	5.5			334	304	235	200
26	45	*17	6.0			5.0			328	298	222	400
27	44	16	5.0						316	240	235	350
28	45	16	4.5		*11				310	217	298	480
29	45	16	4.0		-	5.0			316	328	298	250
30	44	16	1.5		-				328	304	310	200
31	44	--	.5		-		-		-	222	255	-
Total	1,488	650	311.5	43.5	100.0	223.0	300	1,661	7,826	10,735	7,887	17,207
Mean	48.0	21.7	10.0	1.40	3.57	7.19	10	53.6	261	346	254	574
Ac-ft	2,950	1,290	618	86	198	442	595	3,290	15,520	21,290	15,640	34,130

Calendar year 1950: Max 797 Min 0.5 Mean 115 Ac-ft 83,230
Water year 1950-51: Max 1,530 Min 0.5 Mean 133 Ac-ft 96,050

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 4, 5, 7, 14-23, Nov. 29 to Dec. 5, Jan. 13 to Feb. 27, Mar. 1-6, 12-21, Mar. 27 to May 2, May 4 to June 8, July 8-18, Sept. 5-30; discharge estimated on basis of 4 discharge measurements and weather records. Shifting-control method used Dec. 6 to Jan. 12, Feb. 28, Mar. 7-11, 22-26, July 19 to Aug. 1.

Solomon Gulch near Valdez--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			44				a8	15	a120	377	496	570
2			43				a8	17	a130	377	371	327
3			31				a7	19	a120	365	298	237
4			30				a7	18	a110	321	266	175
5		a150	24				a7	18	a140	315	298	128
6			22				a7	17	a130	293	293	98
7			a20				a7	17	a120	358	562	78
8			17				a7	19	a130	365	437	70
9		*70	22				7	22	a160	315	327	72
10		69	22			a10	8	27	a250	293	293	72
11		60	22				7	28	*444	315	293	76
12		54	a20				7	28	461	334	310	80
13		50	18				7	27	505	487	293	87
14		47	18				7	27	452	430	260	*134
15		45	18				8	27	478	346	232	112
	a75			a14	a 11							
16		45	17				10	31	437	315	310	96
17		44					10	36	437	260	210	83
18		44					9	40	461	286	187	85
19		44					9	47	478	315	158	87
20		44				*9	9	54	505	377	168	395
21		43				9	9	a70	505	392	172	1,150
22		43				9	10	a90	461	392	158	703
23		43				9	9	a83	550	400	158	371
24		41	a17			9	9	a74	560	400	219	271
25		40				9	9	a69	461	352	420	228
26		40				9	10	a65	430	304	514	214
27		40				9	12	a70	540	*321	365	155
28		41				8	12	a85	522	634	223	158
29		38				8	12	a82	470	1,180	187	134
30		41			--	9	13	a82	414	1,000	172	125
31		------			------	8	------	a90	------	774	396	------
Total	2,325	2,226	643	434	319	295	261	1,394	10,981	12,995	9,046	6,571
Mean	75	74.2	20.7	14	11	9.5	8.7	45.0	366	419	292	219
Ac-ft	4,610	4,420	1,280	861	633	585	518	2,760	21,780	25,780	17,940	13,030

Calendar year 1951: Max 1,530 Min - Mean 140 Ac-ft 101,500
Water year 1951-52: Max 1,180 Min 7 Mean 130 Ac-ft 94,200

Peak discharge (base, 650 cfs).--July 29 (3:30 a.m.) 1,710 cfs (6.07 ft); Aug. 7 (1 p.m.) 717 cfs (5.37 ft); Sept. 1 (2 a.m.) 717 cfs (5.37 ft); Sept. 21 (5 a.m.) 1,400 cfs (5.87 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for station on Power Creek near Cordova.

Note.--Shifting-control method used Nov. 9 to Dec. 16, Mar. 20 to May 20.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	198	139			11	14	11	43	430	470	400	444
2	139	134			10	13	11	48	487	514	870	321
3	335	120			10	13	10	51	610	*478	846	470
4	1,010	120			10	16	10	52	640	437	600	922
5	750	240			10	17	9.9	55	522	407	384	695
				20								
6	739	260			9	16	9.9	62	430	384	315	550
7	444	*175			9	15	9.9	76	461	371	430	334
8	*334	194			9	11	10	89	560	437	522	232
9	271	179			9	10	11	102	580	392	550	191
10	358	255			8	9	11	125	522	384	437	165
11	310	152			8	9	12	134	452	452	340	194
12	237	105			9	9	14	134	487	470	*293	358
13	194	80			10	10	15	*145	478	437	298	282
14	298	64			10	10	15	179	392	430	315	321
15	384	60			9	10	13	219	358	437	293	246
			30	18								
16	384	60			8	10	12	246	377	437	242	179
17	206	57			12	9	14	246	414	384	223	194
18	139	54			13	9	22	246	478	352	206	165
19	114	60			14	10	27	276	478	392	187	158
20	131	140		*17	15	10	28	346	505	340	179	*145
21	158	190		17	15	*11	28	377	560	310	175	120
22	271	250		17	15	10	26	352	600	340	168	117
23	206	230		18	16	11	23	352	620	400	194	194
24	128	210		18	16	11	22	377	640	444	228	293
25	100	170		18	16	11	22	334	810	461	228	191
26	191	60		17	15	10	21	298	834	461	246	134
27	242	43		16	14	9.0	24	327	762	430	214	102
28	356	41		15	14	9.0	32	371	695	392	422	83
29	437	40		14	-	11	36	400	610	358	365	70
30	214	39		12	--	11	39	422	540	334	260	62
31	139	------		12	------	11	------	470	------	321	290	------
Total	9,417	3,921	930	553	324	345.0	548.7	6,954	16,332	12,656	10,720	7,932
Mean	304	131	30	17.8	11.6	11.1	18.3	224	544	408	346	264
Ac-ft	18,680	7,780	1,840	1,100	643	684	1,090	13,790	32,390	25,100	21,260	15,730

Calendar year 1952: Max 1,180 Min 7 Mean 155 Ac-ft 112,200
Water year 1952-53: Max 1,010 Min 8 Mean 194 Ac-ft 140,100

Peak discharge (base, 650 cfs).--Oct. 4 (7:30 a.m.) 1,220 cfs (5.75 ft); June 4 (3 a.m.) 662 cfs (5.32 ft); June 25 (10 p.m.) 922 cfs (5.54 ft); Aug. 2 (6 p.m.) 987 cfs (5.59 ft); Sept. 4 (9 a.m.) 935 cfs (5.55 ft).

* Discharge measurement made on this day.

Note.--Doubtful or no gage-height record Nov. 19 to Jan. 19, Jan. 24 to Mar. 20; discharge estimated on basis of recorder graph and weather records.

LOWE RIVER NEAR VALDEZ

Periodic determinations of suspended-sediment discharge, May to August 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
May 25	a1,500	65	260
June 9	3,770	890	9,060
June 26	a6,000	3,640	59,000
July 9	a4,000	1,030	11,000
July 22	a3,500	802	7,600
July 29	4,300	1,540	17,900
Aug. 14	a3,000	792	6,400
Aug. 20	a1,200	285	900

a Estimated.

RESURRECTION RIVER NEAR SEWARD

LOCATION.--At bridge on Seward-Anchorage Highway, 2 miles north of Seward.
RECORDS AVAILABLE.--Chemical analyses: April to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, April to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1952																			
Apr. 22			4.9	0.05	26	1.7	4.8		72	15	5.0	0.0	0.7	94	72	13	158	7.2	6
May 20			4.4	.07	26	2.0	5.2		74	17	3.8	.0	.7	96	73	12	149	7.4	8
June 19			3.9	.09	24	1.6	4.1		65	15	4.2	.0	.8	86	66	13	137	7.4	5
July 24			4.9	.04	13	1.8	1.1	0.4	40	12	1.0	.1	.2	54	40	7	80.1	6.9	5
Aug. 21			8.0	.06	15	1.2	.9	.6	40	9.5	1.0	.0	.6	57	42	9	81.5	--	5
Sept. 16			4.5	.00	25	4.1	2.5	.8	70	23	3.5	.1	1.2	99	80	23	159	7.2	3

Anchor River at Anchor Point

Location.--Lat 59°46'10", long 151°50'00", in SE¼ sec. 4, T. 5 S., R. 15 W., near right bank on downstream side of Sterling Highway bridge at Anchor Point, 0.1 mile downstream from North Fork and 1 mile upstream from mouth.

Drainage area.--226 sq mi.

Records available.--Discharge: June to September 1953.
Chemical analyses: January, May to August 1953.
Water temperatures: May to August 1953.
Sediment records: July to September 1953.

Gage.--Wire-weight gage read once daily. Altitude of gage is 60 ft (from topographic map).

Extremes.--Maximum discharge during period, 958 cfs Sept. 24 (gage height, 3.63 ft, from graph based on gage readings); minimum observed, 28 cfs July 28 (gage height, 1.81 ft).

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurement made at this dite during water year 1951 is as follows: July 27, 1951, 102 cfs. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, June to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	137	69	146
2									-	a130	a150	a140
3									-	137	*231	a160
4									-	a130	a180	a180
5									-	122	107	266
6									-	a140	a100	a300
7									-	159	a100	a260
8									-	a150	a170	a230
9									-	134	242	206
10									-	a110	a220	185
11									-	99	195	a170
12									-	a90	a200	156
13									-	82	206	a150
14									-	69	a200	a250
15									-	69	199	414
16									-	a70	192	a360
17									-	a71	a180	308
18									-	72	a170	a290
19									-	a68	172	266
20									-	64	a150	a260
21									-	a64	125	a250
22									-	64	a120	a300
23									*235	a50	a130	480
24									a230	37	153	815
25									235	a35	a130	540
26									a210	33	116	409
27									182	a30	*131	a300
28									a170	28	436	a270
29									a160	a30	a490	235
30									143	31	250	209
31										a45	a160	
Total									-	2,550	5,674	8,505
Mean									-	82.3	183	284
Ac-ft									-	5,060	11,250	16,870

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records.

ANCHOR RIVER AT ANCHOR POINT

Chemical analyses, in parts per million, January to August 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1953																			
Jan. 30	--		39	0.12	6.0	3.1	5.6	1.7	40	3.0	3.5	0.0	0.6	82	28	0	79.4	6.8	10
May 1-10	--		16	.06	3.6	1.2	3.2	1.8	20	1.6	2.8	--	1.0	41	14	0	46.0	6.7	40
May 11-20	--		15	.10	3.2	1.2	3.0	1.4	18	2.2	2.5	--	.8	38	13	0	41.2	6.3	40
May 21-31	--		16	.10	3.2	.9	3.0	1.4	18	1.9	2.5	--	.7	39	12	0	39.5	6.3	40
June 1-10	--		20	.26	3.2	.9	3.4	1.6	20	.7	1.2	.0	1.0	42	12	0	47.7	6.7	40
June 11-20	--		24	.29	4.2	1.5	4.1	2.0	26	1.3	1.2	.0	1.0	52	17	0	56.6	6.7	40
June 21-30	a 196		29	.22	5.3	2.9	6.4	2.0	38	2.5	2.8	.1	.6	71	25	0	75.2	6.9	20
July 1-10	135		27	.23	6.5	3.1	6.0	2.0	46	4.9	1.2	.0	.8	74	29	0	85.8	6.9	15
July 11, 13	90.5		26	.24	6.6	3.4	6.4	2.5	47	6.0	1.0	--	0.6	76	30	0	88.3	6.8	25
July 23-30	34.2		26	.20	7.0	3.9	6.7	2.2	52	4.8	2.0	.0	.5	79	34	0	95.0	6.8	20
Aug. 1-10	157		26	.25	7.0	3.5	6.2	2.0	47	7.1	2.0	.0	.6	78	32	0	89.3	6.7	10
Aug. 11-20	186		26	.40	6.5	3.3	6.0	2.0	46	5.8	1.5	.0	.6	75	30	0	85.5	6.7	30
Aug. 21-30	208		27	.50	6.9	3.6	5.8	2.0	47	2.1	3.5	.2	.6	75	32	0	88.9	6.1	40

a Represents discharge for period June 23-30.

ANCHOR RIVER AT ANCHOR POINT--Continued

Temperature (°) of water, May to August, 1953

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

ANCHOR RIVER AT ANCHOR POINT--Continued

Periodic determinations of suspended sediment discharge, July to September 1953

Date	Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
July 1	137	12	4
July 3	137	12	4
July 5	122	4	1
July 7	159	12	5
July 9	134	8	3
July 11	99	8	2
July 13	82	8	2
July 18	72	3	1
July 20	64	7	1
July 28	28	4	(t)
Aug. 3	231	30	19
Aug. 6	100	12	3
Aug. 9	242	42	27
Aug. 13	206	6	3
Aug. 18	170	10	5
Aug. 21	125	2	1
Aug. 24	153	1	(t)
Aug. 26	116	92	29
Sept. 1	146	6	2
Sept. 5	266	12	9
Sept. 9	206	4	2
Sept. 15	414	12	13
Sept. 30	209	10	6

t Less than 0.5 ton.

Kasilof River near Kasilof

Location.--Lat 60°19'05", long 151°15'35", on SW¼ sec. 30, T. 3 N., R. 11 W., near center of span on downstream side of bridge on Sterling Highway, 0.9 mile upstream from Crooked Creek, 4 miles downstream from Moosehead Rapids, 5 miles south of Kasilof, and 10 miles downstream from Tustumena Lake.

Drainage area.--738 sq mi.

Records available.--Discharge: July 1949 to September 1953.
Chemical analyses: March to September 1952.
Sediment records: June to September 1953.

Gage.--Wire-weight gage read once daily. Datum of gage is 23.37 ft above mean sea level (Corps of Engineers benchmark).

Extremes.--1950-51: Maximum discharge observed during water year, 9,090 cfs Sept. 8 (gage height, 6.55 ft); minimum not determined.
1951-52: Maximum discharge observed during water year, 7,430 cfs Aug. 16 (gage height, 5.88 ft); minimum not determined.
1952-53: Maximum discharge observed during water year, 8,360 cfs Aug. 14 (gage height, 6.31 ft); minimum observed, 611 cfs Apr. 16 (gage height, 1.57 ft).
1949-53: Maximum discharge observed, that of Sept. 8, 1951; minimum not determined.

Remarks.--Records good except those for periods of ice effect, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,240	2,300						640	782	2,260	6,010	7,960
2	5,180	2,270						650	789	2,370	5,950	8,060
3	5,080	2,200						665	810	*2,440	6,120	8,540
4	5,040	2,110						680	838	2,610	6,080	8,490
5	*4,940	2,050						655	873	2,780	6,210	8,910
6	4,840	1,970	1,000	720	370		320	645	944	2,950	6,390	8,800
7	4,740	1,930						650	1,020	3,090	6,360	8,570
8	4,640	1,880				300		660	1,080	3,260	6,470	9,090
9	4,400	1,860						680	1,160	3,410	6,580	8,880
10	4,270	1,800						675	1,170	3,640	6,560	8,540
11	4,190	*1,830						670	1,210	3,830	6,580	8,390
12	4,040	1,760						698	1,250	4,100	6,830	8,420
13	3,950	1,690					360	698	1,300	4,330	7,190	8,390
14	3,830	1,600						698	1,340	4,500	7,530	8,150
15	3,760	1,600						722	1,400	4,660	7,670	8,080
16	3,670	1,500	900	500	350		390	747	1,390	4,940	7,960	7,790
17	3,550	1,500					400	782	1,380	5,160	7,980	7,600
18	3,440	1,400					430	761	1,390	5,320	8,010	7,500
19	3,320	1,400					520	728	1,430	5,420	8,060	7,860
20	3,260	1,300					580	716	1,430	5,570	8,000	7,960
21	3,190	1,300					600	716	1,540	5,790	7,890	8,180
22	3,070	1,300					610	722	1,580	5,860	*8,080	8,270
23	2,990	1,300					620	728	1,600	5,860	7,940	8,440
24	2,950	1,400				280	620	722	1,660	5,810	7,770	8,490
25	2,870	1,400			360		630	710	1,690	5,970	7,720	8,320
26	2,790	1,400	800	400 (*)			630	704	1,780	5,790	7,550	7,620
27	2,680	1,400					640	704	1,860	*5,920	7,580	7,410
28	2,610	1,300					640	710	1,960	5,970	7,720	7,240
29	2,550	1,300			-	(*)	640	*728	2,080	5,970	7,840	7,190
30	2,490	1,200					650	747	2,180	6,120	7,890	7,020
31	2,350							768		6,060	7,890	
Total	115,920	49,250	27,800	16,600	10,080	8,980	13,600	21,779	40,916	141,760	224,410	244,160
Mean	3,739	1,642	897	535	360	290	453	703	1,364	4,573	7,239	8,139
Ac-ft	229,900	97,690	55,140	32,930	19,990	17,810	26,980	43,200	81,160	281,200	445,100	484,300

Calendar year 1950: Max 8,440 Min - Mean 2,318 Ac-ft 1,678,000
Water year 1950-51: Max 9,090 Min - Mean 2,508 Ac-ft 1,815,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 15 to May 2 (only once-weekly gage readings during most of period; discharge estimated on basis of 2 discharge measurements and weather records).

Kasilof River near Kasilof--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,810	2,670	1,300				460	585	635	1,360	5,260	6,280
2	6,690	2,600	1,300				480	585	635	1,390	5,340	6,280
3	6,360	2,540	1,400				500	585	635	1,430	5,510	6,080
4	6,120	2,480	1,400				510	585	640	1,500	5,660	5,990
5	5,920	2,480	1,300				520	585	640	1,540	5,920	5,840
6	5,730	2,420	1,300	920	670	470	520	585	660	1,610	5,950	5,700
7	5,480	2,340	1,200				530	585	686	1,660	6,300	5,570
8	5,260	2,260	1,300			(*)	530	580	675	1,740	6,470	5,570
9	5,140	2,220	1,300				540	571	675	*1,810	6,760	5,440
10	5,120	2,190	1,400				550	566	665	1,920	6,950	5,420
11	4,880	2,150					580	558	665	2,060	7,140	5,420
12	4,700	2,140					640	562	680	2,220	7,070	5,380
13	4,540	2,110					630	566	*704	2,380	7,290	5,220
14	4,400	2,100					620	571	698	2,540	7,340	4,900
15	4,290	2,080					620	571	722	2,700	7,410	4,780
16	4,160	2,080	1,300	850	550	450	610	576	747	2,800	7,410	4,680
17	4,020	2,050					605	558	782	2,850	7,360	4,620
18	*3,890	2,000					600	530	782	3,090	7,310	4,440
19	3,740	2,000					595	504	824	3,190	7,190	4,400
20	3,620	1,900					585	540	873	3,320	7,070	4,310
21	3,460	1,900					580	571	904	3,420	7,050	4,250
22	3,340	1,870					585	615	936	3,620	7,050	4,100
23	3,260	1,720					580	615	984	3,730	6,830	4,060
24	3,260	1,610					580	620	992	3,890	6,810	4,160
25	3,190	1,570			520		580	610	1,020	4,080	6,760	4,230
26	3,090	1,500	1,100	750		470	590	600	1,050	4,290	6,580	4,290
27	2,960	1,490					590	615	1,110	4,400	*6,580	4,400
28	2,880	1,400					590	650	1,200	4,540	6,320	4,400
29	2,820	1,400					585	680	1,230	4,720	6,210	4,440
30	2,760	1,400					585	716	1,280	4,940	6,190	4,480
31	2,700	-----			-----		-----	675	-----	5,160	6,210	-----
Total	134,590	60,670	38,300	25,950	16,880	14,370	17,070	18,315	24,729	89,900	205,300	149,130
Mean	4,342	2,022	1,235	837	582	464	569	591	824	2,900	6,623	4,971
Ac-ft	267,000	120,300	75,970	51,470	33,480	28,500	33,860	36,330	49,050	178,300	407,200	295,800

Calendar year 1951: Max 9,090 Min - Mean 2,619 Ac-ft 1,896,000
Water year 1951-52: Max 7,410 Min - Mean 2,173 Ac-ft 1,577,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 18-21, Nov. 28 to Apr. 15 (scattered gage readings Dec. 10 to Apr. 15); discharge estimated on basis of 1 discharge measurement, gage-height record, and weather records.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,560	3,090	2,300	1,500			740	674	1,030	3,400	6,280	7,790
2	4,600	3,090	2,100	1,400			730	668	1,050	3,500	a6,600	7,740
3	4,600	a3,000	2,100	1,200			a720	662	1,120	3,650	*6,930	7,740
4	4,700	a2,900	2,100	1,200			706	662	1,120	3,790	7,180	7,740
5	4,800	2,880	2,000	1,200			a700	668	1,200	3,940	7,390	7,620
6	4,860	2,900	2,000	1,200			680	668	1,260	4,150	7,640	7,550
7	4,960	*2,870	2,000	1,200			a670	680	1,300	4,280	7,840	7,320
8	*5,040	2,840	1,900	1,200	920	810	656	693	1,370	4,360	8,050	7,160
9	4,920	2,780	1,900	1,200			656	726	1,400	4,400	8,100	7,000
10	4,880	2,780	1,900	*1,100			651	699	1,460	4,480	8,120	7,000
11	4,840	2,730	1,900	1,100			651	686	1,620	4,540	8,200	6,910
12	4,800	2,720	1,900	1,100			a660	699	1,680	4,620	8,340	6,750
13	4,700	2,680	1,900	1,100			662	733	1,690	4,720	8,340	6,590
14	4,640	2,640	1,800	1,100			a650	a740	1,700	4,880	8,360	6,570
15	4,600	2,560	1,800	1,100			*627	740	1,740	4,920	8,170	6,520
16	4,460	2,520	1,800	1,100			611	767	1,730	5,000	8,220	6,480
17	4,380	2,480	1,900				627	*775	1,810	5,150	8,220	6,350
18	4,290	2,450	1,900				651	775	1,850	5,210	8,290	6,260
19	4,160	2,440	1,920				662	789	1,900	5,230	7,930	6,130
20	4,000	2,410	1,830				662	782	1,900	5,250	7,810	6,000
21	3,910	2,380	1,820				662	789	1,950	5,320	7,720	5,930
22	3,870	2,380	1,800		840		668	803	2,010	5,400	7,720	5,840
23	3,600	2,410	1,810				668	803	*2,080	5,420	7,720	5,820
24	3,530	2,580	1,830	1,000		780	674	811	2,190	5,550	7,790	5,740
25	3,440	2,700	1,830		(*)		674	825	2,290	5,570	7,860	5,610
26	3,340	2,730	1,820				668	840	2,460	5,590	7,880	5,420
27	3,340	2,730	1,800				668	894	2,640	5,760	7,930	5,190
28	3,390	2,680	1,760				674	910	2,830	5,860	*7,960	5,040
29	3,420	2,640	1,740		-		674	935	3,020	5,930	7,910	4,900
30	3,140	2,540	1,700		-----		680	984	3,220	5,950	7,810	4,840
31	3,140	-----	1,600		-----		-----	1,030	-----	6,080	7,790	-----
Total	130,910	80,530	58,460	34,000	24,720	24,630	20,082	23,910	54,620	151,900	242,100	193,550
Mean	4,223	2,684	1,886	1,097	883	795	669	771	1,821	4,900	7,810	6,452
Ac-ft	259,700	159,700	116,000	67,440	49,030	48,850	39,830	47,420	108,300	301,300	480,200	383,900

Calendar year 1952: Max 7,410 Min - Mean 2,272 Ac-ft 1,649,000
Water year 1952-53: Max 8,360 Min - Mean 2,848 Ac-ft 2,062,000

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.--Stage-discharge relation affected by ice Dec. 1-18, Dec. 30 to Apr. 2 (no gage-height record Jan. 8, 9, Jan. 17 to Apr. 1; discharge estimated on basis of 2 discharge measurements and weather records).

KASILOF RIVER NEAR KASILOF

Chemical analyses, in parts per million, March to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Mar. 8	470	6.4	0.09	6.2	0.9	4.2		23	5.6	2.0	0.1	0.5		37	0.05		19	0	33		50.9	7.0	7
May 21	571	5.9	.19	5.5	1.6	3.0		20	7.4	1.8	.0	.1		35	.05		20	4	24		44.0	7.1	11
June 20	873	4.8	.50	5.4	1.3	2.4		21	5.4	.4	.1	.5		31	.04		19	2	22		44.0	6.8	10
July 25	4,080	5.7	.56	4.8	1.4	1.1	1.3	18	6.6	.8	.1	1.1		32	.04		18	3	11		41.8	6.7	20
Aug. 22	7,050	20	.42	6.4	1.1	1.5	1.4	25	5.8	.8	.1	.5		50	.07		20	0	13		50.4	6.4	20
Sept. 17	4,620	5.6	.28	4.9	1.2	1.5	1.4	18	5.3	.2	.1	1.4		31	.04		17	2	15		41.3	7.0	5

Periodic determinations of suspended-sediment discharge, June to September 1953

Date	Water discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
June 2	1,090	27	79
June 14	a1,700	28	129
June 18	1,920	21	109
June 23	2,130	22	127
Aug. 3	6,980	32	603
Aug. 24	8,100	34	744
Sept. 30	5,000	21	284

a Mean daily discharge.

SNOW RIVER NEAR LAWING

LOCATION.--At bridge on Seward-Anchorage Highway, 100 feet upstream from mouth and Kenai Lake and 6 miles south of Lawing.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1951 to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1951																							
Nov. 13		3.3	0.04	4.6	0.8	3.7		18	3.3	3.2	0.0	0.1		28			15	0	35		31.2	7.2	5
1952																							
Feb. 27		6.2	.10	14	1.0	2.5		40	8.8	1.5	.0	.6		54			39	6	12		84.1	7.0	7
Apr. 22		6.0	.22	12	1.3	4.1		37	10	2.0	.1	.5		54			35	5	20		81.4	7.0	7
May 20		4.3	.16	9.4	1.1	1.8		26	8.1	.8	.0	1.3		40			28	7	13		58.5	6.8	10
June 19		3.0	.03	9.2	1.7	2.5		26	10	2.2	.1	.5		42			30	9	16		57.2	7.2	5
July 24		2.8	.09	6.8	1.0	0.5	1.0	21	5.9	.8	.1	.3		30			21	4	5		45.8	6.8	3
Aug. 21		6.3	.15	6.7	1.3	.8	.9	21	6.4	2.0	.1	.4		35			22	5	7		44.3	6.6	10
Sept. 16		7.7	.06	12	1.0	1.7	1.2	36	8.7	1.2	.1	1.2		53			34	5	9		79.0	6.7	10

Ptarmigan Creek at Lawing

Location.--Lat 60°24'20", long 149°21'45", on right bank 200 ft upstream from bridge on Seward-Anchorage Highway, 0.2 mile north of Lawing, 0.3 mile upstream from mouth, and 3 miles downstream from Ptarmigan Lake. Prior to June 11, 1952, at site 200 ft downstream.

Drainage area.--32.6 sq mi.

Records available.--Discharge: May 1947 to September 1953.
Chemical analyses: February to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map). Prior to June 11, 1952, staff gage at site 200 ft downstream at different datum.

Average discharge.--6 years, 119 cfs (86,150 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year not determined, occurred during period of no gage-height record; minimum not determined.
1951-52: Maximum discharge during water year, 300 cfs July 25 (gage height, 2.12 ft); minimum not determined.
1952-53: Maximum discharge during water year, 980 cfs June 29; maximum gage height, 3.32 ft June 26; minimum discharge not determined.
1947-53: Maximum discharge that of June 29, 1953; maximum gage height that of June 26, 1953; minimum discharge not determined.

Remarks.--Records poor prior to June 30, 1952, good thereafter except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a110	41					a13	33	a100	a230		
2	a94	39					a13	32	a110	a250		
3	a97	36					14	32	a120	a270		
4	*94	a35					14	31	128	*270		
5	a92	a34					14	a32	146			
6	a88	33					14	a35	162		a170	
7	a83	32					a15	38	180			
8	a80	31	18	15		9	a15	44	194			a240
9	a76	31					16	46	a200			
10	a72	31					16	a54	a210	a310		
11	a68	a32					17	a64	206			
12	a67	a35					17	a75	194			
13	66	*38					16	a85	183			
14	a64	36					a16	a100	172			
15	a62	35			10		a16	a110	152		a190	
16	60	33					16	a120	a140			
17	56	32					17	a120	a130			
18	54						17	a120	117			
19	51						18	a120	109			
20	49						19	a110	97	a240		
21	a48						a20	a110	90		*122	
22	a47						a21	109	104			
23	51						23	104	a120			a250
24	60	25	15	10		10	25	99	a140			
25	58			(*)			28	94	a160	*180		
26	56						31	a91	a170		a130	
27	54						31	a88	a190			
28	a52						a32	88	a200			
29	a49				-	(*)	33	88	214	a170		
30	46				- - -		33	a90	a220			
31	42	- - - -			- - - - -		- - - - -	*97	- - - - - -			- - - - - -
Total	2,046	909	510	385	280	295	590	2,459	4,658	7,790	5,022	7,350
Mean	66.0	30.3	16.5	12.4	10	9.5	19.7	79.3	155	251	162	245
Ac-ft	4,060	1,800	1,010	764	555	585	1,170	4,880	9,240	15,450	9,960	14,580

Calendar year 1950 : Max 440 Min 13 Mean 107 Ac-ft 77,780
Water year 1950-51 : Max - Min - Mean 88.5 Ac-ft 64,050

* Discharge measurement made on this day.
a Doubtful or no gage-height record; discharge estimated on basis of 6 discharge measurements, weather records, and records for other stations.
Note.--Stage-discharge relation affected by ice Nov. 18 to Mar. 31 (no gage-height record Nov. 18 to Jan. 24, Jan. 26 to Mar. 28, Mar. 30, 31; discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations).

Ptarmigan Creek at Lawing--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									a89	244	212	126
2									a90	231	198	126
3									a92	212	186	122
4									a91	195	183	113
5								a14	a90	192	189	107
6						a 11			a86	195	198	97
7									a81	200	241	89
8									a76	195	258	86
9	a94	a52	a28	a15			a9		a76	183	241	80
10									a85	183	228	75
11									*95	195	215	71
12						*11			a120	225	225	*70
13									a150	258	222	70
14									a160	288	209	77
15					a12			a25	a160	255	200	84
16									a170	234	192	86
17	*54								a180	203	167	82
18									a190	192	150	80
19									a200	*198	138	77
20									a200	209	135	75
21						a10			a220	238	135	86
22									a230	266	133	126
23		a37					a10		a240	284	131	150
24			a22	a12					a230	296	126	165
25	a47								a220	288	124	183
26								a53	a210	269	126	183
27									a240	262	124	173
28									a270	258	113	162
29									a260	258	*109	145
30					-				258	248	107	129
31										234	111	
Total	2,216	1,335	772	417	348	322	285	973	4,859	7,188	5,326	3,295
Mean	71.5	44.5	24.9	13.5	12	10.4	9.5	31.4	162	232	172	110
Ac-ft	4,400	2,650	1,530	827	690	639	565	1,930	9,640	14,260	10,560	6,540

Calendar year 1951: Max - Min - Mean 90.8 Ac-ft 65,750
Water year 1951-52: Max 296 Min - Mean 74.7 Ac-ft 54,230

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for other stations in Kenai River basin.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	118	212	124					82	320	610	323	153
2	107	198	105					91	369	525	404	138
3	113	178	91					99	418	470	455	128
4	206	*165	87	a56				105	465	445	414	182
5	300	155	84					111	485	414	335	258
6	396	150		(*)			a17	118	465	386	279	247
7	382	157						126	436	378	275	216
8	324	209			a28	a21		133	436	368	264	192
9	273	212						133	441	343	250	174
10	*244	225	a63	a47				129	432	327	247	156
11	222	231						122	423	327	225	140
12	198	215						118	418	347	205	142
13	178	195					a20	118	392	364	210	149
14	178	170						122	364	400	222	158
15	192	157					*31	126	336	427	216	160
16	206	143					31	138	324	404	197	147
17	198	131					31	145	320	378	179	136
18	183	118					34	*152	336	355	172	122
19	167	107					44	165	369	343	162	116
20	157	109			a31		48	189	446	327	156	109
21	145	115	a93				50	206	450	303	153	102
22	138	109					48	208	515	295	156	98
23	129	183			(*)		46	203	575	315	187	102
24	118	332		a33		a19	46	200	*620	*343	202	114
25	109	340			a28		46	203	799	378	200	116
26	124	280					46	203	914	404	184	113
27	150	234					50	212	904	404	167	105
28	173	198					56	222	914	391	197	97
29	234	167	a100		-		63	222	904	364	*213	90
30	241	145					71	234	744	347	192	83
31	222							273		335	172	
Total	6,125	5,540	2,651	1,287	805	619	991	4,906	15,334	11,817	7,213	4,243
Mean	198	185	85.5	41.5	28.8	20.0	33.0	158	511	381	233	141
Ac-ft	12,150	10,990	5,260	2,550	1,600	1,230	1,970	9,730	30,410	23,440	14,310	8,420

Calendar year 1952: Max 396 Min - Mean 102 Ac-ft 74,050
Water year 1952-53: Max 914 Min - Mean 169 Ac-ft 122,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

PTARMIGAN CREEK AT LAWING

Chemical analyses, in parts per million, February to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Feb. 27	12	4.7	0.01	26	1.3	4.8		56	32	0.2	0.0	1.3		90	0.12		70	24	13		143	7.2	5
May 20	25	5.3	.09	16	1.7	1.5		38	15	1.0	.0	2.4		62	.08		47	16	6		99.1	7.2	8
June 19	200	4.7	.07	19	1.8	3.3		46	19	2.2	.1	1.5		74	.10		55	17	12		113	7.4	5
July 24	296	6.3	.06	16	2.2	1.3	0.9	43	17	.2	.0	1.6		67	.09		50	15	5		110	6.8	5
Aug. 21	135	7.7	.07	16	1.6	1.5	.8	43	15	.5	.1	1.9		65	.09		46	11	6		104	6.7	5
Sept. 16	86	5.2	.06	17	1.9	1.3	.8	42	19	.2	.1	1.3		68	.09		50	16	5		108	7.0	5

Grant Creek near Moose Pass

Location.--Lat 60°27'25", long 149°21'15", on right bank 0.3 mile upstream from mouth, 0.8 mile downstream from Grant Lake, and 2.3 miles south of Moose Pass. Prior to July 1, 1952, at site 0.1 mile downstream.

Drainage area.--44.2 sq mi.

Records available.--September 1947 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 491 ft above mean sea level (river-profile survey). Prior to July 1, 1952, staff gage at site 0.1 mile downstream at datum 7.23 ft lower.

Average discharge.--6 years, 208 cfs (150,600 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year not determined, occurred during period of no gage-height record; minimum not determined.
1951-52: Maximum discharge during water year, 820 cfs July 24; maximum gage height, 3.36 ft June 28; minimum discharge not determined.
1952-53: Maximum discharge during water year, 2,230 cfs June 28 (gage height, 4.46 ft), from rating curve extended above 1,100 cfs by logarithmic plotting; minimum not determined.
1947-53: Maximum discharge, that of June 28, 1953; minimum not determined.

Remarks.--Records poor prior to July 1, 1952, good thereafter except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	a54					17		a190	467		
2	a160	50						a45	a220	a500	a340	
3	a170	a47							257	545		
4	173	a43								545		
5	166	42			*			45		486	362	
6	a150	a41						48	a360	a540		
7	*139	a39								a620		
8	133	a36		a21	a16	a13	a21			665		a530
9	120	35									a390	
10	a110	a34						a84	450			
11	a110	a33								a660		
12	a110	33									414	
13	105	*35						135			a470	
14	a100								a330		a560	
15	95		a21				23			585	545	
16	a89								257		a420	
17	81											
18	a77										*	
19	74						a25			a540	344	
20	a70							a170	a230			
21	a67											
22	64	a28		a17	a15	a14				467	a310	
23	a67						31					a480
24	77								348			
25	a76									a400	*292	
26	74						a43					
27	a70							140	a420			
28	67				-			a140			a360	
29	64							a140		362		
30	a62			*19	- ----	*16		*152		a350		
31	a58	- - -		a19	- ---	a16	. -----	a160	------	a340		------
Total	3,144	998	651	591	435	423	820	3,854	9,762	16,072	11,657	15,150
Mean	101	33.3	21.0	19.1	15.5	13.6	27.3	124	325	518	376	505
Ac-ft	6,240	1,980	1,290	1,170	863	839	1,630	7,640	19,360	31,880	23,120	30,050

Calendar year 1950: Max 865 Min 16 Mean 181 Ac-ft 131,100
Water year 1950-51: Max - Min - Mean 174 Ac-ft 126,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for nearby stations.

Grant Creek near Moose Pass--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								a17	a200	a510	555	306
2								a18	212	452	508	306
3								a19	212	466	476	292
4								a20	a210	423	472	276
5								a22	212	435	476	254
6						a17		a23	a200	510	494	222
7								a25	184	585	570	202
8		a60	a33	a20	a16			a27	176	533	600	188
9	a120						a15	a30	176	479	580	175
10								a33	a200	456	555	163
11						*17		38	218	470	526	156
12								a42	*282	533	565	152
13								a44	344	651	570	163
14								a45	358	675	540	213
15			*31					a45	358	*603	521	244
16								a47	a390	528	472	*241
17	*60							a51	414	479	420	225
18								a56	450	452	380	208
19								60	464	443	338	193
20								a74	471	484	346	188
21						a15		90	521	538	349	222
22								90	541	669	349	314
23		a43	a28	a17	a17		a14	a90	565	733	346	349
24	a53							a92	537	792	328	400
25								a95	509	785	328	462
26								a100	494	720	324	458
27								111	545	702	314	420
28								a130	621	696	*292	384
29								156	601	702	286	349
30					------			a170	581	636	283	306
31	-----				------		-----	a190	------	595	289	------
Total	2,722	1,545	941	572	478	487	435	2,050	11,246	17,735	13,452	8,031
Mean	87.8	51.5	30.4	18.5	16.5	15.7	14.5	66.1	375	572	434	268
Ac-ft	5,400	3,060	1,870	1,130	948	966	863	4,070	22,310	35,180	26,680	15,930

Calendar year 1951: Max - Min - Mean 175 Ac-ft 126,900
Water year 1951-52: Max 792 Min - Mean 163 Ac-ft 118,400

Peak discharge (base, 600 cfs).--June 28 (8 p.m.) 645 cfs (3.36 ft); July 7 (6 a.m.) 603 cfs (2.83 ft); July 14 (2 a.m.) 699 cfs (2.99 ft); July 24 (12 p.m.) 820 cfs (3.00 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	279	300	168	90				170	524	1,210	657	352
2	251	283		83				177	575	989	831	320
3	276	270		a76				182	657	885	933	295
4	560	254		a72				193	726	810	831	391
5	702	244		a70				201	768	747	675	549
6	708	*225	a110	*70				204	726	705	585	538
7	605	247						207	699	693	569	488
8	512	300			a42	a33	a24	207	705	699	538	443
9	440	300						201	733	651	538	387
10	*408	328						190	761	609	549	345
11	376	338		a64				177	719	597	520	305
12	338	328						198	699	627	484	302
13	317	303						212	663	657	524	327
14	324	273						243	597	719	585	338
15	331	263						262	554	754	549	331
16	331	241	a90				*b26	278	543	761	488	309
17	300	213					b30	302	543	719	427	288
18	279	193					b35	323	564	675	391	269
19	260	175					b66	*359	621	663	367	246
20	244	178					b90	399	663	621	349	230
21	228	178	186		a48		b110	411	733	575	341	210
22	219	165	178				b120	387	824	559	349	193
23	208	235	186				b120	359	925	575	407	195
24	193	372	202	a47		a28	b120	345	*1,050	580	439	201
25	183	372	196				115	338	1,510	705	448	193
26	202	335	180		*a46		110	331	1,920	*754	419	177
27	228	286	161		a45		109	338	2,090	754	387	165
28	247	260	147		a44		126	356	2,140	747	439	154
29	306	228	135		-		145	356	2,010	705	*474	139
30	300	196	122		- ----		160	367	1,610	663	427	126
31	289	- ---	106		------		-----	439	------	645	387	------
Total	10,444	7,883	3,857	1,789	1,245	943	1,842	8,712	27,852	22,053	15,907	8,806
Mean	337	263	124	57.7	44.5	30.4	61.4	281	928	711	513	294
Ac-ft	20,720	15,640	7,650	3,550	2,470	1,870	3,650	17,280	55,240	43,740	31,540	17,470

Calendar year 1952: Max 792 Min - Mean 209 Ac-ft 152,100
Water year 1952-53: Max 2,140 Min - Mean 305 Ac-ft 220,800

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Trail River near Lawing

Location.--Lat 60°26'00", long 149°22'20", near left bank on downstream side of pier of abandoned bridge on old Seward-Anchorage Highway, 0.2 mile upstream from Falls Creek, 0.2 mile downstream from Lower Trail Lake, 1.9 miles upstream from mouth, and 2.1 miles north of Lawing.

Drainage area.--195 sq mi.

Records available.--Discharge: May 1947 to September 1953.
Chemical analyses: November 1951 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 460 ft (from topographic map). Prior to Sept. 13, 1952, staff gage at same site and datum.

Average discharge.--6 years, 808 cfs (585,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year not determined, occurred during period of no gage-height record; minimum not determined.
1951-52: Maximum discharge observed during water year, 2,960 cfs July 14 (gage height, 7.40 ft); minimum not determined.
1952-53: Maximum discharge during water year, 5,860 cfs June 28 (gage height, 10.16 ft); minimum daily, 86 cfs Apr. 8.
1947-53: Maximum discharge, that of June 28, 1953; minimum daily, 48 cfs Feb. 9, 10, 1949.

Remarks.--Records fair prior to Sept. 13, 1952, good thereafter except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a780	210					a72	b190	705	a2,200	a1,400	
2	a650	199					74	b190	a770	a2,300	a1,400	
3	a680	179					75	b190	a840	a2,400	a1,500	
4	*655	a170					a77	b190	950	*2,360	a1,500	
5	a620	a160					a79	a200	1,040	a2,100	a1,500	
6	a580	161					80	a210	1,320	a2,400	a1,600	
7	a550	158					a82	b220	1,520	a2,600	a1,700	
8	a520	152	a90	a80	a59	a52	a83	b250	1,720	a2,800	a1,700	a2,200
9	a490	152					85	b300	a1,800	a2,900	a1,800	
10	a460	152					86	b360	a1,800	a3,000	a1,800	
11	460	a150					89	b430	1,720	a3,000	a1,800	
12	a440	a150					90	a520	1,520	a2,900	a1,800	
13	420	152					89	a570	1,400	a2,800	a2,000	
14	a400	*158					a87	b640	1,320	a2,700	a2,300	
15	a390	152					a85	b740	1,140	a2,500	a2,300	
16	382	147					86	b800	a1,100	a2,400	a2,100	
17	365	144					b89	b840	a1,000	a2,400	a1,700	
18	348	a140					b91	849	980	a2,300	a1,500	
19	330	a130					b93	a820	950	a2,300	a1,400	
20	324	b130					b98	a790	860	a2,200	a1,300	
21	a310	b120					a110	765	805	a2,100	a1,300	
22	a310	a120			a56		a120	755	860	a2,000	a1,200	
23	330	a120				a57	b130	750	a1,000	a1,900	a1,200	a1,900
24	348	a110	a80	a63			b140	740	a1,200	a1,700	a1,200	
25	340	a110					b160	715	1,400	*1,580	*1,150	
26	334	a110					b170	a650	1,560	a1,600	a1,200	
27	324	a110					b180	a620	1,680	a1,500	a1,300	
28	a310	a100					a190	610	1,760	a1,500	a1,500	
29	a290	a100			-		a200	632	1,900	a1,500	a1,500	
30	271	a100		(*)	------	*70	b200	655	a2,000	a1,500	a1,600	
31	233	------			------	71	------	*650	------	a1,400	a1,700	------
Total	13,224	4,246	2,630	2,208	1,613	1,719	3,290	16,841	38,620	68,840	48,850	61,500
Mean	427	142	84.8	71.2	57.6	55.5	110	543	1,287	2,221	1,576	2,050
Ac-ft	26,230	8,420	5,220	4,380	3,200	3,410	6,530	33,400	76,600	136,500	96,890	122,000

Calendar year 1950: Max 3,600 Min 63 Mean 757 Ac-ft 547,800
Water year 1950-51: Max - Min - Mean 722 Ac-ft 522,800

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 8 discharge measurements, weather records, and records for other stations.
b Stage-discharge relation affected by ice.

Trail River near Lawing--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										a2,200	2,080	a1,000
2										2,080	1,660	a1,100
3										1,940	a1,600	1,100
4										a1,800	1,610	1,000
5										a1,900	1,650	a970
6						a72		a76	a700	a2,000	1,970	775
7										2,170	2,380	a750
8		a260	a150	a90			a61			2,220	2,560	628
9	a500									1,950	2,340	592
10										1,850	a2,200	547
11										1,880	2,030	a530
12						*70			*944	a2,100	2,170	*524
13										a2,800	2,170	547
14										2,960	2,060	665
15			*136							2,660	1,950	810
16			131		a73			a160	a1,400	*2,410	1,760	832
17	*238									2,040	a1,500	780
18										1,860	1,250	710
19										1,790	a1,200	646
20										a2,000	a1,200	619
21						a66				2,300	a1,200	642
22										2,560	a1,200	962
23		a180					a62			2,760	a1,200	1,500
24				a74						2,810	a1,200	1,620
25	a210		a120					a380	a1,900	2,810	a1,200	1,920
26										2,610	a1,200	1,940
27										a2,600	1,130	1,730
28										2,560	1,030	1,470
29										2,510	*956	1,280
30										2,360	932	1,080
31										2,260	a970	
Total	11,178	6,600	4,167	2,534	2,117	2,116	1,845	6,540	38,844	70,750	50,358	29,269
Mean	361	220	134	81.7	73	68.3	61.5	211	1,295	2,282	1,624	976
Ac-ft	22,170	13,090	8,270	5,030	4,200	4,200	3,660	12,970	77,050	140,300	99,880	58,050

Calendar year 1951: Max - Min - Mean 727 Ac-ft 526,400
Water year 1951-52: Max 2,960 Min - Mean 618 Ac-ft 448,900

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 7 discharge measurements, weather records, and records for other stations.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	926	969	548	332	a140	131	91	778	2,040	4,000	2,540	1,480
2	805	915	468	303	a140	127	90	817	2,240	3,460	3,010	1,330
3	785	830	414	276	a140	125	90	862	2,490	3,130	3,590	1,190
4	1,990	772	376	261	a140	121	89	928	2,710	2,940	3,510	1,340
5	2,900	*752	354	261	a130	119	88	955	2,800	2,770	2,960	2,320
6	2,850	696	350	*269	a130	118	87	955	2,690	2,620	2,550	2,810
7	2,420	727	332	276	a130	116	87	949	2,530	2,530	2,410	2,450
8	*1,970	949	312	269	139	112	86	928	2,460	2,530	2,380	2,040
9	1,640	1,080	299	254	143	109	87	895	2,520	2,460	2,310	1,700
10	1,460	1,180	284	241	143	105	89	830	2,540	2,320	2,430	1,460
11	1,300	1,240	272	231	150	102	91	752	2,480	2,270	2,320	1,260
12	1,150	1,180	261	224	159	99	95	778	2,400	2,320	2,100	1,200
13	1,020	1,090	254	218	161	97	99	882	2,290	2,450	2,120	1,340
14	976	922	251	212	171	97	103	1,010	2,130	2,620	2,480	1,530
15	969	817	247	206	171	100	*109	1,130	1,980	2,790	2,470	1,540
16	1,010	752	251	198	164	102	114	1,170	1,940	2,850	2,200	1,400
17	935	690	320	192	154	103	127	1,180	1,940	2,770	1,940	1,260
18	836	600	385	189	152	104	164	*1,240	2,010	2,620	1,720	1,150
19	752	532	423	184	159	104	251	1,320	2,180	2,550	1,590	1,030
20	696	515	468	179	166	103	414	1,460	2,300	2,440	1,500	949
21	635	532	500	176	161	101	521	1,600	2,510	2,290	1,450	843
22	594	526	500	174	157	100	582	1,580	2,810	2,200	1,460	746
23	571	635	515	169	157	98	582	1,480	3,130	2,250	1,680	721
24	526	1,030	548	161	154	97	554	1,410	*3,610	*2,410	1,880	759
25	500	1,300	588	154	148	96	515	1,380	4,420	2,670	1,920	765
26	548	1,200	571	a150	*143	95	484	1,380	5,270	2,890	1,820	715
27	665	1,000	537	a150	139	94	478	1,380	5,740	2,940	1,690	635
28	721	882	494	a150	135	93	526	1,420	5,820	2,900	1,740	565
29	915	759	438	a140	-	92	623	1,460	5,480	2,770	*1,930	505
30	1,030	641	400	a140	- - - -	91	721	1,490	4,750	2,630	1,800	458
31	990	- - - - -	358	a140	- - - -	91	- - - - -	1,700	- - - - -	2,570	1,620	- - - - -
Total	35,085	25,713	12,318	6,479	4,176	3,242	8,037	36,099	90,210	82,960	67,120	37,491
Mean	1,132	857	397	209	149	105	268	1,164	3,007	2,676	2,165	1,250
Ac-ft	69,590	51,000	24,430	12,850	8,280	6,430	15,940	71,600	178,900	164,500	133,100	74,360

Calendar year 1952: Max 2,960 Min - Mean 758 Ac-ft 550,400
Water year 1952-53: Max 5,820 Min 86 Mean 1,120 Ac-ft 811,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.
Note.--Stage-discharge relation affected by ice Mar. 14 to Apr. 11.

TRAIL RIVER NEAR LAWING

Chemical analyses, in parts per million, November 1951 to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180 C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1951																							
Nov. 12	150	4.3	0.12	12	1.1	3.8		36	8.9	2.2	0.1	0.8		53	0.07		34	5	19		76.0	7.5	10
1952																							
Feb. 27	73	5.4	.11	18	1.4	2.0		44	15	1.5	.0	1.4		64	.09		51	15	8		101	6.8	5
Apr. 22	62	5.2	.10	14	1.4	5.9		44	13	2.0	.1	1.1		64	.09		41	5	24		104	7.3	7
May 20	160	4.8	.19	15	1.5	2.3		40	12	1.5	.1	1.2		58	.08		44	11	10		92.2	7.0	10
June 19	1,400	4.0	.07	12	1.1	5.9		38	11	2.2	.1	1.6		57	.08		34	3	27		79.5	7.4	5
July 24	2,810	4.1	.29	11	1.7	1.2	.8	30	14	.8	.1	1.4		50	.07		34	9	7		70.1	6.4	5
Aug. 21	1,200	17	.19	11	.5	.7	.8	29	7.6	.5	.0	.7		53	.07		28	4	5		61.8	6.4	10
Sept. 30	1,080	3.3	.15	10	.8	1.0	.7	27	7.7	.0	.1	.7		38	.05		28	6	7		64.5	7.1	10

Crescent Creek near Cooper Landing

Location.--Lat 60°29'50", long 149°40'40", on left bank at bridge on old Seward-Kenai Highway, 0.3 mile upstream from mouth, and 5.3 miles east of Cooper Landing.

Drainage area.--31.7 sq mi.

Records available.--Discharge: July 1949 to September 1953.
Chemical analyses: April to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 550 ft (from topographic map). Prior to Aug. 19, 1949, staff gage at same site and datum.

Extremes.--1950-51: Maximum discharge recorded during water year, 177 cfs June 6 (gage height, 1.48 ft); minimum not determined.
1951-52: Maximum discharge recorded during water year, 213 cfs June 27 (gage height, 1.63 ft); maximum gage height observed, 2.28 ft Dec. 16 (ice jam); minimum discharge not determined.
1952-53: Maximum discharge during water year, 820 cfs June 28; maximum gage height, 2.85 ft June 27; minimum discharge, 14 cfs Apr. 17 (gage height, 0.45 ft).
1949-53: Maximum discharge, that of June 28, 1953; minimum not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73								89	130	67	66
2	70								93	130	65	64
3	65								96	*124	63	68
4	63								113	133	63	75
5	*67								149	136	64	87
6	67							35	171	136	63	100
7	58								168	133	63	110
8	56	31	19	18	15		17		171	131	62	120
9	54								157	128	61	130
10	52								151	126	61	140
11									141	121	61	140
12		(*)							136	119	61	140
13								61	131	117	58	130
14									124	110	57	120
15									120	106	57	120
	46					12						
16								96	110	106	57	130
17								98	100	102	57	136
18								96	97	100	56	144
19								93	87	98	56	149
20								90	82	95	56	149
21								89	84	91	*56	146
22					14			87	89	85	56	149
23		25	18	15			23	86	98	79	54	141
24								85	110	77	54	133
25								84	110	*73	55	128
	38											
26								84	120	70	57	119
27								84	120	68	59	108
28								82	126	67	62	100
29				(*)	-			*81	128	67	63	96
30						(*)		81	130	67	65	90
31								82	------	67	65	------
Total	1,503	840	573	510	407	372	600	2,053	3,601	3,192	1,854	3,528
Mean	48.5	28.0	18.5	16.5	14.5	12	20.0	66.2	120	103	59.8	118
Ac-ft	2,980	1,670	1,140	1,010	807	738	1,190	4,070	7,140	6,330	3,680	7,000

Calendar year 1950: Max 306 Min - Mean 54.8 Ac-ft 39,690
Water year 1950-51: Max 171 Min - Mean 52.1 Ac-ft 37,760

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 8 to May 16 except for occasional staff-gage readings (stage-discharge relation affected by ice during most of period), May 20-27, June 15-27, June 30 to July 2, July 31 to Aug. 11, Aug. 15-20, Aug. 23 to Sept. 16, Sept. 28-30; discharge estimated on basis of 6 discharge measurements, weather records, and records for Cooper Creek and Russian River near Cooper Landing.

Crescent Creek near Cooper Landing--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									a71	166	101	63
2									a77	160	90	a64
3									a80	163	88	a63
4									a80	141	81	a61
5									a78	146	a91	a59
	a76	a56						a17				
6									a76	141	a96	a58
7									a72	131	110	a57
8			a21	a13		a13	a10		a70	126	a110	a58
9									a72	*115	a110	a57
10									a75	128	a100	a56
						(*)						
11									a79	128	a98	a56
12									a86	133	a96	a55
13									a100	135	a94	a55
14									*121	123	a91	a57
15	a54								133	112	a89	*58
		a43			a12			a31				
16			(*)						131	114	a86	58
17									146	110	a83	57
18									151	112	a79	56
19									174	114	a76	54
20	*45								183	116	a74	58
21									190	123	a72	70
22									186	125	a69	88
23							a11		193	125	a68	81
24			a16	a12		a11			190	125	a66	86
25									183	120	a65	79
	a46	a33						a50				
26									186	116	a62	78
27									209	114	a60	74
28									200	118	a58	78
29									193	110	a58	74
30									180	114	59	72
31										108	*60	
Total	1,797	1,320	571	387	348	371	315	1,030	3,965	3,912	2,540	1,940
Mean	58.0	44.0	18.4	12.5	12	12.0	10.5	33.2	132	126	81.9	64.7
Ac-ft	3,560	2,620	1,130	768	690	736	625	2,040	7,860	7,760	5,040	3,850

Calendar year 1951: Max 171 Min - Mean 54.3 Ac-ft 39,280
Water year 1951-52: Max 209 Min - Mean 50.5 Ac-ft 36,680

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 5 discharge measurements, weather records and records for stations on nearby streams.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	169		b45			23	51	237	470	163	96
2	68	158		b44			23	54	263	446	193	92
3	93	150	110	42			23	60	288	425	190	89
4	164	153		b40			23	68	327	400	169	117
5	172	150		b39			23	72	331	380	152	120
6	193	142		39			23	74	313	345	143	114
7	*190	*153		40			23	76	313	320	138	107
8	184	181	74	39	35	34	22	79	327	316	135	105
9	175	178		*b25			22	76	331	292	135	103
10	175	178		38			21	73	336	280	130	98
11	166	175					21	72	322	268	127	96
12	156	172					20	86	309	268	122	98
13	156	161	55				*20	86	300	260	120	100
14	175	145					20	99	279	272	117	100
15	190	140					19	*105	271	260	112	96
				40								
16	193	130					18	97	256	253	110	92
17	181	123					18	95	244	238	103	85
18	175	116	66				b22	118	256	227	98	81
19	166	108					b25	137	267	230	94	80
20	161	116	74				28	156	284	220	89	76
21	156	123	70				32	156	300	203	89	72
22	150	116	70		47		33	153	331	197	98	76
23	137	260	67			25	33	153	359	190	107	89
24	125	327	67				32	156	*374	193	105	94
25	120	267	66		(*)		30	161	462	*199	*105	92
				34								
26	135	233	63				31	164	507	190	100	89
27	135	206	59				34	166	592	190	96	87
28	164	190	57				41	178	618	187	117	83
29	178	166	53		-		47	178	590	178	112	81
30	172	147	51				49	184	538	169	107	80
31	169		b46					209		163	103	
Total	4,844	5,033	2,202	1,165	1,136	910	799	3,592	10,525	8,229	3,779	2,788
Mean	156	168	71.0	37.6	40.6	29.4	26.6	116	351	265	122	92.9
Ac-ft	9,610	9,980	4,370	2,310	2,250	1,800	1,580	7,120	20,880	16,320	7,500	5,530

Calendar year 1952: Max 327 Min - Mean 73.5 Ac-ft 53,330
Water year 1952-53: Max 618 Min 18 Mean 123 Ac-ft 89,250

* Discharge measurement made on this day. b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 1-19, Jan. 3, 7, 8, Jan. 10 to Apr. 12, Apr. 14-17; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

CRESCENT CREEK NEAR COOPER LANDING

Chemical analyses, in parts per million, April to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1952																			
April 22	11		5.8	0.01	15	1.4	5.1		48	10	2.5	0.1	1.0	65	43	4	98.8	7.4	5
May 21	50		5.8	.01	13	1.6	3.9		40	9.4	2.0	.1	2.3	58	39	6	84.6	7.2	5
June 20	183		4.3	.02	13	2.0	.9		37	7.4	2.5	.1	1.1	50	41	10	75.1	7.1	5
July 25	120		4.1	.02	12	1.2	2.1		36	7.7	.8	.0	.9	47	35	5	75.1	6.6	3
Aug. 22	69		6.1	.03	15	1.7	1.6	1.0	40	11	1.2	.1	.8	58	44	12	82.4	6.7	4
Sept. 17	57		5.2	.01	14	1.3	2.0	.5	42	8.7	1.0	.1	1.9	55	40	6	90.3	7.0	5

Kenai River at Cooper Landing

Location.--Lat 60°29'35", long 149°48'25", near center of span on downstream side of bridge on Sterling Highway, 0.9 mile east of Cooper Landing, 0.9 mile upstream from Bean Creek, and 1.2 miles downstream from Snug Harbor.

Drainage area.--634 sq mi.

Records available.--Discharge: May 1947 to September 1953.
Chemical analyses: October 1949, July to September 1950, April to September 1952.

Gage.--Wire-weight gage read once daily. Datum of gage is 429.27 ft above mean sea level (river-profile survey). May 11, 1947, to Mar. 10, 1949, staff gage and Mar. 11, 1949, to Apr. 13, 1950, wire-weight gage, at bridge 0.9 mile downstream at different datum.

Average discharge.--6 years, 2,784 cfs (2,016,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 8,960 cfs Sept. 6 (gage height, 8.70 ft, from graph based on gage readings); minimum daily, 190 cfs Mar. 15-24.
1951-52: Maximum discharge during water year, 7,980 cfs July 26, 27 (gage height, 8.29 ft); minimum discharge observed, 258 cfs Apr. 11-16 (gage height, 1.33 ft).
1952-53: Maximum discharge during water year, 20,600 cfs June 29 (gage height, 12.36 ft, from graph based on gage readings), from rating curve extended above 9,100 cfs by logarithmic plotting; minimum observed, 303 cfs Apr. 10, 11 (gage height, 1.69 ft).
1947-53: Maximum discharge, that of June 29, 1953; minimum daily, that of Mar. 15-24, 1951.

Remarks.--Records good except those for periods of ice effect, which are fair.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,470	1,010	430	360	290	240	220	400	2,060	4,930	4,730	5,480
2	3,260	955	420	360	290	240	220	423	2,140	5,160	4,660	5,520
3	2,830	928	410	350	280	240	230	430	2,310	5,460	4,660	6,270
4	2,700	875	410	340	280	240	230	433	2,490	*6,000	4,640	6,970
5	2,640	830	400	340	270	230	230	443	2,660	6,400	4,660	8,070
6	*2,580	800	390	340	270	230	240	443	2,890	6,770	4,770	8,940
7	2,510	805	390	350	260	230	240	485	3,510	7,060	5,020	8,720
8	2,380	770	380	360	260	220	250	541	3,940	7,780	5,220	8,550
9	2,220	770	380	370	260	220	250	592	4,350	8,020	5,310	8,360
10	2,140	*760	370	370	250	210	250	660	4,450	8,290	5,380	8,100
11	2,100	750	370	360	250	210	250	765	4,520	8,500	5,500	7,470
12	2,050	740	360	340	250	200	250	890	4,460	8,770	5,540	7,060
13	1,960	725	360	330	250	200	260	1,040	4,430	8,770	5,600	6,000
14	1,860	678	350	320	250	200	260	1,160	4,260	8,770	5,620	5,310
15	1,770	650	350	300	250	190	270	1,240	4,000	8,550	5,960	5,520
16	1,720	619	340	290	250	190	270	1,340	3,870	8,460	6,490	5,820
17	1,640	592	337	280	250	190	273	1,430	3,610	8,430	6,200	6,550
18	1,580	570	337	280	250	190	275	1,500	3,480	8,170	5,940	7,470
19	1,560	549	330	270	250	190	275	1,580	3,360	8,070	5,580	8,720
20	1,500	525	330	270	240	190	275	1,610	3,160	7,760	5,380	8,650
21	1,420	517	330	270	240	190	275	1,730	3,020	7,190	4,840	8,460
22	1,390	510	330	270	250	190	300	1,860	2,920	6,950	4,750	8,000
23	1,360	490	330	270	250	190	313	1,900	3,060	6,530	4,500	7,760
24	1,320	480	340	270	250	190	332	1,900	3,260	5,980	*4,400	7,240
25	1,300	470	340	270	250	200	340	1,910	3,430	*5,740	4,270	6,490
26	1,270	460	350	280	250	200	351	1,920	3,700	5,580	4,160	6,000
27	1,230	460	350	280	240	200	360	1,920	3,940	5,440	4,260	5,200
28	1,180	450	360	*280	240	200	366	1,920	4,180	5,200	4,400	4,790
29	1,140	440	366	280	-	210	366	*1,980	4,520	5,020	4,770	4,160
30	1,090	430	366	280	------	*210	390	1,960	4,710	5,020	5,250	3,920
31	1,040	------	363	290	------	220	- -----	2,000	------	4,930	5,380	------
Total	58,210	19,608	11,269	9,620	7,170	6,450	8,411	38,405	106,690	213,700	157,840	205,570
Mean	1,878	654	364	310	256	208	280	1,239	3,556	6,894	5,092	6,852
Ac-ft	115,500	38,890	22,350	19,080	14,220	12,790	16,680	76,180	211,600	423,900	313,100	407,700

Calendar year 1950: Max 9,460 Min 285 Mean 2,372 Ac-ft 1,718,000
Water year 1950-51: Max 8,940 Min 190 Mean 2,309 Ac-ft 1,672,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Dec. 16, Dec. 19-28, Jan. 2 to Apr. 16.

Kenai River at Cooper Landing--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,550	1,270	1,460	480	300	316	265	273	2,230	5,780	7,400	3,470
2	3,260	1,310	1,370	470	300	316	265	280	2,330	5,800	6,950	3,540
3	3,010	1,460	1,300	460	300	313	265	280	2,330	5,680	6,490	3,580
4	2,820	1,640	1,250	450	300	310	265	280	2,530	5,520	6,290	3,470
5	2,660	1,730	1,190	440	300	310	265	288	2,640	5,380	6,180	3,400
6	2,480	1,840	1,140	420	300	310	263	300	2,500	5,480	6,100	3,180
7	2,240	1,880	1,060	400	300	310	263	300	2,270	5,580	6,420	2,960
8	2,190	2,000	980	380	300	305	263	300	1,860	5,660	7,280	2,800
9	2,070	2,030	920	360	300	303	261	323	1,850	5,740	7,330	2,660
10	1,960	2,050	875	351	300	300	261	348	1,880	5,700	7,280	2,530
11	1,890	2,180	810	346	300	*300	258	369	2,040	5,660	7,330	2,370
12	1,820	2,320	780	332	305	300	258	403	2,220	5,940	7,280	2,230
13	1,730	2,710	740	323	310	298	258	450	2,330	6,330	7,260	2,190
14	1,660	3,120	*720	320	316	298	258	450	*2,550	7,020	6,990	2,230
15	1,600	3,360	690	320	321	295	258	454	2,770	6,950	6,950	2,280
16	1,560	3,700	670	320	321	295	258	457	3,000	7,260	6,710	*2,300
17	1,450	5,220	650	310	321	295	261	464	3,260	6,860	6,180	2,280
18	1,360	6,250	630	310	321	292	261	525	3,480	6,620	5,660	2,220
19	*1,350	5,160	610	310	321	290	261	574	3,680	6,400	5,200	2,220
20	1,320	4,430	590	310	321	282	261	624	3,890	*6,440	4,750	2,220
21	1,310	3,390	580	310	321	275	261	628	4,190	6,640	4,550	2,470
22	1,240	3,130	560	310	321	275	261	668	4,420	6,820	4,450	2,680
23	1,190	2,770	550	310	318	275	261	710	4,680	7,280	4,380	3,020
24	1,190	2,520	540	310	318	273	263	775	4,880	7,470	4,300	3,400
25	1,200	2,230	530	310	318	270	263	850	4,930	7,710	4,030	3,860
26	1,210	2,070	520	300	318	270	263	900	5,020	7,980	3,920	4,420
27	1,220	1,890	510	300	318	270	263	955	5,200	7,980	3,840	4,460
28	1,190	1,780	500	300	318	268	263	1,400	5,480	7,950	3,780	4,520
29	1,170	1,670	500	300	318	265	265	1,740	5,640	7,930	3,650	4,270
30	1,170	1,570	490	300	------	265	270	1,890	5,880	7,900	*3,530	4,130
31	1,200	------	490	300	------	263	------	2,140	------	7,640	3,500	------
Total	55,270	78,680	24,205	10,762	9,025	9,007	7,861	20,398	101,960	205,100	175,960	91,360
Mean	1,783	2,623	781	347	311	291	262	658	3,399	6,616	5,676	3,045
Ac-ft	109,600	156,100	48,010	21,350	17,900	17,870	15,590	40,460	202,200	406,800	349,000	181,200

Calendar year 1951: Max 8,940 Min 190 Mean 2,499 Ac-ft 1,809,000
Water year 1951-52: Max 7,980 Min 258 Mean 2,157 Ac-ft 1,566,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 8 to Jan. 9, Jan. 14 to Feb. 7, Feb. 9-11.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,900	3,400	2,070	1,400	550	590	354	1,270	5,200	18,000	8,650	5,440
2	3,600	3,330	1,810	1,400	550	570	346	1,370	5,760	15,800	8,910	4,930
3	2,760	3,250	1,700	1,300	540	550	343	1,490	6,530	14,800	9,720	4,590
4	3,150	3,180	1,560	1,300	540	530	340	1,650	7,040	13,300	10,600	5,040
5	5,360	3,120	1,490	1,200	530	520	334	1,760	7,830	12,000	10,400	5,360
6	7,860	*3,050	1,370	1,100	530	505	326	1,890	8,240	11,000	10,300	5,960
7	*8,000	3,130	1,310	1,100	520	501	318	2,050	8,460	10,200	9,100	6,640
8	7,980	3,230	1,230	1,100	520	501	313	2,160	8,650	9,460	8,770	6,470
9	6,000	3,470	1,170	1,100	510	493	305	2,300	8,860	9,230	8,550	6,310
10	4,770	3,540	1,100	*1,100	510	482	303	2,300	8,940	8,980	8,480	5,880
11	4,190	3,580	1,040	1,000	510	474	303	2,300	8,980	8,820	8,430	5,420
12	3,870	3,620	960	1,000	510	468	305	2,330	8,960	8,310	8,000	5,000
13	3,540	3,540	955	970	520	457	305	2,350	8,940	8,360	7,540	4,890
14	4,220	3,470	955	930	520	457	*326	2,470	8,720	8,430	7,780	4,980
15	4,980	3,150	955	890	530	460	340	2,600	8,460	8,530	7,930	5,070
16	4,860	3,070	1,040	850	540	468	348	2,740	8,050	8,700	7,080	4,930
17	4,640	2,640	1,190	810	549	471	387	*2,830	7,820	8,720	6,820	4,790
18	4,180	2,610	1,370	770	553	457	413	3,020	7,590	8,770	6,440	4,480
19	3,820	2,620	1,630	750	557	447	454	3,190	7,810	8,600	6,080	4,300
20	3,540	2,570	1,640	730	557	447	529	3,440	8,140	8,460	5,660	4,000
21	3,430	2,540	1,680	710	557	443	565	3,710	8,600	8,120	5,330	3,730
22	3,250	2,780	1,700	680	570	436	610	3,860	9,150	7,830	5,200	3,610
23	3,020	3,330	1,710	640	588	433	650	4,000	*10,100	7,760	5,110	3,510
24	2,870	3,810	1,730	606	596	419	668	4,180	10,700	7,710	5,290	3,480
25	2,710	4,060	1,760	600	592	408	770	4,190	12,400	*7,980	5,500	3,440
26	2,740	4,370	1,800	590	588	400	855	4,220	14,900	8,240	*5,520	3,290
27	2,770	3,870	1,820	580	*596	390	966	4,270	17,400	8,700	5,440	3,120
28	2,990	2,890	1,740	570	596	384	1,010	4,350	19,700	8,700	5,360	2,950
29	3,260	2,490	1,700	570	-	375	1,050	4,500	19,900	8,720	5,310	2,810
30	3,360	2,260	1,600	560	------	366	1,130	4,710	18,600	8,580	5,290	2,690
31	3,460	------	1,500	560	------	357	------	4,950	------	8,430	5,380	------
Total	129,080	95,970	45,285	27,466	15,329	14,257	15,266	92,430	300,230	299,240	223,970	137,110
Mean	4,164	3,199	1,461	886	547	460	509	2,982	10,010	9,653	7,225	4,570
Ac-ft	256,000	190,400	89,820	54,480	30,400	28,280	30,280	183,300	595,500	593,500	444,200	272,000

Calendar year 1952: Max 8,000 Min 258 Mean 2,464 Ac-ft 1,789,000
Water year 1952-53: Max 19,900 Min 303 Mean 3,824 Ac-ft 2,768,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 30 to Jan. 23, Jan. 25 to Feb. 16, Mar. 1-5.

KENAI RIVER AT COOPER LANDING

Chemical analyses, in parts per million, April to September 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Apr. 22	261	3.6	0.07	10	1.2	3.1		29	9.9	1.5	0.0	0.7		44	0.06		30	6	19		66.1	7.1	7
May 21	628	3.5	.11	10	1.0	3.2		28	9.9	1.5	.0	.7		44	.06		29	6	19		61.4	7.1	5
June 20	1,890	3.5	.13	13	1.1	1.0		29	11	2.0	--	1.3		47	.06		37	13	5		69.3	7.1	5
July 25	7,710	3.7	.04	10	1.2	1.0	0.8	28	7.9	3.0	.2	.7		42	.06		31	8	7		72.2	6.9	3
Aug. 22	4,450	4.6	.11	11	1.1	1.0	1.4	28	8.7	.5	.0	.9		43	.06		32	9	6		64.8	6.8	10
Sept. 17	2,280	3.8	.02	10	1.0	.9	.8	27	7.1	1.2	.0	.8		39	.05		28	3	6		65.0	6.9	7

Cooper Creek near Cooper Landing

Location.--Lat 60°26'00", long 149°49'15", on left bank 125 ft downstream from Cooper Lake Outlet, 1.4 miles upstream from Stetson Creek, and 4 miles south of Cooper Landing.

Drainage area.--31.8 sq mi.

Records available.--August 1949 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 1,165.5 ft above mean sea level (river-profile survey).

Extremes.--1950-51: Maximum discharge during water year, 208 cfs Sept. 19 (gage height, 2.23 ft); minimum not determined.
1951-52: Maximum discharge during water year, 225 cfs June 28 (gage height, 2.30 ft); minimum not determined.
1952-53: Maximum discharge during water year, 729 cfs June 29 (gage height, 4.02 ft); minimum, 18 cfs Apr. 14-16 (gage height, 1.07 ft).
1949-53: Maximum discharge, that of June 29, 1953; minimum not determined.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127								92	173	*92	81
2	121								97	168	90	79
3	108								104	170	87	85
4	99								117	175	87	95
5	93								142	177	89	113
6	*89		21				18	39	164	177	85	148
7	87	37							187	177	85	159
8	84			20	16				196	177	84	177
9	81								189	173	81	187
10	79								179	173	81	191
11	81								173	170	81	177
12	78								168	168	81	166
13	75	35							162	166	79	157
14	73	32				13			151	159	78	146
15	71	32							146	153	76	137
16	68	30	19				21	84	137	153	*73	142
17	65								131	155	72	166
18	63								123	148	71	184
19	63								117	144	68	196
20	61								109	137	68	201
21	60							100	111	129	68	189
22	60				15			97	119	123	68	189
23	60			16				94	129	115	65	187
24	59	26						92	142	109	65	177
25	58							90	151	104	68	170
26	57		20				30	87	157	102	*68	155
27	54					*15		87	164	99	73	144
28	53							84	168	95	75	135
29	50				-			85	173	95	79	127
30	49				------	15		84	177	95	79	119
31	47	------		*17	------		------	*85	------	95	78	------
Total	2,273	937	620	557	435	413	690	2,215	4,375	4,454	2,394	4,579
Mean	73.3	31.2	20.0	18.0	15.5	13.3	23.0	71.5	146	144	77.2	153
Ac-ft	4,510	1,860	1,230	1,100	863	819	1,370	4,390	8,680	8,830	4,750	9,080

Calendar year 1950: Max - Min - Mean 75.2 Ac-ft 54,460
Water year 1950-51: Max 201 Min - Mean 65.6 Ac-ft 47,480

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 31 to Nov. 12, Nov. 17 to Jan. 30, Feb. 1 to Mar. 26, Mar. 28 to May 24; discharge estimated on basis of 2 discharge measurements, weather records, and records for stations on nearby streams.

Cooper Creek near Cooper Landing--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	111	58							77	208	155	76
2	106	68							81	201	146	76
3	97	71							83	191	140	75
4	95	73							82	182	137	72
5	92	73							81	189	133	68
			28					18				
6	89	73							78	175	133	65
7	84	73							75	168	137	63
8	79	72							72	164	140	64
9	76	71		14		13	11		74	159	137	63
10	73	66							77	166	133	60
11	71	64							*82	173	127	59
12	66	61							90	167	123	58
13	64	59				(*)			106	199	119	58
14	61	56							113	*196	115	59
15	60	54							127	189	113	59
			21		13			33				
16	*58	52							140	187	106	59
17	57	50							151	184	102	58
18	54	48							162	182	95	57
19	53	46							166	179	90	57
20	52	45							177	182	89	55
21	51	45							187	182	85	64
22	49	46							191	184	81	79
23	49	46					12		196	184	79	82
24	54	44		13		12			196	184	78	87
25	55	42							196	187	78	87
			18					52				
26	54	42							196	182	75	87
27	52	40							211	177	72	85
28	51	39							220	177	*71	85
29	50	37							223	170	72	82
30	51	35			------				218	168	72	79
31	52	------			------		------		------	162	72	------
Total	2,066	1,649	688	418	377	387	345	1,082	4,128	5,618	3,305	2,078
Mean	66.6	55.0	22.2	13.5	13.0	12.5	11.5	34.9	138	181	107	69.3
Ac-ft	4,100	3,270	1,360	829	748	768	684	2,150	8,190	11,140	6,560	4,120

Calendar year 1951: Max 201 Min - Mean 67.2 Ac-ft 48,610
Water year 1951-52: Max 223 Min - Mean 60.5 Ac-ft 43,920

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 14-21, Nov. 29 to Mar. 12, Mar. 14 to June 10, June 12; discharge estimated on basis of 2 discharge measurements, weather records, and records for nearby streams.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	179					a24	50	a260	629	226	134
2	75	170					a24	55	a290	579	246	127
3	97	164					a24	60	a320	533	262	123
4	201	164		a56			a24	68	a360	501	259	134
5	257	*159					a23	76	a370	458	249	155
6	343						a23	84	a350	427	239	157
7	348						a22	92	a350	401	226	152
8	337		a80	*58	a39	a36	a22	97	a360	381	219	146
9	317						a21	100	a380	360	212	140
10	293						a21	100	384	337	207	129
11	275						a20	97	a380	318	200	121
12	252						a19	100	378	305	191	119
13	232	a170					a19	102	a360	302	179	121
14	239			a49			*18	106	356	305	174	117
15	247						18	111	348	310	168	117
16	247						18	121	a330	305	159	112
17	235						20	129	a320	297	150	108
18	218						25	135	a320	289	142	102
19	201						28	146	330	294	132	102
20	191						29	164	a340	289	125	95
21	175				a53		30	179	356	272	121	94
22	168						30	182	a380	259	125	99
23	153		a70		a52	a27	32	187	a410	254	142	108
24	144						33	191	a460	252	144	121
25	140						33	196	*504	*254	148	125
26	142	a220		a40			34	203	589	254	*146	123
27	142				*55		35	213	659	254	142	121
28	153				a52		37	223	708	249	148	115
29	184				-		40	223	722	242	148	108
30	184				------		45	a230	684	234	144	100
31	184	------			------		------	a240	------	232	140	------
Total	6,448	5,586	2,320	1,478	1,275	972	791	4,260	12,358	10,376	5,513	3,625
Mean	208	186	74.8	47.7	45.5	31.4	26.4	137	412	335	178	121
Ac-ft	12,790	11,080	4,600	2,930	2,530	1,930	1,570	8,450	24,510	20,580	10,930	7,190

Calendar year 1952: Max 348 Min - Mean 87.7 Ac-ft 63,660
Water year 1952-53: Max 722 Min - Mean 151 Ac-ft 109,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 2 discharge measurements, weather records, and records for stations on nearby streams.

Russian River near Cooper Landing

Location.--Lat 60°27'10", long 149°59'05", on right bank 50 ft upstream from small unnamed tributary, 0.3 mile downstream from Lower Russian Lake, 3.2 miles upstream from mouth, and 6 miles southwest of Cooper Landing.

Drainage area.--61.8 sq mi.

Records available.--May 1947 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map). Prior to June 12, 1949, staff gage at same site and datum.

Average discharge.--6 years, 124 cfs (89,770 acre-ft per year).

Extremes.--1950-51: Maximum discharge recorded during water year, 271 cfs Sept. 20 (gage height, 1.89 ft); minimum not determined.
1951-52: Maximum discharge recorded during water year, 261 cfs June 21 (gage height, 1.88 ft); minimum not determined.
1952-53: Maximum discharge during water year, 1,280 cfs Nov. 24 (gage height, 4.75 ft), from rating curve extended above 650 cfs by logarithmic plotting; minimum not determined.
1957-53: Maximum discharge, that of Nov. 24, 1952; minimum not determined.

Remarks.--Records fair except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a98							a67	*154	158	74	64
2	a96							a68	158	154	71	66
3	a100							a70	160	154	69	69
4	a110							a74	177	156	69	85
5	a110	a49						a81	209	156	69	110
6	*105						a28	a92	247	154	69	134
7	103							a100	247	154	71	160
8			28	a28	a22			a120	235	150	67	181
9								138	220	144	66	190
10		*42						164	205	142	64	192
11	a93							183	200	140	64	177
12								205	192	136	64	160
13								229	179	134	62	150
14								227	169	132	63	130
15								229	160	128	62	126
16						a18	a36	213	154	126	63	126
17								206	148	134	61	166
18								205	142	130	61	238
19								194	136	124	60	259
20		a36						183	132	114	60	266
21					a20			177	140	111	57	240
22								183	150	102	57	240
23	a71		26	a23				173	156	95	55	242
24								160	156	93	53	230
25								154	160	87	55	220
26							a57	146	162	*84	*55	200
27				(*)		(*)		140	166	81	61	190
28								140	169	79	60	170
29					-			140	169	79	61	160
30					------			138	164	78	63	148
31		------			------		------	144	------	75	62	------
Total	2,602	1,203	636	788	590	558	1,210	4,742	5,216	3,784	1,948	5,089
Mean	83.9	40.1	27.0	25.4	21.1	18.0	40.3	153	174	122	62.8	170
Ac-ft	5,160	2,390	1,660	1,560	1,170	1,110	2,400	9,410	10,350	7,510	3,860	10,090

Calendar year 1950: Max 480 Min - Mean 91.3 Ac-ft 66,100
Water year 1950-51: Max 266 Min - Mean 78.3 Ac-ft 56,670

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 4 discharge measurements, weather records, recorded range in stage, and records for stations on nearby streams.

Russian River near Cooper Landing--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a140	116							a160	218	142	81
2	a130	158							a170	205	134	75
3	124	158							a170	194	126	69
4	118	152							a170	183	120	66
5	111	154						a30	a170	179	118	62
6	107	150							a170	179	116	60
7	102	142				a23			a160	179	124	57
8	96	138		a25			a20		a150	181	128	57
9	93	132	a42						a160	177	128	60
10	88	126							a160	194	126	60
11	85	118							*173	209	118	56
12	84	111							198	209	112	55
13	79	98				*23			220	222	111	55
14	75	85							224	*224	105	57
15	71	a79			a23				233	213	102	57
16	67	a75						a56	238	205	95	56
17	63	a73	*34						240	198	92	56
18	60	a71							244	196	84	55
19	*60	a70							249	192	79	55
20	60	a71							252	188	78	54
21	64	a76							259	188	75	61
22	64	79				a21			256	188	78	82
23	60	75		a23			a21		254	183	74	92
24	72	74	a30						252	183	71	95
25	79	69						a97	244	181	69	98
26	81	67							240	177	67	96
27	79	64							256	169	64	95
28	78	61							259	164	*63	93
29	76	58							247	158	64	90
30	76	56			------				233	156	66	88
31	82	------			------		------		------	150	68	------
Total	2,624	2,956	1,126	743	677	677	615	1,927	6,411	5,842	2,997	2,093
Mean	84.6	98.5	36.3	24.0	23.0	21.8	20.5	62.2	214	188	96.7	69.8
Ac-ft	5,200	5,860	2,230	1,470	1,320	1,340	1,220	3,820	12,720	11,590	5,940	4,150

Calendar year 1951: Max 266 Min - Mean 83.9 Ac-ft 60,750
Water year 1951-52: Max 259 Min - Mean 78.4 Ac-ft 56,860

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby streams.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	392						249	490	740	233	188
2	81	364						271	510	638	278	175
3	121	329						280	520	568	334	166
4	493	321		160				290	520	510	353	177
5	687	*342	240		79	67		300	520	453	332	229
6	743	332						311	500	409	295	261
7	740	348					38	311	480	381	283	259
8	656	468		*166				300	490	364	283	220
9	562	489						290	510	345	288	200
10	*304	510						280	520	313	298	180
11	453	537						271	530	306	288	160
12	395	501						278	520	300	266	160
13	348	441						293	490	306	247	170
14	334	373		130			*39	295	460	321	244	160
15	334	356	190		88	52	41	334	430	334	242	160
16	329	329					44	*359	400	339	229	150
17	308	298					48	381	370	329	216	140
18	278	273					54	410	370	308	196	140
19	252	252					92	430	370	308	177	140
20	233	295					114	450	*380	*303	158	130
21	220	348					132	460	400	278	*142	130
22	209	356					128	450	430	268	152	130
23	202	772					132	440	460	261	192	140
24	188	1,200			90		130	420	530	261	190	160
25	179	956	260	88		46	130	400	631	266	198	160
26	192	760					136	390	764	276	207	160
27	194	631					152	390	920	275	198	160
28	252	537			*82		164	410	992	268	231	150
29	418	450			80		198	430	942	256	231	140
30	432	378			------		229	450	838	240	216	130
31	401	------			------		------	470	------	227	202	------
Total	10,822	13,938	7,160	3,814	2,372	1,696	2,457	11,093	16,287	10,749	7,399	5,025
Mean	349	465	231	123	84.7	54.7	81.9	358	543	347	239	168
Ac-ft	21,470	27,650	14,200	7,560	4,700	3,360	4,870	22,000	32,300	21,320	14,680	9,970

Calendar year 1952: Max 1,200 Min - Mean 147 Ac-ft 106,900
Water year 1952-53: Max 1,200 Min - Mean 254 Ac-ft 184,100

Peak discharge (base, 550 cfs).--Oct. 6 (11 p.m.) 760 cfs (3.47 ft); Nov. 24 (6 a.m.) 1,280 cfs (4.75 ft); June 27 (8:30 p.m.) 1,020 cfs (4.81 ft). * Discharge measurement made on this day.

Note.--No gage-height record Dec. 1 to Jan. 7, Jan. 9 to Feb. 26, Feb. 28 to Apr. 13, Apr. 15-18, May 18 to June 24, Sept. 8-30; discharge estimated on basis of 4 discharge measurements, recorded range in stage, weather records, and records for stations on nearby streams.

Resurrection Creek at Hope

Location.--Lat 60°55'15", long 149°38'40", near right bank on downstream side of pier of bridge at Hope, 0.3 mile downstream from Cripple Creek, 0.3 mile upstream from mouth, and 2.0 miles downstream from Wildhorse Creek.

Drainage area.--162 sq mi.

Records available.--October 1949 to September 1951 (discontinued).

Gage.--Staff gage read once daily. Altitude of gage 50 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,330 cfs June 6 (gage height, 2.22 ft, from graph based on gage readings), from rating curve extended above 810 cfs by logarithmic plotting; minimum not determined.
1949-51: Maximum discharge observed, 2,140 cfs June 20, 1950 (gage height, 2.80 ft), from rating curve extended above 810 cfs by logarithmic plotting; minimum not determined.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	134	88	74	58				134	382	660	304	310
2	134	87	72	57				149	562	606	280	334
3	131	87	70	56				164	790	570	280	389
4	131	86	68	56				180	1,120	554	269	514
5	128	86	66	56				189	1,270	570	269	403
6	128	87	64	55				217	1,320	554	304	368
7	*134	88	63	55				237	1,210	538	340	434
8	124	90	61	55				269	1,110	506	328	403
9	121	91	60	54				292	962	490	316	434
10	121	92	59	53				340	860	426	304	450
11	118	92	58	52			47	354	770	410	292	458
12	118	*91	58	50				328	723	368	280	466
13	115	87	58	48				328	597	328	269	482
14	115	82	57	47				340	490	328	269	490
15	115	80	57					316	530	316	264	498
16	111	76	57		45	37		322	554	304	264	506
17	111	73	56					328	660	304	258	530
18	108	71	56					316	732	292	264	546
19	108	70	56					304	750	292	264	562
20	108	69	56	44			54	292	696	304	264	597
21	105	68	56				56	269	732	304	264	615
22	105	67	57				59	258	714	304	264	651
23	102	67	58				62	237	732	316	258	669
24	102	67	59				65	198	741	316	*253	741
25	100	68	60				70	208	750	304	275	687
26	98	70	61				77	217	810	316	286	651
27	96	72	62				85	226	790	316	298	597
28	94	74	62	49		(*)	94	237	750	304	292	546
29	91	76	61	(*)	-		110	248	696	280	286	530
30	89	76	60		------		120	*253	660	340	292	498
31	88	------	59		------		------	286	------	*328	298	------
Total	3,483	2,378	1,881	1,530	1,260	1,147	1,745	8,036	23,463	12,148	8,748	15,359
Mean	112	79.3	60.7	49.4	45	37	58.2	259	782	392	282	512
Ac-ft	6,910	4,720	3,730	3,030	2,500	2,280	3,460	15,940	46,540	24,100	17,350	30,460

Calendar year 1950: Max 2,120 Min - Mean 276 Ac-ft 200,200
Water year 1950-51: Max 1,320 Min - Mean 222 Ac-ft 161,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 25 to Apr. 30 (no gage-height record Jan. 15 to Apr. 19; discharge estimated on basis of 2 discharge measurements and weather records).

EAST FORK SIXMILE CREEK NEAR SUNRISE

LOCATION.--At bridge on Seward-Anchorage Highway, 7 miles east of junction of Seward Anchorage and Hope Cutoff Highways, and 15 miles southeast of Sunrise.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1951																			
Nov. 13			9.1	0.01	16	1.2	2.8		45	11	1.0	0.0	1.6	59	45	8	100	7.4	8
1952																			
Feb. 27			6.5	.03	17	1.5	4.4		44	18	1.5	.0	1.4	63	49	12	97.6	7.0	5
Apr. 22			6.4	.01	17	1.4	1.2		46	9.4	1.8	.0	1.0	61	48	10	100	7.2	3
May 21			4.7	.01	11	1.5	0.4		28	7.6	1.5	.0	1.9	42	34	11	68.1	7.0	9
June 20			4.3	.09	8.6	.7	2.2		22	8.1	1.0	.1	1.1	37	24	6	53.1	7.0	4
July 25			3.7	.07	8.0	.7	1.5		21	6.9	.8	.0	.8	33	23	6	50.1	6.4	8
Aug. 22			4.1	.20	10	1.3	3 2		28	12	1.0	--	.6	46	30	7	63.7	6.8	5
Sept. 17			4.8	.00	12	1.2	1.1	1.0	34	12	.5	.1	.7	50	36	8	79.8	6.8	3

South Fork Campbell Creek near Anchorage

Location.--Lat 61°09'55", long 149°46'00", in NW¼ sec. 2, T. 12 N., R. 3 W., on right bank 20 ft downstream from bridge, 0.1 mile northeast of Campbell Airstrip, 2.2 miles upstream from North Fork Campbell Creek, and 5½ miles southeast of Anchorage. Prior to Aug. 20, 1952, at site 70 ft upstream.

Drainage area.--29.4 sq mi.

Records available.--July 1947 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 300 ft (from topographic map). Prior to Aug. 20, 1952, at site 70 ft upstream at different datum.

Average discharge.--6 years, 40.8 cfs (29,540 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 255 cfs June 24 (gage height, 2.00 ft), from rating curve extended above 120 cfs by logarithmic plotting; maximum gage height observed, 2.10 ft Nov. 20 (backwater from ice); minimum discharge not determined.

1951-52: Maximum discharge during water year, 213 cfs Sept. 1, from rating curve extended above 90 cfs by logarithmic plotting; maximum gage height, 2.19 ft Sept. 1; minimum discharge not determined.

1952-53: Maximum discharge during water year, 200 cfs June 4; maximum gage height, 1.65 ft May 31; minimum discharge not determined.

1947-53: Maximum discharge, 891 cfs June 21, 1949 (gage height, 3.30 ft, site and datum then in use), from rating curve extended above 110 cfs by logarithmic plotting; minimum not determined.

Remarks.--Records poor prior to Sept. 1, 1952, good thereafter except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26							(*)	54	87	56	55
2	26								68	113	*51	61
3	25			(*)					73	98	44	55
4	25								*114	89	41	113
5	24								140	85	45	159
				11			5					
6	24								150	92	39	*119
7	23								140	90	56	99
8	23	12			7	6		20	130	80	47	117
9	22								110	74	47	94
10	24								83	71	45	90
11	23								80	68	45	98
12	22								74	65	42	85
13	22						4		70	62	44	87
14	22								65	58	44	*87
15	22				(*)				60	53	42	83
			11	8								
16	21								56	47	42	*87
17	19								54	47	47	96
18	16						6		52	54	44	101
19	b16								52	47	41	113
20	b15	(*)						27	54	51	39	115
21	b15								58	44	39	98
22	16					(*)			70	41	48	103
23	b17	11		(*)	8	5	9		110	46	59	94
24	b16							28	172	51	53	85
25	b15							29	157	53	55	79
				9								
26	b14							29	119	48	62	74
27	14							28	111	43	68	71
28	13						10	35	*111	47	77	68
29	13				-			42	103	50	65	63
30	12				------	(*)		45	94	69	55	59
31	*12	------			------		------	47	------	72	53	------
Total	597	345	341	289	209	170	195	799	2,784	1,997	1,535	2,708
Mean	19.3	11.5	11	9.3	7.5	5.5	6.5	25.8	92.8	64.4	49.5	90.3
Ac-ft	1,180	684	676	573	415	337	387	1,580	5,520	3,960	3,040	5,370

Calendar year 1950: Max 140 Min - Mean 26.1 Ac-ft 18,900
Water year 1950-51: Max 172 Min - Mean 32.8 Ac-ft 23,720

Peak discharge (base, 150 cfs).--June 6 (time unknown) about 160 cfs; June 24 (11:30 a.m.) 255 cfs (2.00 ft); Sept. 4 (10 p.m.) 187 cfs (1.77 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 27 to May 23 except occasional staff-gage readings (stage-discharge relation affected by ice during most of period), June 5-23; discharge estimated on basis of 9 discharge measurements, weather records, and records for Ship Creek near Anchorage.

South Fork Campbell Creek near Anchorage--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59							8	28	92	107	155
2	54							9	36	87	89	125
3	50							9	40	82	80	95
4	48							9	41	74	74	78
5	47			(*)				9	40	77	71	70
6	43							*8	37	74	66	65
7	39							8	37	68	75	60
8	38	29						8	38	82	69	60
9	38				(*)			10	48	74	65	68
10	37							*11	62	83	62	*85
11	35							11	76	111	58	74
12	31							11	80	109	53	70
13								10	*79	105	50	67
14							(*)	10	74	92	48	70
15			19	12	9	8	7	10	79	79	45	*74
16								12	89	77	42	67
17								16	90	72	40	65
18								21	96	75	38	65
19								22	94	74	36	60
20						(*)		22	*98	74	*34	68
21	31							22	90	72	35	114
22								22	82	72	38	114
23		25						26	90	71	37	97
24								30	92	66	40	89
25								28	85	66	42	83
26								27	94	65	*52	77
27								28	109	69	56	72
28								38	113	92	50	71
29								41	98	109	60	67
30		(*)			------			39	98	132	74	*65
31		------			------		------	32	------	*138	96	------
Total	1,108	810	589	372	261	248	210	567	2,213	2,613	1,782	2,390
Mean	35.7	27.0	19	12	9	8	7	18.3	73.8	84.3	57.5	79.7
Ac-ft	2,200	1,610	1,170	738	518	492	417	1,120	4,390	5,180	3,530	4,740

Calendar year 1951: Max 172 Min - Mean 36.1 Ac-ft 26,160
Water year 1951-52: Max 155 Min - Mean 36.0 Ac-ft 26,100

Peak discharge (base, 150 cfs).--July 31 (12:30 a.m.) 159 cfs (1.53 ft); Sept. 1 (6 a.m.) 213 cfs (2.14 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 13 to May 1 except staff-gage readings Nov. 30, Jan. 5, Feb. 9, Mar. 20, Apr. 14 (stage-discharge relation affected by ice during most of period), June 9-12; discharge estimated on basis of 6 discharge measurements, weather records, and records for nearby stations.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	65						27	165	94	54	107
2	68	65						28	160	96	100	94
3	70	61						29	165	92	90	89
4	104	59				(*)		34	*183	84	74	102
5	93	68			(*)			36	160	82	64	107
6	97	71						36	144	80	60	103
7	88	63						34	137	75	56	94
8	83	62	22	14	12		8	*36	141	*82	55	85
9	78	65						30	141	72	69	82
10	80	74						28	155	*66	70	77
11	77	62						27	141	74	102	*77
12	72	59						29	134	75	84	77
13	71	56				(*)		30	113	74	72	74
14	70	66						36	109	74	64	72
15	72	70				9		38	105	72	60	72
16	71	68						43	*98	70	55	66
17	62	62						52	89	74	54	68
18	65	54						59	92	82	51	66
19	72	*46						63	96	122	50	68
20	83	37		(*)				74	100	90	*44	64
21	63	39					9	66	111	*72	44	64
22	*59	46			10			61	115	68	44	74
23	54	60	18	16				60	119	64	77	69
24	50	61						61	126	62	64	72
25	56	48						60	160	60	66	70
26	72	46				(*)	14	61	172	60	71	69
27	70	43					16	62	160	57	72	64
28	88	40					*19	70	148	54	128	60
29	89	37			-		22	65	128	54	105	59
30	71	34			------		24	70	109	50	92	59
31	66	------	(*)		------		------	142	------	47	82	------
Total	2,285	1,687	618	466	310	279	305	1,547	3,976	2,278	2,173	2,304
Mean	73.7	56.2	19.9	15.0	11.1	9	10.2	49.9	133	73.5	70.1	76.8
Ac-ft	4,530	3,350	1,230	924	615	553	605	3,070	7,890	4,520	4,310	4,570

Calendar year 1952: Max 155 Min - Mean 41.7 Ac-ft 30,240
Water year 1952-53: Max 183 Min - Mean 49.9 Ac-ft 36,170

Peak discharge (base, 150 cfs).--May 31 (9:45 p.m.) 185 cfs (1.65 ft); June 4 (12 m.) 200 cfs (1.57 ft); June 10 (11:30 a.m.) 186 cfs (1.52 ft); June 26 (4 a.m.) 183 cfs (1.51 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 18-20, Nov. 15-18, Nov. 28 to Apr. 27, Apr. 29 (stage-discharge relation affected by ice during most of period), Aug. 25, 26; discharge estimated on basis of 7 discharge measurements, weather records, and records for nearby stations.

Ship Creek near Anchorage

Location.--Lat 61°13'35", long 149°38'05", in SE¼ sec. 9, T. 13 N., R. 2 W., on left bank in Fort Richardson water-supply intake building, 20 ft upstream from diversion dam, 3 miles upstream from North Fork Ship Creek, and 8½ miles east of Anchorage.

Drainage area.--91.2 sq mi.

Records available.--Discharge: October 1946 to September 1953.
Chemical analyses: April 1949 to July 1951.
Water temperatures: May 1949 to September 1950.

Gage.--Water-stage recorder and earth-filled timber dam. Datum of gage is 487.87 ft above mean sea level. Prior to May 1, 1947, staff gage at same site and datum.

Average discharge.--7 years, 155 cfs (112,200 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 983 cfs Sept. 4 (gage height, 2.19 ft), caused by failure of cofferdam upstream; minimum daily, 12 cfs Apr. 13.
1951-52: Maximum discharge during water year, 734 cfs June 20 (gage height, 1.69 ft); no flow for several hours on Mar. 16, 17, 29, caused by temporary obstruction upstream.
1952-53: Maximum discharge during water year, 999 cfs June 4 (gage height, 2.07 ft); minimum not determined.
1946-53: Maximum discharge, 1,860 cfs June 21, 1949 (gage height, 3.44 ft); minimum, that of Mar. 16, 17, 29, 1952.
1950-51: Maximum dissolved solids, 94 ppm Mar. 21-31; minimum, 59 ppm June 1-10. Maximum total hardness, 68 ppm Feb. 20-28; minimum, 39 ppm June 1-10.
1949-51: Maximum dissolved solids, 94 ppm Mar. 1-10, 1950, Mar. 21-31, 1951; minimum, 58 ppm May 21-31, 1949.
Maximum total hardness, 69 ppm Apr. 26-30, May 1-10, 1949, Apr. 11-20, 1950; minimum, 39 ppm June 1-10, 1951.
Maximum water temperature, 55°F Aug. 14, 15, 1950; minimum, freezing point on many days in winter months.

Remarks.--Records poor. Occasional regulation by dams at and above gage. Discharge data represent net flow remaining after small diversion for water supply of Fort Richardson. Average annual diversions are as follows: 1951, 10.0 cfs; 1952, 15.0 cfs; and 1953, 20.0 cfs. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Cooperation.--Gage inspected and records of diversion furnished by Office of Post Engineers, Fort Richardson.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	b36			26	23	18	*34	308	485	190	236
2	83	b35			26	23	18	41	386	420	182	249
3	83	*b36			23	23	19	43	396	415	172	212
4	76			(*)	24	22	18	41	545	410	168	444
5	76				24	22	16	41	*654	420	179	618
6	76				24	21	*14	50	690	382	155	*501
7	74				23	21	16	67	648	317	216	425
8	72			30	23	20	13	78	584	360	182	475
9	70	38			24	20	13	76	518	342	182	396
10	70				24	19	14	112	382	300	172	368
11	69				24	19	13	135	368	220	172	420
12	69				23	18	14	165	342	228	155	329
13	70				23	18	12	183	317	220	162	346
14	66				23	17	13	226	292	220	158	329
15	64				*23	17	13	208	276	220	152	329
16	62		33		23	17	16	175	260	200	155	342
17	55				23	16	19	123	249	258	155	550
18	56				21	16	28	109	230	228	148	550
19	57				23	16	23	93	230	220	139	584
20	56				23	16	32	90	234	224	142	672
21	56				23	16	35	98	260	228	142	584
22	55				24	*b16	31	88	276	244	158	606
23	54	35			23	b17	31	80	425	236	158	501
24	55			28	22	b17	24	118	618	*220	158	454
25	54				22	b17	32	118	584	220	190	425
26	b50				23	18	29	120	518	200	204	368
27	b47				23	18	39	129	485	162	258	368
28	b45				23	18	39	152	475	179	262	360
29	b42			(*)	-	18	34	208	454	179	262	342
30	b39				----	18	32	201	425	200	298	333
31	b38	---			------	18	-----	245	------	190	216	------
Total	1,922	1,088	1,023	898	653	575	668	3,647	12,429	8,347	5,642	12,716
Mean	62.0	36.3	33	29.0	23.3	18.5	22.3	118	414	269	182	424
Ac-ft	3,810	2,160	2,030	1,780	1,300	1,140	1,320	7,230	24,650	16,560	11,190	25,220

Calendar year 1950 Max 772 Min 24 Mean 108 Ac-ft 77,960
Water year 1950-51: Max 690 Min 12 Mean 136 Ac-ft 98,390

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Doubtful or no gage-height record Nov. 4 to Jan. 3, Jan. 5-28, 30, 31, Feb. 24-28, Mar. 3-21; discharge estimated on basis of 4 discharge measurements, recorder record, weather records, and records for stations on nearby streams.

Ship Creek near Anchorage--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	285	123	62					16	168	350	524	512
2	232	142	62					17	164	295	472	445
3	232	103	*61					18	156	268	428	390
4	232	98	60					19	184	254	370	330
5	224	98	59	(*)				20	214	250	345	268
6	212	98	57					*20	209	232	258	240
7	193	98	54					22	200	200	272	222
8	162	98	52	32	17		*13	32	188	200	236	209
9	145	90	53					36	222	188	236	222
10	162	80	55					44	290	204	236	*245
11	155	86	54					44	355	276	209	209
12	148	86	52					39	390	320	214	204
13	132	83	50					36	*406	340	200	184
14	152	80	48					39	385	310	218	204
15	142	88	46					44	412	250	204	222
16	135	83	44			14		52	445	204	184	200
17	126	78	44					65	472	168	180	218
18	126	78	46					96	506	198	*156	200
19	140	75	50					103	489	272	145	218
20	150	70	50					109	608	310	149	209
21	160	70	47			(*)		103	590	335	138	254
22	160	73	45		15			109	489	412	153	290
23	160	75	41	25			14	142	484	401	134	290
24	150	73	38					149	456	375	138	272
25	140	71	37					149	418	365	180	258
26	129	68	37					149	489	340	188	250
27	100	66	39					164	584	350	172	245
28	100	65	40					218	530	456	160	254
29	98	64	40					250	450	462	168	222
30	98	63	39					222	401	518	168	*196
31	120		38					192		*536	218	
Total	4,900	2,523	1,500	880	465	434	405	2,718	11,354	9,637	7,053	7,682
Mean	158	84.1	48.4	28.4	16.0	14	13.5	87.7	378	311	228	256
Ac-ft	9,720	5,000	2,980	1,750	922	861	803	5,390	22,520	19,110	13,990	15,240

Calendar year 1951: Max 690 Min - Mean 149 Ac-ft 108,100
Water year 1951-52: Max 608 Min - Mean 135 Ac-ft 98,290

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19 to Dec. 31, Jan. 5, Mar. 21, Apr. 8, and probably during some periods of no gage-height record. No gage-height record Jan. 1-4, Jan. 6 to Mar. 20, Mar. 22 to Apr. 7, Apr. 9 to May 4; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	180	227	80					79	743	405	186	370
2	200	222	73					88	743	385	295	330
3	227	200	67		(*)			115	833	360	270	310
4	418	196	60			(*)		125	911	335	236	375
5	325	214	54	34	31			121	859	325	186	395
6	345	236	50					118	*774	310	165	385
7	335	217	46					128	768	300	154	360
8	295	222	43				10	*135	788	305	158	330
9	300	227	41					125	762	*275	182	295
10	300	275	39					121	725	246	169	270
11	281	236	39		(*)			118	647	275	280	*255
12	286	217	38					128	617	315	260	255
13	240	182	38					128	551	300	236	241
14	263	146	39					154	504	300	204	232
15	227	178	39					165	482	295	186	217
16	209	165	40	36	23	11		186	449	280	174	199
17	160	158	42		(*)		11	232	*432	270	161	191
18	168	148	44				14	275	476	275	154	182
19	192	*135	46				21	320	504	315	139	182
20	290	131	47	(*)			32	355	551	280	135	174
21	188	131	48				23	355	665	*248	125	165
22	*200	127	47				20	350	683	227	146	174
23	160	169	47				19	355	689	232	222	169
24	172	191	47				23	380	719	241	*199	182
25	172	157	46		16		23	390	833	246	213	169
26	248	138	45	38		(*)	27	390	846	241	241	165
27	222	131	43				40	395	788	232	241	158
28	255	127	40				52	410	721	217	476	150
29	330	103	36		-		67	405	*623	199	438	143
30	250	95	34				70	444	493	182	395	135
31	236		*33					605		169	360	
Total	7,674	5,299	1,431	1,118	668	341	615	7,695	20,179	8,583	6,986	7,158
Mean	248	177	46.2	36.1	23.9	11	20.5	248	673	277	225	239
Ac-ft	15,220	10,510	2,840	2,220	1,320	676	1,220	15,260	40,020	17,020	13,860	14,200

Calendar year 1952: Max 608 Min - Mean 150 Ac-ft 109,200
Water year 1952-53: Max 911 Min - Mean 186 Ac-ft 134,400

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 30 to Apr. 17.

SHIP CREEK NEAR ANCHORAGE

Chemical analyses, in parts per million, October 1950 to July 1951

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1950																			
Oct. 1-10	76.3		10	0.02	19	3.0	2.7	0.8	55	19	0.5	0.0	1.1	84	60	15	130	7.2	5
Oct. 11-20	62.4		10	.02	19	3.1	2.9		55	19	.5	--	1.0	85	60	15	130	7.3	5
Oct. 21-31	48.6		10	.02	20	3.5	2.9	.5	59	19	.6	--	.9	88	64	16	142	7.3	5
Nov. 1-10	37.3		9.8	.02	20	3.5	1.8	.9	59	19	.5	--	1.0	86	64	16	141	7.2	5
Nov. 11-20	36.5		10	.02	20	3.7	2.5		59	19	.5	.0	1.0	88	65	17	139	7.3	5
Nov. 21-30	35.0		11	.02	20	3.5	2.2		60	19	.6	.0	1.0	90	64	15	143	7.3	5
Dec. 1-10	33		10	.02	20	3.5	2.5	.8	60	18	.5	.0	.9	87	64	15	141	7.3	5
Dec. 11-20	33		11	.02	20	3.5	2.7		61	18	.5	.0	.9	88	64	14	140	7.4	5
Dec. 21-31	33		11	.02	20	3.3	3.1		61	18	.5	--	1.0	85	63	13	143	7.4	5
1951																			
Jan. 1-10	30		9.6	.05	20	3.6	1.7		58	18	.5	.2	1.2	83	65	17	143	7.4	5
Jan. 11-20	29.0		9.2	.02	22	2.9	1.4		64	15	1.0	.0	.4	87	67	14	142	7.3	5
Jan. 21-31	28		9.2	.02	22	2.8	2.0		65	15	1.2	.0	.4	87	66	13	143	7.3	5

SHIP CREEK NEAR ANCHORAGE--Continued

Chemical analyses, in parts per million, October 1950 to July 1951--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1951																			
Feb. 1-10	24.1		11	.01	22	2.8	2.4		66	15	1.2	.0	.4	89	66	12	148	7.3	5
Feb. 11-19	22.9		9.6	.01	22	2.8	2.5		66	15	1.2	.0	.5	88	66	12	146	7.2	5
Feb. 20-28	22.9		9.2	.01	22	3.1	1.9		67	15	1.1	.0	.3	88	68	13	146	7.3	5
Mar. 1-10	21.4		10	.02	23	2.4	3.2		68	16	.6	--	1.3	90	67	12	149	7.6	5
Mar. 11-20	17.0		9.6	.03	21	2.9	4.2		68	15	.8	--	1.2	88	64	9	148	7.8	5
Mar. 21-31	17.4		10	.02	21	2.5	4.5		67	15	.6	--	1.3	94	63	8	149	7.5	5
Apr. 1-10	15.9		11	.02	21	3.6	2.5	1.4	68	16	.6	.2	1.2	91	67	12	147	7.3	6
Apr. 11-20	18.3		10	.02	18	4.0	2.4	1.6	62	15	.9	.3	1.1	84	61	11	143	7.4	5
Apr. 21-30	32.6		10	.01	16	2.9	2.4	1.9	57	12	1.2	.3	.6	75	52	5	129	7.6	35
May 1-10	58.3		5.5	.02	17	2.6	4.1		55	14	.9	--	1.5	79	53	8	115	7.9	10
May 11-20	151		5.1	.01	15	2.5	2.5		44	14	.6	--	2.1	66	48	12	97.0	7.8	5
May 21-31	142		4.5	.02	15	2.6	3.1		47	14	.4	--	1.5	64	48	10	104	7.7	5
June 1-10	511		8.3	.01	12	2.2	1.5		36	10	1.0	.2	.6	59	39	10	86.0	7.4	7
June 11-20	280		8.7	.01	15	2.6	2.3		44	14	1.5	.1	.4	67	48	12	105	7.5	6
June 21-30	452		9.0	.02	14	2.5	3.1		41	15	1.5	.1	.6	64	45	12	102	7.4	7
July 1-10	385		7.9	.01	15	2.5	1.8		43	14	1.0	.1	.3	65	48	12	105	7.3	7
July 11-20	224		8.3	.01	14	2.6	4.6		44	16	1.5	.2	.4	68	46	10	110	7.3	7
July 21-26	225		8.1	.02	16	3.3	3.2		48	18	1.5	--	.4	75	53	14	115	7.3	6
July 28-31	249		7.4	.02	17	2.9	4.9		48	19	3.0	.4	.6	79	54	15	116	7.4	8
Average	a 103		9.2	.02	19	3.0	2.9		57	16	.9	.1	.9	81	60	13	130	--	7

a Represents 63 percent of runoff for water year October 1950 to September 1951.

EAGLE RIVER NEAR ANCHORAGE

LOCATION.--At bridge on Glenn Highway 13 miles northeast of Anchorage.
RECORDS AVAILABLE.--Chemical analyses: February to August 1952.
REMARKS.--Only miscellaneous discharge records for this station.

Chemical analyses, in parts per million, February to August 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Feb. 21		6.4	0.04	33	5.5	8.3		101	36	1.2	0.1	1.2		129			105	22	15		209	7.0	5
Mar. 12		7.1	.04	33	5.7	4.1		100	24	4.8	.0	1.2		130			106	24	8		211	7.5	7
Apr. 16		6.3	.14	30	5.1	2.3		93	19	2.5	.1	1.1		118			96	20	5		194	7.4	6
May 8		6.6	.14	32	6.1	4.0		100	26	2.5	.1	1.0		128			105	23	8		203	7.5	7
June 12		5.2	.03	23	4.3	4.7		74	19	2.5	.1	1.4		97			75	14	12		152	7.2	5
July 14		3.4	.13	14	2.6	2.2		444	12	1.0	.0	.7		58			46	10	10		91.7	6.8	6
Aug. 22		4.1	.24	15	3.0	3.1		48	15	.8	--	.6		65			50	10	12		97.8	7.1	7

PETERS CREEK NEAR ANCHORAGE

LOCATION.--At bridge on Glenn Highway, 2 miles east of Birchwood, and 19 miles northeast of Anchorage.
RECORDS AVAILABLE.--February to August 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, February to August 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1952																			
Feb. 21			8.0	0.01	32	6.1	0.2		90	28	1.2	0.0	0.9	124	105	31	199	7.6	5
Mar. 12			7.8	.02	30	6.6	6.5		94	30	5.0	.0	1.0	127	102	25	203	7.4	5
Apr. 16			8.2	.02	30	6.8	1.7		92	27	1.5	.0	1.0	123	103	27	202	7.5	5
May 8			8.0	.09	28	6.7	3.8		90	27	1.8	.1	1.2	121	97	24	191	7.5	8
June 12			7.7	.09	24	5.2	3.2		74	24	1.0	.1	1.2	103	81	21	164	7.3	5
July 14			5.5	.08	19	3.1	1.7		53	18	.8	.0	.7	75	60	17	125	7.0	5
Aug. 22			4.0	.10	22	4.0	2.3	1.4	62	24	.2	.0	.9	89	71	21	147	6.9	10

Eklutna Lake near Palmer

Location.--Lat 61°24'05", long 149°09'00", 100 ft upstream from dam at outlet of Eklutna Lake, 8 miles upstream from Eklutna power diversion dam, 11 miles upstream from mouth of Eklutna Creek, and 14 miles south of Palmer.

Drainage area.--119 sq mi.

Records available.--November 1946 to September 1953.

Gage.--Staff gage read twice daily. Datum of gage is 859.8 ft above mean sea level (Corps of Engineers benchmark). Prior to May 5, 1947, reference point at same site and datum.

Extremes.--1950-51: Maximum gage height observed during water year, 12.00 ft Sept. 18; minimum observed, 0.70 ft May 4-7.
1951-52: Maximum gage height observed during water year, 9.60 ft Sept. 22; minimum observed, 0.60 ft May 11, 14, 15.
1952-53: Maximum gage height observed during water year, 10.04 ft Oct. 5; minimum observed, 2.98 ft May 1.
1946-53: Maximum gage height observed, that of Sept. 18, 1951; minimum observed, 0.6 ft May 8-20, 22-26, 1947, May 11, 14, 15, 1952.

Remarks.--Outflow from lake controlled by stoplogs and sluice gates in dam at outlet. Stored water released during winter period for power purposes. Gates fully open during flood season each year.

Gage height, in feet, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.99	6.75	5.17	3.73	2.11	1.50	0.94	0.81	1.00	4.54	6.37	8.28
2	5.95	6.69	5.13	3.68	2.07	1.50	.92	.77	1.08	4.72	6.39	8.40
3	6.00	6.63	5.09	3.63	2.03	1.47	.90	.75	1.14	4.98	6.41	8.42
4	6.07	6.59	5.05	3.58	1.99	1.44	.86	.71	1.25	5.27	6.44	8.73
5	6.12	6.55	5.01	3.51	1.96	1.43	.84	.70	1.39	5.63	6.44	9.12
6	6.21	6.51	4.97	3.45	1.94	1.39	.82	.70	1.73	6.08	6.40	8.98
7	6.31	6.48	4.94	3.41	1.90	1.38	.86	.70	2.10	6.61	6.50	8.72
8	6.35	6.42	4.90	3.37	1.86	1.36	.84	.73	2.39	7.03	6.58	8.47
9	6.38	6.37	4.82	3.36	1.84	1.35	.82	.77	2.56	7.43	6.63	8.42
10	6.47	6.33	4.75	3.33	1.81	1.32	.81	.80	2.61	7.84	6.72	8.20
11	6.60	6.30	4.72	3.26	1.79	1.30	.79	.83	2.63	8.00	6.79	8.08
12	6.69	6.27	4.70	3.19	1.77	1.28	.78	.86	2.64	8.09	6.99	7.98
13	6.76	6.23	4.69	3.13	1.75	1.26	.77	.89	2.60	8.20	7.16	7.95
14	6.82	6.19	4.66	3.07	1.74	1.24	.76	.93	2.55	8.22	7.29	8.07
15	6.88	6.12	4.62	3.03	1.72	1.22	.74	.96	2.51	8.19	7.33	8.21
16	6.93	6.05	4.54	2.99	1.70	1.20	.74	.97	2.45	8.18	7.19	8.42
17	6.99	5.98	4.48	2.93	1.68	1.18	.75	.98	2.34	8.19	7.02	9.73
18	7.05	5.93	4.43	2.84	1.66	1.16	.76	.97	2.28	8.06	6.87	11.95
19	7.10	5.87	4.39	2.77	1.66	1.14	.76	.96	2.28	7.93	6.73	11.15
20	7.10	5.80	4.35	2.71	1.64	1.12	.76	.98	2.25	7.71	6.66	10.10
21	7.08	5.73	4.31	2.65	1.63	1.12	.76	.96	2.25	7.51	6.56	9.58
22	7.08	5.79	4.24	2.61	1.60	1.10	.76	.96	2.28	7.28	6.50	9.35
23	7.06	5.62	4.18	2.56	1.59	1.09	.78	.94	2.37	7.07	6.55	9.10
24	7.06	5.55	4.13	2.49	1.58	1.07	.78	.91	2.65	6.82	6.54	8.95
25	7.04	5.49	4.07	2.43	1.55	1.05	.78	.90	2.93	6.61	6.44	8.96
26	7.00	5.43	4.03	2.37	1.54	1.03	.78	.88	3.21	6.56	6.46	9.02
27	6.97	5.37	3.97	2.31	1.53	1.02	.78	.88	3.50	6.53	6.74	9.02
28	6.93	5.33	3.93	2.27	1.52	1.01	.78	.88	3.79	6.44	7.40	9.02
29	6.87	5.27	3.89	2.23	-	.99	.78	.88	4.05	6.35	7.87	8.99
30	6.83	5.23	3.85	2.19	-------	.96	.81	.90	4.33	6.42	8.22	8.99
31	6.79	-------	3.79	2.15	-------	.96	-------	.93	-------	6.42	8.27	-------

Eklutna Lake near Palmer--Continued

Gage height, in feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.00	8.84	8.38	6.97	5.18	3.47	1.69	0.64	0.86	3.44	6.68	8.82
2	8.97	8.86	8.35	6.93	5.17	3.41	1.63	.62	.86	3.43	6.53	9.00
3	8.99	8.94	8.33	6.87	5.17	3.37	1.56	.62	.84	3.39	6.53	9.10
4	9.02	8.94	8.28	6.83	5.10	3.33	1.49	.62	.84	3.32	6.81	9.14
5	9.05	8.94	8.27	6.79	5.02	3.27	1.43	.62	.86	3.34	6.75	9.10
6	9.08	8.96	8.25	6.73	4.91	3.23	1.37	.62	.87	3.28	6.87	9.09
7	9.06	8.98	8.20	6.68	4.78	3.17	1.29	.63	.88	3.24	7.02	9.07
8	9.06	8.98	8.06	6.60	4.69	3.13	1.26	.61	.86	3.13	7.28	9.06
9	9.06	8.98	8.04	6.53	4.63	3.07	1.10	.62	.87	3.04	7.35	9.09
10	9.04	8.96	8.00	6.48	4.57	3.01	1.07	.62	.91	3.02	7.44	9.09
11	9.07	8.96	7.97	6.41	4.51	2.97	1.01	.60	1.00	3.21	7.54	9.10
12	9.09	8.94	7.91	6.34	4.45	2.91	.97	.62	1.03	3.49	7.52	9.08
13	9.10	8.92	7.87	6.26	4.41	2.84	.93	.61	1.14	3.72	7.48	9.08
14	9.09	8.90	7.85	6.20	4.35	2.77	.89	.60	1.19	4.16	7.46	9.12
15	9.07	8.89	7.80	6.12	4.29	2.72	.85	.60	1.27	4.26	7.42	9.14
16	9.06	8.86	7.74	6.07	4.24	2.68	.84	.61	1.39	4.30	7.36	9.10
17	9.06	8.80	7.67	6.02	4.17	2.63	.82	.64	1.52	4.32	7.27	9.08
18	9.03	8.73	7.61	5.97	4.13	2.57	.82	.64	1.69	4.35	7.36	9.08
19	9.04	8.69	7.57	5.91	4.07	2.52	.80	.65	1.89	4.37	7.42	9.08
20	9.02	8.65	7.53	5.84	4.01	2.45	.78	.67	1.99	4.52	7.49	9.09
21	9.01	8.63	7.50	5.77	3.97	2.37	.78	.69	2.14	4.73	7.58	9.22
22	9.00	8.60	7.47	5.71	3.91	2.31	.76	.72	2.23	4.98	7.69	9.60
23	8.98	8.58	7.41	5.64	3.87	2.25	.74	.74	2.33	5.17	7.84	9.52
24	8.97	8.56	7.39	5.56	3.81	2.19	.74	.74	2.46	5.35	7.92	9.45
25	8.95	8.54	7.32	5.48	3.77	2.12	.74	.74	2.53	5.46	8.04	9.43
26	8.90	8.54	7.27	5.40	3.72	2.05	.72	.74	2.64	5.48	8.17	9.39
27	8.89	8.51	7.21	5.32	3.65	1.99	.70	.76	2.82	5.63	8.26	9.32
28	8.88	8.47	7.15	5.24	3.59	1.93	.68	.76	3.04	6.00	8.29	9.27
29	8.88	8.43	7.11	5.20	3.53	1.87	.68	.80	3.20	6.35	8.36	9.20
30	8.87	8.40	7.05	5.17	-------	1.81	.66	.81	3.38	6.52	8.45	9.17
31	8.86	-------	7.01	5.16	-------	1.76	-------	.85	-------	6.68	8.55	-------

Gage height, in feet, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.10	9.46	9.21	8.96	7.47	6.15	4.38	2.98	4.80	7.64	8.80	7.92
2	9.06	9.46	9.19	8.92	7.40	6.12	4.31	3.00	5.06	7.23	8.74	7.43
3	9.02	9.42	9.16	8.89	7.35	6.09	4.25	3.00	5.38	6.81	8.99	6.96
4	9.68	9.40	9.14	8.84	7.31	6.02	4.19	3.00	5.74	6.27	8.84	7.17
5	9.99	9.39	9.11	8.81	7.27	5.95	4.13	3.03	5.85	5.82	8.49	8.31
6	9.82	9.35	9.09	8.79	7.21	5.89	4.09	3.04	5.59	6.03	8.24	9.14
7	9.63	9.31	9.08	8.76	7.18	5.85	4.02	3.06	5.67	6.31	8.05	9.19
8	9.48	9.33	9.08	8.71	7.15	5.78	3.95	3.08	5.68	6.33	7.81	8.85
9	9.36	9.33	9.04	8.65	7.09	5.73	3.89	3.08	6.01	6.22	7.61	8.44
10	9.25	9.46	9.04	8.60	7.05	5.67	3.83	3.09	6.22	6.03	7.38	7.83
11	9.28	9.44	9.00	8.56	7.01	5.60	3.77	3.10	6.20	6.24	7.25	7.18
12	9.26	9.41	9.00	8.54	6.97	5.53	3.71	3.11	6.01	6.95	7.17	6.63
13	9.24	9.38	9.00	8.49	6.93	5.46	3.65	3.12	5.82	7.32	7.03	6.05
14	9.22	9.36	9.01	8.43	6.88	5.39	3.59	3.13	5.67	7.47	6.85	6.34
15	9.19	9.34	8.98	8.37	6.81	5.33	3.55	3.18	5.64	7.72	6.65	6.70
16	9.18	9.30	8.96	8.33	6.77	5.28	3.51	3.22	5.61	7.93	6.46	6.95
17	9.20	9.31	9.01	8.27	6.73	5.21	3.44	3.22	5.58	8.06	6.23	7.21
18	9.21	9.32	9.02	8.23	6.67	5.17	3.38	3.30	5.83	8.01	6.04	7.41
19	9.23	9.32	9.02	8.19	6.63	5.13	3.33	3.40	6.23	7.93	5.85	7.47
20	9.23	9.31	9.01	8.15	6.58	5.07	3.27	3.47	6.55	7.83	5.48	7.57
21	9.24	9.28	9.00	8.11	6.55	5.02	3.26	3.57	6.77	7.69	5.16	7.63
22	9.29	9.24	9.00	8.07	6.51	4.95	3.24	3.65	6.96	7.49	4.92	7.69
23	9.30	9.24	8.98	8.03	6.46	4.89	3.22	3.72	7.05	7.51	5.64	7.73
24	9.28	9.25	8.98	7.97	6.39	4.82	3.17	3.74	7.43	7.87	6.54	7.88
25	9.28	9.26	9.02	7.93	6.33	4.75	3.15	3.95	7.52	8.35	6.83	7.97
26	9.33	9.26	9.01	7.89	6.29	4.69	3.10	4.03	7.94	8.72	7.75	7.99
27	9.38	9.26	9.00	7.82	6.25	4.65	3.07	4.14	8.16	8.90	8.63	8.03
28	9.38	9.26	9.00	7.75	6.19	4.61	3.05	4.26	8.36	8.99	8.67	8.07
29	9.47	9.24	9.02	7.69	-	4.57	3.01	4.38	8.27	8.96	8.66	8.08
30	9.48	9.24	9.00	7.62	-------	4.51	2.99	4.48	8.02	8.91	8.46	8.10
31	9.46	-------	8.98	7.54	-------	4.45	-------	4.61	-------	8.84	8.25	-------

Eklutna Creek near Palmer

Location.--Lat 61°24'05", long 149°09'00", on right bank 200 ft downstream from dam at outlet of Eklutna Lake, 8 miles upstream from Eklutna power diversion dam, 11 miles upstream from mouth, and 14 miles south of Palmer.

Drainage area.--119 sq mi.

Records available.--Discharge: October 1946 to September 1953.
Chemical analyses: April 1949 to September 1950, December 1950 to August 1952.
Water temperatures: May 1949 to September 1950, December 1950 to July 1951.

Gage.--Water-stage recorder. Datum of gage is 858.49 ft above mean sea level (Corps of Engineers benchmark). Prior to Aug. 31, 1948, staff gage at site 100 ft upstream at same datum.

Average discharge.--7 years, 346 cfs (250,500 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 2,530 cfs Sept. 18 (gage height, 6.10 ft in gage well, 6.5 ft from outside gage); minimum daily, 25 cfs Oct. 17, 18.
1951-52: Maximum discharge during water year, 1,420 cfs July 31 (gage height, 4.61 ft in gage well); minimum, 34 cfs May 13 (gage height, 0.82 ft).
1952-53: Maximum discharge during water year, 2,460 cfs June 27 (gage height, 5.41 ft); minimum daily, 7 cfs Aug. 23, 26, Sept. 5, 14-17.
1946-53: Maximum discharge, that of Sept. 18, 1951; minimum daily, 3 cfs Nov. 3, 5, 6, 1946.

Remarks.--Records good except those for periods of shifting control, which are fair, and those for periods of no gage-height record, which are poor. Flow regulated by Eklutna Lake reservoir, usable capacity, 25,600 acre-ft. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	227	115	126	120	89	56	52	93	124	620	1,040	1,250
2	90	115	130	128	87	58	49	87	140	660	999	1,280
3	88	115	132	126	86	63	49	83	157	700	999	1,290
4	50	115	132	123	90	63	47	78	181	760	999	1,590
5	32	126	132	126	98	63	47	74	*221	810	999	1,890
6	27	*123	132	126	90	63	47	74	323	865	950	1,700
7	27	123	132	126	83	63	47	74	428	928	928	1,470
8	27	123	132	*126	87	61	47	78	519	977	938	1,350
9	27	123	128	126	86	61	45	83	575	1,210	944	1,290
10	27	123	123	126	81	58	44	89	523	1,340	950	1,140
11	27	123	123	126	80	57	43	97	499	1,640	988	994
12	27	123	120	126	71	56	45	105	499	1,740	1,070	696
13	26	125	117	123	58	56	45	115	488	1,730	1,160	401
14	26	128	121	123	57	56	45	106	474	1,740	1,190	257
15	26	128	126	128	57	56	44	113	464	1,760	1,180	265
16	26	128	126	132	*59	56	43	117	446	1,750	1,180	289
17	25	130	126	132	57	56	44	120	428	1,740	1,160	1,240
18	25	132	126	132	56	56	45	120	341	1,690	1,100	2,350
19	63	132	126	132	56	*47	45	118	292	1,670	1,020	2,150
20	115	132	126	132	56	56	45	112	289	1,610	955	1,830
21	115	132	126	132	56	56	45	117	286	1,580	950	*1,640
22	115	132	126	123	56	56	45	113	292	*1,550	885	1,520
23	113	132	126	118	56	56	45	106	270	1,520	825	1,290
24	113	132	126	118	56	56	47	103	275	1,480	820	886
25	113	132	126	117	65	56	47	101	320	1,360	770	538
26	113	132	120	115	56	55	47	100	363	1,220	700	395
27	113	132	117	115	61	52	47	98	414	1,220	718	535
28	113	132	117	112	56	51	47	101	464	1,190	860	527
29	112	128	117	97	-	50	47	103	*523	1,110	1,010	460
30	113	126	117	95	------	48	71	105	579	1,070	1,140	400
31	115	------	117	*93	------	54	------	112	------	1,080	1,220	------
Total	2,256	3,792	3,871	3,774	1,946	1,751	1,406	3,095	11,197	40,320	30,647	32,913
Mean	72.8	126	125	122	69.5	56.5	46.9	99.8	373	1,301	989	1,097
Ac-ft	4,470	7,520	7,680	7,490	3,860	3,470	2,790	6,140	22,210	79,970	60,790	65,280

Calendar year 1950: Max 1,310 Min 25 Mean 309 Ac-ft 224,000
Water year 1950-51: Max 2,350 Min 25 Mean 375 Ac-ft 271,700

* Discharge measurement made on this day.
Note.--Discharge computed from twice-daily staff-gage readings Nov. 5 to Apr. 13.

Eklutna Creek near Palmer--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	390	211	133	133	133	120	130	44	74	851	1,410	352
2	317	146	133	138	134	120	130	41	77	851	1,280	382
3	246	136	133	136	133	120	130	38	74	835	1,130	428
4	239	140	133	*133	142	120	130	37	*80	810	1,140	435
5	241	144	*142	140	131	120	130	36	89	805	1,160	386
6	252	140	144	144	131	120	130	36	94	780	1,180	300
7	252	142	165	159	125	120	130	36	97	765	1,220	249
8	246	140	163	163	122	120	130	36	92	705	1,250	242
9	204	138	144	179	120	120	125	36	94	658	1,260	247
10	169	133	136	181	120	120	127	36	100	560	1,270	*247
11	181	133	133	195	118	120	111	36	111	564	1,280	247
12	186	133	144	192	118	122	102	37	129	663	1,290	244
13	184	133	148	186	118	125	95	36	147	775	1,240	247
14	177	133	133	177	116	125	80	36	162	862	*1,150	254
15	171	133	144	155	116	123	54	36	180	895	1,080	265
16	167	133	155	134	118	129	*48	36	199	906	956	237
17	165	133	155	163	122	125	49	36	227	900	628	216
18	161	133	144	179	122	127	48	38	275	917	475	210
19	159	133	133	195	118	*125	47	39	318	*934	475	180
20	157	133	133	195	118	127	47	42	365	978	483	164
21	153	133	133	192	118	129	47	45	407	1,040	491	269
22	151	133	133	190	118	129	47	50	435	1,110	443	652
23	149	133	133	188	118	129	47	59	475	1,160	404	740
24	216	133	133	184	118	129	47	60	515	1,200	418	686
25	149	133	159	159	118	129	46	60	539	1,220	435	658
26	136	133	159	146	118	129	45	58	573	1,220	455	618
27	134	133	136	146	118	129	44	59	627	1,260	444	523
28	134	133	140	138	118	129	46	61	720	1,320	352	455
29	134	133	140	131	118	129	44	65	775	1,380	321	418
30	134	133	133	131	------	129	43	70	840	1,400	321	*386
31	160	------	133	131	------	129	------	74	------	1,420	330	------
Total	5,914	4,130	4,380	5,013	3,537	3,867	2,429	1,409	8,890	29,744	25,751	10,937
Mean	191	138	141	162	122	125	81.0	45.5	296	959	831	365
Ac-ft	11,730	8,190	8,690	9,940	7,020	7,670	4,820	2,790	17,630	59,000	51,080	21,690

Calendar year 1951: Max 2,350 Min 43 Mean 388 Ac-ft 280,600
Water year 1951-52: Max 1,420 Min 36 Mean 290 Ac-ft 210,200

* Discharge measurement made on this day.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	365	267	136	118	145	129	129	125	132	1,800	2,070	1,590
2	253	257	132	*118	*132	129	129	125	130	1,810	2,150	1,600
3	242	242	123	122	122	123	129	125	130	1,920	2,210	1,300
4	616	230	132	122	125	125	129	125	*453	1,890	2,080	163
5	1,030	203	127	120	132	*129	125	125	1,090	1,750	1,830	a7
6	*1,020	197	129	118	129	129	125	125	789	350	1,680	77
7	851	225	130	118	125	129	125	127	793	934	1,610	1,570
8	710	195	125	125	122	129	125	129	454	1,080	1,560	1,610
9	627	188	118	129	123	129	*125	130	*473	1,060	1,490	1,370
10	431	257	118	134	123	129	125	130	725	1,100	1,430	1,970
11	336	244	122	147	118	129	125	*129	*972	610	1,420	2,050
12	330	232	123	147	118	132	125	129	1,040	866	1,420	1,890
13	330	216	118	138	120	132	123	130	988	1,660	1,400	1,420
14	315	199	118	122	125	129	122	129	851	1,720	1,390	a7
15	303	221	111	122	129	129	122	132	745	1,790	1,390	a7
16	220	192	108	122	129	129	122	132	700	1,830	1,380	a7
17	168	190	118	123	129	129	122	132	543	1,860	1,390	a7
18	172	186	111	125	129	129	122	134	176	1,860	1,380	a20
19	178	199	115	123	125	129	122	138	182	1,870	1,380	a22
20	195	*218	115	120	122	129	122	139	539	1,860	1,380	a152
21	190	174	115	118	123	129	122	141	760	*1,840	1,390	a134
22	158	180	115	120	125	129	122	145	1,050	1,800	1,250	a138
23	138	190	118	129	125	129	122	147	1,020	1,680	a7	a141
24	138	176	118	132	125	129	118	149	934	1,680	828	a145
25	147	164	122	147	125	129	118	143	1,440	1,840	295	a137
26	170	164	120	147	125	129	120	138	1,600	2,100	*a7	a142
27	210	162	116	145	125	129	118	136	2,250	2,290	652	a142
28	230	158	115	151	127	127	118	136	2,120	2,340	1,840	a140
29	*303	152	118	151	-	129	118	134	1,980	2,290	1,840	a141
30	303	147	118	151	------	129	118	132	1,860	2,230	1,680	*136
31	283	------	122	151	------	129	------	134	------	2,130	1,630	------
Total	10,962	6,025	3,726	4,055	3,522	3,993	3,687	4,125	26,919	51,840	43,459	18,235
Mean	354	201	120	131	126	129	123	133	897	1,672	1,402	608
Ac-ft	21,740	11,950	7,390	8,040	6,990	7,920	7,310	8,180	53,390	102,800	86,200	36,170

Calendar year 1952: Max 1,420 Min 36 Mean 307 Ac-ft 222,700
Water year 1952-53: Max 2,340 Min 7 Mean 495 Ac-ft 358,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 2 discharge measurements, record of gate operation, and weather records.
Note.--Shifting-control method used June 27 to Sept. 30.

EKLUTNA CREEK NEAR PALMER

Chemical analyses, in parts per million, December 1950 to August 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1950																							
Dec. 1, 4, 8, 11, 15, 18, 22, 26 ...	126	3.2	0.04	20	3.0	1.8		59	16	0.5	0.0	0.5		74			62	14			136	7.0	5
1951																							
Jan. 1, 5, 8, 12, 15, 19, 22, 29 ...	122	3.3	.03	20	2.9	3.7		60	18	.8	.1	.6		79			62	13			138	7.1	5
Feb. 2, 5, 9, 12, 16, 19, 23, 26 ...	71.1	3.0	.04	20	3.1	2.4		60	16	1.0	--	.9		75			63	14			136	7.4	5
Mar. 2, 5, 9, 12, 16, 19, 23, 26, 30.	55.6	3.2	.03	20	2.9	3.2		61	16	1.0	--	.9		79			62	12			137	7.4	5
Apr. 2, 6, 9, 13, 16, 20, 23, 27, 30	48.6	4.0	.04	19	3.1	1.8		56	16	.5	--	1.1		76			60	14			129	7.6	5
May 4, 7, 10, 14, 19, 21, 25, 28 ...	45.9	4.1	.07	20	3.5	1.4		60	16	.6	--	.9		76			64	15			134	7.5	5
June 1, 4, 8, 11, 15	357	5.1	.03	20	3.7	.6		57	16	1.5	.2	.4		76			65	18			128	7.3	5
June 18, 22, 25, 29	369	4.3	.03	19	3.7	1.7		56	16	2.0	.2	.5		75			63	17			126	7.4	5
July 2, 6, 9, 13, 16	1,243	4.3	.06	18	3.4	2.0		54	15	2.0	--	.6		79			59	15			123	7.3	7
July 20, 23, 27, 30	1,355	4.6	.04	16	3.2	2.0		43	14	2.2	--	.4		66			53	14			110	7.3	6
Sept. 25	538	3.5	.01	18	2.4	.6		46	14	2.2	.1	.5		72			55	17			116	6.6	5
1951																							
Nov. 20.....	133	3.3	0.06	18	2.6	4.2		56	14	2.5	0.1	0.6		72	0.10		56	10	14		122	7.4	6
Dec. 27.....	136	3.2	.11	19	2.7	4.8		58	15	3.5	.1	.7		76	.10		58	11	15		125	7.6	9

EKLUTNA CREEK NEAR PALMER--Continued

Chemical analyses, in parts per million, December 1950 to August 1952--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Jan. 28	138	3.1	0.03	19	3.6	0.7		56	16	0.5	0.0	0.6		66	0.09		62	16	2		124	7.5	8
Feb. 20	118	3.2	.01	19	3.6	3.2		58	18	1.8	.0	.5		75	.10		62	15	10		125	7.5	5
Mar. 11	120	2.8	.02	19	2.6	2.8		54	16	2.0	.0	.5		71	.10		58	14	9		121	7.2	4
Apr. 16	48	2.6	.01	17	2.6	4.0		53	15	1.5	.1	.5		70	.10		53	10	14		121	7.2	5
May 8	36	2.9	.04	18	3.1	3.6		54	19	.8	.0	.4		74	.10		58	13	12		119	7.4	5
June 10	100	3.3	.02	20	3.1	3.7		60	17	2.2	.1	.6		80	.11		63	14	11		126	7.6	5
July 3	835	2.7	.03	19	2.9	3.6		56	17	2.2	.0	.6		76	.10		59	13	12		120	7.5	4
Aug. 23	404	2.9	.03	16	2.9	1.8	0.9	48	15	1.5	.0	1.3		66	.09		51	12	7		112	6.8	3

EKLUTNA CREEK BELOW EKLUTNA DIVERSION DAM NEAR PALMER

LOCATION.--At Anchorage Public Utilities powerhouse below Eklutna diversion dam, about 24 miles southwest of Palmer, Alaska.
RECORDS AVAILABLE.--Chemical analyses: April 1949 to September 1951.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium Magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1950																			
Oct. 20, 23, 27, 30			6.5	0.06	20	3.6	6.3		68	20	1.0	--	0.5	91	65	9	144	7.7	5
Nov. 3, 6, 10, 13, 17, 20, 24, 27			6.1	.05	19	3.4	6.0		63	18	2.1	0.2	.6	86	61	10	141	7.7	5
Dec. 1, 4, 8, 11, 15			4.6	.04	20	3.5	4.9		64	19	1.5	--	.6	86	64	12	146	7.8	5
1951																			
Mar. 30			7.0	--	--	--	--		75	--	2.0	--	.8	--	73	--	158	--	--
Apr. 2, 6, 9, 13, 16, 20, 24, 27, 30			5.4	.01	21	4.3	4.0		76	14	.8	--	.9	88	70	8	157	7.6	5
May 4, 7 11, 14, 18, 21, 25, 28			4.3	.03	21	3.8	2.0		69	14	.5	--	.7	80	68	11	148	7.8	5
June 1, 4, 8, 11, 15			7.5	.04	21	4.0	3.0		66	16	2.5	.2	.6	87	69	15	142	7.5	5
July 2, 6, 9, 13			4.6	.01	20	3.5	3.0		58	16	4.2	.1	.6	81	64	17	129	7.3	5
July 16, 20, 23,27, 30			4.7	.03	18	3.0	2.5		53	14	2.8	.1	.5	72	57	14	116	7.3	5
Aug. 3, 6, 10, 13			3.7	.03	18	2.9	4.3		52	14	5.8	.1	.7	75	57	14	113	7.2	4
Aug. 17,20, 24, 27, 31			4.0	.07	17	3.0	3.4		51	15	2.8	.1	.7	71	55	13	112	7.4	5
Sept. 3, 10, 14			3.6	--	16	3.9	7.9		56	16	7.0	.1	.6	83	56	10	120	7.4	5
Sept. 17, 21, 24, 28			3.8	.04	19	3.4	3.3		55	15	5.2	.1	.5	77	61	16	120	7.5	5

KNIK RIVER NEAR PALMER

LOCATION.--At bridge on Glenn Highway, miles south of Palmer, and northeast of Anchorage.
DRAINAGE AREA.--Unknown.
RECORDS AVAILABLE.--Chemical analyses: June to September 1949, July and August 1950, April to September 1951, and November 1951 to August 1952.
REMARKS.--Records of specific conductance of daily samples available in district office at Palmer, Alaska. Records of discharge were furnished by area office of the Surface Water Branch at Palmer, Alaska, and are provisional records subject to revision.

Chemical analyses, in parts per million, November 1951 to August 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1951																			
Nov. 29	--		3.4	0.01	31	3.7	4.3		86	24	4.0	0.1	0.7	113	93	22	193	7.4	5
1952																			
Feb. 20	--		4.7	.01	40	4.8	1.0		105	29	3.0	.1	1.3	138	120	34	225	7.6	5
Mar. 12	--		4.4	.02	38	5.1	5.0		107	32	3.2	.1	1.0	144	116	28	236	7.5	5
Apr. 16	--		4.5	.13	36	4.9	3.4		102	28	3.0	.0	.4	131	110	26	221	7.5	7
May 8	--		4.4	.01	42	5.5	3.3		114	35	2.8	.1	.7	150	127	34	247	7.7	7
June 12, 18, 20, 23, 26, 30	4,428		5.5	.02	30	3.6	2.3	1.8	88	29	1.0	.0	1.0	115	90	18	184	7.3	2
July 9, 18	5,950		4.8	--	30	3.4	1.9	1.8	78	30	2.0	--	.7	113	88	25	179	7.2	2
July 21-31	8,483		4.8	.03	28	2.9	1.2	1.8	78	20	1.0	.1	.4	101	82	18	167	7.4	3
Aug. 1, 3	24,380		4.2	--	24	2.9	1.7	.9	70	18	2.0	--	.3	89	73	14	147	7.2	3
Aug. 4	67,400		2.7	.07	13	1.6	.6	.6	36	8.7	.0	.1	.4	45	39	10	76.6	7.4	5
Aug. 5	105,000		2.0	.03	16	1.9	.8	.7	50	11	.5	.0	.2	58	47	6	95.9	7.1	3
Aug. 6	141,000		3.3	.06	13	1.3	.6	.6	38	7.9	.2	.0	.4	46	38	7	77.1	7.7	5
Aug. 7	180,000		5.2	.06	13	1.2	.6	.6	38	8.4	.2	.1	.4	48	37	6	75.5	7.6	5
Aug. 8	197,000		11	.12	14	1.4	1.0	.8	45	9.5	.2	.0	.2	60	40	3	85.7	7.1	7
Aug. 9	180,000		2.1	.02	13	1.7	.6	.7	38	8.2	.5	.0	.2	46	39	8	79.0	6.9	3
Aug. 10	122,000		5.5	.08	13	2.0	.6	.6	38	8.4	.2	.1	.3	49	41	9	77.2	7.5	5
Aug. 11-20	24,950		3.0	.11	14	2.0	.8	.5	42	8.6	.5	.1	.3	55	43	9	90.0	7.1	2
Aug. 21, 29	--		3.0	--	13	1.7	.8	.7	40	10	2.0	--	.3	51	40	6	84.2	7.0	3

KNIK RIVER NEAR PALMER--Continued

Periodic determinations of suspended-sediment, July to August 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
July 19	--	2,580	--
July 19	--	2,870	--
July 20	--	2,450	--
July 20	--	2,240	--
July 21	122,000	1,670	550,000
July 21	--	1,530	--
July 22	--	1,380	--
July 22	--	1,310	--
July 23	254,000	1,280	878,000
July 24	--	1,180	--
July 25	113,000	1,340	409,000
July 26	--	1,840	--
July 27	55,100	1,880	280,000
July 28	--	1,370	--
July 29	42,300	1,270	145,000
July 30	--	1,470	--
July 31	--	1,400	--
Aug. 4	--	1,440	--
Aug. 17	--	1,270	--

KNIK RIVER NEAR PALMER--Continued

Particle-size analyses of suspended sediment, July 1953
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
1953																
July 19	10:55 a.m.	--		2,580	3,890	--	19	--	32	--	68	84	94	--	99	100	PSWCM
July 20	8:00 p.m.	--		2,130	3,120	12	18	--	33	43	61	75	87	--	96	100	PSWCM
July 21	8:00 p.m.	122,000		1,530	2,570	16	23	28	35	44	61	73	82	--	91	98	BSWCM
July 22	9:00 a.m.	--		1,340	2,710	19	23	28	34	41	57	70	79	--	92	98	BSWCM
July 23	2:30 p.m.	254,000		1,670	2,730	19	24	29	36	44	53	64	71	--	82	92	BSWCM
July 25	1:00 p.m.	113,000		1,400	3,680	--	38	--	64	--	85	91	98	--	99	100	PSWCM
July 27	7:35 p.m.	55,100		1,840	3,800	--	38	--	64	--	85	89	99	--	100	--	PSWCM
July 30	2:00 p.m.	--		1,250	1,870	30	43	56	70	80	87	90	98	--	100	--	BSWCM

CARIBOU CREEK NEAR SHEEP MOUNTAIN

LOCATION.--At bridge on Glenn Highway, 1.5 miles north of Sheep Mountain radio range of the Civil Aeronautics Administration, and 59 miles northeast of Palmer.
RECORDS AVAILABLE.--Chemical analyses: February to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million February to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1952																			
Feb. 11			10	0.01	61	8.6	23		140	98	14	0.2	0.8	301	188	73	448	7.4	6
Apr. 18			11	.03	74	13	30		146	157	14	.1	.8	372	238	118	556	7.7	6
May 13			7.5	.01	43	8.0	19		100	87	5.5	.1	.7	236	140	58	347	7.2	30
June 4			6.6	.08	23	3.7	7.7		58	35	2.5	.3	1.1	109	73	25	176	7.3	50
July 17			8.4	.02	30	4.9	10		75	50	2.2	.0	.5	143	95	34	219	7.1	8
Sept. 13			11	.01	48	5.0	19	0.9	107	86	3.8	.1	.9	227	140	52	351	7.2	5
Sept. 29			9.7	.04	50	8.0	20	1.0	112	98	4.5	.0	.6	247	158	66	371	7.4	5

CHICKALOON RIVER AT CHICKALOON

LOCATION.--100 feet upstream from California Creek, 1 mile west of Chickaloon, 19 miles northeast of Sutton, and 31 miles northeast of Palmer.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1953.
Water temperatures: November 1951 to September 1953.
EXTREMES, 1952-53.--Dissolved solids: Maximum, 179 ppm Apr. 1-10, 1953; minimum, 78 ppm Aug. 1-10, 1953.
Hardness: Maximum, 125 ppm Dec. 1-10, 1952; minimum, 56 ppm Aug. 1-10, 1953.
Water temperatures: Maximum, 590°F June 26, 27 and July 24, 25, 1953; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Palmer, Alaska. No discharge records available for this station.

Chemical analyses, in parts per million, November 1951 to September 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium Magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1951																			
Nov. 21			7.3	0.01	38	5.3	8.6		98	37	11	0.1	1.0	165	117	36	262	7.7	5
1952																			
Feb. 11			7.2	.01	40	5.3	7.8		98	36	14	.1	.9	163	122	41	269	7.5	6
Apr. 18			7.1	.04	40	5.6	8.4		100	40	12	.0	.8	163	123	41	274	7.5	5
May 12			7.2	.05	37	6.2	12		104	40	11	.1	.9	166	118	33	268	7.5	5
June 4			8.1	.01	34	5.7	7.3		94	32	9.0	.1	1.1	144	108	31	234	7.1	10
July 31			8.9	.05	22	2.2	3.5	0.8	65	13	2.0	.0	.5	85	65	12	139	7.6	5
Aug. 1-10			6.6	.01	20	3.1	3.8	.7	68	15	2.8	.0	.6	87	63	7	144	7.3	3
Aug. 11-20			6.1	.01	21	3.8	4.2	.9	65	17	3.5	.1	.9	92	69	16	154	7.3	3
Aug. 21-31			6.3	.01	23	4.6	5.4	.7	70	23	4.8	.1	.6	107	76	19	179	7.5	3
Sept. 1-10			6.9	.01	26	4.8	5.9	.8	78	29	4.5	.1	.6	122	85	21	199	7.4	2
Sept. 11-17			7.3	.01	29	5.9	6.8	.8	86	34	6.0	.1	.7	138	96	26	224	7.4	3
Sept. 21-30			7.3	.00	30	5.3	7.2	.8	86	33	6.5	.1	.6	141	96	26	227	7.4	2

CHICKALOON RIVER AT CHICKALOON--Continued

Chemical analyses, in parts per million, November 1951 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1952																			
Oct. 1-10			6.9	0.01	34	3.8	7.8	1.2	90	36	7.5	0.2	0.8	146	101	27	238	7.0	3
Oct. 11-20			7.3	.01	36	3.8	8.2	1.3	95	37	8.7	.1	.8	152	105	28	248	7.0	3
Oct. 21-31			7.3	.01	36	4.1	8.3	1.2	94	37	9.2	.1	.9	152	107	30	251	7.0	3
Nov. 1-10			7.3	.01	36	4.1	8.3	1.5	93	37	10	.2	.9	154	107	31	250	7.0	3
Nov. 11-20			7.2	.01	37	4.2	8.4	1.2	96	41	10	.1	1.0	154	109	32	254	7.0	3
Nov. 21-30			7.8	.01	37	4.2	8.8	1.7	97	41	12	.1	1.0	160	111	30	260	6.9	3
Dec. 1-10			8.0	.01	42	5.0	9.2	1.4	111	42	12	.1	1.0	178	125	34	287	7.0	3
Dec. 11-20			7.5	.01	39	4.2	8.6	1.2	98	39	12	--	1.0	165	115	34	272	6.9	3
Dec. 21-31			7.4	.01	38	5.0	9.4	1.1	96	39	11	.0	1.1	165	115	36	263	7.4	2
1953																			
Jan. 1-10			8.3	.01	40	4.8	9.7	1.0	102	40	11	.0	.9	173	119	35	276	7.5	2
Jan. 11-20			9.9	.01	40	5.0	9.8	1.0	102	41	12	.1	.9	177	122	38	278	7.4	2
Jan. 21-31			8.1	.02	40	4.9	9.5	1.0	99	39	12	.1	1.0	174	120	39	276	7.2	2
Feb. 1-10			6.8	.02	40	5.2	9.5	.9	100	40	12	.1	.9	174	122	40	279	7.3	2
Feb. 11-20			7.0	.02	39	5.2	9.6	.9	97	38	14	.1	.9	170	120	40	274	7.3	2
Feb. 21-30			6.8	.02	39	4.6	9.6	1.0	96	38	13	.0	.9	169	117	38	274	7.3	2
Mar. 1-10			7.0	.01	41	5.0	9.8	1.0	102	39	13	.1	1.0	176	123	39	283	7.3	2
Mar. 11-20			6.6	.02	40	5.0	9.8	1.0	100	38	13	.1	.9	173	121	39	280	7.2	2
Mar. 21-31			6.9	.02	40	5.3	9.8	.9	100	41	13	.1	.8	178	123	41	283	7.3	2

CHICKALOON RIVER AT CHICKALOON--Continued

Chemical analyses, in parts per million, November 1951 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1953																			
Apr. 1-10			7.1	0.02	40	5.3	9.6	1.1	103	41	14	0.0	1.0	179	122	37	285	7.0	3
Apr. 11-20			6.6	.02	38	4.6	9.3	1.1	97	40	12	.1	1.0	165	114	34	267	6.9	3
Apr. 21-30			6.3	.03	34	4.6	8.7	1.0	91	35	10	.1	1.0	154	104	29	247	6.7	3
May 1-10			7.6	.03	32	3.9	9.0	.9	92	30	4.0	.0	1.2	134	96	20	229	7.3	8
May 11-20			7.5	.03	32	3.6	8.7	.9	91	28	3.5	.1	1.1	130	95	20	227	6.6	8
May 21-31			6.3	.04	27	3.8	6.8	1.0	79	27	2.5	.1	.8	114	83	18	197	6.6	8
June 1-10			5.7	.07	20	2.8	4.2	.8	66	15	1.0	.1	.6	83	61	7	139	6.9	10
June 11-20			5.3	.06	21	2.9	4.5	.8	63	17	1.2	.0	.6	84	64	13	145	6.6	10
June 21-30			7.0	.01	21	1.4	4.2	.8	66	11	1.0	.1	.4	79	58	4	130	7.0	4
July 1-10			5.8	.04	20	2.3	4.3	.5	62	14	2.0	.0	.4	80	59	9	136	7.0	4
July 11-20			6.1	.04	20	2.3	5.0	.7	66	13	1.5	.0	.6	80	59	5	141	6.9	5
July 21-31			5.9	.05	21	1.7	3.8	.9	68	11	1.5	.0	.4	80	59	4	137	6.8	4
Aug. 1-10			5.7	.04	20	1.6	3.8	.7	62	13	2.0	.1	.4	78	56	6	133	6.9	4
Aug. 11-20			5.0	.03	20	2.3	4.5	.3	60	16	2.0	.1	.4	80	59	10	142	6.9	4
Aug. 21-31			5.9	.05	24	2.5	5.4	.6	70	22	1.2	.1	.5	97	70	13	169	7.1	4
Sept. 1-10			4.3	.01	28	3.6	6.4	.3	77	31	4.0	.0	.6	126	85	22	199	7.4	2
Sept. 11-20			6.7	.01	30	3.9	6.9	.3	82	34	5.0	.0	.6	133	91	24	212	7.2	2
Sept. 21-30			5.4	.01	33	3.8	7.4	.3	88	35	6.2	.0	.7	144	98	26	229	7.3	2
Average			6.8	0.02	33	3.9	7.7	0.9	88	32	7.8	0.1	0.8	139	98	26	228	--	4

CHICKALOON RIVER AT CHICKALOON--Continued

Temperature (°F) of water, water year October 1952 to September 1953

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

KINGS RIVER NEAR PALMER

LOCATION.--At bridge on Glenn Highway, 5 miles east of Sutton Post Office, and 18 miles northeast of Palmer.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1951																			
Nov. 21			7.8	0.01	26	2.1	7.3		66	25	5.8	0.1	1.1	106	74	19	167	7.4	5
1952																			
Feb. 11			6.8	.01	29	2.1	3.6		69	26	3.0	.0	1.3	111	81	24	179	7.4	5
Apr. 18			6.6	.02	28	3.6	2.1		68	23	5.8	.0	1.7	107	85	29	178	7.6	3
May 13			6.8	.03	28	2.8	6.5		71	28	4.8	.1	1.3	113	81	23	178	7.5	4
June 4			8.1	.01	26	2.8	4.1		64	26	3.0	.1	1.5	103	76	24	161	7.0	5
Sept. 13			6.5	.01	24	2.2	2.2	0.6	57	26	1.5	.1	.8	92	69	22	147	7.2	5
Sept. 29			6.7	.01	26	2.0	2.2	0.6	61	24	2.0	.1	.7	94	73	23	153	7.2	4

GRANITE CREEK NEAR PALMER

LOCATION.--At bridge on Glenn Highway, 1 mile east of Sutton Post Office, and 14 miles northeast of Palmer.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1951																			
Nov. 21			6.0	0.01	20	1.7	4.5		39	27	3.8	0.1	1.3	83	57	25	131	7.3	6
1952																			
Feb. 11			7.0	.01	25	1.9	3.1		44	34	3.0	.1	1.2	102	70	34	155	7.2	5
Apr. 18			5.9	.02	24	2.1	6.3		48	36	3.0	.1	1.2	102	69	29	157	7.4	7
May 13			6.6	.02	25	2.8	2.3		48	32	3.0	.1	2.3	98	74	35	157	7.2	7
June 4			7.1	.02	22	1.8	5.7		44	33	1.8	--	2.2	95	62	26	140	7.2	4
Sept. 13			6.5	.01	15	2.0	1.5	0.6	34	20	.5	.1	.9	64	47	19	105	6.9	3
Sept. 29			5.9	.01	19	1.5	1.7	.6	37	23	1.0	.0	.9	72	54	23	119	7.0	4

MOOSE CREEK NEAR PALMER

LOCATION.--At bridge on Glenn Highway, 7 miles northeast of Palmer.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1951																			
Nov. 21			7.9	0.01	15	2.4	6.4		54	7.9	5.2	0.2	1.0	70	47	3	110	7.2	5
1952																			
Feb. 11			7.4	.01	16	2.4	5.7		52	9.7	5.5	.3	1.1	72	50	7	117	7.2	7
Mar. 12			7.4	.02	16	2.7	6.3		55	10	5.8	.1	1.1	76	51	6	126	7.2	5
Apr. 18			6.8	.02	16	2.6	5.0		54	8.6	5.0	.0	1.6	72	51	6	121	7.5	4
May 7			7.6	.03	16	3.0	5.4		54	10	5.5	.1	1.6	76	52	8	116	7.3	15
June 12			5.1	.02	8.4	1.5	2.7		28	6.3	1.8	.1	.9	41	27	4	53.9	7.2	5
July 16			7.1	.02	10	1.3	1.9		34	4.6	.8	.0	.7	43	30	2	66.2	6.5	5
Sept. 13			7.5	.12	13	1.2	1.8	0.9	42	5.4	.5	.0	1.6	53	36	2	80.0	6.8	5
Sept. 29			8.4	.01	13	2.3	2.0	.8	43	6.6	1.5	--	.9	57	42	7	88.6	7.0	4

Matanuska River at Palmer

Location.--Lat 61°36'35", long 149°04'15", in N½ sec. 34, T. 18 N., R. 2 E., on left bank 100 ft downstream from bridge on Glenn Highway and 1 mile east of Palmer. Prior to May 1, 1952, at site 100 ft upstream.

Drainage area.-- 2,070 sq mi, approximately .

Records available.--Discharge: April 1949 to September 1953.
Chemical analyses: May 1949 to October 1950, April 1951 to June 1951, October 1951 to July 1953.
Water temperatures: May 1949 to October 1950, April 1951 to June 1951, October 1951 to September 1953.
Sediment records: April to September 1953.

Gage.--Water-stage recorder. Datum of gage is 170.92 ft above mean sea level (Alaska Road Commission benchmark). Prior to Nov. 2, 1950, wire-weight gage at bridge 120 ft upstream at same datum. Nov. 2, 1950, to Apr. 30, 1952, wire-weight gage at bridge 100 ft upstream at same datum.

Extremes.--1950-51: Maximum discharge observed during water year, 21,400 cfs June 8 (gage height, 11.00 ft); minimum not determined.
1951-52: Maximum discharge during water year, 23,400 cfs July 30; maximum gage height, 10.00 ft July 31; minimum discharge observed, 390 cfs Mar. 16; minimum gage height observed, 3.47 ft Mar. 21.
1952-53: Maximum discharge during water year, 22,200 cfs June 28 (gage height, 10.40 ft); minimum not determined.
1949-53: Maximum discharge observed, 23,600 cfs July 11, 1949 (gage height, 12.03 ft); minimum not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Large diurnal fluctuation caused by glacier melt at the source. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,370						410	1,260	8,860	12,900	9,440	10,400
2	2,290						420	1,460	8,610	*12,900	*9,110	10,200
3	2,160						420	1,850	9,180	13,600	9,200	10,700
4	2,030						428	2,060	12,000	15,300	9,080	12,200
5	2,000						*444	1,900	12,200	14,300	8,820	15,600
6	1,910						455	2,060	14,500	16,700	9,170	12,100
7	1,850						460	3,050	15,400	16,400	9,050	9,860
8	1,760	700				380	460	3,220	*18,100	14,800	9,080	7,670
9	1,670						470	3,620	16,000	16,000	9,740	7,380
10	1,600						480	5,050	13,600	15,100	10,300	7,200
11	1,540			(*)			490	5,450	11,400	15,500	9,960	8,370
12	1,460						500	*5,820	10,200	15,800	10,300	*7,770
13	1,380				(*)		510	5,520	9,480	16,000	11,100	6,730
14	1,260						520	5,420	9,480	16,300	10,500	6,540
15	1,210						540	4,130	9,250	15,400	9,500	6,610
16	1,140		580	500	450		580	3,700	8,780	15,900	8,730	7,060
17	1,100						651	3,640	7,450	17,900	8,990	7,830
18	975						800	3,480	7,170	16,000	8,310	8,700
19	906						1,050	3,240	7,540	15,700	7,880	9,260
20	984					(*)	1,580	3,160	7,640	14,900	7,910	9,830
21	906						1,300	2,950	9,180	13,400	7,700	10,000
22	882						1,200	2,770	9,850	12,000	7,800	11,200
23	*874	620					1,130	2,740	11,700	11,300	8,200	11,000
24	842					420	*1,000	2,630	13,600	11,400	7,500	*9,900
25	810						1,100	2,930	11,900	11,800	6,660	8,960
26	778						1,160	3,050	12,900	12,400	6,880	8,020
27	763						1,150	3,040	13,400	*11,500	9,020	7,620
28	735						1,280	3,860	13,600	10,200	11,200	7,180
29	714				-		1,520	5,050	12,900	9,740	10,800	6,710
30	700				- - - -		1,380	5,330	12,800	11,500	11,700	6,370
31	686	- - -			- - - -		- - - - -	7,400	- - - - -	9,620	11,100	- - - - -
Total	40,285	19,800	17,980	15,500	12,600	12,420	23,888	110,840	338,670	432,260	284,730	268,970
Mean	1,300	660	580	500	450	401	796	3,575	11,290	13,940	9,185	8,966
Ac-ft	79,900	39,270	35,660	30,740	24,990	24,630	47,380	219,800	671,700	857,400	564,800	533,500

Calendar year 1950: Max 18,500 Min - Mean 3,759 Ac-ft 2,721,000
Water year 1950-51: Max 18,100 Min - Mean 4,323 Ac-ft 3,130,000

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 22 to Apr. 23 (no gage-height record Nov. 1 to Jan. 10, Jan. 12 to Feb. 12, Feb. 14 to Mar. 19, Mar. 21 to Apr. 3, Apr. 7-16, 18, 22; discharge estimated on basis of 6 discharge measurements and weather records).

Matanuska River at Palmer--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,230	1,910	1,000			420	420	820	2,460	11,100	18,800	7,090
2	5,460	2,040	1,000			410	450	*869	2,370	11,300	17,300	6,590
3	5,200	1,910	980			410	440	883	*2,520	10,900	15,800	6,230
4	4,880	1,810	960			410	430	876	2,480	10,500	14,700	5,640
5	4,670	1,790	940			410	440	834	2,790	11,100	13,900	4,780
6	4,490	1,840	920			410	430	841	2,670	10,600	13,700	4,160
7	4,200	1,850	900			420	455	806	3,010	8,330	14,600	3,600
8	3,820	1,780	880	870		430	*475	813	2,940	*7,570	14,400	*3,420
9	3,450	1,530	900			440	485	954	3,000	6,710	13,400	3,360
10	3,300	1,400	950			450	490	1,070	3,960	7,470	12,500	3,230
11	3,200	1,300	1,000			470	512	1,070	6,900	9,150	12,900	3,100
12	3,100	1,200	1,000			490	512	870	7,120	11,100	13,100	2,940
13	3,000	1,100	980			506	512	954	7,740	12,300	11,800	2,810
14	2,840	1,000	940			*512	495	938	7,180	12,300	11,200	2,820
15	2,720	970	900			500	512	1,030	9,270	10,700	10,100	2,810
16	2,640	920	860		500	390	500	1,180	12,500	10,300	9,000	2,590
17	2,520	870	860	(*)		390	500	1,410	12,600	10,500	6,930	2,440
18	2,320	840	900			410	548	1,670	14,000	12,400	6,260	2,300
19	2,170	840	950			425	554	2,030	*12,700	14,900	*5,980	2,160
20	2,100	860	1,000			470	566	1,860	12,000	14,600	6,260	2,080
21	2,000	920	980			415	578	1,970	11,000	14,700	6,530	2,250
22	1,900	940	970			440	584	1,940	11,500	16,600	6,740	2,480
23	1,800	950	960			460	*578	2,230	12,400	16,500	6,740	*2,400
24	1,700	970	940	720		*480	542	2,430	12,300	15,900	6,120	2,460
25	1,600	1,000	930			485	578	2,300	9,960	15,500	5,750	2,480
26	1,600	1,100	920			460	602	2,300	13,100	14,600	6,000	2,520
27	1,600	1,100	910			430	662	2,320	14,400	19,500	5,620	2,620
28	1,500	920	920			410	687	2,650	13,900	21,400	4,860	2,690
29	1,500	1,000	940		-	400	715	3,380	12,600	*21,700	4,710	2,650
30	1,500	1,000	970		- ----	400	743	3,190	12,300	22,600	4,760	*2,560
31	1,600	- -	1,000		- ---	410	- ------	2,930	------	21,400	5,000	------
Total	90,610	37,660	29,260	24,570	14,500	13,563	15,995	49,518	253,670	414,250	305,460	99,260
Mean	2,923	1,255	944	793	500	438	533	1,597	8,456	13,360	9,854	3,309
Ac-ft	179,700	74,700	58,040	48,730	28,760	26,900	31,730	98,220	503,100	821,700	605,900	196,900

Calendar year 1951: Max 18,100 Min - Mean 4,541 Ac-ft 3,287,000
Water year 1951-52: Max 22,600 Min 390 Mean 3,684 Ac-ft 2,674,000

Peak discharge (base, 16,500 cfs).--June 18 (7 a.m.) 16,500 cfs (9.62 ft); July 30 (11:30 p.m.) 23,400 cfs (9.93 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Oct. 11-13, 20-31, Nov. 10 to Apr. 28. No gage-height record Oct. 7, 12, 22, 27, 30, Nov. 19, 27, Dec. 1, 13, 15, Dec. 17 to Jan. 1, Jan. 3-13, 15, 16, Jan. 18 to Mar. 10, Mar. 12, 17, 18, 22, 23, 30; discharge estimated on basis of 5 discharge measurements and weather records.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,490	1,610						2,140	9,530	13,400	15,400	9,310
2	2,480	1,600						2,120	13,500	12,400	17,700	7,530
3	2,400	1,560				(*)		2,240	*15,100	12,100	18,700	6,250
4	3,010	1,530						2,640	15,000	11,800	17,600	5,920
5	3,360	1,560						*2,670	13,300	11,500	13,700	6,260
6	3,400	1,580				(*)		2,480	13,600	11,600	12,300	6,140
7	3,450	1,520						2,400	13,200	11,200	11,200	5,920
8	3,360	1,540					510	2,380	14,500	*11,000	10,100	*5,690
9	3,210	1,500						2,210	15,000	10,400	8,720	5,560
10	3,090	1,510					(*)	2,100	12,900	10,400	7,720	5,300
11	3,010	1,420						1,980	10,800	11,600	8,650	5,040
12	2,890	1,300						1,920	11,900	12,900	8,980	4,880
13	2,650	1,100			(*)			1,900	11,000	12,900	8,690	4,500
14	*2,520	950						2,000	9,450	13,500	a8,600	4,420
15	2,430	900						2,460	8,700	14,700	a8,600	4,160
16	2,460	870	820	560	460	460		2,590	8,100	15,000	a8,800	3,930
17	2,120	1,000						2,740	*8,550	14,900	a8,900	3,660
18	1,830	*1,350					630	2,810	11,100	14,500	*8,980	3,410
19	1,810	1,400		(*)				3,180	12,800	13,700	8,470	3,320
20	1,850	1,320						*5,320	15,300	13,700	7,750	3,310
21	1,900	1,420					730	6,030	16,400	13,600	7,020	3,190
22	1,920	1,370					820	4,790	16,000	*12,100	7,820	3,030
23	1,830	1,390				(*)	920	4,980	16,400	13,700	13,000	2,940
24	1,640	1,340					*1,200	6,020	17,400	16,800	12,400	2,810
25	1,620	1,310					1,190	6,310	18,800	19,100	12,700	2,680
26	1,810	1,200					1,400	5,170	*19,700	20,200	14,000	2,560
27	1,800	1,100					1,770	4,790	20,500	20,400	12,900	2,460
28	1,780	*1,000					1,820	4,950	*20,800	19,300	14,600	2,350
29	*1,840	950			-		1,890	4,970	18,500	*17,600	15,600	*2,210
30	1,690	920	(*)		- ----		1,980	8,040	15,600	18,200	12,500	2,090
31	1,530	- -			- ---		- -----	11,100	------	16,800	11,000	------
Total	73,180	39,120	25,420	17,360	12,880	14,260	24,520	117,430	423,430	441,000	353,100	130,810
Mean	2,361	1,304	820	560	460	460	817	3,788	14,110	14,230	11,390	4,360
Ac-ft	145,200	77,590	50,420	34,430	25,550	28,280	48,630	232,900	839,900	874,700	700,400	259,500

Calendar year 1952: Max 22,680 Min 390 Mean 3,630 Ac-ft 2,635,000
Water year 1952-53: Max 20,800 Min - Mean 4,582 Ac-ft 3,318,000

Peak discharge (base, 16,500 cfs).--June 3 (6:30 a.m.) 18,400 cfs (9.73 ft); June 28 (5 a.m.) 22,200 cfs (10.40 ft); July 27 (12:30 a.m.) 21,600 cfs (9.18 ft); Aug. 4 (3:30 a.m.) 20,000 cfs (8.90 ft); Aug. 29 (2 a.m.) 16,800 cfs (8.31 ft).

* Discharge measurement made on this day. a No gage-height record; discharge interpolated.

Note.--Stage-discharge relation affected by ice Nov. 12-17, Nov. 26 to Apr. 23 (no gage-height record Nov. 15, 16, Nov. 30 to Apr. 2; discharge estimated on basis of 8 discharge measurements and weather records).

MATANUSKA RIVER AT PALMER

Chemical analyses, in parts per million, October 1950 to July 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1950																			
Oct. 23	874		7.0	0.02	38	5.3	5.0		90	45	4.2	0.1	0.9	150	117	43	262	7.5	5
1951																			
Apr. 7-10	374		8.3	.03	40	5.3	7.9		95	47	7.8	--	1.3	164	122	44	280	8.2	5
Apr. 11-20	722		7.6	.03	39	5.1	6.4		91	43	8.4	--	1.2	156	118	44	273	8.1	5
Apr. 21-30	1,222		6.8	.02	38	5.4	5.8		90	45	5.8	--	1.1	152	117	43	270	8.1	5
May 5-10	3,150		7.1	.03	31	4.2	5.9		77	35	4.3	.0	2.2	128	95	32	221	8.1	15
May 11-20	4,356		5.6	.04	29	3.5	6.2		73	34	3.0	.0	1.0	118	87	27	204	8.3	5
May 22-24	2,713		6.8	--	--	--	2.5		76	35	4.0	--	1.2	--	100	38	228	7.2	5
June 1-3	8,883		6.1	.01	18	2.6	13		65	25	2.0	--	1.0	100	56	2	172	7.2	5
1951																			
Oct. 31	1,600		6.3	0.05	38	5.3	6.1		84	52	4.0	0.1	1.1	175	117	48	254	7.5	5
Nov. 27	1,100		7.9	.01	44	6.8	4.2		99	55	5.4	.0	1.1	168	138	57	300	7.4	7
Dec. 28	920		7.5	.01	41	5.3	9.6		98	49	8.8	.1	1.3	171	124	44	273	7.7	5
1952																			
Feb. 20	500		7.2	.01	44	7.1	1.0		95	49	8.0	.0	1.2	170	139	61	269	7.7	5
Mar. 5-10 [a]	427		7.3	.01	41	5.9	9.7		98	50	10	.0	1.4	174	127	46	274	7.2	4
Mar. 11-20	456		7.2	.01	42	5.6	7.1		97	48	9.0	.0	1.3	172	128	48	279	7.2	4
Mar. 21-31	435		7.7	.01	42	5.9	7.1		96	50	9.0	.0	1.3	175	129	50	280	7.2	3
Apr. 1-10	452		7.4	.01	42	5.8	4.5		96	47	7.0	.0	1.3	175	129	50	275	7.3	5
Apr. 11-20	521		6.8	.02	40	4.9	5.4		90	46	6.5	.0	1.2	165	120	46	263	7.3	4
Apr. 21-30	627		6.5	.02	38	5.6	6.5		90	47	6.0	.0	1.1	162	118	44	261	7.3	4

a Represents 82 percent of runoff for water year October 1951 to September 1952.

MATANUSKA RIVER AT PALMER--Continued

Chemical analyses, in parts per million, October 1950 to July 1953--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1952																			
May 1-10	877		7.9	0.02	36	5.7	8.0		87	46	7.5	--	1.2	155	113	42	238	7.5	5
May 11-20	1,311		7.0	.09	35	5.7	6.7		83	45	6.5	0.1	1.4	154	111	43	240	7.2	5
May 21-31	2,764		6.7	.28	29	5.0	7.2		74	38	5.0	.1	1.4	134	93	32	205	7.2	15
June 1-10	2,820		6.7	.08	30	4.7	4.6		73	36	4.0	.1	1.2	133	94	34	197	7.2	5
June 11-20	10,200		7.5	.10	27	3.7	3.8		73	25	3.0	--	.9	112	83	23	172	7.4	4
June 21-30	12,350		7.1	.04	28	3.3	3.3		75	24	2.5	--	.7	105	83	22	172	7.4	5
July 1-10[a]	9,560		7.0	.02	29	3.5	4.1	1.7	79	28	2.2	.1	.7	115	88	22	187	7.4	3
July 11-20[a]	11,820		6.9	.03	28	3.6	3.7	1.5	76	25	1.8	.1	.5	111	86	22	179	7.4	2
July 21-31[a]	18,220		7.1	.02	29	3.7	3.1	1.6	81	22	2.0	.1	.5	109	88	21	176	7.3	2
Aug. 1-10[a]	14,910		6.2	.01	25	3.1	3.0	1.6	69	23	1.5	.1	.6	100	72	18	161	7.3	2
Aug. 11-20[a]	9,353		5.8	.01	25	3.6	3.5	1.4	66	25	2.0	.1	.7	101	78	24	165	7.4	2
Aug. 21-31[a]	6,283		5.2	.03	26	3.8	3.7	1.4	63	31	2.5	--	.6	105	80	29	167	7.2	2
Sept. 1-10[a]	4,810		7.4	--	24	4.6	4.5	1.8	60	40	2.0	--	.8	115	78	30	163	7.3	5
1952																			
Oct. 27, 31	1,665		7.1	0.01	36	4.7	6.4	1.3	87	46	4.0	--	1.3	150	110	38	243	7.2	3
Nov. 1-10	1,551		6.5	.01	36	4.7	7.8	1.3	85	47	5.0	--	1.3	152	110	40	246	7.2	3
Dec. 30	820		6.6	.01	38	5.3	7.0	.9	92	51	6.5	0.2	1.2	162	117	41	269	7.4	3
1953																			
Jan. 19	560		7.3	.07	44	5.9	7.6	1.0	106	54	7.5	0.1	1.4	181	134	47	300	7.4	3
Mar. 30	460		6.9	--	42	4.3	8.7	1.1	96	46	8.0	--	1.4	166	122	44	273	7.0	3
Apr. 1-10	510		6.9	.03	40	5.0	7.7	1.0	96	49	7.0	.0	1.2	165	120	42	276	7.4	5
Apr. 11-20	570		6.5	.01	40	5.0	7.6	1.6	94	50	8.0	.0	1.1	171	120	43	272	7.2	3
Apr. 21-30	1,372		5.9	.03	35	4.5	7.0	1.0	84	45	5.5	.0	1.0	154	106	37	242	7.1	4
May 1-10	2,338		5.5	.03	30	3.9	6.6	1.4	78	38	3.2	.0	1.3	141	91	27	214	7.1	20
May 11-20	2,690		5.6	.04	30	3.9	6.6	1.3	77	38	3.5	.0	1.2	142	91	28	214	7.0	15
May 21-31	6,105		5.8	.03	27	3.6	5.7	1.4	72	32	2.2	.1	.9	125	82	23	192	7.4	10
June 1-10	13,560		7.3	.05	26	3.9	4.0	1.2	77	24	.5	.0	1.0	114	81	18	177	7.5	15
June 11-20	10,770		6.9	.02	26	3.9	4.0	2.4	71	27	.5	.0	.8	113	81	23	177	7.5	8
June 21-30	18,010		7.9	.02	29	3.1	3.1	.9	82	26	1.8	--	.5	114	85	18	182	6.9	5
July 1	13,400		--	--	31	3.9	4.8	1.1	84	23	1.0	--	--	105	93	25	197	6.8	--

a Represents 82 percent of runoff for water year October 1951 to September 1952.

MATANUSKA RIVER AT PALMER--Continued

Temperature (°F) of water, November 1951 to August 1952

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

Temperature (°F) of water, water year October 1952 to September 1953

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

MATANUSKA RIVER AT PALMER--Continued

Periodic determinations of suspended-sediment discharge, April to September 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
Apr. 4 6:00 p.m.	--	38	--
Apr. 5 11:20 a.m.	--	34	--
Apr. 6 10:30 a.m.	--	40	--
Apr. 7 9:30 a.m.	--	32	--
Apr. 8 2:40 p.m.	--	48	--
Apr. 9 3:45 p.m.	--	58	--
Apr. 10 11:13 a.m.	a510	48	87
Apr. 11 11:45 a.m.	--	114	--
Apr. 12 11:00 a.m.	--	106	--
Apr. 13 2:00 p.m.	--	122	--
Apr. 14 10:40 a.m.	--	80	--
Apr. 15 1:15 p.m.	--	34	--
Apr. 16 1:05 p.m.	--	36	--
Apr. 17 1:30 p.m.	--	40	--
Apr. 18 10:30 a.m.	a630	59	134
Apr. 19 2:00 p.m.	--	134	--
Apr. 20 11:00 a.m.	--	125	--
Apr. 21 3:30 p.m.	1,100	186	552
Apr. 22 4:45 p.m.	1,150	213	661
Apr. 23 2:00 p.m.	1,290	211	735
Apr. 24 10:45 a.m.	1,160	232	727
Apr. 25 11:45 a.m.	1,190	228	732
Apr. 26 2:35 p.m.	1,400	514	1,940
Apr. 27 1:40 p.m.	1,460	570	2,250
Apr. 28 2:50 p.m.	1,900	846	4,340
Apr. 29 11:45 a.m.	1,900	786	4,030
Apr. 30 7:30 p.m.	2,100	1,060	6,010
May 1 2:15 p.m.	2,080	1,040	5,840
May 2 10:00 a.m.	2,100	748	4,240
May 3 6:40 p.m.	2,360	831	5,300
May 4 10:50 a.m.	2,640	1,210	8,620
May 5 3:40 p.m.	2,600	718	5,040
May 6 3:00 p.m.	2,360	676	4,310
May 7 11:00 a.m.	2,380	600	3,860
May 8 3:35 p.m.	2,340	520	3,280
May 9 11:30 a.m.	2,240	453	2,740
May 11 11:20 a.m.	2,040	326	1,800
May 12 3:30 p.m.	1,890	226	1,150
May 13 5:00 p.m.	1,900	238	1,220
May 14 9:20 a.m.	2,040	219	1,210
May 15 1:20 p.m.	2,600	1,080	7,580
May 16 1:40 p.m.	2,640	718	5,120
May 17 11:25 a.m.	2,860	735	5,680
May 18 9:30 a.m.	2,880	608	4,730
May 19 2:20 p.m.	3,320	1,240	11,100
May 20 8:30 a.m.	5,890	5,310	84,400
May 20 5:10 p.m.	7,940	3,940	84,500
May 21 1:30 p.m.	7,550	1,660	33,800
May 22 8:45 p.m.	4,350	1,070	12,600
May 23 12:30 p.m.	5,250	1,080	15,300
May 24 11:20 a.m.	6,790	2,000	36,700
May 25 11:25 a.m.	7,130	1,610	31,000
May 26 11:00 a.m.	5,510	689	10,200
May 27 11:00 a.m.	4,950	570	7,620
May 28 11:35 a.m.	5,000	455	6,140
May 29 1:35 p.m.	5,030	598	8,120
May 30 12:20 p.m.	9,090	3,560	87,400
May 30 8:10 p.m.	7,980	1,620	34,900
May 31 8:45 a.m.	12,400	4,800	161,000
June 1 8:55 a.m.	9,930	1,930	51,700
June 1 9:45 p.m.	9,410	1,520	38,600
June 2 8:30 a.m.	15,400	6,040	251,000
June 2 12:50 p.m.	13,300	4,020	144,000
June 2 8:15 p.m.	12,100	2,300	75,100
June 3 8:45 a.m.	17,400	6,280	295,000
June 3 10:00 p.m.	13,700	2,790	103,000

a Mean daily discharge.

MATANUSKA RIVER AT PALMER--Continued

Periodic determinations of suspended-sediment discharge, April to September 1953--Continued

Date		Discharge (cfs)	Suspended sediment	
			Mean concentration (ppm)	Discharge (tons per day)
1953				
June 5	5:10 p.m.	11,900	2,520	81,000
June 6	2:45 p.m.	13,800	2,960	110,000
June 6	5:10 p.m.	13,400	2,260	81,800
June 8	2:00 p.m.	13,900	2,950	111,000
June 9	1:35 p.m.	14,800	3,460	138,000
June 10	4:10 p.m.	11,900	2,150	69,100
June 11	4:30 p.m.	10,000	1,540	41,600
June 12	4:50 p.m.	11,900	1,800	57,800
June 15	1:45 p.m.	8,660	1,180	27,600
June 17	4:00 p.m.	8,510	1,280	29,400
June 18	4:30 p.m.	11,300	1,900	58,000
June 19	4:00 p.m.	12,600	2,560	87,100
June 26	11:00 a.m.	19,100	6,110	315,000
June 27	11:50 a.m.	20,200	6,610	361,000
June 29	5:10 p.m.	17,600	4,750	226,000
June 30	4:00 p.m.	14,800	3,390	135,000
July 1	5:15 p.m.	12,600	2,400	81,600
July 19	11:45 a.m.	13,500	2,380	86,800
July 26	6:55 p.m.	19,300	4,800	250,000
July 27	8:15 p.m.	19,800	5,530	296,000
July 29	4:30 p.m.	16,000	3,700	160,000
July 30	2:35 p.m.	17,000	4,040	185,000
Aug. 4	5:50 p.m.	16,000	3,940	170,000
Aug. 13	7:30 p.m.	8,160	1,310	28,900
Aug. 18	11:20 a.m.	8,830	1,490	35,500
Aug. 21	2:30 p.m.	6,340	872	14,900
Aug. 23	2:15 p.m.	12,600	3,540	120,000
Aug. 26	--	13,500	2,710	98,800
Aug. 27	4:05 p.m.	12,300	2,430	80,700
Aug. 28	10:55 a.m.	14,600	3,540	140,000
Aug. 29	12:25 p.m.	15,500	3,080	129,000
Aug. 31	1:10 p.m.	10,600	1,560	44,600
Sept. 12	1:50 p.m.	4,770	435	5,600
Sept. 14	1:15 p.m.	4,320	294	3,430
Sept. 15	3:25 p.m.	4,020	267	2,900
Sept. 17	11:00 a.m.	3,650	270	2,660
Sept. 18	11:15 a.m.	3,410	167	1,540
Sept. 21	4:00 p.m.	3,080	126	1,050
Sept. 22	4:45 p.m.	2,950	113	900
Sept. 24	11:25 a.m.	2,780	103	773
Sept. 25	11:20 a.m.	2,640	91	649
Sept. 30	8:50 a.m.	2,070	100	559

WASILLA CREEK NEAR PALMER

LOCATION.--At bridge on Palmer-Fishhook Road, 3.8 miles west of junction with Glenn Highway, and 5.5 miles northeast of Palmer Post Office.
RECORDS AVAILABLE.--Chemical analyses: February to August 1952.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, February to August 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1952																			
Feb. 12			12	0.01	24	3.8	0.3		83	4.2	2.0	0.1	0.8	89	76	8	141	7.6	6
Mar. 12			11	.02	22	3.8	3.9		85	5.1	2.2	.1	.8	88	70	1	144	7.3	5
Apr. 15			11	.02	21	3.6	2.4		81	3.7	1.2	.0	.6	83	67	1	137	7.5	4
May 7			8.1	.06	12	2.6	2.0		48	2.7	1.0	.1	1.4	62	41	1	84.0	7.0	45
June 11			7.1	.03	11	2.5	5.8		50	5.4	1.8	.1	1.2	60	38	0	84.6	7.3	7
July 16			12	.02	16	3.2	2.8	0.6	66	8.0	.8	.1	.6	77	54	0	106	7.0	5
Aug. 29			9.4	.03	13	4.1	2.0	.7	56	5.1	.5	.1	.8	63	49	3	92.2	6.9	15

Cottonwood Creek near Wasilla

Location.--Lat 61°34'30", long 149°24'35", in SW¼ sec. 11, T. 17 N., R. 1 W., near center of span on downstream side of highway bridge on Wasilla-Matanuska Road, 0.8 miles downstream from Wasilla Lake and 1.1 miles southwest of Wasilla.

Drainage area.--28.5 sq mi.

Records available.--Discharge: July 1949 to September 1953.
Chemical analyses: November 1951 to August 1952.

Gage.--Staff gage read once daily. Datum of gage is 309 ft above mean sea level (river-profile survey).

Extremes.--1950-51: Maximum discharge observed during water year, 24 cfs Apr. 23-25 (gage height, 0.84 ft); maximum gage height observed, 2.77 ft Dec. 22 (backwater from ice); minimum discharge not determined.
1951-52: Maximum discharge during water year, 54 cfs July 1 (gage height, 1.16 ft); maximum gage height observed, 2.35 ft Jan. 2 (backwater from ice); minimum daily discharge, 7 cfs July 23, 24, Aug. 13, 14, 24, 25.
1952-53: Maximum daily discharge during water year, 33 cfs Nov. 10-15, 20, 22-28; minimum observed, 6.9 cfs June 6 (gage height, 0.56 ft).
1949-53: Maximum daily discharge, 55 cfs (estimated) July 5, 6, 1949; maximum gage height observed, 4.07 ft Jan. 26, 1950 (backwater from ice); minimum discharge not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	14					11	22	14	16	16	13
2	11	*14					12	22	*13	16	15	14
3	a.11	14					12	22	14	16	15	14
4	11	14					12	21	14	16	15	17
5	11	14					13	21	14	16	15	17
6	11	14					13	21	14	16	15	18
7	11	14					13	20	14	16	14	18
8	12	14	12		11		14	18	14	16	14	18
9	12	14					14	18	14	15	14	18
10	a13	14					13	18	15	14	14	18
11	15	14					13	18	15	14	14	18
12	14	14					14	18	15	14	14	*18
13	14	13					15	18	15	13	14	*17
14	14	13					16	18	15	13	13	16
15	15	13			(*)		17	17	15	13	12	16
16	15	12		11		10	18	16	14	12	12	16
17	15	12					*19	16	14	12	11	16
18	15	11					19	16	14	12	10	16
19	16	11					20	15	14	12	11	16
20	16	11					21	14	15	13	11	16
21	16	11				(*)	21	14	15	14	11	17
22	16	11	(*)		12		22	14	15	12	11	17
23	15	11					24	14	14	*13	11	16
24	15	12	11				24	14	15	13	10	16
25	15	12					24	14	18	13	10	16
26	15	13					22	14	18	14	10	16
27	15	13					22	14	17	15	10	16
28	15	13					22	14	17	16	10	16
29	15	13					22	14	*17	16	11	16
30	14	13			----		22	14	17	16	11	17
31	14	---			---		-----	14	------	16	12	------
Total	428	386	356	341	321	310	524	523	449	443	386	493
Mean	13.8	12.9	11.5	11	11.5	10	17.5	16.9	15.0	14.3	12.5	16.4
Ac-ft	849	766	706	676	637	615	1,040	1,040	891	879	766	978

Calendar year 1950: Max 24 Min - Mean 15.6 Ac-ft 11,290
Water year 1950-51: Max 24 Min - Mean 13.6 Ac-ft 9,840

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.--Stage-discharge relation affected by ice Oct. 23 to Apr. 19 (no gage-height record Nov. 14 to Dec. 21, Dec. 23 to Mar. 20, Mar. 22 to Apr. 16; discharge estimated on basis of 4 discharge measurements and weather records).

Cottonwood Creek near Wasilla--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	a20					13	15	15	49	a16	a20
2	16	18					13	*16	a15	50	18	32
3	17	a18		(*)			13	a16	14	45	a19	32
4	a18	18					13	16	a14	37	17	a23
5	19	18					13	a17	14	33	16	a17
6	a20	19					13	17	a13	32	14	15
7	22	19					13	a17	13	28	14	a12
8	22	19	(*)	17		12	14	17	12	22	*12	*10
9	22	19					14	17	*12	a20	11	10
10	22	19					*14	17	10	a18	10	a12
11	22	19					15	17	10	24	9	11
12	24	18					15	a17	9	19	a8	11
13	25	18					15	17	9	a16	7	10
14	22	17				(*)	a15	17	9	*17	7	a10
15	22	17					a15	17	10	18	8	11
			16		13							
16	20	16					15	a17	a10	a15	18	28
17	20	16					a15	18	9	13	22	a25
18	20	15					a15	18	a8	a12	18	a19
19	19	15					15	18	a8	11	16	a15
20	a19	14					15	18	a8	9	14	a12
21	18	14					a15	18	9	9	12	14
22	18	16					a15	18	10	8	10	a13
23	18	16					a15	a18	17	7	8	12
24	17	16		14		13	a15	18	14	7	7	a17
25	17	16					a16	18	10	a8	7	29
26	16	16					a17	18	a8	a 11	10	a26
27	16	16					17	18	a8	15	8	a23
28	16	15					16	18	a8	16	8	a21
29	16	15			-		a16	a17	9	14	8	20
30	16	15			- - - -		a15	a17	16	14	a9	*19
31	19	- - -			- - - - -		- - - - -	16	- - - - -	14	a15	- - - - -
Total	592	507	496	479	377	388	440	533	331	611	376	529
Mean	19.1	16.9	16	15.5	13	12.5	14.7	17.2	11.0	19.7	12.1	17.6
Ac-ft	1,170	1,010	984	950	748	770	873	1,060	657	1,210	746	1,050

Calendar year 1951: Max 24 Min - Mean 14.8 Ac-ft 10,690
Water year 1951-52: Max 50 Min 7 Mean 15.5 Ac-ft 11,230

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, observer's notes, and weather records.
Note.--Stage-discharge relation affected by ice Nov. 12 to Apr. 9.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	31	a30					a19	a13	a8	10	21
2	a19	a31	a30					20	*13	7.9	11	21
3	18	31	a30			(*)		20	12	a8	11	a21
4	18	31						18	a10	8.1	11	a20
5	16	31						18	a8	a8	11	a20
6	a16	31			(*)			17	*7.3	8.4	11	a20
7	a17	31						*17	9.0	a9	11	20
8	18	a32		20	17			17	8.4	a9	11	a20
9	17	a32	27					17	a8	9.8	11	a19
10	a17	33					18	17	a9	9.4	11	19
11	a18	33						a16	9.0	9.6	11	a19
12	18	a33						16	a9	9.6	12	a18
13	19	33						15	9.0	9.2	a12	18
14	a19	a33						15	8.8	a9	12	a18
15	19	a33						a15	a9	9.4	a 11	18
						17						
16	a19	a32						a15	8.8	9.4	11	a17
17	20	32				(*)		15	a9	11	11	a16
18	a20	32						a14	9.0	12	a 11	a16
19	20	a32					20	14	a9	13	*11	15
20	22	33					a20	a14	9.0	12	12	15
21	a21	*32		(*)			a20	a14	9.2	12	a12	a15
22	a21	33			18		21	a13	9.2	*12	12	a15
23	22	33					*21	a13	8.8	11	a12	15
24	22	33	22	19			a20	13	9.0	11	12	a14
25	24	a33					20	a13	9.0	a 11	14	14
26	a27	33					22	a13	a9	10	14	a14
27	31	33					21	a13	a9	10	14	14
28	31	33					21	a13	a9	10	a15	a13
29	*31	a32			-		20	13	a8	10	a17	*13
30	a31	a32	(*)		- - - -		19	12	8.4	a10	20	a12
31	- - -	- - -			- - - -		- - - - -	13	- - - - -	a10	a20	- - - - -
Total	661	967	766	604	489	527	569	472	275.9	306.8	385	510
Mean	21.3	32.2	24.7	19.5	17.5	17	19.0	15.2	9.20	9.90	12.4	17.0
Ac-ft	1,310	1,920	1,520	1,200	970	1,050	1,130	936	547	609	764	1,010

Calendar year 1952: Max 50 Min 7 Mean 17.6 Ac-ft 12,810
Water year 1952-53: Max 33 Min 7.3 Mean 17.9 Ac-ft 12,970

* Discharge measurement made on this day. a No gage-height record; discharge interpolated.
Note.--Stage-discharge relation affected by ice Dec. 4 to Apr. 18 (no gage-height record during most of period; discharge estimated on basis of 5 discharge measurements).

COTTONWOOD CREEK NEAR WASILLA

Chemical analyses, in parts per million, November 1951 to August 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1951																							
Nov. 26	16	9.4	0.01	36	4.6	4.4		122	3.5	10	0.1	0.4		131	0.18		109	9	8		218	7.5	10
1952																							
Feb. 12	13	10	.01	39	5.3	2.4		140	4.7	3.0	.1	.4		141	.19		119	4	4		224	7.6	8
Mar. 12	12	11	.01	39	5.0	4.0		141	6.1	3.0	.0	.4		141	.19		118	2	7		230	7.3	7
Apr. 15	15	9.4	.01	33	4.8	5.1		128	4.3	2.5	.0	.3		126	.17		102	0	10		210	7.5	3
May 7	17	7.8	.01	30	4.2	2.9		111	4.6	1.8	.0	.1		106	.14		92	1	6		179	7.7	8
June 11	10	8.9	.01	26	4.3	11		118	5.3	3.0	.1	.6		117	.16		83	0	23		190	7.7	5
July 16	15	8.5	.01	26	5.8	2.4	0.9	112	5.4	1.0	.1	.5		106	.14		90	0	5		182	7.6	4
Aug. 29	8	7.7	.04	26	4.9	2.6	1.0	103	4.9	1.0	.0	1.3		100	.14		85	1	6		169	7.4	5

Little Susitna River near Palmer

Location.--Lat 61°42'40", long 149°13'40", in NW¼ sec. 26, T. 19 N., R. 1 E., on left bank 15 ft downstream from highway bridge on Wasilla-Fishhook Road, 1.5 miles north of road junction, 1.8 miles downstream from unnamed tributary, and 8 miles northwest of Palmer.

Drainage area.--61.9 sq mi (revised).

Records available.--Discharge: July 1948 to September 1953.
Chemical analyses: February to August 1952.

Gage.--Water-stage recorder. Datum of gage is 920.6 ft above mean sea level (river-profile survey). Prior to Aug. 16, 1948, staff gage at same site and datum.

Average discharge.--5 years, 221 cfs (160,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge during water year, 1,900 cfs June 8 (gage height, 5.25 ft); minimum not determined.
1951-52: Maximum discharge during water year, 2,500 cfs July 27 (gage height, 5.66 ft); minimum not determined.
1952-53: Maximum discharge during water year, 1,840 cfs Aug. 22 (gage height, 5.56 ft); minimum not determined.
1948-53: Maximum discharge, 3,070 cfs June 21, 1949 (gage height, 6.33 ft); minimum observed, 9.4 cfs Feb. 16, 1950 (discharge measurement), but may have been less during periods of no gage-height record.

Remarks.--Records good except those for periods of shifting control, which are fair and those for periods of ice effect or no gage-height record, which are poor. Large diurnal fluctuation caused by glacier melt at the source.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	104						16	34	859	615	323	708
2	101						15	42	701	682	297	663
3	98						15	51	*682	*639	280	561
4	95						14	52	1,190	645	274	1,010
5	92						14	54	1,190	639	325	974
6	89						14	85	1,360	852	280	768
7	86						14	123	1,320	591	327	609
8	83			28		18	14	137	1,370	544	304	528
9	82						14	165	852	528	280	450
10	82						15	196	694	533	284	386
11	82						15	209	585	533	277	522
12	77			(*)			15	277	516	533	271	*425
13	75						16	315	440	511	268	382
14	73				(*)		16	287	390	494	256	a380
15	71	35	31		21		17	253	386	445	253	a380
16	67						20	253	377	435	230	a390
17	62						29	253	338	425	416	478
18	59						*25	241	308	377	377	a600
19	55					(*)	27	214	301	445	294	a780
20	51						29	214	262	462	268	*675
21	50						31	198	319	368	265	a650
22	50		(*)				30	201	330	500	360	a780
23	50						28	203	851	467	824	a650
24	50			26		15	28	206	1,230	386	506	a520
25	51						29	219	943	338	533	425
26	52						30	214	887	327	720	382
27	50						30	250	775	291	1,140	346
28	46						32	368	663	*301	950	323
29	43						35	395	585	364	866	294
30	*40				------		35	420	550	511	1,010	265
31	38	------			------		------	506	------	368	768	------
Total	2,104	1,050	961	836	588	510	662	6,635	21,254	15,149	13,824	16,304
Mean	67.9	35	31	27	21	16.5	22.1	214	708	489	446	543
Ac-ft	4,170	2,080	1,910	1,660	1,170	1,010	1,310	13,160	42,160	30,050	27,420	32,340

Calendar year 1950: Max 908 Min - Mean 133 Ac-ft 96,610
Water year 1950-51: Max 1,370 Min - Mean 219 Ac-ft 158,400

Peak discharge (base, 1,500 cfs).--June 8 (2 a.m.) 1,900 cfs (5.25 ft); June 23 (9 p.m.) 1,510 cfs (4.86 ft); Sept. 4 (7 p.m.) 1,610 cfs (4.90 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement and records for stations on nearby streams.

Little Susitna River near Palmer--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	265	69		31			13	20	a450	669	1,120	1,420
2	241	71		*31			13	21	a400	727	852	1,090
3	219	63		30			13	22	a520	627	688	838
4	214	62		29			14	21	a600	550	585	627
5	198	61					14	*21	a570	591	506	494
6	186	60					14	a21	522	506	445	410
7	171	59	(*)				14	a29	538	415	591	346
8	158	57					*14	a40	585	410	*478	*311
9	139	54					14	a45	*772	a350	425	338
10	145	52					14	a50	1,100	a450	440	327
11	137	50					14	a51	1,230	a640	420	287
12	131	49					14	44	1,270	a620	372	271
13	a120	48					14	39	1,260	a600	342	259
14	a120	47				(*)	14	40	1,180	*489	315	247
15	a120	46					15	44	1,290	405	294	256
16	a110	45	36		14	13	15	83	1,320	506	268	239
17	a110						15	103	1,410	506	247	225
18	a120			22			15	a120	1,470	484	225	222
19	a140						15	a130	1,350	506	209	203
20	a150						15	116	1,250	538	214	216
21	a160						16	107	1,220	550	206	437
22	158						16	154	1,050	528	233	400
23	145						16	a190	922	500	206	342
24	130	44					16	a180	803	478	196	315
25	85						16	181	782	430	382	294
26	77						17	209	1,110	435	709	271
27	73						17	a350	1,270	1,190	528	256
28	71						17	a500	1,040	1,860	410	241
29	69						18	a650	894	1,900	386	222
30	68						19	a600	817	1,720	500	*203
31	66							a520		1,440	472	
Total	4,296	1,509	1,116	715	406	403	451	4,701	28,995	21,620	13,264	11,607
Mean	139	50.3	36	23.1	14	13	15.0	152	966	697	428	387
Ac-ft	8,520	2,990	2,210	1,420	805	799	895	9,320	57,510	42,880	26,310	23,020

Calendar year 1951: Max 1,370 Min - Mean 227 Ac-ft 164,000
Water year 1951-52: Max 1,900 Min - Mean 243 Ac-ft 176,700

Peak discharge (base 1,500 cfs).--June 18 (8 p.m.) 1,700 cfs (4.86 ft); June 26 (9 p.m.) 1,570 cfs (4.73 ft); July 27 (8 a.m.) 2,500 cfs (5.66 ft); Sept. 1 (8 a.m.) 1,900 cfs (5.25 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for stations on nearby streams.

Note.--Stage-discharge relation affected by ice Nov. 10 to Apr. 10 (no gage-height record during most of period; discharge estimated on basis of 4 discharge measurements and weather records. Shifting-control method used Oct. 1-23, Apr. 8 to July 29.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	185	92						81	814	380	251	622
2	175	88						86	*1,060	350	538	500
3	170	85				(*)		95	1,110	330	369	415
4	173	84						106	1,030	310	303	475
5	171	86						106	838	290	260	415
6	168	92			(*)			*116	724	*227	240	356
7	164	84						132	748	214	219	310
8	155	83	40		23		12	122	862	235	219	282
9	146	80						109	868	210	240	257
10	145	84						104	760	214	230	240
11	150	77						104	566	232	290	232
12	148	71						104	577	232	280	219
13	138	63						112	475	240	270	210
14	140	b80						153	387	270	240	214
15	146	b92						153	369	292	220	205
16	143	b88		31		16						
17	129	88					18	185	356	257	210	187
18	116	86					b22	219	400	232	190	175
19	121	80		(*)			b26	257	495	317	190	166
20	121	*78					b30	344	500	440	*180	179
							b22	450	550	310	180	187
21	115	80					b20	387	560	270	220	170
22	111	80			18		b18	400	610	*270	550	179
23	106	88					b20	485	588	270	930	170
24	93	96	37				*b21	522	580	276	538	162
25	106	85					b22	485	620	289	695	155
26	108	73					b30	415	660	292	910	150
27	109	69					b40	410	640	289	730	143
28	104	67					62	396	600	286	1,220	138
29	*104	60			-		66	396	500	279	1,200	*132
30	95	54	(*)				72	577	420	270	*910	127
31	93							694		246	730	
Total	4,148	2,413	1,192	961	579	496	669	8,305	19,267	8,619	13,752	7,372
Mean	134	80.4	38.5	31	20.7	16	22.3	268	642	278	444	246
Ac-ft	8,230	4,790	2,360	1,910	1,150	984	1,330	16,470	38,220	17,100	27,280	14,620

Calendar year 1952: Max 1,900 Min - Mean 246 Ac-ft 178,300
Water year 1952-53: Max 1,220 Min - Mean 186 Ac-ft 134,400

Peak discharge (base 1,500 cfs).--Aug 22 (10:30 p.m.) 1,840 cfs (5.56 ft).

* Discharge measurement made on this day. b Stage-discharge relation affected by ice.

Note.--No gage-height record Nov. 17-19, Nov. 21 to Apr. 16 (stage-discharge relation affected by ice during most of period), June 24 to July 5, Aug. 9-21; discharge estimated on basis of 6 discharge measurements, recorded range in stage, weather records, and records for stations on nearby streams.

LITTLE SUSITNA RIVER NEAR PALMER

Chemical analyses, in parts per million, February to August 1952

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
1952																							
Feb. 12	14	7.2	0.01	12	3.3	9.1		43	4.4	16	0.0	1.0		76	0.10		44	8	31		130	7.3	5
Mar. 12	13	6.7	.03	13	3.0	11		44	5.8	18	.1	.8		81	.11		45	9	35		141	7.1	5
Apr. 15	15	6.8	.01	14	3.0	13		46	7.2	21	.1	.8		89	.12		47	10	38		149	7.2	4
May 7	29	7.3	.04	14	3.3	10		46	6.3	18	.0	1.5		83	.11		48	11	32		145	7.3	8
June 11	1,230	5.8	.02	5.9	1.3	3.8		24	4.0	2.8	.1	.5		36	.05		20	1	29		46.1	7.0	5
July 16	506	4.1	.02	6.8	1.6	1.1		25	2.8	1.5	.0	.6		31	.04		24	3	9		51.2	6.5	5
Aug. 26	709	6.4	.10	9.0	1.8	1.7	0.7	34	4.8	.5	.1	1.3		43	.06		30	2	11		66.4	6.5	5

Susitna River at Gold Creek

Location.--Lat 62°46'10", long 149°41'30", near center of span on downstream side of bridge on Alaska Railroad, 300 ft downstream from Gold Creek, 0.9 mile north of Gold Creek Railroad Station, and 1½ miles downstream from Indian River.

Drainage area.--6,160 sq mi, approximately.

Records available.--Discharge: August 1949 to September 1953.
Chemical analyses: July, August 1950, May 1951 to September 1952.
Sediment records: April 1952 to September 1953.

Gage.--Wire-weight gage read twice daily. Datum of gage is 676.50 ft above mean sea level.

Extremes.--1950-51: Maximum discharge observed during water year, 37,400 cfs June 8 (gage height, 12.15 ft); maximum gage height observed, 16.20 ft May 6 (ice jam); minimum discharge not determined.
1951-52: Maximum discharge observed during water year, 44,700 cfs June 17 (gage height, 12.90 ft); minimum not determined.
1952-53: Maximum discharge observed during water year, 38,400 cfs June 7 (gage height, 12.25 ft); maximum gage height observed, 15.25 ft Apr. 30 (ice jam); minimum discharge not determined.
1949-53: Maximum discharge observed, that of June 17, 1952; minimum not determined.
Flood in May 1919 reached a stage of 19.2 ft, result of ice jam, from information by Bureau of Reclamation.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Large diurnal fluctuation caused by glacier melt at the source. Records of specific conductance of daily samples and miscellaneous water temperatures available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,800							5,200	19,400	19,400	23,200	30,600
2	5,500							6,000	20,000	19,500	18,600	29,600
3	5,300						740	7,000	24,700	18,200	19,000	29,000
4	5,200							b8,400	27,000	19,600	18,000	31,000
5	5,100							b9,700	29,000	23,600	18,000	*31,800
6	5,000	1,400						b11,000	29,700	23,000	*18,000	31,600
7	4,900							12,900	30,600	*21,800	16,900	30,600
8	4,800						860	14,900	35,800	24,000	17,300	26,800
9	4,700							17,400	30,000	23,000	18,000	20,200
10	4,690							19,400	26,600	24,300	17,300	19,900
11	4,690							22,600	24,100	24,900	17,800	18,900
12	4,660							23,100	22,000	24,600	17,100	18,500
13	4,640						1,100	24,700	21,900	24,600	17,600	18,000
14	4,620							23,800	20,300	25,000	18,600	17,900
15	4,640							22,300	17,600	24,700	19,000	17,300
16	4,430	1,300	1,100	960	820	740		21,300	16,600	23,800	19,300	17,500
17	4,270							16,800	17,500	21,400	19,700	17,000
18	3,840						1,500	14,000	16,600	22,600	19,700	17,900
19	3,810							12,000	13,000	22,900	18,900	18,500
20	3,860							11,000	12,200	23,800	17,400	20,500
21	3,790				(*)			10,000	10,800	23,800	15,600	21,700
22	3,050							9,790	10,600	23,700	16,000	21,900
23	2,790						2,100	9,540	14,100	23,800	20,000	20,500
24	b2,500							8,600	19,600	22,400	19,800	19,400
25	2,300							8,810	18,200	20,600	20,500	18,600
26	2,100	1,200						*9,230	16,800	19,500	21,400	17,500
27	1,900							11,000	19,800	19,300	24,000	15,900
28	1,700		(*)				3,400	13,200	19,900	20,600	22,500	14,200
29	1,600							18,500	19,800	23,100	23,800	12,800
30	1,600				------			17,700	19,400	23,400	26,300	11,700
31	1,500	------			------		------	16,900	------	24,700	30,600	------
Total	119,280	39,000	34,100	29,760	22,960	22,940	48,500	436,770	623,600	699,600	609,900	637,300
Mean	3,848	1,300	1,100	960	820	740	1,617	14,090	20,790	22,570	19,670	21,240
Ac-ft	236,600	77,360	67,640	59,030	45,540	45,500	96,200	866,300	‡1,237	‡1,388	‡1,210	‡1,264

Calendar year 1950: Max 34,000 Min - Mean 7,687 Ac-ft 5,565,000
Water year 1950-51: Max 35,800 Min - Mean 9,106 Ac-ft 6,593,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 1-9, Oct. 25 to May 3 (stage-discharge relation affected by ice during entire period), May 18-21, July 6, Aug. 4, 5, Sept. 3, 4; discharge estimated on basis of several discharge measurements, weather records, and records for Matanuska River at Palmer and Nenana River near Windy and Healy.

Susitna River at Gold Creek--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a11,000	3,800					(*)	1,100	25,000	33,000	41,900	a30,000
2	a10,000	4,000						1,200	23,500	31,100	38,300	*28,700
3	a9,700	3,900						1,300	27,500	29,500	32,100	24,500
4	a9,200	3,700						1,400	29,000	27,800	27,100	21,400
5	a8,700	3,400						1,500	26,500	25,900	24,500	18,000
6	a8,200	3,300						1,600	22,500	23,600	23,500	14,800
7	a7,800	3,410						1,600	24,400	22,500	23,600	12,900
8	a7,400	3,410						1,600	22,300	21,100	24,700	11,900
9	a6,800	3,120						1,500	21,500	19,700	25,600	12,400
10	a6,400	2,950						1,400	26,800	18,900	26,200	12,700
11	a6,100	2,840						1,400	37,300	17,700	27,400	13,500
12	a5,800	2,680						1,500	36,700	17,200	24,400	14,200
13	a5,500	2,500						1,600	34,000	19,500	22,400	13,500
14	a5,200	2,400						1,700	*31,400	23,300	20,400	12,300
15	a5,000	2,300	1,900	1,600	1,000	880	920	1,900	37,400	25,000	19,800	10,800
16	4,800	2,300						2,100	42,400	25,400	18,700	10,200
17	4,600	2,200						2,200	43,300	25,700	16,500	10,500
18	4,400	2,200						2,400	41,300	25,400	15,600	a10,000
19	4,300	2,200						2,600	40,200	25,200	14,800	a9,500
20	4,200	2,200						2,800	36,300	24,700	14,400	a10,000
21	4,100	2,300						3,000	35,400	24,200	14,800	*11,300
22	3,900	2,300						3,400	35,600	23,700	15,100	15,700
23	3,800	2,400						3,700	34,700	24,700	15,300	15,400
24	3,600	2,500						4,500	34,300	25,900	15,200	14,800
25	3,500	2,500						6,000	34,100	27,400	15,000	13,800
26	3,300	2,400						8,000	33,600	28,900	15,000	12,900
27	3,200	2,400						10,000	34,300	28,400	14,200	12,300
28	3,100	2,300						15,000	33,000	*31,300	13,500	12,000
29	3,000	2,200						25,000	33,400	38,300	13,600	12,000
30	2,900	2,200			------			28,000	33,400	41,300	a15,000	12,400
31	3,200	------			------		------	27,000	------	41,700	a20,000	------
Total	172,700	82,310	58,900	49,600	29,000	27,280	27,600	168,000	971,100	818,000	648,600	434,400
Mean	5,571	2,744	1,900	1,600	1,000	880	920	5,419	32,370	26,390	20,920	14,480
Ac-ft	342,500	163,300	116,800	98,380	57,520	54,110	54,740	333,200	‡1,926	‡1,622	‡1,286	861,600

Calendar year 1951: Max 35,800 Min - Mean 9,439 Ac-ft 6,834,000
Water year 1951-52: Max 43,300 Min - Mean 9,529 Ac-ft 6,917,000

* Discharge measurement made on this day. ‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of weather records and records for station on Matanuska River at Palmer.
Note.--Stage-discharge relation affected by ice Oct. 16 to Nov. 6, Nov. 13 to May 31 (no gage-height record Dec. 3-30, once weekly gage readings Jan. 1 to May 9; discharge estimated on basis of 1 discharge measurement and weather records).

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11,700	5,000						12,000	21,200	22,800	27,600	a20,000
2	11,400	4,800						15,800	27,600	21,200	*28,100	19,400
3	10,900	4,700						19,900	31,000	21,100	24,100	18,900
4	10,200	4,500						22,600	33,000	20,100	26,800	18,500
5	10,100	4,300						21,200	34,100	19,100	*25,200	17,900
6	11,200	4,500						22,000	36,000	18,700	23,400	18,400
7	12,500	4,400						21,400	37,700	18,600	22,900	19,200
8	11,400	4,400					930	17,500	37,200	17,900	22,200	19,200
9	10,800	4,200						17,200	36,800	17,400	21,200	18,800
10	10,200	4,100						14,100	33,800	17,200	19,400	17,400
11	10,400	3,900						12,000	32,500	18,200	18,700	15,900
12	10,400	3,500						13,500	29,300	18,700	18,600	15,200
13	9,930	3,200						10,700	27,100	19,300	18,300	15,100
14	a9,600	2,700						11,700	24,600	19,200	17,900	*18,600
15	9,370	2,500	1,700	1,100	820	820		14,300	23,200	20,700	17,400	18,800
16	9,090	2,400						16,000	19,300	20,900	17,100	15,000
17	8,280	2,300						17,000	18,900	20,100	16,600	14,600
18	6,890	2,500					(*)	18,200	19,600	19,700	16,700	14,400
19	6,100	2,900						19,200	20,600	19,600	16,400	14,200
20	*5,400	3,200						25,400	22,200	19,000	16,800	14,400
21	5,500	3,300					1,600	30,300	23,800	19,100	17,100	14,000
22	5,500	3,400						a31,000	24,700	19,400	18,000	13,300
23	5,300	3,600						a29,000	24,700	19,300	18,700	12,500
24	5,300	*3,700						a26,000	26,300	19,500	19,300	12,100
25	5,100	3,300						a23,000	29,500	20,000	19,900	11,700
26	5,200	3,000						a20,000	*28,600	21,400	21,700	11,400
27	5,200	2,800						18,800	25,700	22,100	22,800	11,000
28	5,300	2,700					3,700	*17,600	24,000	22,900	a23,000	10,100
29	5,400	2,600			-			19,900	23,800	22,600	a22,000	9,300
30	5,400	2,500			------			19,800	22,900	24,100	a21,000	8,880
31	5,200	------			------		------	20,300	------	26,200	a20,000	------
Total	254,260	104,900	52,700	34,100	22,960	25,420	48,450	597,400	819,700	626,100	638,900	458,180
Mean	8,202	3,497	1,700	1,100	820	820	1,615	19,270	27,320	20,200	20,610	15,270
Ac-ft	504,300	208,100	104,500	67,640	45,540	50,420	96,100	‡1,185	‡1,626	‡1,242	‡1,267	908,800

Calendar year 1952: Max 43,300 Min - Mean 9,796 Ac-ft 7,110,000
Water year 1952-53: Max 37,700 Min - Mean 10,090 Ac-ft 7,305,000

* Discharge measurement made on this day. ‡ Expressed in thousands.
a No gage-height record; discharge interpolated or estimated on basis of weather records and records for stations on nearby streams.
Note.--Stage-discharge relation affected by ice Oct. 19 to May 1 (no gage-height record Jan 18 to Feb. 7).

SUSITNA RIVER AT GOLD CREEK

Chemical analyses, in parts per million, May 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium, magnesium	Noncarbonate			
1951																			
May 4, 6, 8, 10, 12, 14, 17, 24, 26, 28, 30	15,100	41	7.4	0.23	18	2.6	5.9		57	9.7	7.6	--	1.2	90	56	9	147	6.9	5
June 2, 4, 6, 8, 10, 12, 14	25,910	49	7.6	.24	18	2.8	6.5	3.8	55	10	8.0	0.3	.8	85	56	11	131	7.3	20
June 16, 18, 20, 24, 26, 28, 30	16,460	53	8.8	.36	18	2.7	5.8	2.6	56	12	9.0	.2	.8	93	56	10	140	7.3	20
July 2	19,500	--	8.0	--	20	1.9	12		61	20	8.0	--	.8	101	58	8	143	--	10
July 7,9, 11, 13, 15, 17	a 23,400	59	9.4	.17	37	3.5	4.6	4.1	106	23	6.5	.2	.4	140	107	20	227	7.5	7
July 19, 21, 23, 25, 27, 29, 31	22,600	--	7.2	.19	27	3.3	5.4	3.0	75	19	6.0	.2	.4	112	81	19	177	7.7	9
Aug. 2, 7, 11, 13, 15, 17	18,270	--	6.9	.21	22	4.0	4.9	3.0	66	19	5.8	.1	.5	98	71	17	158	7.5	10
Aug. 19,21, 24,26,28,31	21,470	--	8.3	.20	20	4.8	4.0		59	19	6.2	.3	.7	100	70	21	152	7.4	20
Sept. 3, 6,9, 12, 15, 18 21, 24, 27, 30	20,320	--	8.3	.17	26	5.4	4.5	2.1	75	27	7.5	.1	1.1	126	87	26	198	7.4	10
1951																			
Oct. 2, 5, 8	8,700	--	9.5	--	25	7.2	6.6		81	28	6.8	--	1.6	125	92	26	210	7.3	5
Oct. 11, 13, 15	5,533	--	11	--	28	7.8	5.7		88	28	8.5	--	1.3	134	102	30	223	7.4	4
Dec. 30	1,900	--	17	--	31	5.2	19		92	15	35	--	.8	168	99	24	279	7.3	5
1952																			
Jan. 6, 12, 18, 24, 31	1,600	--	15	0.02	32	5.5	17		92	15	34	0.1	1.0	171	102	27	276	7.0	6
Feb. 7, 13, 16, 24	1,000	--	14	.02	32	5.8	17		92	18	32	.0	.6	165	104	28	276	7.1	6
Mar. 5, 12, 19, 25, 31	880	--	16	.01	32	5.8	17		96	18	30	--	.7	171	104	25	273	7.3	7
Apr. 6, 13, 19, 24, 29	920	--	14	.01	33	6.5	13		95	22	26	--	.6	170	109	31	271	7.6	3
May 3, 6, 10, 13, 19, 22, 26	2,843	--	12	.01	33	7.4	15		97	27	26	.0	1.3	174	113	33	280	7.3	9
May 30	28,000	--	5.9	--	11	2.1	5.8		36	9.0	6.0	--	1.0	58	36	6	82.4	7.3	20
June 3, 6, 9, 12, 15, 18 20, 22, 24, 27, 29	32,800	--	5.4	.46	12	2.7	3.2		39	9.2	4.0	.0	.9	62	41	9	92.4	7.0	15
July 2, 5, 9	25,570	--	8.2	--	24	4.3	3.6	3.5	76	20	6.0	--	.6	108	77	15	167	7.0	2
July 11, 20	22,910	--	7.3	.12	23	3.4	3.4	4.5	70	15	3.5	.1	.4	96	71	14	155	7.0	4
July 21-31	30,530	--	6.8	.23	21	3.4	2.6	3.1	68	15	2.5	.1	.4	93	66	11	146	7.3	4
Aug. 1-10	28,750	--	9.8	.07	21	4.7	3.2	2.9	75	17	3.5	.1	.6	99	72	10	158	7.4	5
Aug. 11-20	19,440	--	7.7	.05	26	4.1	3.6	3.2	77	22	3.8	.1	.6	111	82	19	182	7.2	3
Aug. 21-31	15,150	--	7.9	.13	21	4.6	3.6	2.1	68	19	3.8	.1	.5	98	71	16	159	7.1	7
Sept. 1-10	18,730	--	8.7	.08	23	5.0	4.1	2.1	72	22	5.0	.1	.5	109	78	19	173	7.3	5
Sept. 11-20	11,450	--	9.5	.03	24	5.6	4.6	1.6	73	25	5.5	.1	.6	114	83	23	184	7.2	3
Sept. 21-30	13,260	--	8.8	.12	23	5.3	4.4	1.5	69	24	5.5	.2	.6	108	79	23	175	7.2	6

a Represents 37 percent of runoff for water year October 1950 to September 1951.

Suspended sediment, April to September 1952

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		--		1,100	9	27	25,000	1,730	117,000
2		--		1,200	13	a 42	23,500	2,030	129,000
3		--		1,300	17	60	27,500	2,200	a 163,000
4		--		1,400	18	a 68	29,000	1,800	a 141,000
5		--		1,500	19	a 77	26,500	1,300	a 93,000
6		21		1,600	19	82	22,500	940	a 57,100
7		--		1,600	20	a 86	24,400	1,000	a 65,900
8		--		1,600	21	a 91	22,300	950	a 57,200
9		--		1,500	22	a 89	21,500	730	a 42,400
10		--		1,400	23	87	26,800	495	35,800
11		--		1,400	20	a 76	37,300	249	25,100
12		--		1,500	18	a 73	36,700	189	18,700
13		19		1,600	18	78	34,000	290	26,600
14		--		1,700	15	69	31,400	464	39,300
15	920	--	a 42	1,900	12	62	37,400	493	49,800
16		--		2,100	12	a 68	42,400	562	64,300
17		--		2,200	15	a 89	43,300	936	109,000
18		--		2,400	17	a 110	41,300	885	98,700
19		11		2,600	19	133	40,200	256	27,800
20		--		2,800	30	a 227	36,300	241	23,600
21		--		3,000	50	a 405	35,400	232	22,200
22		--		3,400	80	734	35,600	212	20,400
23		--		3,700	270	a 2,700	34,700	203	19,000
24		14		4,500	549	6,670	34,300	213	19,700
25		--		6,000	828	13,400	34,100	184	16,900
26		--		8,000	1,120	24,200	33,600	278	25,200
27		--		10,000	1,270	34,300	34,300	1,040	96,300
28		--		15,000	747	30,300	33,000	1,220	109,000
29		19		25,000	450	30,400	33,400	1,220	110,000
30		14		28,000	540	40,800	33,400	1,270	115,000
31		--		27,000	1,670	122,000	--	--	--
Total	27,600	--	1,260	168,000	--	307,603	971,100	--	1,938,000

Day	July			August			September		
1	33,000	1,300	116,000	41,900	1,390	157,000	30,000	870	a 70,500
2	31,100	1,220	102,000	38,300	981	101,000	28,700	772	59,800
3	29,500	562	44,800	32,100	826	71,600	24,500	682	45,100
4	27,800	544	40,880	27,100	900	65,900	21,400	602	34,800
5	25,900	695	48,600	24,500	900	59,500	18,000	560	a 27,200
6	23,600	670	42,700	23,500	909	57,700	14,800	520	20,800
7	22,500	560	34,000	23,600	860	54,800	12,900	420	a 14,600
8	21,100	687	39,100	24,700	828	55,200	11,900	270	a 8,680
9	19,700	595	31,600	25,600	824	57,000	12,400	130	4,350
10	18,900	429	21,900	26,200	873	61,800	12,700	70	a 2,400
11	17,700	662	31,600	27,400	836	61,800	13,500	54	1,970
12	17,200	1,030	47,800	24,400	1,150	75,800	14,200	50	a 1,920
13	19,500	1,190	62,700	22,400	2,190	132,000	13,500	50	a 1,820
14	23,300	1,140	71,700	20,400	2,100	a 116,000	12,300	50	a 1,660
15	25,000	1,150	77,600	19,800	1,580	a 84,500	10,800	50	a 1,460
16	25,400	909	62,300	18,700	1,200	a 60,600	10,200	58	1,600
17	25,700	756	52,500	16,500	960	a 42,800	10,500	65	1,840
18	25,400	860	a 59,000	15,600	650	27,400	10,000	70	a 1,890
19	25,200	990	a 67,400	14,800	531	21,200	9,500	70	a 1,800
20	24,700	1,130	75,400	14,400	639	24,800	10,000	70	a 1,890
21	24,200	1,080	70,600	14,800	554	22,100	11,300	70	a 2,140
22	23,700	837	53,600	15,100	414	16,900	15,700	73	3,090
23	24,700	918	61,200	15,300	435	18,000	15,400	76	3,160
24	25,900	873	61,000	15,200	531	21,800	14,800	90	3,600
25	27,400	972	71,900	15,000	377	15,300	13,800	90	3,350
26	28,900	972	75,800	15,000	275	11,100	12,900	99	3,450
27	28,400	888	68,100	14,200	293	11,200	12,300	110	3,650
28	31,300	927	78,300	13,500	410	a 14,900	12,000	89	2,880
29	38,300	1,120	116,000	13,600	568	20,900	12,000	81	2,620
30	41,300	1,310	146,000	15,000	720	a 29,200	12,400	68	2,280
31	41,700	1,360	153,000	20,000	860	a 46,400	--	--	--
Total	818,000	--	2,085,000	648,600	--	1,616,200	434,400	--	336,300

Total discharge for period (cfs-days) ..... b 3,067,700
Total load for period (tons) 6,284,363

a Computed from estimated concentration graph.
b Represents 88 percent of runoff for water year October 1951 to September 1952.

SUSITNA RIVER AT GOLD CREEK--Continued

Periodic determinations of suspended-sediment discharge, water year October 1952 to September 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1952			
Oct. 15	9,200	36	894
1953			
May 6	22,400	954	57,700
May 21	30,300	1,330	109,000
May 29	20,800	314	17,600
June 5	32,200	1,010	87,800
June 22	24,300	1,060	69,500
June 23	25,000	1,090	73,600
June 24	24,200	1,070	69,900
July 2	20,400	2,080	115,000
July 16	21,700	1,610	94,300
Aug. 6	21,800	1,880	111,000
Aug. 15	17,800	775	37,200
Sept. 28	10,200	61	1,680

Monthly summary of suspended sediment, water year October 1952 to September 1953

Month	Discharge (cfs-days)	Suspended sediment (tons)
1952		
October	254,260	30,120
November	104,900	2,700
December	52,700	--
1953		
January	34,100	--
March	22,900	--
April	48,450	--
May	597,400	1,053,000
June	819,700	2,248,000
July	626,100	1,965,000
August	638,900	1,819,000
September	458,180	--

SUSITNA RIVER AT GOLD CREEK--Continued

Particle-size analyses of suspended sediment, July to August 1953
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
1953																
July 16	4:20 p.m.	21,700		1,610	2,360	16	24	32	44	71	77	85	94	--	100		BSWCM
Aug. 6	10:00 a.m.	21,800		1,940	4,550	15	23	35	44	56	81	90	96	--	99	100	PSWCM

Uganik River near Kodiak

Location.--Lat 57°41'05", long 153°25'10", on Kodiak Island, on right bank half a mile upstream from tidewater at East Arm Uganik Bay, 1 mile downstream from Mush Lake tributary, 4 miles downstream from Uganik Lake, and 40 miles west of Kodiak.

Drainage area.--123 sq mi.

Records available.--May 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Extremes.--1951: Maximum discharge during period May to September, 5,800 cfs Aug. 13 (gage height, 8.46 ft); minimum, 277 cfs Sept. 10 (gage height, 5.12 ft).
1951-52: Maximum discharge during water year, 4,890 cfs July 6 (gage height, 8.14 ft); minimum not determined.
1952-53: Maximum discharge during water year, 13,700 cfs Oct. 3 (gage height, 10.65 ft), from rating curve extended above 2,500 cfs by logarithmic plotting; minimum not determined.

Remarks.--Records good except those above 2,500 cfs, which are fair, and those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, May to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	2,670	1,450	381	375
2								-	1,950	1,310	406	486
3								-	3,110	1,330	413	466
4								-	4,310	1,380	432	432
5								-	4,310	1,590	530	400
6								-	4,680	1,710	507	438
7								-	3,300	1,740	708	406
8								-	2,100	1,560	717	352
9								-	1,590	1,440	560	308
10								-	1,490	1,240	466	298
11							†134	-	1,370	1,140	466	358
12								-	*1,290	1,070	1,580	324
13								-	1,170	1,030	4,240	400
14								-	1,220	906	1,740	486
15								-	1,260	792	1,070	406
16								-	2,600	792	726	388
17								-	2,140	916	544	1,060
18								-	1,550	812	466	938
19								-	1,280	673	413	804
20								-	1,330	582	381	1,300
21								-	1,840	560	341	972
22								-	a1,500	537	335	802
23								*792	a1,900	500	346	648
24								a660	1,560	466	313	507
25								537	1,510	432	303	a390
26								a500	2,620	400	419	a430
27								a470	2,630	394	615	a500
28								459	1,890	*493	560	a450
29								708	1,820	514	500	a400
30					------			1,240	1,610	466	432	a350
31		------			------		------	2,440	------	406	341	------
Total								-	63,600	28,631	21,251	15,874
Mean								-	2,120	924	686	529
Ac-ft								-	126,100	56,790	42,150	31,490

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 3,400 cfs).--June 6 (8:45 a.m.) 4,810 cfs (8.11 ft); June 26 (10 p.m.) 3,490 cfs (7.57 ft); Aug. 13 (3:30 a.m.) 5,800 cfs (8.46 ft).

* Discharge measurement made on this day.

† Result of discharge measurement.

a No gage-height record; discharge estimated on basis of weather records and recorded range in stage.

Note.--Shifting-control method used May 23 to June 5, June 27 to Aug. 12.

Uganik River near Kodiak--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	330	1,590	164	90				130	812	1,100	530	358
2	310	1,290	146	92				140	841	960	522	318
3	290	812	140	92				150	1,000	*1,040	574	282
4	270	582	130	89				171	960	1,060	700	254
5	260	690	b120	86				198	900	2,520	1,010	236
6	*249	862	110	83				218	890	4,440	1,020	206
7	236	708	110	80				222	1,100	3,180	906	186
8	226	590	100	78	60	62	68	226	1,500	2,020	691	178
9	218	486	100	76				249	2,000	1,540	537	190
10	218	419	100	75				282	1,800	2,690	530	198
11	214	375	100	*b75				324	1,900	2,530	560	190
12	202	324	110	b75				358	1,700	2,320	717	178
13	190	282	110	b77				375	1,400	2,310	735	190
14	182	258	120	b78				369	1,200	1,620	673	218
15	171	226	127	b79				358	1,100	1,300	567	210
16	157	210	130	b79				381	1,000	1,080	466	198
17	150	190	120	b77				452	960	960	400	190
18	150	182	110	b75				648	920	862	369	182
19	146	171	106	b71				802	870	841	329	171
20	143	186	100	b68				744	830	873	298	164
21	171	202	97	b66				648	790	960	272	171
22	471	218	94	b66				598	760	1,160	272	218
23	537	202	89	b67	58	63	100	615	730	1,450	262	1,150
24	598	198	b85	b69				822	710	1,550	258	2,270
25	639	236	b83	b71				873	690	1,420	240	1,680
26	544	240	b82	b72				1,130	680	1,480	231	1,040
27	438	222	b82	b70				1,250	670	1,420	*313	872
28	364	210	81	b67				1,160	670	1,340	352	1,310
29	318	198	81	b66			*127	1,020	740	984	346	1,040
30	364	186	83	b65	------		130	906	900	773	369	884
31	794	------	85	b64	------		------	831	------	639	400	------
Total	9,550	12,545	3,295	2,338	1,712	1,938	2,577	16,650	31,023	48,422	15,449	14,932
Mean	308	418	106	75.4	59.0	62.5	85.9	537	1,034	1,562	498	498
Ac-ft	18,940	24,880	6,540	4,640	3,400	3,840	5,110	33,020	61,530	96,040	30,640	29,620

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 4,440 Min - Mean 438 Ac-ft 318,200

Peak discharge (base, 3,400 cfs).--July 6 (4 a.m.) 4,890 cfs (8.14 ft).
* Discharge measurement made on this day. b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 1-5, Dec. 6-13, 16-18, Dec. 29 to Jan. 10, Feb. 2-13, Feb. 16 to Apr. 28 (stage-discharge relation affected by ice during most of period) Apr. 30 to May 2, June 3 to July 2: discharge estimated on basis of 4 discharge measurements, recorded range in stage, and weather records.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	744	544	522				130	1,210	1,270	2,540	1,380	380
2	673	508					130	1,080	1,290	1,970	1,460	337
3	8,180	458					130	990	1,410	1,960	1,370	337
4	7,540	458					140	900	1,570	2,000	*990	374
5	3,690	740					140	832	1,580	2,070	823	412
6	2,580	794					140	842	1,340	2,200	1,220	425
7	1,640	1,270					140	880	1,250	2,360	1,120	567
8	1,130	1,560					150	794	1,310	2,170	776	621
9	1,540	1,860	430	320	170	140	150	705	1,410	1,660	714	559
10	*1,800	1,440					160	663	1,990	1,530	823	493
11	1,340	1,100					170	654	2,540	1,730	749	472
12	996	861					180	638	*2,250	1,910	646	445
13	1,400	705					190	654	1,860	1,850	1,010	406
14	1,650	590					200	696	2,130	1,710	990	362
15	1,200	544			(*)		210	705	4,430	1,530	930	668
16	950	508					230	705	4,950	1,390	814	*1,410
17	767	458					250	990	3,340	1,200	638	900
18	663	406					280	1,060	2,580	1,070	574	621
19	590	374					310	1,040	2,180	1,060	559	486
20	522	445					350	1,100	2,020	1,020	544	425
21	551	*452					400	1,270	2,430	940	544	387
22	515	465			160		*452	1,190	2,970	1,050	529	374
23	465	2,300					479	1,070	3,200	1,070	870	574
24	425	1,790	380	210		130	500	990	3,410	1,050	940	621
25	412	1,170					574	930	4,260	1,060	758	529
26	458	900					723	880	4,660	1,040	740	465
27	439	804					804	842	4,820	1,040	696	406
28	508	749					970	842	4,840	1,020	663	356
29	582	654					1,380	861	4,400	1,020	613	314
30	551	574			------		1,440	1,030	3,230	1,010	544	279
31	529	------			------		------	1,260	------	1,080	452	------
Total	45,030	25,481	12,622	8,160	4,630	4,180	11,502	28,303	80,920	46,310	25,479	15,005
Mean	1,453	849	407	263	165	135	383	913	2,697	1,494	822	500
Ac-ft	89,320	50,540	25,040	16,190	9,180	8,290	22,810	56,140	160,500	91,850	50,540	29,760

Calendar year 1952: Max 8,180 Min - Mean 596 Ac-ft 432,700
Water year 1952-53: Max 8,180 Min - Mean 843 Ac-ft 610,200

Peak discharge (base, 3,400 cfs).--Oct. 3 (6:30 p.m.) 13,700 cfs (10.65 ft); June 15 (12 p.m.) 5,930 cfs (8.64 ft); June 28 (2:30 a.m.) 5,110 cfs (8.34 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Dec. 1 to Apr. 21; discharge estimated on basis of 2 discharge measurements and weather records.

Tanalian River near Port Alsworth

Location.--Lat 60°11', long 154°15', on right bank 100 ft downstream from Kontrashibuna Lake Outlet, 1 mile upstream from small tributary, 2½ miles southeast of Port Alsworth, and 3 miles east of Tanalian Point.

Drainage area.--200 sq mi, approximately.

Records available.--August 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

Extremes.--1951: Maximum discharge during period August to September, 2,250 cfs Aug. 29 (gage height, 3.41 ft); minimum daily, 810 cfs Sept. 30.
1951-52: Maximum discharge during water year, 3,040 cfs July 11 or 12 (gage height, 4.02 ft); minimum not determined.
1952-53: Maximum discharge during water year, 4,720 cfs June 28 (gage height, 5.17 ft); minimum not determined.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, 1951

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,300	1,960	9	1,300	1,530	17	1,600	1,400	25	1,200	1,200
2	1,300	2,000	10	1,300	1,440	18	1,530	1,500	26	1,500	1,000
3	1,300	2,140	11	1,400	1,390	19	1,440	1,600	27	1,900	970
4	1,300	2,190	12	1,600	*1,390	20	1,310	1,600	28	*2,060	880
5	1,300	2,160	13	1,600	1,310	21	1,210	1,600	29	2,230	830
6	1,500	2,120	14	1,600	1,300	22	1,150	1,500	30	2,140	810
7	1,600	1,950	15	1,600	1,300	23	*1,240	1,400	31	1,920	-
8	1,500	1,780	16	1,600	1,300	23	1,190	1,300			
Total										46,720	44,850
Mean										1,507	1,495
Runoff in acre-feet										92,670	88,960

* Discharge measurement made on this day.
Note.--Result of discharge measurement made Apr. 7, 50 cfs. No gage-height record Aug. 1-17, 26, Sept. 2, 14-30; discharge estimated on basis of recorded range in stage, weather records, and records for Newhalen River near Iliamna.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a790	a250	160						196	a1,600	1,700	a1,200
2	a760	*244	156						207	a1,500	1,570	a1,200
3	a740	242	152					a62	217	a1,400	1,510	a1,100
4	a720	235	150						226	a1,400	1,540	a1,000
5	a700	232	146				a50		239	a1,400	1,750	a980
6	a690	228	145						276	a1,400	1,950	a940
7	a660	223	144						267	a1,500	2,490	a900
8	a640	219	141	a76	a48	a47		a64	254	a1,600	a2,600	a860
9	a610	219	140						267	a1,800	a2,500	a800
10	a580	215	138						300	a2,400	a2,400	a760
11	a550	211							327	a2,700	a2,300	a720
12	a520	199							376	a2,700	a2,200	a690
13	a500	199						a67	460	a2,600	a2,100	a660
14	a480	196							565	a2,500	a2,200	a630
15	a450	192	a120				a60		680	a2,300	a2,300	a600
16	a430	189						a74	864	a2,100	a2,200	a570
17	a400	184						a79	1,130	a1,900	a2,100	a550
18	a370	181						*a85	1,380	a1,900	a2,000	a540
19	a360	178						a88	1,640	a1,900	a1,900	a540
20	a340	187						a92	1,820	a2,000	a1,800	a540
21	a330	187						a94	1,900	*2,070	a1,700	a560
22	a330	186						a94	1,980	2,190	a1,600	a600
23	a330	186			a47			a93	a2,000	2,240	a1,500	a640
24	a320	183		a58		a49		a92	a2,100	2,280	a1,500	a690
25	a310	180						a94	a2,100	2,260	a1,400	*725
26	a310	178	a90				a63	a110	a2,100	2,240	a1,300	755
27	a300	176						a130	a2,000	2,450	a1,300	772
28	a290	170						a150	a1,900	2,620	a1,200	766
29	a280	165						a170	a1,800	2,480	a1,100	735
30	a270	164			------			178	a1,700	2,190	a1,100	700
31	a260	------			------		------	186	------	1,920	a1,200	------
Total	14,620	5,998	3,662	2,068	1,378	1,489	1,730	2,774	31,271	63,540	56,010	22,723
Mean	472	200	118	66.7	47.5	48.0	57.7	89.5	1,042	2,050	1,807	757
Ac-ft	29,000	11,900	7,260	4,100	2,730	2,950	3,430	5,500	62,030	126,000	111,100	45,070

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 2,700 Min - Mean 566 Ac-ft 411,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 4 discharge measurements, recorded range in stage, weather records, and records for Newhalen River near Iliamna.

Tanalian River near Port Alsworth--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	665	372		(*)					1,080	3,800	1,900	2,760
2	660	362							1,250	3,600	2,100	2,410
3	819	358							1,450	3,300	2,200	2,110
4	1,990	362							1,720	3,100	2,200	1,990
5	2,400	372	330	220				250	1,870	2,900	2,100	2,010
6	2,530	376							1,860	2,800	2,000	1,900
7	2,370	382							1,900	2,600	1,900	1,700
8	2,120	376			88	100	120		1,880	2,400	1,800	1,570
9	1,860	376							1,900	2,300	1,700	1,430
10	1,570	393							1,920	2,200	1,600	1,330
11	1,390	393							1,930	2,100	1,500	1,220
12	1,220	390				(*)			1,990	2,100	1,400	1,120
13	1,110	379							2,050	2,100	1,300	1,030
14	1,000	382							1,990	2,200	1,300	989
15	947	379	260	190				400	1,980	2,300	1,200	1,040
16	877	376							1,990	2,200	1,200	1,080
17	804	358							*1,990	2,100	1,200	1,030
18	750	340							1,950	2,000	1,100	989
19	695	344							1,890	1,900	1,100	940
20	646	348							1,900	1,800	1,300	884
21	614	330						540	2,120	1,700	2,000	834
22	570	351			96			*588	2,400	1,600	2,400	828
23	534	379					170	660	2,760	1,600	*2,500	940
24	*512	432				110		720	3,120	1,600	2,610	*1,000
25	484	440						755	3,770	1,700	2,500	975
26	468	444	240	120				755	4,240	1,800	2,500	933
27	460	432						777	4,580	1,900	2,340	864
28	444	416						810	4,640	1,900	3,120	828
29	428	404			-			828	4,400	1,800	3,580	772
30	408	390			------			898	4,100	1,800	3,390	725
31	396	------			------		------	982	------	1,800	3,050	------
Total	31,741	11,436	8,540	5,420	2,568	3,260	4,350	14,813	72,620	69,000	62,090	38,231
Mean	1,024	381	275	175	91.7	105	145	478	2,421	2,226	2,003	1,274
Ac-ft	62,960	22,680	16,940	10,750	5,090	6,470	8,630	29,380	144,000	136,900	123,200	75,830

Calendar year 1952: Max 2,700 Min - Mean 641 Ac-ft 465,500
Water year 1952-53: Max 4,640 Min - Mean 888 Ac-ft 642,800

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 1 to Jan. 1, Jan. 3 to Mar. 11, Mar. 13 to May 21, May 23, 24, June 29 to Aug. 22; discharge estimated on basis of 4 discharge measurements, weather records, and records for stations on nearby streams.

Newhalen River near Iliamna

Location.--Lat 59°52', long 154°52', on left bank 1 mile upstream from rapids, 1 mile downstream from old portage dock, 8 miles downstream from Fish Village, 8 miles downstream from outlet of Sixmile Lake, and 8 miles north of Iliamna.

Drainage area.--3,300 sq mi, approximately.

Records available.--July 1951 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 210 ft (from topographic map).

Extremes.--1951: Maximum discharge during period July to September, 26,300 cfs Sept. 6 (gage height, 7.33 ft); minimum, 17,900 cfs July 1 (gage height, 5.48 ft).
1951-52: Maximum discharge during water year, 26,600 cfs July 30 (gage height, 7.40 ft); minimum not determined.
1952-53: Maximum discharge during water year, 29,600 cfs July 1 (gage height, 8.03 ft); minimum not determined.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, 1951

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	18,000	19,900	24,200	11	23,100	18,000	24,300	21	25,100	19,600	22,800
2	18,400	19,200	24,800	12	*23,700	18,300	24,000	22	24,500	19,400	23,100
3	18,500	18,900	25,200	13	24,500	18,700	23,700	23	23,200	19,300	23,200
4	18,600	18,700	25,700	14	25,000	19,100	*23,200	24	*23,800	19,300	23,100
5	18,900	18,500	26,200	15	25,400	19,600	22,900	25	23,300	19,400	22,700
6	19,500	18,400	26,200	16	25,600	19,900	22,600	26	22,900	19,600	22,500
7	20,500	18,500	26,000	17	25,900	20,100	22,100	27	*22,400	*19,800	22,200
8	21,200	18,200	25,700	18	26,000	20,200	21,900	28	22,100	20,800	21,700
9	22,100	18,300	25,300	19	25,800	20,100	22,300	29	21,600	22,000	21,000
10	22,700	18,100	24,900	20	25,500	19,800	22,600	30	21,000	23,200	20,400
								31	20,000	24,000	
Total									698,800	606,900	706,500
Mean									22,540	19,580	23,550
Runoff in acre-feet									‡1,386	‡1,204	‡1,401

* Discharge measurement made on this day.
‡ Expressed in thousands.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19,800	8,350	b5,400						6,770	20,700	25,800	17,700
2	19,300	7,920	b5,300						6,840	20,800	25,200	17,400
3	18,900	7,810	b5,100						6,870	21,000	24,700	17,300
4	18,800	7,630	b4,900						6,910	20,900	24,400	17,100
5	18,200	7,560	b4,800						7,160	21,000	24,200	16,900
6	17,500	7,300	b4,600						7,340	21,300	24,300	16,500
7	17,100	7,050	b4,400						7,560	20,900	25,000	16,100
8	16,500	6,940	b4,200	a2,500	a1,600	a1,600	a1,800	a2,200	7,630	20,900	26,000	15,600
9	15,900	6,840	b4,000						7,810	20,600	26,400	15,400
10	15,200	6,800	b3,900						8,060	20,700	26,400	15,100
11	14,800	6,800	b3,800						8,320	20,800	26,400	15,000
12	14,300	6,770	b3,700						8,540	21,300	26,300	14,700
13	13,700	6,730	b3,600						8,960	21,500	26,100	14,600
14	13,100	6,700	b3,500						9,340	a22,000	25,900	14,200
15	12,700	6,630	b3,400						9,680	a23,000	25,800	13,900
16	12,100	6,630	b3,300					a2,400	10,300	a23,000	25,500	13,600
17	11,700	6,560	b3,300					a2,600	10,900	a22,000	24,900	13,300
18	11,400	6,430	b3,200					a2,800	11,500	a21,000	24,400	12,900
19	11,000	6,260	a3,100					a3,000	12,500	a22,000	23,600	a12,000
20	10,600	6,290	a2,900					*b3,200	13,400	a23,000	23,300	a12,000
21	10,300	6,290						a3,400	14,300	*23,400	22,700	a12,000
22	9,950	6,220						a3,400	14,900	23,600	22,300	a12,000
23	9,650	6,120			a1,500		a2,100	a3,300	15,600	24,000	21,800	a12,000
24	9,570	6,120		a2,000		a1,700		a3,300	16,600	24,400	21,300	a12,000
25	9,420	5,980						a3,400	17,300	24,700	20,900	*11,600
26	*9,190	5,920	a2,800					a3,800	18,100	25,000	20,400	11,500
27	9,080	5,810						a4,500	18,500	25,400	19,900	11,400
28	8,890	b5,700						a5,600	19,200	26,000	19,300	11,400
29	8,700	b5,600						6,050	20,000	26,500	18,700	11,400
30	8,510	b5,500			------			6,320	20,500	26,800	18,500	11,200
31	8,620	------			------		------	6,560	------	26,300	18,000	------
Total	404,480	199,260	111,200	69,500	45,000	51,200	58,500	96,630	351,390	704,300	728,400	417,800
Mean	13,050	6,642	3,587	2,242	1,552	1,652	1,950	3,117	11,710	22,720	23,500	13,930
Ac-ft	802,300	395,200	220,600	137,900	89,260	101,600	116,000	191,700	697,000	‡1,397	‡1,445	828,700

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 26,600 Min - Mean 8,136 Ac-ft 6,422,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of 3 discharge measurements, weather records, and records for station on Tanalian River near Port Alsworth.
b Stage-discharge relation affected by ice.

Newhalen River near Iliamna--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11,100	10,100							10,100	29,600	24,000	29,200
2	10,900	9,800							10,500	29,400	24,300	29,100
3	11,300	9,460							10,800	29,200	24,700	28,600
4	12,000	9,270							11,300	29,100	25,100	28,300
5	13,000	*8,850							12,100	28,800	25,000	28,000
6	14,100	8,620							12,700	28,700	25,000	27,800
7	14,800	8,700		(*)					13,200	28,400	24,700	27,600
8	15,200	8,430	6,000	4,700	1,800	2,100	2,400		13,600	27,800	24,500	27,100
9	15,600	8,390							14,000	27,200	24,300	26,500
10	15,500	8,280							14,500	26,600	23,800	25,800
11	15,400	8,060						5,200	14,900	26,300	23,400	25,200
12	15,200	7,950				(*)			15,400	26,000	23,000	24,400
13	15,100	7,840							15,700	25,900	22,800	23,700
14	14,800	7,630							16,000	25,800	22,500	22,900
15	14,600	7,520							16,300	25,600	22,400	22,300
16	14,400	7,230							16,500	25,500	22,100	21,800
17	14,300	7,340							*16,500	*25,300	21,800	21,100
18	14,100	7,200							16,700	25,100	21,400	20,400
19	13,700	6,940							17,100	24,800	21,100	20,000
20	13,400	6,910							17,300	24,400	20,600	19,400
21	13,100	6,800						7,300	17,400	24,000	20,300	18,700
22	12,700	6,630			2,000			*7,560	17,700	23,600	19,900	18,400
23	12,300	6,770					3,100	7,880	18,300	23,400	*20,600	18,500
24	11,900	6,910	5,200	3,000		2,200		8,130	19,300	23,300	22,100	18,500
25	11,600	7,020						8,280	20,500	23,300	23,000	*18,400
26	11,400	7,090						8,540	22,100	23,500	23,700	18,200
27	11,200	7,050						8,770	24,300	23,700	24,200	18,000
28	11,000	7,090						8,920	26,500	23,600	25,100	17,800
29	10,700	7,090			-			9,300	28,300	23,900	27,000	17,300
30	10,500	6,870			------			9,420	29,300	23,900	28,200	16,700
31	10,400	------			------		- -----	9,570	------	23,800	29,000	------
Total	405,300	233,840	173,200	118,500	53,000	86,700	82,500	197,670	508,900	799,500	729,600	679,700
Mean	13,070	7,795	5,587	3,823	1,893	2,152	2,750	8,376	16,960	25,790	23,540	22,660
Ac-ft	803,900	463,800	343,500	235,000	105,100	132,300	163,600	392,100	‡1,009	‡1,586	‡1,447	‡1,348

Calendar year 1952: Max 26,600 Min - Mean 9,112 Ac-ft 6,615,000
Water year 1952-53: Max 29,600 Min - Mean 11,090 Ac-ft 8,029,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--No gage-height record Dec. 1 to May 21 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 3 discharge measurements and weather records.

Nuyakuk River near Dillingham

Location.--Lat 59°56', long 158°12', on left bank 1,000 ft downstream from outlet of Tikchik Lake, half a mile upstream from unnamed tributary, and 62 miles north of Dillingham.

Drainage area.--1,490 sq mi, approximately.

Records available.--May to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map).

Extremes.--Maximum discharge during period, 18,000 cfs June 28 (gage height, 5.09 ft); minimum daily, 4,730 cfs May 18.

Remarks.--Records good except those for period of no gage-height record, which are poor.

Discharge, in cubic feet per second, May to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	9,700	17,400	7,610	7,520
2								-	10,000	17,200	7,640	7,370
3								-	11,000	16,700	7,670	7,130
4								-	11,000	16,300	7,640	6,990
5								-	12,000	16,000	7,520	6,850
6								-	12,000	15,600	7,860	6,680
7								-	13,000	15,300	8,560	6,570
8								-	13,000	14,900	8,900	6,440
9								-	14,000	14,500	9,070	6,280
10								-	14,000	14,100	9,030	6,100
11						†2,230		-	15,000	13,700	8,900	6,100
12								-	15,000	13,300	8,830	5,940
13								-	18,000	12,900	9,340	5,710
14								-	16,000	12,400	9,580	5,470
15								-	17,000	11,900	9,610	5,180
16								-	*17,000	*11,600	9,510	5,860
17								-	17,200	11,300	9,310	6,510
18								4,730	17,400	10,900	9,270	6,760
19								4,910	17,400	10,500	*9,240	6,900
20								5,330	17,500	10,200	9,100	6,930
21								5,790	17,500	9,950	8,900	6,900
22								6,230	17,400	9,610	8,760	6,930
23								6,540	17,400	9,310	8,660	*7,250
24								6,930	17,500	9,070	8,500	7,280
25								*7,250	17,600	8,830	8,340	7,280
26								7,550	17,700	8,560	8,180	7,400
27								*7,890	17,900	8,310	7,990	7,550
28								8,240	17,900	8,050	8,050	7,370
29								8,530	17,900	7,890	7,960	7,130
30								8,900	17,700	7,730	7,730	6,990
31								9,300		7,580	7,700	
Total								-	461,700	371,590	264,960	201,370
Mean								-	15,390	11,990	8,547	6,712
Ac-ft								-	915,800	737,000	525,500	399,400

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--No gage-height record May 30 to June 15; discharge estimated on basis of records for Newhalen River near Iliamna.

Kuskokwim River at Crooked Creek

Location.--Lat 61°52', long 158°07', on right bank at Parent's Trading Post, 0.2 mile upstream from Crooked Creek and 0.7 mile upstream from village of Crooked Creek.

Drainage area.--31,100 sq mi, approximately.

Records available.--June 1951 to September 1953.

Gage.--Staff gage read twice daily. Altitude of gage is 200 ft (from topographic map).

Extremes.--1951: Maximum discharge during period June to September, 253,000 cfs Sept. 1 (gage height, 17.11 ft), from rating curve extended above 120,000 cfs by logarithmic plotting; minimum observed, 55,700 cfs July 5, 6 (gage height, 5.40 ft).
1951-52: Maximum discharge observed during water year, 260,000 cfs June 1 (gage height, 17.40 ft), from rating curve extended above 120,000 cfs by logarithmic plotting; minimum not determined.
1952-53: Maximum discharge during water year, 224,000 cfs Aug. 31 (gage height, 15.87 ft), from rating curve extended above 120,000 cfs by logarithmic plotting; maximum gage height, 25.4 ft May 1 (ice jam), from floodmarks; minimum discharge not determined.

Remarks.--Records fair except those above 120,000 cfs and those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, June to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	61,200	*62,400	252,000
2									-	60,500	61,900	249,000
3									-	59,400	59,900	245,000
4									-	57,700	59,400	240,000
5									-	55,900	64,700	229,000
6									-	56,800	68,300	215,000
7									-	80,000	69,100	196,000
8									-	87,300	73,200	198,000
9									-	83,200	78,500	192,000
10									-	76,300	81,000	185,000
11									-	77,300	78,100	176,000
12									-	76,500	75,700	167,000
13									-	72,900	74,500	158,000
14									-	72,500	73,200	149,000
15							†10,300		75,300	72,800	75,900	143,000
16									74,900	72,700	78,700	133,000
17									70,300	73,200	78,500	129,000
18									65,300	76,800	82,000	124,000
19									a63,000	80,400	82,300	116,000
20									a61,000	77,600	81,400	112,000
21									a60,000	74,400	82,300	108,000
22									a60,000	74,400	82,500	105,000
23									a61,000	75,700	84,000	103,000
24									a66,000	73,800	91,700	99,400
25									*67,500	72,500	100,000	95,500
26									67,200	65,700	102,000	90,400
27									63,800	62,800	117,000	86,000
28									60,800	61,500	149,000	80,800
29									60,100	61,200	189,000	76,500
30					- ----				60,000	61,000	207,000	73,200
31		- - -			- ---		- -----		------	60,900	242,000	------
Total									-	‡2,174.9	‡2,905.2	‡4,525.8
Mean									-	70,160	93,720	150,900
Ac-ft									-	‡4,314	‡5,762	‡8,977

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
‡ Expressed in thousands.
a No gage-height record; discharge computed on basis of weather records.

ALASKA WEST OF LONGITUDE 141°
Kuskokwim River at Crooked Creek--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68,900								259,000	98,300	107,000	57,400
2	65,200								255,000	96,200	103,000	56,400
3	63,700								244,000	97,300	98,700	61,300
4	62,000								230,000	98,400	96,600	65,700
5	60,300								219,000	98,400	96,300	64,200
6	57,400								201,000	95,100	*94,600	61,800
7	55,100								190,000	92,000	95,200	60,600
8	52,600						11,000	13,000	177,000	89,100	100,000	58,200
9	b45,000								162,000	84,400	107,000	59,000
10	*b38,000								151,000	79,700	107,000	62,600
11									146,000	76,200	102,000	72,000
12									143,000	72,000	102,000	74,500
13									140,000	73,400	98,800	64,800
14									137,000	74,300	93,200	66,400
15									134,000	76,100	90,500	71,300
16	33,000	17,000	15,000	14,000	13,000	11,000			130,000	78,600	89,900	70,800
17									124,000	78,200	87,800	68,400
18							(*)	14,000	*119,000	77,300	82,900	68,100
19									116,000	77,900	81,300	60,500
20									111,000	78,600	83,500	57,800
21									111,000	76,400	87,200	55,600
22									110,000	73,400	85,700	54,200
23							12,000	17,000	106,000	71,900	80,500	53,100
24									105,000	71,900	73,000	52,800
25									105,000	72,100	67,000	52,400
26	24,000								107,000	72,600	63,000	*52,300
27									107,000	73,500	58,000	51,300
28									106,000	85,100	55,000	49,800
29								150,000	105,000	99,000	55,000	48,300
30									102,000	105,000	56,400	47,400
31										107,000	57,100	
Total	‡1,162.2	510,000	465,000	434,000	377,000	341,000	345,000	‡1,250	‡4,452	‡2,599.4	‡2,655.2	‡1,798.8
Mean	37,490	17,000	15,000	14,000	13,000	11,000	11,500	40,320	148,400	83,850	85,650	59,960
Ac-ft	‡2,305	‡1,012	‡922,300	860,800	747,800	676,400	684,300	‡2,479	‡8,830	‡5,156	‡5,267	‡3,568

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 259,000 Min - Mean 44,780 Ac-ft 32,510,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 11 to Apr. 17, Apr. 19 to May 31 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 2 discharge measurements and weather records.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46,600										56,000	219,000
2	46,200										57,900	206,000
3	46,700										60,500	194,000
4	54,000										63,400	181,000
5	59,000										65,900	165,000
6	63,800										66,900	154,000
7	71,000										69,500	148,000
8	78,100							41,000	80,000	62,000	69,800	136,000
9	81,400										68,900	126,000
10	82,300										66,900	121,000
11	79,200					(*)					65,200	112,000
12	76,800			(*)							64,000	105,000
13											62,600	95,800
14											60,600	88,300
15		22,000	16,000	13,000	11,000	9,300	8,600			*48,000	58,800	82,600
16										47,900	57,900	76,900
17										48,300	57,100	71,700
18										49,600	55,100	68,500
19										51,200	53,200	65,900
20										53,400	*52,100	64,600
21										54,600	51,600	62,500
22	47,000									55,600	51,600	61,300
23								60,000	71,000	57,400	56,000	62,200
24								(*)		57,400	79,500	*67,500
25										56,000	114,000	70,500
26										55,900	135,000	75,000
27										55,800	161,000	75,100
28										55,400	172,000	69,700
29										54,900	183,000	65,000
30										54,500	204,000	61,300
31										54,700	221,000	
Total	‡1,678.1	660,000	496,000	403,000	308,000	288,300	258,000	‡1,575	‡2,265	‡1,778.6	‡2,661	‡3,151.2
Mean	54,130	22,000	16,000	13,000	11,000	9,300	8,600	50,810	75,500	57,370	85,840	105,000
Ac-ft	‡3,328	‡1,309	983,800	799,300	610,900	571,800	511,700	‡3,124	‡4,493	‡3,528	‡5,278	‡6,250

Calendar year 1952: Max 259,000 Min - Mean 46,680 Ac-ft 33,890,000
Water year 1952-53: Max 221,000 Min - Mean 42,530 Ac-ft 30,790,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--No gage-height record Oct. 5, 7, Oct. 13 to May 23, May 25 to July 14; discharge estimated on basis of 3 discharge measurements, weather records, and records for other stations.

Yukon River at Eagle

Location.--Lat 64°47', long 141°10', on left bank at mouth of Castalia Creek, 1 mile southeast of Eagle and 10 miles downstream from International boundary.

Drainage area.--113,500 sq mi , approximately.

Records available.--Discharge: January 1911 to December 1913 (monthly discharge only for some periods, published in WSP 1372), June 1950 to September 1953.
Chemical analyses: April to October 1951, June to September 1952.
Water temperatures: May to October 1951, June to August 1952.

Gage.--Staff gage read once daily. Altitude of gage is 750 ft (from topographic map). January 1911 to December 1913 staff gage at site 1½ miles downstream at different datum.

Average discharge.--5 years, 68,060 cfs (49,270,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge observed during water year, 189,000 cfs June 17 (gage height, 8.94 ft); maximum gage height observed, 10.34 ft May 7 (backwater from ice); minimum discharge not determined.
1951-52: Maximum discharge during water year, 282,000 cfs July 4 (gage height, 13.31 ft, from graph based on gage readings); minimum not determined.
1952-53: Maximum discharge during water year, 210,000 cfs May 28 (gage height, 9.79 ft, from graph based on gage readings); minimum not determined.
1911-13, 1950-53: Maximum discharge, that of July 4, 1952; minimum not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Records of specific conductance of daily samples available in district office in Palmer, Alaska.

Revisions (calendar years).--WSP 1372: 1911-13.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78,500							35,000	124,000	134,000	113,000	90,000
2	78,500							43,000	123,000	133,000	110,000	94,500
3	76,200							58,000	118,000	133,000	109,000	97,600
4	75,100							80,000	118,000	139,000	109,000	98,600
5	74,600							b88,000	123,000	161,000	109,000	97,600
6	74,000							b90,000	124,000	181,000	108,000	97,200
7	71,000							b110,000	128,000	176,000	106,000	97,700
8	68,000						11,000	120,000	130,000	168,000	96,000	97,500
9	66,000							120,000	134,000	159,000	94,300	88,900
10	63,000							b120,000	140,000	160,000	94,500	85,900
11	62,000							130,000	153,000	158,000	96,600	85,200
12	62,000							130,000	147,000	160,000	101,000	80,400
13	62,000							160,000	146,000	159,000	103,000	78,200
14	62,000							b180,000	143,000	157,000	99,200	77,000
15	62,000							b178,000	158,000	155,000	100,000	75,400
16	62,000	28,000	13,000	9,000	7,200	8,800		b175,000	174,000	154,000	100,000	76,300
17	62,000							173,000	185,000	146,000	99,000	77,900
18	60,300							156,000	166,000	140,000	98,800	80,800
19	58,600							154,000	*162,000	138,000	98,400	81,000
20	57,000							161,000	160,000	136,000	94,500	81,200
21	b56,000							162,000	154,000	133,000	92,200	81,000
22	b52,000						(*)	162,000	146,000	129,000	90,900	81,000
23	b49,000						16,000	156,000	137,000	126,000	89,100	80,800
24	b47,000							153,000	133,000	122,000	89,400	80,800
25	b47,000							138,000	130,000	119,000	89,000	80,300
26	b46,000							136,000	128,000	*116,000	88,200	79,500
27	b45,000							132,000	127,000	115,000	87,800	78,200
28	44,000							129,000	126,000	115,000	87,300	77,000
29	43,000				-			124,000	131,000	116,000	*86,600	77,000
30	42,000				----			124,000	135,000	115,000	87,300	76,000
31	41,000	-			---		-----	123,000	-----	115,000	89,400	--
Total	‡1,846.8	840,000	403,000	279,000	201,600	272,800	405,000	‡4,000	‡4,203	‡4,368	‡5,016.5	‡2,530.5
Mean	59,570	28,000	13,000	9,000	7,200	8,800	13,500	129,000	140,100	140,900	97,310	84,350
Ac-ft	‡3,663	‡1,666	799,300	553,400	399,900	541,100	803,300	‡7,934	‡8,337	‡8,664	‡5,983	‡5,019

Calendar year 1950: Max - Min - Mean - Ac-ft -
Water year 1950-51: Max 185,000 Min - Mean 61,280 Ac-ft 44,360,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 7-16, Oct. 28 to May 4, May 8-9, 11-13 (stage-discharge relation affected by ice during most of period), Aug. 25; discharge estimated on basis of 1 discharge measurement, weather records, and records for station at Dawson, Yukon Territory.

ALASKA WEST OF LONGITUDE 141°

Yukon River at Eagle--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75,700								242,000	190,000	150,000	102,000
2	75,300								226,000	210,000	150,000	103,000
3	74,700								218,000	237,000	150,000	107,000
4	74,600								210,000	269,000	150,000	108,000
5	72,600						(*)		206,000	275,000	150,000	109,000
6	69,900							12,000	200,000	252,000	150,000	110,000
7	67,600								198,000	225,000	150,000	111,000
8	68,000	36,000					10,000		194,000	210,000	150,000	111,000
9	67,000								192,000	196,000	140,000	108,000
10	66,000								188,000	185,000	130,000	107,000
11	65,000								176,000	179,000	130,000	104,000
12	64,000								176,000	178,000	130,000	103,000
13	63,000							14,000	176,000	166,000	120,000	102,000
14	62,000								175,000	156,000	120,000	103,000
15	61,000		15,000	11,000	10,000	10,000			195,000	157,000	120,000	103,000
16									208,000	158,000	110,000	103,000
17									213,000	156,000	110,000	104,000
18								20,000	215,000	153,000	110,000	106,000
19									215,000	161,000	110,000	108,000
20									214,000	163,000	100,000	111,000
21								50,000	210,000	163,000	94,500	114,000
22								90,000	192,000	165,000	94,700	115,000
23	50,000	26,000					11,000	130,000	181,000	163,000	95,200	115,000
24								169,000	177,000	*162,000	94,700	*115,000
25								190,000	174,000	158,000	95,000	114,000
26								199,000	*179,000	155,000	95,400	118,000
27								201,000	183,000	154,000	95,000	121,000
28								204,000	183,000	154,000	98,800	124,000
29								213,000	185,000	154,000	99,200	126,000
30					-			223,000	187,000	151,000	99,800	122,000
31	- - -		- - -		- - -		- - - - -	247,000	- - - - - -	150,000	101,000	- - - - - -
Total	‡1,826.4	930,000	465,000	341,000	290,000	310,000	315,000	‡2,206	‡5,888	‡5,605	‡3,693.3	‡3,307
Mean	58,920	31,000	15,000	11,000	10,000	10,000	10,500	71,160	196,300	180,800	119,100	110,200
Ac-ft	‡3,623	‡1,845	922,300	676,400	575,200	614,000	624,800	‡4,376	‡11,680	‡11,120	‡7,326	‡6,559

Calendar year 1951: Max 185,000 Min - Mean 61,640 Ac-ft 44,620,000
Water year 1951-52: Max 275,000 Min - Mean 68,790 Ac-ft 49,940,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--No gage-height record Oct. 14 to Apr. 4, Apr. 6 to May 23, July 31 to Aug. 20; discharge estimated on basis of 1 discharge measurement, weather records, and records for Canadian station at Dawson, Yukon Territory. Stage-discharge relation affected by ice Oct. 9 to May 23.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	121,000								156,000	143,000	138,000	130,000
2	123,000								150,000	150,000	133,000	132,000
3	124,000							23,000	140,000	160,000	130,000	131,000
4	123,000								130,000	*153,000	130,000	*131,000
5	120,000						(*)		120,000	159,000	130,000	130,000
6	117,000								120,000	160,000	130,000	129,000
7	114,000								110,000	161,000	119,000	130,000
8	110,000	73,000	34,000					41,000	109,000	160,000	114,000	130,000
9	108,000								111,000	155,000	110,000	130,000
10	106,000								111,000	150,000	109,000	130,000
11	104,000								112,000	150,000	109,000	130,000
12	103,000								113,000	142,000	108,000	130,000
13	101,000							77,000	115,000	140,000	107,000	130,000
14	100,000								120,000	140,000	108,000	120,000
15	97,000			18,000	17,000	15,000	15,000		125,000	140,000	107,000	120,000
16	95,000		(*)						130,000	140,000	108,000	120,000
17	92,700								121,000	136,000	108,000	120,000
18	90,000							150,000	118,000	148,000	110,000	120,000
19	88,300								117,000	165,000	110,000	120,000
20	86,400								114,000	171,000	110,000	120,000
21	90,000							180,000	110,000	167,000	110,000	110,000
22	94,000							183,000	112,000	167,000	110,000	110,000
23	93,000	52,000	21,000					189,000	115,000	166,000	109,000	110,000
24	91,000							183,000	121,000	163,000	110,000	110,000
25	90,000							180,000	121,000	162,000	112,000	110,000
26	87,400				(*)			185,000	121,000	161,000	115,000	110,000
27	86,000							191,000	120,000	161,000	116,000	100,000
28	85,500							204,000	115,000	156,000	117,000	100,000
29	82,600				-			200,000	120,000	150,000	116,000	100,000
30	80,600				- - - - -			184,000	129,000	150,000	117,000	100,000
31	80,000	- - - - -			- - -		- - - - -	170,000	- - - - - -	138,000	122,000	- - - - - -
Total	‡3,083.5	‡1,875	846,000	558,000	476,000	465,000	450,000	‡3,504	‡3,626	‡4,764	‡3,582	‡3,593
Mean	99,470	62,500	27,290	18,000	17,000	15,000	15,000	113,000	120,900	153,700	115,500	119,800
Ac-ft	‡6,116	‡3,719	‡1,678	‡1,107	944,100	922,300	892,600	‡6,950	‡7,192	‡9,449	‡7,105	‡7,127

Calendar year 1952: Max 275,000 Min - Mean 75,850 Ac-ft 55,070,000
Water year 1952-53: Max 204,000 Min - Mean 73,490 Ac-ft 53,200,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--No gage-height record Oct. 14, 21-25, Oct. 31 to May 6 (stage-discharge relation affected by ice during most of period), May 9-21, June 2-7, 14, 16, 21, 27, 29, July 2, 3, 10, 11, 14-16, 29, 30, Apr. 3-6, 18-22, Sept. 7-30; discharge estimated on basis of 3 discharge measurements weather records, and records for Canadian stations on Yukon River at Carmacks, Stewart River near Mayo, and Pelly River at Pelly Crossing.

YUKON RIVER AT EAGLE

Chemical analyses, in parts per million, April to October 1951, June to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium Magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1951																			
Apr. 22	16,000		9.5	--	34	11	4.3		128	30	2.0	--	0.5	154	130	25	249	7.5	--
May 28-31	125,000		8.0	0.06	24	6.4	3.8		85	22	.8	--	1.0	108	86	17	186	7.4	10
June 1-10	126,200		9.0	.08	29	6.5	4.1		103	21	.9	--	.7	130	99	15	214	7.3	10
June 11-20	159,400		8.2	.10	28	6.6	3.4		97	21	1.6	--	1.1	130	97	18	204	7.1	10
June 21-30	134,700		7.7	.25	28	6.5	3.2		96	22	.8	--	1.0	127	97	18	209	7.3	10
July 1-10	154,400		8.1	.10	36	7.8	3.4		123	26	.6	0.1	.5	150	122	21	--	7.6	--
July 11-20	150,300		7.7	.10	37	8.5	3.2		126	28	.8	.1	.6	153	127	24	--	7.7	--
July 21-31	120,100		6.8	.11	36	7.4	5.3		122	28	1.1	.1	1.0	151	120	20	--	7.6	--
Aug. 1, 3-10	104,300 [a]		6.2	.03	46	7.8	3.1	2.9	150	28	2.0	.1	.7	178	147	24	295	8.0	5
Aug. 2	110,000		--	--	--	--	--	--	120	30	--	--	--	--	--	--	247	--	--
Aug. 11-14, 16, 17, 20	99,040		6.0	.03	39	8.1	3.7		128	29	1.8	.2	.5	164	131	26	260	7.9	5
Aug. 15, 18, 19	99,070		5.8	--	48	11	2.5		159	35	1.5	--	.8	183	164	34	305	7.9	5
Aug. 21-31	88,840		6.1	.02	39	8.1	5.2		131	30	1.8	.2	.3	162	131	23	266	7.8	6
Sept. 1-10	94,550		5.4	.02	41	8.6	3.9	--	138	31	1.8	.1	.5	172	138	25	274	7.9	5
Sept. 11-20	79,340		8.3	.05	37	8.5	5.1		121	31	3.8	.3	.9	160	127	28	253	7.4	10
Sept. 21-30	79,160		8.1	.04	36	8.9	3.1	2.1	121	30	3.2	.2	.7	149	126	27	252	7.5	9

a Represents 65 percent of runoff for water year October 1950 to September 1951.

YUKON RIVER AT EAGLE--Continued

Chemical analyses, in parts per million, April to October 1951, June to September 1952--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1951																			
Oct. 6, 8, 9	68,300		8.2	--	31	10	3.7	1.1	114	30	1.0	--	0.9	148	120	27	233	7.5	15
Oct. 11	65,000		7.6	--	32	11	8.0		118	40	2.0	--	.7	159	124	28	234	7.6	5
1952																			
June 18-20	214,700		8.7	--	32	7.4	2.0	1.4	114	20	.5	--	.6	129	110	16	216	7.3	20
June 21-30	185,100		9.7	0.10	33	6.2	2.4	1.8	110	22	.0	0.3	.7	135	108	18	213	7.3	15
July 1-10	b 224,900		9.8	.02	38	6.9	2.4	1.6	124	24	.0	.2	.8	149	122	20	231	7.2	25
July 11-20	162,700		8.7	.15	40	6.9	2.5	1.8	130	25	.2	.1	.4	166	128	21	246	7.3	6
July 21-31	157,200		9.2	.02	44	7.8	2.9	2.4	144	27	.8	.2	.5	170	142	24	270	7.4	5
Aug. 1-10	147,000		8.4	.01	38	6.4	2.7	2.7	125	30	.5	.1	.5	153	121	19	247	7.3	3
Sept. 11-20	104,700		7.7	.01	31	6.5	2.3	1.4	100	30	.5	.1	.6	134	104	22	210	7.0	9
Sept. 21-30	118,400		7.6	.01	28	7.3	2.2	1.7	94	25	.2	.1	.6	132	100	23	205	6.9	9

b Represents 48 percent of runoff for water year October 1951 to September 1952.

YUKON RIVER AT EAGLE--Continued

Temperature (°F) of water, May 1951 to September 1951

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

Temperature (°F) of water, October 1951 to August 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--								--	55	59	
2	--								--	55	59	
3	--								--	56	60	
4	--								--	56	60	
5	--								--	56	59	
6	48								--	58	--	
7	--								--	56	--	
8	45								--	56	--	
9	40								--	58	--	
10	--								--	58	--	
11	40								--	58	--	
12	--								--	58	--	
13	--								--	60	--	
14	--								--	58	--	
15	--								--	60	--	
16	--								--	60	--	
17	--								--	60	--	
18	--								54	60	--	
19	--								55	60	--	
20	--								55	60	--	
21	--								55	60	--	
22	--								55	60	--	
23	--								56	--	--	
24	--								59	60	--	
25	--								59	60	--	
26	--								59	60	--	
27	--								60	56	--	
28	--								57	56	--	
29	--								59	56	--	
30	--								58	54	--	
31	--								--	57	--	
Average	--								--	58	--	

Tanana River at Northway Junction

Location.--Lat 63°00', long 141°48', near left bank on downstream side of bridge on highway from Northway Junction to Northway, half a mile southwest of Northway Junction, and 4 miles upstream from Nabesna River.

Drainage area.--3,280 sq mi, approximately.

Records available.--July 1949 to September 1953.

Gage.--Wire-weight gage read once daily. Altitude of gage is 1,700 ft (from topographic map).

Extremes.--1950-51: Maximum discharge observed during water year, 7,480 cfs July 18 (gage height, 10.97 ft); minimum not determined.
1951-52: Maximum discharge observed during water year, 7,970 cfs July 2 (gage height, 11.30 ft); minimum not determined.
1952-53: Maximum discharge observed during water year, 8,860 cfs Aug. 9 (gage height, 12.10 ft); minimum not determined.
1949-53: Maximum discharge observed, that of Aug. 9, 1953; minimum not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Large diurnal fluctuation caused by glacier melt at the source.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,770							b1,500	2,450	3,420	5,080	5,910
2	1,760							b1,700	2,690	4,120	4,410	5,810
3	1,770	1,000	800					1,890	2,890	4,420	4,260	5,580
4	1,710							2,110	3,020	4,410	4,070	5,340
5	1,650							2,140	3,270	4,370	4,310	5,320
6	1,630							2,500	3,510	4,550	4,700	5,290
7	1,620							2,610	3,610	4,850	4,670	5,270
8	1,620	870	840			680		2,750	4,270	5,470	4,720	*4,310
9	1,570							2,680	4,350	5,990	4,730	3,650
10	1,610					(*)	730	3,360	2,900	6,200	4,730	2,710
11	1,560							3,810	2,790	6,450	4,760	2,640
12	1,510							3,940	2,560	*6,740	5,140	2,670
13	1,410	840	760					3,280	*2,770	7,000	5,440	2,600
14	1,340							2,920	2,470	7,340	5,510	2,440
15	1,470		(*)					2,510	2,320	7,320	5,650	2,190
16	1,420			720	700			2,530	2,570	7,420	*5,580	3,040
17	b1,300							2,510	2,510	7,460	5,450	3,660
18	b1,300	820						2,500	2,440	7,480	5,600	3,660
19	b1,300							2,230	2,190	7,240	5,580	3,620
20	b1,300							1,960	2,030	6,680	5,470	3,320
21							750	2,050	1,950	6,440	4,580	3,070
22							780	1,700	2,010	6,210	4,010	2,800
23		750	740			700	820	1,790	1,970	6,130	3,660	2,620
24							900	1,710	2,020	6,160	3,430	2,450
25							1,000	1,650	2,430	6,070	3,180	1,970
26	b1,200						1,000	1,740	2,590	5,960	2,950	1,860
27							1,000	1,790	2,640	5,860	2,720	1,750
28		750					1,100	1,820	2,720	5,600	2,700	1,700
29							b1,200	1,830	3,270	5,600	3,500	1,660
30							b1,400	1,920	3,300	5,410	5,670	1,660
31								2,270		5,330	5,880	
Total	43,820	25,150	23,840	22,320	19,600	21,400	24,550	71,700	82,710	183,700	142,140	100,570
Mean	1,414	838	769	720	700	690	818	2,313	2,757	5,926	4,585	3,352
Ac-ft	86,920	49,880	47,290	44,270	38,880	42,450	48,690	142,200	164,100	364,400	281,900	199,500

Calendar year 1950: Max 8,090 Min - Mean 2,495 Ac-ft 1,807,000
Water year 1950-51: Max 7,480 Min - Mean 2,086 Ac-ft 1,510,000

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 26 to Apr. 29 (stage-discharge relation affected by ice during entire period); discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations in Tanana River basin.

Tanana River at Northway Junction--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,660							b1,060	3,980	7,820	6,710	2,420
2	1,620							1,070	3,380	7,970	6,380	2,480
3	1,490							1,120	3,180	7,850	5,890	2,600
4	1,450							1,130	2,930	7,460	5,440	2,700
5	1,420						860	1,160	2,700	6,510	5,360	2,650
6	1,390							1,180	2,550	5,610	5,270	2,500
7	b1,300							1,170	2,730	5,210	5,440	2,340
8	b1,300					700		1,280	2,760	4,750	5,680	2,140
9	b1,200							1,240	2,740	4,340	5,810	2,060
10	b1,200							1,400	2,720	3,820	5,770	2,050
11								1,400	2,760	3,800	5,570	2,010
12								1,430	2,900	4,050	5,780	2,000
13	1,100							1,450	3,490	4,260	5,570	1,980
14								1,460	4,130	4,560	5,330	1,980
15								1,460	4,580	4,700	5,100	1,980
16		860	780	720	700		1,000	1,500	4,700	4,890	4,900	1,940
17								1,600	5,210	4,430	4,280	1,910
18								1,690	5,640	4,380	3,660	1,890
19								1,900	5,700	4,530	3,360	1,860
20								2,140	5,630	4,850	3,040	1,860
21						740		2,360	5,560	5,530	3,000	1,840
22								2,800	5,420	5,860	*2,960	1,890
23								3,080	5,250	6,350	3,010	1,780
24	930							3,380	5,300	6,470	2,890	1,860
25								3,630	5,380	6,520	2,810	1,900
26							1,000	3,860	5,610	6,650	2,740	1,910
27								3,630	*6,120	*6,200	2,840	*1,940
28								3,650	6,800	6,160	2,840	1,950
29						780		3,600	7,160	6,550	2,860	1,970
30								3,970	7,400	6,590	2,470	1,940
31								4,070		6,640	2,420	
Total	34,410	25,800	24,180	22,320	20,300	22,580	28,600	65,870	134,410	175,310	135,180	62,330
Mean	1,110	860	780	720	700	728	953	2,125	4,480	5,655	4,361	2,078
Ac-ft	68,250	51,170	47,960	44,270	40,260	44,790	56,730	130,700	266,600	347,700	268,100	123,600

Calendar year 1951: Max 7,480 Min - Mean 2,063 Ac-ft 1,494,000
Water year 1951-52: Max 7,970 Min - Mean 2,053 Ac-ft 1,490,000

* Discharge measurement made on this day. b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 11 to Apr. 29 (stage-discharge relation affected by ice during entire period); Aug. 21, Sept. 3, 4; discharge estimated on basis of weather records, previous winter records, and records for station at Big Delta.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,900							1,640	2,670	7,750	7,750	4,000
2	1,860							*1,800	2,760	7,640	7,880	3,890
3	1,800							2,100	2,820	7,400	8,160	3,710
4	1,740							2,160	2,910	6,740	8,290	3,620
5	1,700					(*)		2,140	2,960	6,330	8,610	3,540
6	1,690							2,110	2,980	*6,020	8,700	3,470
7	1,700		(*)					2,100	3,040	5,680	8,660	3,430
8	1,710						810	2,080	3,090	5,470	8,820	3,400
9	1,710							2,110	3,340	5,170	8,860	3,340
10	1,680							2,110	3,760	4,940	8,290	3,300
11	1,640							2,130	*3,930	4,780	6,790	3,260
12	1,600							1,900	3,890	4,580	5,450	3,120
13	1,560							1,910	4,040	5,180	*5,190	*2,990
14	1,510							1,920	4,200	5,540	4,890	2,820
15	1,460							1,980	4,420	5,730	4,350	2,750
16	1,450	1,000	800	590	680	760		2,240	4,580	5,980	4,340	2,700
17	1,450							2,280	4,810	6,470	4,040	2,590
18	1,440							2,320	5,010	7,000	3,810	2,530
19	1,400							2,360	5,200	6,870	3,760	2,440
20	1,300							2,420	5,400	6,800	3,690	2,340
21	1,300						1,000	2,420	5,560	7,010	3,660	2,270
22	1,300							2,410	5,740	6,980	3,610	2,210
23	1,200							2,380	6,030	6,900	3,640	2,130
24	1,200							2,340	6,030	6,880	3,640	2,070
25	1,200							2,850	6,160	6,840	3,650	2,020
26	1,200						1,250	2,820	6,940	6,770	3,660	1,940
27	1,100						1,300	2,740	7,250	7,170	3,750	1,830
28	1,100						1,340	2,570	7,400	7,320	3,890	1,760
29	1,100				-		1,380	2,440	7,740	7,430	4,010	1,730
30	1,100						1,540	2,520	7,820	7,490	4,110	1,710
31	1,000							2,600		7,620	4,110	
Total	45,100	30,000	24,800	18,290	19,040	23,560	28,960	68,960	142,480	200,480	172,060	82,910
Mean	1,450	1,000	800	590	680	760	965	2,255	4,749	6,467	5,550	2,764
Ac-ft	89,450	59,500	49,190	36,280	37,770	46,730	57,440	136,600	282,600	397,600	341,300	164,400

Calendar year 1952: Max 7,970 Min - Mean 2,095 Ac-ft 1,521,000
Water year 1952-53: Max 8,860 Min - Mean 2,350 Ac-ft 1,701,000

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Oct. 19 to Apr. 27 (no gage-height record Oct. 21, Oct. 25 to Apr. 25; discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations in the Tanana River basin).

TANANA RIVER AT NORTHWAY JUNCTION

Periodic determinations of suspended-sediment discharge, June to August 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
June 10	3,720	1,950	19,600
June 15	a4,420	993	11,900
June 30	7,900	1,740	37,100
July 7	5,740	1,490	23,100
July 23	6,850	1,640	30,300
July 27	6,930	3,220	60,200
Aug. 12	6,020	1,800	29,300
Aug. 25	3,660	1,570	15,500

a Mean daily discharge.

Particle-size analyses of suspended sediment, July to August 1953

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

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
1953																	
July 7	7:00 p.m.	5,740		1,480	--	--	--	--	--	--	80	84	90		98	100	S
July 23	2:10 p.m.	6,850		1,500	2,870	--	40	--	61	--	85	92	98		100		PSWCM
July 27	11:15 a.m.	6,930		3,220	5,050	34	48	61	74	87	92	96	99		100		PSWCM
Aug. 25	3:00 p.m.	3,660		1,560	2,110	13	22	32	40	58	73	91	99		100		PSWCM

Tanana River near Tok Junction

Location.--Lat 63°19'00", long 142°38'30", near right bank on downstream side of bridge on Alaska Highway, 1.4 miles west of Tetlin Junction, 11 miles east of Tok Junction, and 11 miles upstream from Tok River.

Drainage area.--6,800 sq mi, approximately.

Records available.--Discharge: May 1950 to September 1953 (discontinued).
Chemical analyses: March to October 1951, June to September 1952, December 1952 to September 1953.
Water temperatures: March to October 1951, June to September 1952, December 1952 to September 1953.

Gage.--Wire-weight gage read once daily. Datum of gage is 1,604.67 ft above mean sea level, adjustment of 1950.

Extremes.--1950-51: Maximum discharge observed during water year, 31,400 cfs July 19 (gage height, 7.79 ft); minimum not determined.
1951-52: Maximum discharge observed during water year, 28,600 cfs July 30 (gage height, 7.30 ft); minimum not determined.
1952-53: Maximum discharge during water year, 35,700 cfs Aug. 7 (gage height, 9.00 ft, from graph based on gage readings); minimum not determined.
1950-53: Maximum discharge, that of Aug. 7, 1953; minimum not determined.

Remarks.--Records poor. Diurnal fluctuation caused by glacier melt at the source. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,700							4,000	5,920	15,200	20,100	23,200
2	3,730							4,400	6,250	20,100	17,600	21,800
3	3,730		1,500			(*)		4,600	6,520	21,800	17,200	21,800
4	3,730							4,700	7,140	20,500	17,600	21,400
5	3,730	2,100						4,900	7,760	20,500	18,900	21,000
6	3,490							5,100	9,380	21,000	19,300	24,100
7	3,400							b5,300	11,100	22,800	18,000	*24,100
8	3,260		1,700		1,400		1,300	5,920	13,700	25,100	18,000	19,300
9	3,260		(*)					6,800	15,600	26,100	18,000	15,200
10	3,260							7,760	12,600	29,200	*18,000	13,300
11	3,040							9,380	9,720	29,200	20,500	11,800
12	3,040							9,380	8,080	*29,200	21,400	9,720
13	b2,900		1,500					8,400	7,760	29,800	22,300	8,720
14	2,800							8,720	*8,080	30,300	23,600	7,450
15	b2,800	1,700		1,400		1,300		8,400	7,100	29,800	23,600	6,220
16	b2,800							7,140	6,220	29,800	21,800	7,140
17	b2,800							6,220	5,920	29,800	23,200	9,040
18	2,700						1,400	5,920	6,520	30,800	23,600	12,600
19	2,700							5,100	6,220	31,400	18,400	14,000
20	2,600							4,240	6,220	30,800	17,600	15,600
21							1,400	3,980	5,920	28,100	18,400	12,900
22					1,300		1,400	3,040	5,920	26,100	14,800	13,700
23	2,600		1,400				1,500	3,260	6,520	25,100	13,700	14,100
24							1,500	3,040	6,520	25,600	13,300	11,800
25		1,400					1,800	3,040	9,720	25,600	13,300	8,400
26							2,100	3,040	10,100	25,600	11,500	6,520
27							2,400	4,510	10,100	23,600	9,380	6,220
28	2,500						2,500	4,510	11,500	23,200	9,380	5,340
29					-		2,500	4,780	11,800	23,200	11,500	4,780
30					- - -		3,500	5,630	12,900	21,400	13,700	4,240
31					-		-----	5,920	- - - - -	20,100	21,000	- - -
Total	91,470	52,000	45,900	43,400	37,900	40,300	47,100	171,130	258,810	790,800	548,660	395,490
Mean	2,951	1,733	1,481	1,400	1,354	1,300	1,570	5,520	8,627	25,510	17,700	13,180
Ac-ft	181,400	103,100	91,040	86,080	75,170	79,930	93,420	339,400	513,300	‡1,569	‡1,088	784,400

Calendar year 1950: Max - Min - Mean - Ac-ft -
Water year 1950-51: Max 31,400 Min - Mean 6,912 Ac-ft 5,004,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 1, 7, 14, Oct. 18 to May 6 (stage-discharge relation affected by ice during most of this period), May 9, 19, June 15, Sept. 19; discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations. Shifting-control method used Oct. 1-17, July 20 to Aug. 27.

Tanana River near Tok Junction--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,850								10,800	24,400	27,100	7,400
2	3,560								11,300	25,800	25,400	7,400
3	3,240							2,300	10,500	24,400	23,200	7,600
4	2,870								8,660	22,600	22,400	8,000
5	2,790								7,020	21,100	21,800	7,800
6	2,630								6,370	20,000	22,100	7,400
7	2,460								6,430	17,600	23,200	6,800
8	b2,300	1,600				1,300	1,700	2,500	6,400	16,900	24,600	6,200
9	b2,200								6,100	15,300	24,800	6,000
10	b2,100								5,630	13,400	25,600	6,000
11									5,660	13,600	26,000	5,800
12									5,800	14,200	25,800	5,600
13	1,900							3,000	8,620	14,700	26,700	5,500
14									13,100	17,500	25,000	5,500
15			1,400	1,400	1,300				14,100	20,400	22,100	5,400
16									15,000	20,200	20,100	5,400
17									17,700	19,500	19,200	5,400
18								3,500	19,000	19,900	17,000	5,300
19									18,700	19,700	14,300	5,200
20									18,500	21,800	10,600	5,200
21								4,800	18,900	23,200	*9,550	5,000
22								5,500	18,400	23,200	9,550	4,900
23	1,700	1,500						6,400	17,500	24,100	9,380	4,800
24						1,400	1,900	7,500	18,200	25,600	10,100	4,800
25								8,140	19,600	25,800	9,690	4,900
26								7,950	19,200	25,000	9,480	4,980
27								7,760	19,400	*24,000	9,550	*4,920
28								*7,480	22,000	23,200	9,860	4,840
29								7,670	23,900	25,600	9,380	4,750
30								9,140	25,200	27,800	8,880	4,620
31								10,600		28,100	7,510	
Total	64,700	46,500	43,400	43,400	37,700	41,900	54,000	139,440	417,690	658,600	549,930	173,410
Mean	2,087	1,550	1,400	1,400	1,300	1,352	1,800	4,498	13,920	21,250	17,740	5,780
Ac-ft	128,300	92,230	86,080	86,080	74,780	83,110	107,100	276,600	828,500	‡1,306	‡1,091	344,000

Calendar year 1951: Max 31,400 Min - Mean 6,817 Ac-ft 4,935,000
Water year 1951-52: Max 28,100 Min - Mean 6,204 Ac-ft 4,504,000

* Discharge measurement made on this day. ‡ Expressed in thousands.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 12 to May 24 (stage-discharge relation affected by ice during most of period), July 26; discharge estimated on basis of previous winter records, weather records, and records for stations at Big Delta and Northway Junction. Stage-discharge relation indefinite Sept. 1-25; discharge estimated as for periods of no gage-height record.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,510							5,700	9,550	24,300	30,400	16,500
2	4,380							6,000	9,690	23,700	30,700	15,200
3	4,190							6,500	9,860	22,500	30,800	14,000
4	3,960							6,860	10,200	21,900	31,100	12,600
5	3,510							6,550	10,500	*21,700	32,300	12,300
6	3,510		(*)			(*)		6,070	10,600	20,700	33,800	12,200
7	3,560							5,400	10,300	20,200	34,900	12,400
8	3,730						1,900	5,200	11,000	20,000	34,500	11,600
9	3,540							5,200	12,400	20,000	33,900	11,200
10	3,380							4,980	15,300	20,000	33,300	11,100
11	3,350							4,700	16,600	19,100	31,400	10,300
12	3,310							5,140	15,600	18,400	27,200	*9,920
13	3,240							5,600	15,600	18,000	*22,200	9,070
14	2,960							5,140	15,800	17,700	20,500	8,880
15	2,790							4,510	14,300	19,200	19,300	8,590
16	2,710	2,200	1,800	1,500	1,600	1,600		4,780	12,800	20,500	18,500	8,460
17	2,630							5,370	13,000	23,400	17,300	7,980
18	2,540							5,230	12,500	26,800	16,700	7,820
19	2,500							5,000	13,700	27,600	14,300	7,450
20	2,500							5,340	15,200	26,600	13,100	7,200
21	2,400							5,920	16,900	25,200	13,600	6,830
22	2,400							6,710	19,400	25,000	16,300	6,580
23	2,400						3,400	6,400	19,500	24,800	15,800	6,430
24	2,300							6,310	19,800	24,700	15,900	6,100
25	2,300							7,450	20,600	25,500	17,200	6,040
26	2,200							8,500	22,800	26,700	18,300	6,040
27	2,200							8,560	23,700	27,700	19,000	5,690
28	2,200							8,020	23,400	28,800	18,800	5,660
29	2,100							8,180	24,100	29,900	18,100	5,600
30	2,100							10,800	24,600	30,100	17,400	5,600
31	2,100							11,200		30,400	17,000	
Total	91,500	66,000	55,800	46,500	44,800	49,600	79,500	197,320	469,300	731,100	713,600	275,340
Mean	2,952	2,200	1,800	1,500	1,600	1,600	2,650	6,365	15,640	23,580	23,020	9,178
Ac-ft	181,500	130,900	110,700	92,230	88,860	98,380	157,700	391,400	930,800	‡1,450	‡1,415	546,100

Calendar year 1952: Max 28,100 Min - Mean 6,364 Ac-ft 4,620,000
Water year 1952-53: Max 34,900 Min - Mean 7,727 Ac-ft 5,594,000

* Discharge measurement made on this day. ‡ Expressed in thousands.
Note.--Stage-discharge relation affected by ice Oct. 19 to May 3 (no gage-height record Oct. 21, Nov. 4 to May 1; discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations on Tanana River).

TANANA RIVER NEAR TOK JUNCTION

Chemical analyses, in parts per million, March 1951 to September 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
1951																			
Mar. 2	1,300		19	0.02	47	10	9.7		b180	25	3.5	--	0.8	204	158	11	317	8.1	9
June 22	5,920		11	.04	30	6.1	7.8		110	17	5.6	0.1	1.0	133	100	10	231	7.7	20
July 1-10	22,230		10	.02	33	5.6	5.2	2.6	116	15	5.5	.2	.4	145	105	10	228	7.8	5
July 11-20	30,090		10	.03	32	5.1	3.9	2.9	113	12	3.8	.2	.7	133	101	8	216	7.8	6
July 21-31	24,330		10	.02	30	5.1	2.6	3.4	109	12	4.0	.2	.7	130	96	6	207	7.8	5
Aug. 1-10	18,270		9.1	.04	28	5.3	4.2	2.4	106	15	4.0	.2	.6	127	92	5	204	7.9	5
Aug. 11-20	19,240		8.9	.03	29	5.2	2.0	2.9	102	16	4.2	.2	.9	127	94	10	200	7.8	6
Aug. 21-30	a 12,900		12	.01	30	5.6	7.9		110	17	4.5	.1	.8	134	98	8	213	7.5	5
Aug. 25	13,300		9.0	--	25	6.2	9.2		95	20	6.0	--	.9	123	88	10	189	7.5	7
Aug. 31	21,000		11	--	27	6.0	9.7		101	20	6.0	--	.8	130	92	9	198	7.6	7
Sept. 1-10	20,520		9.9	.01	30	4.9	5.7		105	15	3.5	.1	.6	122	95	9	204	7.8	8
Sept. 11-20	10,230		11	.01	33	6.2	6.6		115	20	4.5	.1	.7	142	108	14	229	7.7	6
Sept. 21-30	8,800		12	.01	32	6.4	6.2		114	18	4.8	.1	.6	138	106	13	218	7.6	8

a Represents 68 percent of runoff for water year October 1950 to September 1951.
b Includes equivalent of 9 parts per million of Carbonate (CO_3).

TANANA RIVER NEAR TOK JUNCTION--Continued

Chemical analyses, in parts per million, March 1951 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1951																			
Oct. 1-8	2,962		15	0.01	37	8.7	8.6		140	24	4.5	0.0	0.8	169	128	13	273	7.5	5
Oct. 9, 10	2,150		8.7	--	22	9.0	1.6		86	18	4.0	--	1.0	107	92	22	175	6.9	5
Oct. 11	1,900		15	--	39	13	7.8		154	32	5.0	--	.8	188	150	24	285	7.7	4
1952																			
June 1-10	7,921		11	.11	32	6.8	12		110	23	13	.1	1.7	153	108	18	219	7.3	25
June 11-20	13,620		11	.19	36	7.1	6.5		118	22	8.5	.1	1.5	155	119	22	232	7.3	30
June 21-30	c 20,230		10	.18	36	6.6	3.5		114	21	5.5	.1	1.6	149	117	24	230	7.4	15
July 1-10	20,150		12	.03	35	6.8	5.9	2.0	124	19	2.2	.1	1.4	147	115	14	233	7.4	5
July 28-31	26,180		12	--	28	6.5	5.3	1.5	108	18	1.0	--	1.5	127	96	8	205	7.3	4
Aug. 1-10	24,020		12	.05	31	5.1	5.7	1.7	108	15	3.2	.1	1.0	127	98	10	205	7.4	3
Aug. 11-20	20,680		10	.10	30	5.0	5.4	1.6	102	15	2.5	.0	.7	121	95	12	195	7.3	8
Aug. 21-31	9,357		10	.06	34	6.8	6.6	1.7	114	22	3.2	.1	.9	146	113	19	231	7.4	5
Sept. 1-10	7,060		11	.06	38	7.7	6.6	1.4	125	27	3.2	.0	.9	160	126	24	253	7.3	3
Sept. 11-20	5,430		12	.07	40	8.6	6.5	1.4	133	28	3.0	.0	.8	169	135	26	263	7.5	4
Sept. 21, 22	4,950		13	--	30	8.4	6.6	1.8	120	23	4.0	--	1.4	147	110	12	232	7.3	5

c Represents 63 percent of runoff for water year October 1951 to September 1952.

TANANA RIVER NEAR TOK JUNCTION--Continued

Chemical analyses, in parts per million, March 1951 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1952																			
Dec. 9	1,800		17	0.04	42	12	6.6	1.7	176	28	0.8	0.0	0.7	196	154	10	312	6.9	4
1953																			
Feb. 17	1,600		17	.03	49	10	6.8	2.2	182	24	2.0	.0	1.5	202	164	15	316	7.2	3
May 14-20	5,053		10	.04	33	6.1	6.5	2.2	120	20	6.0		.9	154	107	9	236	6.8	20
May 21-31	8,005		9.6	.02	31	5.7	6.9	2.0	112	21	4.0		.6	141	101	9	224	6.9	8
June 1-10	10,940		10	.05	27	6.4	6.5	2.4	102	16	2.0	.1	1.1	130	94	10	205	7.2	16
June 12-19	14,160		9.5	.07	26	6.3	6.5	1.9	102	15	1.8	.1	.9	130	91	7	201	7.4	17
June 21-27	20,390		9.0	.06	25	8.6	5.9	2.6	110	16	2.0	.1	1.2	139	98	8	217	7.5	18
June 28, 29, 30	24,030		9.6	.05	26	4.6	5.4	1.8	97	14	1.0	--	.7	111	84	4	192	7.5	20
July 1-10	21,500		9.4	.10	28	5.3	6.4	2.1	106	14	2.0	.1	1.1	134	92	5	212	7.3	45
July 11-20	21,730		10	.04	30	5.2	5.7	1.9	112	13	1.9	.1	1.2	129	104	13	208	7.6	--
July 21, 23, 31	26,800		10	.04	28	5.1	5.8	1.5	106	14	1.0	.2	.9	119	91	4	199	7.6	--
Aug. 1-10	32,570		9.1	.06	28	4.3	6.0	1.7	106	9.9	1.5	.2	1.0	120	88	1	197	7.3	--
Aug. 11-20	20,050		9.5	.05	29	5.3	6.7	2.0	110	13	1.9	.1	1.0	131	94	4	215	7.1	--
Aug. 21, 26-31	17,460		6.7	1.1	25	5.4	6.0	1.4	95	18	1.6	.2	.8	123	85	7	197	7.3	--
Sept. 1-10	12,910		8.9	.08	29	8.0	6.2	1.4	108	24	1.6	.2	.9	146	105	17	233	7.2	--
Sept. 11-20	8,567		11	.07	36	6.8	7.0	1.6	124	26	4.0	.0	1.1	161	118	16	256	6.7	10
Sept. 21-28	6,171		12	.03	37	7.6	7.0	1.6	134	25	3.2	.1	.9	165	124	14	266	6.6	5

TANANA RIVER NEAR TOK JUNCTION--Continued

Temperature (°F) of water, July 1951 to September 1951

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

Temperature (°F) of water, October 1951 to September 1952

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

TANANA RIVER NEAR TOK JUNCTION--Continued

Temperature (°F) of water, December 1952 to September 1953

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

Periodic determinations of suspended-sediment discharge, June to July 1953

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
1953			
June 15	13,900	997	37,400
June 30	24,600	3,570	237,000
July 7	20,400	1,520	83,700
July 23	25,400	1,790	123,000

Tok River near Tok Junction

Location.--Lat 63°19'30", long 142°50'05", in T. 18 N., R. 13 E., near left bank on downstream side of bridge on Alaska Highway, 5 miles east of Tok Junction and 5½ miles upstream from mouth.

Drainage area.--930 sq mi, approximately.

Records available.--October 1951 to September 1953. Discharge measurements only in 1951.

Gage.--Wire-weight gage read once daily. Datum of gage is 1,620.84 ft above mean sea level, adjustment of 1950.

Extremes.--1951-52: Maximum discharge during water year, 3,830 cfs June 16 (gage height, 6.83 ft, from graph based on gage readings); no flow for several months.
1952-53: Maximum discharge during water year, 1,820 cfs May 20 (gage height, 4.21 ft, from graph based on gage readings); no flow for several months.

Remarks.--Records fair except those for periods of ice effect, no gage-height record, or shifting control, which are poor. Discharge measurements made at this site during water year 1951 are as follows: Oct. 18, 10.8 cfs; Feb. 22, no flow; Apr. 26, 116 cfs; June 13, 116 cfs; July 13, 428 cfs; Aug. 10, 204 cfs; Sept. 7, 303 cfs.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a290							0	740	2,230		637
2	280							0	845	2,240		714
3	a250							0	686	1,950		682
4	b200							0	504	1,930		750
5	a170							0	464	1,970		709
											a1,200	
6	a140							0	650	1,810		678
7	a120							0	1,070	1,440		520
8	b100							0	691	1,050		588
9	a75							0	436	855		570
10	a25							0	400	755		552
11	0							0	1,230	955		516
12	0							0	2,570	995		484
13	0							0	1,680	960		468
14	0							0	2,240	975		450
15	0							0	3,420	1,030		476
											a800	
16	0							0	3,790	900		456
17	0	(*)						0	3,090	755		452
18	0							0	2,580	750		420
19	0							100	2,570			404
20	0							200	2,270			384
21	0							300	2,230		*538	400
22	0							350	2,580		565	388
23	0							400	2,990	a1,000	556	339
24	0							450	2,670		520	360
25	0							500	2,770		488	376
26	0							565	2,860		504	360
27	0							624	3,070		588	*353
28	0							*696	2,840	*1,200	601	340
29	0							760	2,200	1,200	574	328
30	0				- -			610	1,980	1,200	547	322
31	0	-			- -		-----	682	- - - - -	1,300	580	- - -
Total	1,650	0	0	0	0	0	0	6,237	58,116	37,450	26,061	14,476
Mean	53.2	0	0	0	0	0	0	201	1,937	1,208	841	483
Ac-ft	3,270	0	0	0	0	0	0	12,370	115,300	74,280	51,690	28,710

Calendar year 1951: Max - Min 0 Mean - Ac-ft -
Water year 1951-52: Max 3,790 Min 0 Mean 393 Ac-ft 285,600

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations.
b Stage-discharge relation affected by ice.
Note.--Shifting-control method used May 26 to June 14 and Sept. 11-30.

Tok River near Tok Junction--Continued

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	319						0	*823	a1,000	758	828	463
2	311	(*)					0	1,140	1,340	a600	a930	366
3	300						0	a940	1,330	526	1,030	334
4	278						0	718	783	a490	1,000	338
5	a260		(*)				0	632	975	*446	758	a350
6	267					(*)	0	516	903	366	714	a360
7	267						0	459	a700	370	679	a380
8	253						0	387	a600	408	608	399
9	243						0	338	a500	a340	a500	366
10	240						0	a250	a460	278	442	300
11	243						0	194	*468	243	468	a290
12	a230						0	164	a450	a310	412	a290
13	216						0	153	a400	a400	a370	*282
14	a210						0	86	a370	512	*358	267
15	213						0	150	a340	571	354	253
16	210						0	257	a310	580	a330	240
17	b150						0	a300	296	599	a310	233
18	a110						0	342	387	934	a300	a220
19	a90						0	399	374	a1,000	319	a190
20	b50						0	1,530	636	788	342	a180
21	a20						0	1,670	a570	636	a360	185
22	b10						0	1,100	450	544	a330	191
23	b5						0	803	350	494	a310	185
24	0						a10	a740	274	503	300	176
25	0						a20	803	442	512	282	170
26	0						a50	924	990	a600	292	161
27	0						a90	964	679	665	553	a160
28	0						a200	743	539	608	a580	156
29	0						a500	557	1,490	919	a600	156
30	0						a700	a520	1,170	868	a560	b130
31	0							a740		848	512	
Total	4,495	0	0	0	0	0	1,570	19,342	19,576	17,716	15,731	7,771
Mean	145	0	0	0	0	0	52.3	624	653	571	507	259
Ac-ft	8,920	0	0	0	0	0	3,110	38,360	38,830	35,140	31,200	15,410

Calendar year 1952: Max 3,790 Min 0 Mean 401 Ac-ft 291,300
Water year 1952-53: Max 1,670 Min 0 Mean 236 Ac-ft 171,000

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records and records for other stations in the Tanana River basin.
b Stage-discharge relation affected by ice.

Tanana River near Tanacross

Location.--Lat 63°23'15", long 143°44'45", on left bank a quarter of a mile downstream from unnamed tributary, a quarter of a mile north of Cathedral Rapids, 8 miles upstream from Robertson River, and 13 miles west of Tanacross.

Drainage area.--8,550 sq mi, approximately.

Records available.--June to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 1,500 ft (from topographic map).

Extremes.--Maximum discharge during period June to September, 35,500 cfs Aug. 9 (gage height, 11.04 ft); minimum daily, 6,400 cfs Sept. 30.

Remarks.--Records good except those for period of no gage-height record, which are poor. Some diurnal fluctuation caused by glacier melt at the source.

Discharge, in cubic feet per second, water year June to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	27,000	31,300	17,000
2									-	23,500	31,400	16,000
3									-	21,800	31,700	15,000
4									-	21,100	32,400	14,000
5									-	20,400	32,200	13,000
6									-	19,500	32,900	13,000
7									-	19,000	33,900	13,000
8									-	19,200	35,100	12,000
9									-	19,200	35,500	12,000
10									-	19,600	35,100	12,000
11									-	19,500	*33,400	11,000
12									-	18,800	*30,000	*10,500
13									-	18,700	25,400	9,900
14									-	18,900	*21,400	9,300
15									-	21,400	20,000	9,100
16									-	22,700	18,600	8,800
17					†2,040				-	24,600	17,700	8,500
18									-	26,800	16,700	8,300
19									-	28,700	16,000	8,100
20									-	28,900	14,000	7,900
21									-	27,000	15,000	7,700
22									-	25,600	17,000	7,600
23									-	25,200	16,000	7,500
24									-	25,200	17,000	7,400
25									-	25,400	18,000	7,200
26									20,700	26,200	19,000	7,000
27									23,800	27,400	19,000	6,800
28									23,400	28,400	20,000	6,700
29									24,100	29,500	19,000	6,500
30					----				26,500	30,700	18,000	6,400
31		- -			---		-----		------	31,300	17,000	------
Total									-	741,200	739,700	299,200
Mean									-	23,910	23,860	9,973
Ac-ft									-	‡1,470	‡1,467	593,500

Calendar year	: Max	Min	Mean	Ac-ft	
Water year	: Max	Min	Mean	Ac-ft	

* Discharge measurement made on this day.
† Result of discharge measurement.
‡ Expressed in thousands.
Note.--No gage-height record Aug. 9 to Sept. 11, Sept. 13-30; discharge estimated on basis of 1 discharge measurement and records for station at Northway Junction.

Tanana River at Big Delta

Location.--Lat 64°09'20", long 145°51'00", on line between secs. 6 and 7, T. 9 S., R. 10 E., near left bank on downstream side of bridge on Richardson Highway, 0.5 mile northwest of Big Delta, half a mile upstream from Delta River, 8 miles downstream from Goodpaster River, and 75 miles southeast of Fairbanks.

Drainage area.--13,500 sq mi, approximately.

Records available.--Discharge: September 1948 to September 1952. Discharge measurements only in 1953.
Chemical analyses: May 1949 to September 1952.
Water temperatures: May 1949 to September 1951.

Gage.--Wire-weight gage read once daily. Datum of gage is 962.95 ft above mean sea level.

Extremes.--1950-51: Maximum discharge observed during water year, 46,000 cfs July 17; maximum gage height observed, 21.55 ft July 13; minimum daily discharge, 4,200 cfs Mar. 4, 5.
1951-52: Maximum discharge observed during water year, 57,200 cfs July 31 (gage height, 23.24 ft); minimum daily, 4,300 cfs Mar. 5.
1948-52: Maximum discharge observed, 62,800 cfs July 29, 1949 (gage height, 23.57 ft); minimum daily, 4,000 cfs Nov. 29 to Dec. 8, 1948.
1951-52: Maximum dissolved solids, 180 ppm Jan. 1-10, Feb. 11-20; minimum, 132 ppm June 21-30.
Maximum total hardness, 144 ppm Nov. 11-20, Jan. 1-10; minimum, 102 ppm June 21-30.
1949-52: Maximum dissolved solids, 187 ppm Dec. 11-20, 1950; minimum, 107 ppm May 21-31, 1950.
Maximum hardness, 148 ppm Dec. 11-20, 1950; minimum, 87 ppm May 21-31, June 1-10, 1949.
1949-51: Maximum water temperature, 64°F July 10, 1950, July 8, 1951; minimum, freezing point on many days during winter months.

Remarks.--Records poor. Diurnal fluctuation caused by glacier melt at the source. Discharge measurements made at this site during water year 1953 are as follows: Nov. 1, 1952, 7,460 cfs; Dec. 20, 1952, 4,770 cfs; Feb. 20, 1953, 3,920 cfs; May 1, 1953, 12,400 cfs; June 12, 1953, 23,800 cfs; July 2, 1953, 40,900 cfs; Aug. 12, 1953, 49,700 cfs; Sept. 11, 1953, 20,200 cfs. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14,100	8,100	a5,600	6,000	5,100	4,600	4,740	10,300	13,700	28,200	32,500	34,000
2	14,100	7,700	a5,600	5,900	4,900	4,500	4,860	11,200	13,900	33,700	33,500	34,000
3	13,900	7,100	a5,500	5,700	4,800	4,400	4,940	11,200	16,300	36,500	33,700	33,800
4	13,900	6,600	a5,400	5,800	4,700	4,200	4,890	11,400	16,800	32,500	32,400	38,400
5	13,700	6,000	a5,500	5,800	4,600	4,200	4,940	11,500	17,200	33,200	33,600	40,300
6	13,600	5,700	a5,700	5,900	4,500	4,300	4,860	11,700	18,200	33,700	34,100	37,800
7	13,200	5,600	a5,900	5,900	4,500	4,400	4,810	11,700	24,000	36,200	34,000	36,700
8	13,100	5,600	a6,100	6,000	4,400	4,300	4,860	12,000	24,400	38,700	33,200	*32,500
9	13,200	5,600	a6,300	6,100	4,400	*4,300	4,940	15,700	23,900	41,100	32,900	32,500
10	12,900	5,700	a6,500	6,000	4,400	4,300	4,980	17,100	22,900	44,100	*33,300	35,900
11	12,800	5,800	a6,700	5,900	4,400	4,400	5,100	17,300	23,900	44,500	33,500	35,000
12	11,800	5,800	a6,800	5,800	4,500	4,300	5,020	17,700	23,900	44,700	38,400	32,800
13	11,700	5,700	a6,700	5,700	4,500	4,300	5,050	17,800	24,700	45,700	38,500	26,300
14	11,400	5,600	*6,600	5,500	4,500	4,400	5,100	18,000	*23,000	45,200	38,200	23,000
15	11,500	5,500	6,000	5,300	4,600	4,300	5,050	18,500	20,400	45,800	38,500	20,800
16	11,100	5,300	5,800	5,100	4,700	4,300	4,940	18,500	16,700	*45,500	36,400	22,500
17	*10,200	5,200	5,800	4,900	4,700	4,400	4,890	17,200	16,200	46,000	37,500	26,300
18	10,000	a5,100	5,800	4,800	4,600	4,500	4,860	15,500	16,300	44,700	41,100	30,400
19	9,740	5,000	5,700	4,700	4,500	4,600	4,950	14,200	16,100	44,600	41,100	30,600
20	9,520	a5,100	5,700	4,600	4,400	4,700	5,290	13,700	16,000	44,100	35,500	31,200
21	9,580	a5,000	5,600	a4,600	4,500	4,500	5,080	13,400	14,900	44,000	36,300	30,400
22	9,500	4,900	5,600	a4,600	4,700	4,400	4,940	13,400	15,300	41,200	34,900	27,000
23	9,520	a4,800	5,700	a4,600	4,700	4,400	4,890	13,000	15,100	38,400	31,500	27,000
24	9,380	a4,700	5,800	a4,700	4,600	4,500	4,980	12,000	14,600	38,200	30,400	28,600
25	9,180	a4,700	5,900	a4,700	4,500	4,700	*5,870	11,300	15,000	35,700	30,400	25,900
26	9,080	a4,800	6,000	a4,800	4,400	4,700	6,640	11,200	18,500	36,800	25,600	25,100
27	8,940	a4,900	6,100	a4,900	4,500	4,600	6,740	11,000	18,700	37,300	21,000	24,300
28	8,880	a5,100	6,100	4,900	4,600	4,500	6,700	10,900	18,900	35,600	21,800	22,200
29	8,660	a5,300	6,000	5,000	-	4,500	7,100	11,800	22,700	34,500	26,200	20,600
30	8,550	a5,500	6,000	5,000	----	4,600	9,820	13,400	23,200	34,700	30,300	18,300
31	8,300	- -	6,000	5,100	--	4,700	-----	13,500	---- -	32,200	33,400	--
Total	345,030	167,500	184,500	164,300	128,200	137,800	161,830	427,100	565,400	‡1,217.3	‡1,033.6	884,200
Mean	11,130	5,583	5,952	5,300	4,579	4,445	5,394	13,780	18,850	39,270	33,340	29,470
Ac-ft	684,400	332,200	366,000	325,900	254,300	273,300	321,000	847,100	‡1,121	‡2,414	‡2,050	‡1,754

Calendar year 1950: Max 48,300 Min 4,300 Mean 15,910 Ac-ft 11,510,000
Water year 1950-51: Max 46,000 Min 4,200 Mean 14,840 Ac-ft 10,740,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of discharge measurements and weather records.
Note.--Stage-discharge relation affected by ice Oct. 31 to Mar. 31.

Tanana River at Big Delta--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17,600	6,360	6,200	5,000	4,600	5,000	4,800	6,570	22,200	41,200	48,800	20,600
2	17,400	6,800	6,100	5,000	4,500	4,800	5,000	6,560	20,700	41,500	43,200	20,700
3	17,000	6,830	6,100	4,900	4,500	4,600	5,200	6,570	20,600	41,500	38,300	20,800
4	16,600	6,830	6,000	4,900	4,400	4,400	5,480	6,610	20,700	43,000	37,000	21,300
5	14,900	6,680	5,800	4,800	4,500	4,300	5,540	6,570	20,600	44,400	36,400	22,600
6	12,500	6,730	5,700	4,800	4,600	4,400	5,540	6,710	20,300	39,100	39,500	23,800
7	11,700	6,540	a5,300	4,700	4,600	4,600	5,820	7,020	20,000	34,900	41,300	22,900
8	11,600	6,510	a5,200	a4,700	4,700	4,700	5,880	7,100	20,200	34,200	45,600	22,100
9	10,800	6,380	a5,300	a4,700	4,700	4,700	6,060	7,390	20,200	32,200	44,100	21,600
10	10,300	6,460	a5,400	a4,600	4,700	4,700	6,140	7,930	19,600	30,400	43,000	19,000
11	9,720	6,510	5,300	a4,600	4,600	4,600	6,170	7,980	18,000	30,000	44,100	18,100
12	9,410	6,570	5,200	4,700	4,600	4,700	6,190	8,000	17,900	29,600	44,200	17,400
13	8,200	6,570	5,100	4,800	4,500	4,700	6,190	8,250	21,100	30,000	43,700	17,300
14	7,970	6,680	5,000	4,800	4,500	4,800	6,220	8,290	24,700	32,300	43,100	16,700
15	7,930	6,540	4,900	4,900	4,400	4,800	6,270	8,330	30,400	31,000	38,600	16,500
16	7,930	6,540	4,800	4,900	4,400	4,700	6,270	8,450	30,200	31,400	38,300	16,300
17	7,660	6,440	4,800	4,800	4,400	4,700	6,300	8,550	30,300	34,900	a33,000	15,800
18	7,610	6,330	4,700	4,700	4,400	4,600	6,330	9,110	30,600	c33,000	29,200	15,600
19	7,480	6,350	4,800	4,700	4,500	4,600	6,330	12,300	30,800	c36,000	a28,000	15,500
20	7,480	6,460	4,900	a4,600	4,500	4,700	6,350	13,400	31,700	c38,000	*26,800	15,400
21	7,460	6,440	4,900	4,500	4,500	4,800	6,430	13,600	32,000	39,100	a26,000	15,500
22	7,440	6,460	a5,000	4,500	4,600	5,000	6,460	13,800	31,400	38,800	a25,000	15,400
23	7,190	6,510	a5,000	4,600	4,600	5,100	6,270	13,800	31,700	37,800	23,500	15,600
24	7,120	6,570	a5,100	4,600	4,600	5,200	6,190	13,600	33,900	38,000	22,900	15,400
25	7,190	6,570	a5,000	4,700	4,600	5,200	6,300	13,700	34,800	36,700	21,700	15,500
26	7,220	6,560	a5,000	4,800	4,700	5,100	6,350	13,800	40,900	*40,700	22,000	*15,600
27	7,340	6,610	5,100	4,800	4,800	4,900	6,430	14,400	41,000	44,200	21,800	15,500
28	7,020	6,500	5,200	4,800	4,900	4,800	6,460	17,200	*40,200	43,900	22,100	15,300
29	6,710	6,400	5,100	4,800	5,000	4,700	6,510	*19,600	40,700	47,200	20,000	15,200
30	6,590	6,300	5,000	4,700	-----	4,700	6,540	22,000	40,900	56,900	20,300	15,000
31	6,490	-----	5,100	4,600	-----	4,700	-----	22,600	-----	55,800	20,400	-----
Total	299,560	196,030	162,100	147,000	132,900	147,300	182,020	339,790	838,300	‡1,187.7	‡1,031.9	534,000
Mean	9,663	6,534	5,229	4,742	4,583	4,752	6,067	10,960	27,940	38,310	33,290	17,800
Ac-ft	594,200	388,800	321,500	291,600	263,600	292,200	361,000	674,000	‡1,663	‡2,356	‡2,047	‡1,059

Calendar year 1951: Max 46,000 Min 4,200 Mean 14,730 Ac-ft 10,670,000
Water year 1951-52: Max 56,900 Min 4,300 Mean 14,200 Ac-ft 10,310,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of discharge measurements, weather records and records for other stations.
c Backwater from Delta River; discharge estimated on basis of records for stations at Northway Junction and near Tok Junction.
Note.--Stage-discharge relation affected by ice Nov. 28 to Apr. 3. Shifting-control method used Oct. 1-12, July 1-30.

TANANA RIVER AT BIG DELTA

Chemical analyses, in parts per million, water years, October 1950 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1950																			
Oct. 1-10	13,570		13	0.07	39	7.3	3.6	1.5	132	27	2.0	0.3	1.0	160	127	19	271	7.4	8
Oct. 11-20	10,980		15	.01	40	9.0	4.3	1.5	144	27	1.9	.3	1.2	171	137	19	285	7.7	6
Oct. 21-31	9,957		15	.01	42	8.7	6.2		146	29	2.0	.2	.9	181	141	21	290	7.5	5
Nov. 1-10	6,370		15	.01	43	8.7	5.0	2.0	152	28	1.8	.2	.5	185	143	18	298	7.5	5
Nov. 11-20	5,410		15	.01	42	9.2	6.6		151	29	1.8	--	.6	182	143	19	297	7.4	5
Nov. 21-30	4,970		--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--
Dec. 1-10	5,810		--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--
Dec. 11-20	6,160		15	.01	44	9.3	4.9	.8	154	30	1.5	--	.6	187	148	22	305	7.4	5
Dec. 21-31	6,480		16	.01	43	9.4	4.5	1.6	154	31	1.5	.0	.7	185	146	20	303	7.3	5
1951																			
Jan. 1-10	5,910		15	.02	43	9.5	4.7		153	31	1.6	.0	.7	181	146	21	304	7.4	5
Jan. 11-20	5,230		14	.02	43	9.5	6.5		152	32	1.4	.0	.9	182	146	22	299	7.4	5
Jan. 21-31	5,290		14	.03	42	8.0	6.3		145	28	2.2	.0	.3	172	138	19	294	7.4	5
Feb. 1-10	4,630		14	.04	43	8.3	5.8		148	28	2.2	.1	.2	179	141	20	296	7.5	5
Feb. 11-19	4,556		14	.03	45	8.1	5.0		156	27	2.8	.1	.3	182	146	18	304	7.5	5
Feb. 20-28	4,544		11	.04	42	7.6	3.9		134	29	2.2	.1	.3	171	136	26	289	7.5	5
Mar. 1-10	4,350		8.4	.05	39	7.0	5.0		122	33	1.1	--	1.3	160	126	26	270	7.5	5
Mar. 11-20	4,420		12	.02	40	7.5	5.2		131	31	1.1	--	.9	165	131	23	278	7.7	5
Mar. 21-31	5,010		12	.03	40	7.2	6.7		134	30	1.6	--	.9	169	129	20	281	7.7	5
Apr. 1-10	4,882		13	.01	41	7.5	4.9		139	26	1.6	--	.7	168	133	19	286	7.9	5
Apr. 11-20	5,025		9.1	.02	38	8.0	3.8		118	35	1.4	.0	1.0	154	128	31	268	7.4	10
Apr. 21-30	6,276		11	.02	37	8.3	3.0		122	29	1.5	.0	.8	158	126	26	268	7.8	10
May 1-10	12,380		12	.06	33	7.2	6.4		116	27	1.4	--	1.0	150	112	17	244	6.8	15
May 11-20	16,840		12	.07	33	6.9	5.1		114	24	1.8	--	1.0	143	111	17	234	7.0	15
May 21-31	13,490		12	.09	34	7.2	7.1		117	29	2.1	--	1.0	153	114	19	256	7.7	15
June 1-10	19,130		11	.12	33	7.5	5.7		113	28	2.2	--	.9	148	113	21	249	7.5	20
June 11-20	19,720		9.5	.19	31	6.7	5.9		106	26	2.2	--	.8	137	105	18	229	7.5	15
June 21-30	17,690		9.4	.19	31	7.2	5.5		105	28	2.2	--	.8	140	107	21	237	7.5	20

TANANA RIVER AT BIG DELTA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1952--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1951																			
July 1-10	35,790		9.0	0.05	34	7.5	4.2		112	29	1.6	0.0	0.7	146	116	24	--	7.5	--
July 11-20	45,080		10	.06	35	6.7	4.0		112	28	1.5	.0	.7	141	115	23	--	7.6	--
July 21-31	37,150		9.0	.08	32	6.4	3.0		105	23	1.5	.0	.6	129	106	20	--	7.7	--
Aug. 1-10	33,320		9.4	.08	36	7.3	5.4		114	31	3.0	.3	.9	150	120	26	244	7.6	10
Aug. 11-20	37,860		--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--
Aug. 21-31	32,180		9.1	.06	33	7.4	3.9	2.7	108	30	4.0	.1	.7	144	113	24	236	7.6	10
Sept. 1-10	35,590		11	.04	38	7.3	4.2		118	28	4.8	.3	.6	143	125	28	260	7.6	10
Sept. 11-20	27,890		11	.19	38	8.3	5.0		124	28	5.5	.1	1.4	169	129	27	270	7.5	10
Sept. 21-30	24,940		11	.07	36	8.1	6.0		115	32	5.0	.2	1.1	163	123	28	258	7.5	10
Average	14,840		12	0.05	38	7.9	5.3		129	29	2.2	0.1	0.8	162	127	22	273	--	9
1951																			
Oct. 1-10	14,040		11	0.03	39	8.4	9.4		127	36	7.0	0.1	0.8	169	132	28	266	7.5	6
Oct. 11-20	8,139		10	.03	40	8.7	8.7		131	34	7.5	.1	1.2	176	136	28	275	7.7	6
Oct. 21-31	7,777		7.2	.03	36	8.7	14		126	40	7.0	.1	1.7	179	126	22	279	7.6	7
Nov. 1-10	6,612		13	.01	41	9.5	4.7		134	37	1.5	.0	1.5	164	141	32	279	7.4	7
Nov. 11-20	6,499		11	.01	43	8.8	4.1		130	38	3.5	.1	1.4	177	144	37	280	7.4	6
Nov. 21-30	6,492		12	.01	42	8.9	3.3		130	35	3.2	.1	1.0	177	141	35	277	7.6	6
Dec. 1-10	5,710		9.9	.01	43	8.7	5.1		132	39	3.2	.1	.8	175	143	35	284	7.6	5
Dec. 11-20	4,950		8.5	.01	41	8.5	6.4		128	39	3.2	.1	1.2	177	137	32	281	7.6	7
Dec. 21-31	5,045		13	.01	42	9.0	5.5		138	33	3.8	.1	.8	179	142	29	278	7.7	6

TANANA RIVER AT BIG DELTA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1952--Continued

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium Magnesium	Noncarbonate			
1952																			
Jan. 1-10	4,810		12	.01	44	8.4	6.2		141	35	3.5	.1	.8	180	144	29	288	7.5	5
Jan. 11-20	4,750		9.0	.01	43	8.3	5.2		131	39	2.8	.0	.9	176	141	34	285	7.5	7
Jan. 21-31	4,673		8.2	.01	40	8.0	9.3		130	39	3.5	.1	.8	174	133	26	282	7.4	7
Feb. 1-10	4,580		8.4	.01	41	7.8	4.7		123	38	2.2	.1	1.2	166	134	34	273	7.4	7
Feb. 11-20	4,480		8.4	.03	42	8.3	6.5		132	39	2.2	.1	1.1	180	139	31	294	7.4	7
Feb. 21-29	4,700		8.4	.04	41	8.0	6.3		126	39	2.5	.2	1.2	170	135	32	283	7.4	7
Mar. 1-10	4,620		9.2	.01	41	8.4	5.7		128	38	2.5	.0	1.5	171	137	32	283	7.5	4
Mar. 11-20	4,690		8.5	.02	37	7.7	10		120	39	4.0	.1	1.7	164	124	26	268	7.4	4
Mar. 21-31	4,927		8.4	.02	41	8.4	4.7		124	38	3.0	.1	1.7	169	137	35	277	7.3	5
Apr. 1-10	5,546		9.4	.01	39	8.6	6.0		124	38	2.8	.0	.7	169	133	31	274	7.2	5
Apr. 11-20	6,262		8.7	.03	38	8.6	6.9		120	40	3.0	.1	.9	163	130	32	270	7.3	5
Apr. 21-30	6,394		8.3	.01	37	7.9	5.7		114	38	2.5	.0	.8	157	125	31	257	7.3	6
May 1-10	6,903		8.7	.01	37	8.7	5.2		118	38	1.5	.1	.8	159	128	31	255	7.1	4
May 11-20	9,266		11	.04	37	9.0	3.2		122	32	1.5	.1	.8	160	129	29	253	7.2	4
May 21-31	16,190		9.7	.09	33	7.8	4.7		110	30	1.5	.1	1.0	147	114	24	231	7.2	10
June 1-10	20,510		7.9	.20	31	8.0	2.7		95	33	2.0	.1	1.2	138	110	32	212	7.1	30
June 11-20	26,570		7.6	.34	30	7.6	3.3		95	31	1.5	.1	1.0	138	106	28	214	7.1	30
June 21-30	36,750		6.8	.59	29	7.1	1.9		90	27	2.0	.1	.9	132	102	28	205	7.3	30
July 1-10	38,240		8.7	.27	34	6.5	4.9		109	30	.5	.1	.9	140	112	22	233	7.2	30
July 11-20	32,620		8.9	.16	36	7.3	2.9		112	31	.8	.0	1.0	143	120	28	240	7.2	15
July 21-31	43,550		7.6	.07	36	6.9	3.8		112	31	1.2	.0	.8	143	118	26	242	7.2	8
Aug. 1-10	41,720		8.4	.05	35	7.4	2.8	4.6	110	33	.5	.1	.7	147	118	28	234	7.5	5
Aug. 11-20	36,900		9.0	.03	36	7.4	3.1	4.3	112	35	.0	.2	.8	151	120	28	243	7.6	3
Aug. 21-31	24,570		11	.02	36	8.0	4.8	2.0	115	31	1.5	--	1.2	155	123	28	248	7.5	3
Sept. 1-10	21,540		12	.05	34	6.1	4.2	1.8	109	29	1.0	.1	1.1	142	110	21	237	7.5	6
Average a	14,100		9.4	0.07	38	8.1	5.7		121	35	2.6	0.1	1.1	162	128	29	261	--	9

a Represents 94 percent of runoff for water year October 1951 to September 1952.

TANANA RIVER AT BIG DELTA--Continued

Temperature (°F) of water, October 1950 to September 1951

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

Salcha River near Salchaket

Location.--Lat 64°28'15", long 146°55'45", in sec. 22, T. 5 S., R. 4 E., near right bank on downstream side of bridge on Richardson Highway, half a mile east of Aurora Lodge, 2 miles upstream from mouth, and 6 miles southeast of Salchaket.

Drainage area.--2,170 sq mi, approximately.

Records available.--July 1909 to August 1910 (no winter records), published as "at Mouth," October 1948 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 631.85 ft above mean sea level. July 1909 to August 1910, staff gage at site 1¼ miles downstream at different datum. Sept. 7, 1948, to Apr. 24, 1953, wire-weight gage at same site and datum.

Average discharge.--5 years (1948-53), 1,804 cfs (1,306,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge observed during water year, 10,300 cfs June 16 (gage height, 10.24 ft); minimum not determined.
1951-52: Maximum discharge during water year not determined, occurred during period of no gage-height record; minimum not determined.
1952-53: Maximum discharge during water year, 17,700 cfs June 26 (gage height, 12.10 ft); minimum not determined.
1909-10, 1948-53: Maximum discharge observed, 25,700 cfs May 28, 1949 (gage height, 13.96 ft), from rating curve extended above 11,000 cfs; maximum gage height observed, 15.10 ft May 10, 1950 (ice jam); minimum discharge not determined.

Remarks.--Records fair except those for periods of ice effect, no gage-height record, or shifting control, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	b1,030							b2,500	3,270	2,070	908	1,520
2	b1,020							b3,500	3,160	2,540	916	1,500
3	b1,040							b4,200	2,800	2,810	948	1,480
4	b1,160							5,150	2,640	2,750	956	1,440
5	b1,230							6,080	2,480	2,690	1,010	1,360
6	b1,090							6,960	2,540	2,660	964	1,320
7	b1,060							8,790	2,480	2,560	956	1,340
8	b988	a540	a410	a310			a230	8,960	2,400	2,330	916	1,290
9	b956							7,680	1,890	2,070	870	1,310
10	b956							6,930	1,590	1,840	855	1,260
11	b940							5,480	1,400	1,760	870	1,280
12	b924		(*)					4,430	1,320	1,670	811	1,250
13	a910							3,740	1,340	1,480	*811	1,280
14	b880							2,750	3,130	1,420	790	1,250
15	a820							2,430	*7,580	1,160	797	1,250
16	*b790				a180	a200	a260	2,160	*9,540	1,050	a790	1,250
17	b770						a270	2,500	6,450	972	804	1,340
18	b750						a280	2,920	4,090	a930	a800	1,380
19	b720						a300	2,860	2,990	892	804	1,300
20	b690						b320	2,810	a3,000	870	811	1,310
21	b670						a350	2,720	3,250	848	811	1,290
22	b650						a380	2,720	3,080	848	818	1,310
23	b630	a470	a360	a230			a410	2,700	2,460	855	825	1,290
24	b620						b450	a2,700	2,200	832	848	1,290
25	a620						b500	2,780	3,110	832	862	1,250
26	a620						b560	2,840	2,750	832	885	1,250
27	a620						b680	2,910	2,500	804	940	1,280
28	a620						b900	2,960	2,360	783	1,160	1,230
29	a630				-		a1,200	3,220	2,080	797	1,370	1,250
30	a630				- - - -		b1,700	3,460	1,780	818	a1,500	1,190
31	a630	- - -			- - - - -		- - - - -	3,400	- - - - - -	855	*1,600	- - - - - -
Total	25,664	15,150	11,910	8,330	5,040	6,200	12,010	125,240	91,660	45,628	29,006	39,340
Mean	828	505	384	269	180	200	400	4,040	3,055	1,472	936	1,311
Ac-ft	50,900	30,050	23,620	16,520	10,000	12,300	23,820	248,400	181,800	90,500	57,530	78,030

Calendar year 1950: Max 12,600 Min - Mean 1,370 Ac-ft 992,200
Water year 1950-51: Max 9,540 Min - Mean 1,137 Ac-ft 823,500

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement, weather records, and records for other stations in Tanana River basin.
b Stage-discharge relation affected by ice
Note.--Shifting-control method used May 4 to June 16. Backwater from log boom Oct. 1-24, July 16-30, Aug. 3-28.

Salcha River near Salchaket--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,230										8,510	4,670
2	1,210										6,510	8,000
3	1,170									a5,500	5,000	13,000
4	1,170										4,500	
5	1,160	a560	a380								4,050	
6	1,170										4,070	a12,000
7	b1,100										4,030	
8	b1,100			a240			(*)	a600	a5,200		3,880	
9	b1,000										3,900	
10	b980									a3,700	3,900	
11	b900										3,620	
12	b830										4,070	
13	b760						a200				3,980	
14	b700										4,410	
15		a480	a320		a210	a200					4,150	a4,700
16											4,110	
17	a630									a5,000	3,980	
18											3,370	
19											3,240	
20								a4,000	a4,700		*3,220	
21											3,580	a3,200
22											3,980	a3,000
23										a5,400	a3,700	2,960
24				a220							3,500	a2,900
25	a590	a490	a290								3,420	2,890
26									4,600	*5,000	3,370	*2,860
27								a9,400	4,600	5,170	3,560	2,800
28							a210		*4,090	5,640	3,270	2,760
29								*8,890	3,600	6,450	3,600	2,780
30								9,100	3,400	6,990	3,780	2,760
31								9,800	------	8,060	3,900	------
Total	24,750	15,300	10,190	7,120	6,090	6,200	6,050	104,990	145,290	153,810	126,160	185,580
Mean	798	510	329	230	210	200	202	3,387	4,843	4,962	4,070	6,186
Ac-ft	49,090	30,350	20,210	14,120	12,080	12,300	12,000	208,200	288,200	305,100	250,200	368,100

Calendar year 1951: Max 9,540 Min - Mean 1,131 Ac-ft 818,600
Water year 1951-52: Max - Min - Mean 2,163 Ac-ft 1,570,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for Chena River at Fairbanks. b Stage-discharge relation affected by ice.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,730							5,000	1,750	3,510	1,440	4,980
2	2,730							5,000	1,570	*3,720	1,420	4,740
3	2,550							2,540	1,460	3,420	1,380	4,430
4	2,610					(*)		1,880	1,360	3,230	1,360	4,100
5	2,500							1,650	1,280	4,850	1,340	*3,760
6	2,430							1,540	1,200	5,030	1,330	3,550
7	2,360							1,540	1,230	3,740	1,300	3,400
8	2,330			180			73	1,540	1,230	3,070	1,280	3,230
9	2,160							1,580	1,300	6,900	1,250	3,030
10	2,260							1,590	1,390	11,600	1,240	2,860
11	2,100							1,520	1,420	6,980	1,250	2,720
12	1,960							1,480	1,290	4,760	*1,300	2,590
13	1,980		(*)					1,480	*1,440	3,660	1,290	2,510
14	2,020							1,620	3,570	3,100	1,250	2,480
15	1,890							2,850	2,220	3,640	1,250	2,540
16	1,910	540	360		62	60		9,200	1,600	3,760	1,320	2,570
17	1,810							5,750	1,340	3,190	1,520	2,490
18	1,790						90	3,900	1,330	2,740	1,630	2,400
19	1,720							3,380	1,320	2,520	1,600	2,280
20	1,720							4,500	1,650	2,590	1,570	2,210
21	1,510				(*)		110	4,980	2,010	2,510	1,520	2,180
22	1,280						120	9,030	1,660	2,410	1,500	2,300
23	1,220						150	9,650	1,400	2,320	1,880	2,270
24	*1,000			110			200	4,580	1,500	2,120	6,380	2,210
25	800						450	3,510	10,800	1,960	7,430	2,200
26	720						1,100	4,830	12,500	1,820	6,590	2,140
27	670						2,100	8,020	5,840	1,730	7,990	2,020
28	630						3,000	5,340	3,740	1,650	7,930	1,980
29	600				-		3,800	3,510	2,910	1,580	7,260	1,920
30	590						*4,500	2,600	3,140	1,520	6,750	1,840
31	570	-					-----	2,070	------	1,480	5,720	------
Total	53,150	16,200	11,160	4,460	1,736	1,860	17,075	117,660	76,450	107,310	88,270	83,930
Mean	1,715	540	360	144	62	60	569	3,795	2,548	3,462	2,847	2,798
Ac-ft	105,400	32,130	22,140	8,850	3,440	3,690	33,870	233,400	151,600	212,800	175,100	166,500

Calendar year 1952: Max - Min - Mean 2,245 Ac-ft 1,630,000
Water year 1952-53: Max 12,500 Min - Mean 1,587 Ac-ft 1,149,000

Peak discharge (base, 10,000 cfs).--May 16 (8 a.m.) 10,600 cfs (10.20 ft); May 23 (4 a.m.) 13,000 cfs (10.90 ft); June 26 (2 a.m.) 17,700 cfs (12.10 ft); July 10 (3 a.m.) 14,200 cfs (11.21 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 24 to May 1 (no gage-height record Oct. 27 to Apr. 23; discharge estimated on basis of 3 discharge measurements, weather records, and records for Chena River at Fairbanks).

Chena Slough near Fairbanks

Location.--Lat 64°49'15", long 147°26'20", in SW¼ sec. 18, T. 1 S., R. 2 E., near left bank on downstream side of pier of bridge on side road leading off of Badger Road, 2¾ miles upstream from mouth and 8½ miles east of Fairbanks.

Drainage area.--About 20 sq mi.

Records available.--May 1948 to September 1952 (discontinued).

Gage.--Staff gage read twice daily. Altitude of gage is 450 ft (from topographic map).

Extremes.--1950-51: Maximum discharge observed during water year, 125 cfs May 1; maximum gage height observed, 3.23 ft Sept. 1; minimum discharge not determined.
1951-52: Maximum discharge observed during water year, 148 cfs Aug. 1 (gage height, 3.42 ft); minimum not determined.
1948-52: Maximum discharge observed, 740 cfs May 15, 1949 (gage height, 4.86 ft), from rating curve extended above 300 cfs by logarithmic plotting; maximum gage height observed, 7.36 ft May 21, 1948 (backwater from Chena River); minimum discharge not determined.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	99							125	89	a90	89	*96
2	101							121	87	a94	a88	a94
3	101					a53		119	87	a98	86	a93
4	104							115	86	a100	89	a92
5	106		a66					108	87	a110	92	a91
6	114					*b54		106	87	a120	90	90
7	112							104	92	a120	89	90
8	112						a57	102	94	a120	87	89
9	a100							104	89	a120	89	90
10	a95		*b70					108	84	a120	90	90
11	a87							110	89	a110	92	92
12	a81							99	92	a110	92	92
13	a78		a68					101	96	a110	90	96
14	a76							104	94	*110	*89	93
15	*b74							112	*92	a110	87	89
		a66		a59	a53							
16	b73						a58	110	90	a110	86	85
17	b72						a59	104	90	a100	87	81
18	b71						a60	101	87	102	89	80
19	b70					a55	a62	99	87	102	90	81
20	b70						a65	99	87	104	92	83
21	b69						71	97	89	104	92	86
22	b69						a80	97	87	102	92	83
23	b68		a64				a94	96	86	101	a93	83
24	b68						*110	96	83	99	a94	81
25	b68						a120	94	86	94	a95	81
26	b68						a120	94	87	92	a96	79
27	b68						a120	92	86	83	a98	81
28	b68						117	92	81	89	a100	80
29	b67				-		119	90	81	90	a100	80
30	a67				------		123	90	84	92	a100	80
31	a67	------			------		------	89	------	a92	a100	------
Total	2,543	1,980	2,028	1,829	1,484	1,694	2,233	3,178	2,636	3,198	2,843	2,601
Mean	82.0	66	65.4	59	53	54.6	74.4	103	87.9	103	91.7	86.7
Ac-ft	5,040	3,930	4,020	3,630	2,940	3,360	4,430	6,300	5,230	6,340	5,640	5,160

Calendar year 1950: Max 216 Min - Mean 94.4 Ac-ft 68,310
Water year 1950-51: Max 125 Min - Mean 77.4 Ac-ft 56,020

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 4 discharge measurements, weather records, and records for station at Fairbanks.
b Stage-discharge relation affected by ice.

Chena Slough near Fairbanks--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77							b70	115	117	146	83
2	74							69	110	125	138	79
3	72							b68	108	129	134	83
4								*b67	104	134	127	90
5								66	108	129	125	89
6								66	104	127	121	87
7	a68						(*)	68	102	121	119	84
8								68	106	119	115	83
9								69	106	115	119	87
10								70	104	114	121	83
11		a57					a51	73	102	112	121	79
12								76	108	112	119	79
13								77	104	106	123	79
14								77	96	112	125	79
15			a55	a54	a53	a52		79	*102	112	119	77
16								76	99	112	115	79
17								79	101	115	114	79
18								84	108	117	110	80
19								81	101	112	*106	77
20								84	99	117	104	79
21	a61						a53	84	101	123	101	81
22							b54	87	97	125	97	80
23		*a61					b56	90	102	119	92	80
24							b58	96	101	121	87	83
25							b61	101	102	*121	84	*84
26							b65	101	104	125	80	86
27							b67	99	*104	125	81	86
28		a57					69	97	104	129	79	86
29							b70	102	108	131	79	84
30					------		b70	104	114	140	74	83
31		------			------		------	110	------	142	74	------
Total	1,980	1,730	1,705	1,674	1,537	1,612	1,643	2,538	3,124	3,758	3,349	2,468
Mean	63.9	57.7	55	54	53	52	54.8	81.9	104	121	108	82.3
Ac-ft	3,930	3,430	3,380	3,320	3,050	3,200	3,260	5,030	6,200	7,450	6,640	4,900

Calendar year 1951: Max 125 Min - Mean 74.3 Ac-ft 53,770
Water year 1951-52: Max 146 Min - Mean 74.1 Ac-ft 53,790

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 2 discharge measurements, weather records and records for station at Fairbanks.
b Stage-discharge relation affected by ice.

Chena River at Fairbanks

Location.--Lat 64°50'40", long 147°43'10", in NE¼ sec. 10, T. 1 S., R. 1 W., near right bank on upstream side of bridge on Cushman Street in Fairbanks, 0.4 mile downstream from Noyes Slough, 10 miles upstream from mouth, and 12 miles downstream from Chena Slough.

Drainage area.--1,980 sq mi, approximately (includes that of Noyes Slough).

Records available.--July 1947 to September 1948 (no winter records), October 1948 to September 1953.
Chemical analyses and water temperatures: May to September 1953.

Gage.--Wire-weight gage read twice daily. Datum of gage is 423.68 ft above mean sea level. Prior to May 3, 1948, staff gage at same site and datum.

Average discharge.--5 years, 1,485 cfs (1,075,000 acre-ft per year).

Extremes.--1950-51: Maximum discharge observed during water year, 7,490 cfs May 8 (gage height, 5.69 ft); minimum daily, 220 cfs Feb. 20-23, Mar. 2, 3.
1951-52: Maximum discharge during water year, 8,650 cfs June 1 (gage height, 6.37 ft); minimum not determined.
1952-53: Maximum discharge during water year, 5,280 cfs Aug. 28 (gage height, 4.19 ft); minimum not determined.
1947-53: Maximum discharge, 24,200 cfs May 21, 1948 (gage height, 14.17 ft, from graph based on gage readings); minimum not determined.
Flood in August 1930 reached a stage of about 14.2 ft, from information by local residents.
Flood of May 11-14, 1937, reached a stage of 14.9 ft, ice jam, from floodmarks.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Records include flow in Noyes Slough, which diverts small quantity upstream from gage. Records of specific conductance of daily samples available in district office at Palmer, Alaska.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,100		520		260	230		2,500	2,500	1,700	1,360	1,800
2	1,180		490		260	220		3,500	2,400	1,900	1,300	1,810
3	1,200		480		250	220		4,000	2,200	2,100	1,300	1,770
4	1,300		470		250	230		4,500	2,000	2,300	1,280	1,710
5	1,400		460		240	*230		5,000	1,700	2,300	1,300	1,650
6	1,300		450		240			6,000	1,500	2,300	1,300	1,620
7	1,200		450		240			7,400	1,500	2,200	1,250	1,570
8	1,080		460	380	230		280	7,480	1,440	2,200	1,200	1,530
9	1,000	630	470		230			6,820	1,390	2,100	1,200	1,520
10	960		480		230	240		6,060	1,320	2,000	1,100	1,480
11	900		*480		230			5,090	1,200	1,900	*1,120	1,540
12	838		480		240			4,270	1,100	1,800	1,070	1,610
13	850		480		240			3,510	1,100	1,700	1,050	1,630
14	*868		470		240			2,610	1,600	1,600	1,060	1,570
15	792		460		240			2,300	2,500	1,600	1,040	1,540
16	740		460		240			2,000	3,700	1,500	1,020	1,570
17	720		450		230			2,100	3,700	1,400	1,040	1,520
18	696	570	450		230		330	2,160	2,700	*1,360	1,040	1,480
19	680		450		230			2,200	2,000	1,300	1,070	1,490
20	670		440		220			2,300	*1,810	1,300	1,050	1,630
21	668		440		220		410	2,300	1,800	1,200	1,050	1,650
22	660		440		220		450	2,300	1,900	1,200	1,040	1,650
23	660		440		220		510	2,300	1,800	1,200	1,050	1,640
24	654	540	430	290	230	250	*591	2,300	1,700	1,200	1,060	1,630
25	660		430		230		*b770	2,300	1,900	1,180	1,100	1,550
26	660		430		230		900	2,300	1,800	1,190	1,180	1,400
27	668		430		230		1,100	2,300	1,800	1,170	1,260	1,480
28	661		420		230		1,300	2,400	1,700	1,150	1,350	1,520
29	660	540	420		-		1,600	2,400	1,600	1,190	1,620	1,420
30	668	530	420		------		2,000	2,500	1,500	1,300	1,730	1,360
31	670	------	420		------		------	2,500	------	1,300	*1,770	------
Total	26,763	17,750	14,070	10,340	6,580	7,530	15,481	107,700	56,860	49,840	37,360	47,340
Mean	863	592	454	334	235	243	516	3,474	1,895	1,608	1,205	1,578
Ac-ft	53,080	35,210	27,910	20,510	13,050	14,940	30,710	213,600	112,800	98,860	74,100	93,900

Calendar year 1950: Max 9,680 Min - Mean 1,155 Ac-ft 836,400
Water year 1950-51: Max 7,480 Min 220 Mean 1,089 Ac-ft 788,700

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 31 to Apr. 22, Apr. 25. Prior to Aug. 11 there were many periods of fragmentary or no gage-height record for which discharge was interpolated or estimated on basis of 8 discharge measurements, weather records, and records for stations in Tanana River basin.

Chena River at Fairbanks--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,360							990	8,480	2,510	4,310	2,250
2	1,320							968	6,740	3,900	3,950	2,910
3	1,300							982	4,860	4,280	3,820	4,680
4	1,230							952	4,750	3,640	3,590	5,090
5	1,200							938	4,600	3,220	3,340	5,790
		590	500									
6	1,160							938	4,160	2,870	3,100	5,510
7	1,200							938	4,130	2,550	2,900	4,740
8	1,130			340				900	3,920	2,340	2,740	4,360
9	1,100							908	3,410	2,170	2,640	4,010
10	1,100							892	3,140	2,040	2,540	3,860
							290					
11	988							982	2,720	1,940	2,410	3,940
12	940							975	2,640	1,860	2,340	3,940
13	879							1,060	2,660	1,790	2,230	3,730
14	781							1,090	2,660	1,800	2,280	3,500
15	b740							1,140	2,370	1,820	2,320	3,380
		580	430		310	300						
16	b720							1,270	2,350	2,370	2,540	3,220
17	700							1,450	2,570	3,350	2,700	3,090
18	700							1,860	2,930	3,200	2,730	3,000
19	700							2,490	3,530	3,210	*2,590	2,890
20	700							3,890	3,370	3,440	2,560	2,780
21	690						310	6,500	3,120	3,300	2,460	2,680
22	690						320	7,720	3,140	2,960	2,350	2,650
23	690						340	7,970	2,990	2,700	2,280	2,620
24	690			320			360	7,330	2,990	2,510	2,220	2,550
25	680	(*)					400	7,200	3,420	*2,580	2,180	*2,500
		610	390									
26	680						470	6,740	3,320	2,960	2,180	2,440
27	680						560	6,780	*3,440	3,370	2,140	2,400
28	660						760	6,450	2,940	3,990	2,170	2,360
29	640						982	6,640	2,740	4,170	2,180	2,300
30	630				------		1,000	7,590	2,520	4,280	2,050	2,240
31	620	------			------	(*)	------	8,330	------	4,560	2,150	------
Total	27,298	17,800	13,590	10,220	8,990	9,300	11,302	104,863	106,610	91,680	81,990	101,410
Mean	881	593	438	330	310	300	377	3,383	3,554	2,957	2,645	3,380
Ac-ft	54,150	35,310	26,960	20,270	17,830	18,450	22,420	208,000	211,500	181,800	162,600	201,100

Calendar year 1951: Max 7,480 Min 220 Mean 1,090 Ac-ft 788,900
Water year 1951-52: Max 8,480 Min - Mean 1,599 Ac-ft 1,160,000

Peak discharge (base, 5,000 cfs).--May 23 (2 a.m.) 8,160 cfs (6.08 ft); June 1 (9:40 a.m.) 8,650 cfs (6.37 ft); Sept. 5 (12 m.) 5,860 cfs (4.61 ft).

* Discharge measurement made on this day. b Stage-discharge relation affected by ice.

Note.--No gage height record Oct. 17 to Apr. 28 (stage-discharge relation affected by ice during entire period); discharge estimated on basis of weather records, 2 discharge measurements, and records for other stations.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,180							2,470	1,700	1,690	*1,260	3,890
2	2,070							2,650	1,530	1,720	1,240	*3,740
3	1,970					(*)		2,600	1,410	*1,860	1,210	3,910
4	1,960							1,880	1,300	1,860	1,180	3,710
5	2,010							1,690	1,230	1,870	1,150	3,470
6	2,040							1,560	1,140	2,050	1,130	*3,240
7	2,060							1,430	1,070	1,980	1,100	3,220
8	2,020			270				1,390	990	1,830	1,070	3,200
9	1,980							1,360	1,020	2,070	1,040	3,050
10	1,940		(*)					1,340	1,000	4,210	1,070	2,910
							170					
11	1,860							1,260	1,000	4,610	1,070	2,740
12	1,860							1,260	*1,040	3,410	1,050	2,620
13	1,830							1,260	1,180	2,800	1,040	2,510
14	1,810							1,240	1,820	2,400	1,020	2,480
15	1,770							1,430	2,190	2,160	998	2,450
		600	460		120	140						
16	1,740							2,090	1,770	2,460	1,000	2,480
17	1,740							3,130	1,490	2,620	1,040	2,460
18	1,660				(*)			2,600	1,360	2,390	1,070	2,360
19	1,540							2,100	1,390	2,160	1,040	2,260
20	1,500							2,130	1,270	2,010	1,010	2,190
21	1,300						200	2,410	1,210	1,920	1,040	2,180
22	1,100						220	2,950	1,300	1,830	1,100	2,220
23	*860						240	3,850	1,260	1,790	1,190	2,260
24	800			170			280	3,910	1,230	1,720	2,010	2,200
25	730						450	2,720	1,430	1,630	3,650	2,150
26	680						600	2,340	3,730	1,540	3,830	2,120
27	660						800	2,260	3,300	1,490	4,380	2,070
28	640						950	2,780	2,520	1,440	5,230	2,010
29	620				-		1,500	2,520	2,030	1,380	4,950	1,970
30	610				------	(*)	*2,300	2,190	1,770	1,330	4,610	1,920
31	600	------			------		------	1,890	------	1,310	4,170	------
Total	46,140	18,000	14,260	6,770	3,360	4,340	10,940	66,690	46,680	65,540	57,948	79,970
Mean	1,488	600	460	218	120	140	365	2,151	1,556	2,114	1,869	2,666
Ac-ft	91,520	35,700	28,280	13,430	6,660	8,610	21,700	132,300	92,590	130,000	114,900	158,600

Calendar year 1952: Max 8,480 Min - Mean 1,652 Ac-ft 1,199,000
Water year 1952-53: Max 5,230 Min - Mean 1,152 Ac-ft 834,300

Peak discharge (base 5,000 cfs).--May 23 (11 p.m.) 5,180 cfs (4.12 ft); July 10 (10 p.m.) 5,210 cfs (4.14 ft); Aug. 28 (9 a.m.) 5,280 cfs (4.19 ft). * Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Oct. 21 to Apr. 30 (no gage-height record Nov. 11 to Apr. 22; discharge estimated on basis of 6 discharge measurements, weather records, and records for Salcha River near Salchaket).

CHENA RIVER AT FAIRBANKS

Chemical analyses, in parts per million, May to September 1953

Date of collection	Mean discharge (cfs)	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium magnesium	Noncarbonate			
1953																			
May 13-20	1,998		7.8	0.07	20	4.7	2.2	1.9	66	18	0.8	--	1.5	89	69	15	150	6.6	30
May 21-31	2,711		7.0	.08	18	3.5	1.8	1.5	56	16	.8	--	1.7	78	59	13	128	6.5	60
June 1-10	1,239		11	.14	24	5.4	2.7	1.9	82	17	.0	0.1	1.8	104	82	15	173	7.3	18
June 11-20	1,451		8.2	.15	22	4.9	2.4	1.9	69	17	.2	.1	2.5	93	75	18	158	7.0	40
June 21-30	1,978		8.3	.10	21	4.5	2.2	2.0	69	18	.0	.2	1.8	92	71	14	154	7.1	35
July 1-10	2,114		8.3	.12	22	5.1	2.3	1.7	72	19	.0	.2	1.9	96	76	17	160	7.0	40
July 11-20	2,702		8.3	.11	20	4.4	1.9	1.3	65	18	.0	.2	1.7	88	68	15	144	7.0	45
July 21-31	1,580		9.3	.05	23	5.2	2.5	1.3	83	17	.5	.1	1.5	101	79	11	172	7.0	20
Aug. 1-10	1,145		9.9	.06	25	5.7	2.8	1.5	89	16	.2	.1	1.5	107	86	13	183	7.0	20
Aug. 11-20	1,034		6.4	.06	25	5.7	2.8	1.5	90	17	.5	.1	1.0	104	86	12	183	7.0	20
Aug. 21-31	3,287		8.7	.02	21	4.8	2.0	1.2	68	17	.2	.1	1.9	90	72	16	151	6.8	30
Sept. 1, 2	3,815		9.9	.00	20	5.1	3.5	1.3	68	27	1.0	--	2.2	103	71	15	152	7.1	15
Sept. 20-30	2,117		9.7	.00	23	6.0	2.4	1.1	80	22	1.2	--	1.5	106	82	16	169	7.8	10

CHENA RIVER AT FAIRBANKS--Continued

Temperature (°F) of water, May to September 1953

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

Nenana River near Windy

Location.--Lat 63°27'20", long 148°48'10", on right bank 100 ft upstream from bridge on Denali Highway, three-quarters of a mile upstream from Jack River, 1 mile southeast of Windy railroad station, and 2 miles downstream from Schist Creek.

Drainage area.--710 sq mi, approximately.

Records available.--June 1950 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 2,100 ft (from topographic map). Prior to July 27, 1950, staff gage at same site and datum.

Extremes.--1950-51: Maximum discharge during water year, 5,120 cfs Sept. 4 (gage height, 6.15 ft); minimum not determined.
1951-52: Maximum discharge during water year, 5,600 cfs July 29 (gage height, 6.47 ft); maximum gage height 7.3 ft (recorded range in stage during ice jam); minimum discharge not determined.
1952-53: Maximum discharge during water year, 5,980 cfs June 25 (gage height, 6.71 ft); minimum not determined.
1950-53: Maximum discharge, that of June 25, 1953; minimum not determined.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Some diurnal fluctuation caused by glacier melt at the source.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	814								2,500	2,020	2,550	2,730
2	790								2,600	1,960	2,110	2,610
3	760							690	2,800	2,120	1,950	*2,490
4	736								3,000	2,120	*1,790	4,270
5	724								3,200	2,090	1,770	4,710
		240					160					
6	712								3,400	2,220	1,640	3,670
7	700				(*)				3,600	2,190	1,550	2,910
8	688		210	200	160	150		1,900	4,200	1,980	1,870	2,480
9	660								3,150	*2,100	1,760	2,320
10	665								2,760	2,110	1,700	2,020
11	645								2,690	2,110	1,630	2,220
12	620								3,030	1,980	1,560	2,680
13	610							3,400	3,300	1,950	1,580	2,380
14	610								2,780	1,880	1,580	2,430
15	600								2,620	1,760	1,650	2,190
		230					210					
16	590								2,520	1,690	1,680	1,960
17	570								2,220	1,860	1,520	2,970
18	540							2,700	1,980	1,690	1,380	3,740
19	520								1,760	1,970	1,380	4,190
20	510								1,600	1,980	1,260	3,840
21	510								1,450	1,600	1,160	3,710
22	480				170				1,380	1,850	1,200	3,530
23	450							2,200	1,580	2,020	1,710	3,100
24	420		200	190		160		(*)	2,460	1,850	1,780	2,640
25	380								2,140	1,580	1,730	2,340
		220					330					
26	b350								2,010	1,520	1,810	2,090
27	*b320								2,130	1,470	2,420	1,950
28	b280								2,060	1,340	3,080	1,810
29	b270				-			2,300	2,000	1,670	2,840	1,650
30	260				-				1,990	2,570	3,140	1,550
31	250									3,070	3,190	
Total	17,034	6,900	6,350	6,040	4,610	4,810	7,000	68,250	74,910	60,320	57,970	83,180
Mean	549	230	205	195	165	155	233	2,202	2,497	1,946	1,870	2,773
Ac-ft	33,790	13,690	12,600	11,980	9,140	9,540	13,880	135,400	148,600	119,600	115,000	165,000

Calendar year 1950: Max - Min - Mean - Ac-ft -
Water year 1950-51: Max 4,710 Min - Mean 1,089 Ac-ft 788,200

Peak discharge (base, 4,200 cfs).--June 7 (time unknown) about 4,600 cfs; Sept. 4 (5 p.m.) 5,120 cfs (6.15 ft); Sept. 19 (10 a.m.) 4,300 cfs (5.60 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 12-25, Oct. 30 to June 8 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 3 discharge measurements, weather records, and records for other stations.

Nenana River near Windy--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,460	540							3,100	3,000	4,440	1,520
2	1,420	600							3,200	3,120	3,770	2,130
3	1,340	620							3,300	3,570	3,230	2,250
4	1,250	630							3,300	3,410	2,940	2,160
5	1,200	620							3,400	2,990	2,760	*1,850
6	1,100	610						230	3,400	2,760	2,620	1,600
7	1,100	600							3,400	2,540	2,580	1,360
8	980	590							3,500	2,500	2,780	1,280
9	920	570	400				160		3,500	2,440	2,510	1,230
10	860	560							*3,590	2,280	2,360	1,230
11	800	540							4,430	2,220	2,280	1,230
12	740	520							3,910	2,200	2,090	1,160
13	700	500						310	3,640	2,370	1,870	1,120
14	660	480							3,450	2,840	1,770	1,100
15	640	460							4,130	3,080	1,720	1,120
16	610	460		250	190	160			3,880	2,930	1,560	1,170
17	580	450							3,610	3,070	1,520	1,190
18	560	450						460	3,800	2,950	1,330	1,140
19	550	450							3,700	2,850	1,290	1,120
20	540	450							3,490	2,780	1,200	*1,080
21	530	450							3,490	2,580	1,190	1,460
22	520	460	(*)						4,030	2,490	1,230	2,940
23	510	460					190	1,000	4,440	2,430	1,200	3,040
24	500	470	340						4,310	2,420	1,120	2,390
25	500	470							3,810	2,370	1,210	2,020
26	500	470							3,840	2,250	1,510	1,810
27	500	460							4,400	*2,220	1,440	1,670
28	500	450							4,200	3,040	1,260	1,560
29	500	440						2,200	3,740	5,300	1,120	1,590
30	500	430			--				3,420	4,770	1,180	1,590
31	510	----			-----		-----		-----	4,770	1,200	-----
Total	23,580	15,260	11,440	7,750	5,510	4,960	5,250	24,350	111,410	90,540	60,280	48,110
Mean	761	509	369	250	190	160	175	785	3,714	2,921	1,945	1,604
Ac-ft	46,770	30,270	22,690	15,370	10,930	9,840	10,410	48,300	221,000	179,600	119,600	95,420

Calendar year 1951: Max 4,710 Min - Mean 1,143 Ac-ft 827,900
Water year 1951-52: Max 5,300 Min - Mean 1,116 Ac-ft 810,200

Peak discharge (base, 4,200 cfs).--June 11 (6:30 a.m.) 4,710 cfs (5.88 ft); June 27 (6:30 a.m.) 4,660 cfs (5.85 ft); July 29 (6 p.m.) 5,600 cfs (6.47 ft). *Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 5-8, Oct. 20 to Dec. 8, Dec. 22 to Feb. 10, Apr. 16-23, and during some periods of no gage-height record. No gage-height record Oct. 9-19, Dec. 9-21, Feb. 11 to Apr. 15, Apr. 24 to June 9; discharge estimated on basis of 1 discharge measurement, weather records, and records for other stations.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,630								3,660	2,100	1,840	3,340
2	1,580								4,260	1,860	1,980	3,320
3	1,490								4,340	1,700	2,300	2,860
4	1,460								3,780	1,880	2,190	2,610
5	1,950								3,770	1,920	1,790	3,210
6	1,920							320	3,520	1,670	1,580	4,100
7	1,740								4,020	1,590	1,590	3,630
8	1,560								4,020	1,740	1,850	3,000
9	1,480								3,960	2,240	1,880	2,660
10	1,440								3,360	2,100	1,770	2,400
11	1,490								2,910	1,920	1,850	2,200
12	1,440								2,860	1,880	1,820	2,180
13	1,360							450	3,540	1,910	1,670	*2,160
14	1,280								2,910	2,020	1,740	2,610
15	1,250								2,490	2,160	2,130	2,850
16	1,240	480	290	130	110	140	220	600	2,440	2,120	2,000	2,560
17	*1,130							800	2,430	1,950	1,840	2,220
18	927							1,000	2,610	1,940	1,640	2,080
19	880					(*)		1,400	3,070	2,000	1,540	2,000
20	850							1,900	3,260	2,040	1,520	1,860
21	820							2,500	3,100	1,950	1,480	1,730
22	780	(*)						3,000	2,800	1,880	1,670	1,630
23	760							3,100	*2,810	1,860	3,230	1,630
24	730							3,000	3,200	1,920	2,940	1,610
25	700							*3,040	5,620	1,950	2,540	1,620
26	670			(*)				3,120	5,040	1,960	2,720	1,520
27	650							2,740	3,910	1,960	2,520	1,430
28	620							2,540	3,430	1,950	2,800	1,340
29	590				-			3,140	3,140	1,940	2,940	1,220
30	560				-			3,570	2,430	1,920	2,840	1,150
31	540				---		-----	3,750	-----	*1,920	2,660	-----
Total	35,517	14,400	8,990	4,030	3,080	4,340	6,600	44,650	102,690	59,950	64,860	68,730
Mean	1,146	480	290	130	110	140	220	1,440	3,423	1,934	2,092	2,291
Ac-ft	70,450	28,560	17,830	7,990	6,110	8,610	13,090	88,560	203,700	118,900	128,600	136,300

Calendar year 1952: Max 5,300 Min - Mean 1,140 Ac-ft 827,300
Water year 1952-53: Max 5,620 Min - Mean 1,145 Ac-ft 828,700

Peak discharge (base, 4,200 cfs).--June 3 (6 a.m.) 4,700 cfs (5.87 ft); June 25 (7 a.m.) 5,980 cfs (6.71 ft); Sept. 6 (8:30 a.m.) 4,260 cfs (5.57 ft). * Discharge measurement made on this day.
Note.--No gage-height record Oct. 19 to May 24 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 3 discharge measurements, weather records, and records for station near Healy.

Nenana River near Healy

Location.--Lat 63°50'40", long 148°56'35", in W½ sec. 28, T. 12 S., R. 7 W., on right bank half a mile upstream from Healy Creek, 1.1 miles southeast of Healy, and 1.2 miles upstream from railroad bridge.

Drainage area.--1,910 sq mi, approximately.

Records available.--October 1950 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 1,280 ft (from topographic map).

Extremes.--1950-51: Maximum discharge during water year, 19,300 cfs Sept. 5 (gage height, 9.23 ft); minimum not determined.
1951-52: Maximum discharge during water year, 28,500 cfs July 29 (gage height, 10.83 ft); minimum not determined.
1952-53: Maximum discharge during water year, 27,900 cfs June 25 (gage height, 10.73 ft); minimum not determined.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Some diurnal fluctuation caused by glacier melt at the source.

Discharge, in cubic feet per second, water year October 1950 to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,000								6,600	7,030	8,380	10,600
2	1,900								7,000	6,970	7,410	*10,300
3	1,800							1,700	7,600	7,320	7,240	9,700
4	1,800								8,200	7,570	*6,780	13,800
5	1,730								9,000	7,820	6,730	18,200
		640					440					
6	1,720								9,700	9,210	6,340	13,400
7	1,700								11,000	8,470	6,470	9,700
8	1,600		570	560	460	420		4,600	12,000	8,220	6,780	8,330
9	1,590				(*)				9,000	8,940	6,680	8,270
10	1,500								7,600	8,790	6,760	7,140
11	1,420								7,200	8,820	7,060	7,000
12	1,410								8,000	9,060	7,520	7,220
13	1,400							9,000	9,000	*9,000	7,660	6,490
14	1,400								7,540	9,270	7,460	6,680
15	1,400								7,410	9,670	7,570	6,180
		600					580					
16	1,400								6,390	8,970	7,660	5,770
17	1,400								5,520	9,510	6,700	7,980
18	1,300							7,800	4,860	8,520	6,260	10,400
19	1,300								4,260	8,820	6,000	11,300
20	*1,380								3,840	8,500	5,440	10,200
21	1,320								3,720	7,380	5,050	10,100
22	1,270				470				3,740	7,680	5,070	9,420
23	1,240								5,520	7,820	5,970	8,160
24	b1,100		560	530		440		6,000	8,850	7,350	5,540	6,970
25	1,000								7,080	6,760	5,070	6,230
		590					860					
26	980								6,840	6,700	5,050	5,640
27	900								7,660	6,620	6,360	5,220
28	820								7,270	6,130	8,500	4,810
29	780				-			6,100	6,950	6,810	8,880	4,430
30	730								6,970	8,880	11,700	4,190
31	690									10,200	11,900	
Total	41,980	18,300	17,510	16,880	13,010	13,340	18,800	182,100	216,320	252,810	217,990	253,830
Mean	1,354	610	565	545	465	430	627	5,874	7,211	8,155	7,032	8,461
Ac-ft	83,270	36,300	34,730	33,480	25,800	26,460	37,290	361,200	429,100	501,400	432,400	503,500

Calendar year 1950: Max - Min - Mean - Ac-ft -
Water year 1950-51: Max 18,200 Min - Mean 3,460 Ac-ft 2,505,000

Peak discharge (base, 12,000 cfs).--June 8 (time and discharge unknown); Aug. 30 (2:30 p.m.) 12,300 cfs (7.69 ft); Sept. 5 (7 a.m.) 19,300 cfs (9.23 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 1-4, 8, 14-19, Oct. 25 to June 13 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 2 discharge measurements, weather records, and records for other stations.

ALASKA WEST OF LONGITUDE 141°

Nenana River near Healy--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,040	1,100							6,800	11,000	19,000	4,810
2	3,860	1,300							7,000	11,000	14,000	6,290
3	3,700	1,300						680	7,300	12,600	12,100	6,810
4	3,500	1,300							7,500	12,000	11,100	*6,490
5	3,300	1,300							7,700	10,700	10,500	5,700
6	3,100	1,300							7,900	9,840	10,000	4,980
7	2,900	1,300							8,000	8,550	10,300	4,280
8	2,800	1,200					470	800	8,100	8,160	11,100	4,020
9	2,600	1,200							8,200	7,430	10,200	3,840
10	2,400	1,200							8,200	7,200	9,610	3,780
11	2,200	1,100							8,300	7,320	9,580	3,700
12	2,000	1,100							*8,380	7,800	8,410	3,520
13	1,800	1,000						1,100	8,220	8,910	7,190	3,390
14	1,700	1,000							7,700	11,500	6,870	3,460
15	1,600	1,000							8,470	11,500	7,080	3,460
16	1,500	990	830	600	500	480			8,670	10,400	5,950	3,480
17	1,400	980							8,520	10,200	5,220	3,390
18	1,300	980						2,000	9,840	10,200	5,020	3,290
19	1,200	980							10,300	10,800	4,710	3,240
20	1,200	980							9,700	11,000	4,430	*3,140
21	1,100	980							9,840	11,000	4,460	3,930
22	1,100	1,000							11,500	10,600	4,520	7,410
23	1,100	1,000					550	3,500	13,800	10,400	4,300	7,940
24	1,100	1,000							14,700	9,300	3,940	6,780
25	1,100	1,100							14,000	*8,640	4,260	5,900
26	1,100	1,100							14,100	9,180	4,690	5,320
27	1,000	1,000							16,000	10,200	4,260	5,000
28	1,000	1,000							15,900	15,100	3,840	4,710
29	1,000	1,000						5,400	14,000	26,600	3,700	4,620
30	1,000	980			-				12,800	21,600	3,800	4,370
31	1,100	- - -			- - - -		- - - - -		- - - - -	19,200	3,880	- - - - -
Total	59,800	32,770	25,730	18,600	14,500	14,880	15,300	72,800	301,440	349,930	228,020	141,030
Mean	1,929	1,092	830	600	500	480	510	2,348	10,050	11,290	7,355	4,701
Ac-ft	118,600	65,000	51,030	36,890	28,760	29,510	30,350	144,400	597,900	694,100	452,300	279,700

Calendar year 1951: Max 18,200 Min - Mean 3,571 Ac-ft 2,585,000
Water year 1951-52: Max 26,600 Min - Mean 3,485 Ac-ft 2,529,000

Peak discharge (base, 12,000 cfs).--June 27 (6:30 a.m.) 17,400 cfs (8.85 ft); July 14 (7:30 p.m.) 12,000 cfs (7.61 ft); July 29 (1:30 p.m.) 28,500 cfs (10.83 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Oct. 4-8, Oct. 16 to Nov. 30 and during some periods of no gage-height record. No gage-height record Oct. 9-15, Dec. 1 to June 11, June 14, July 10; discharge estimated on basis of weather records and records for other stations.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,320								9,240	11,200	9,360	9,580
2	4,150								10,400	10,000	10,700	9,210
3	3,880								11,200	8,790	12,400	8,100
4	3,980								10,200	11,100	11,400	7,520
5	5,340								10,400	10,600	8,520	8,360
6	5,240							900	10,100	9,180	7,460	10,400
7	4,780								11,000	8,380	7,600	9,450
8	4,370								10,400	8,190	7,960	8,190
9	4,080								11,200	9,740	7,600	7,320
10	3,920								9,700	9,180	6,780	6,600
11	3,840								8,500	8,790	6,600	*6,000
12	3,680								8,220	8,730	6,650	5,840
13	3,460							1,250	9,740	8,850	6,310	5,840
14	3,360								8,100	9,090	6,440	6,470
15	3,290								6,570	9,030	7,600	7,110
16	*3,210	1,300	800	430	360	430	600	1,900	6,600	8,880	7,540	6,470
17	2,940							2,400	6,810	8,500	6,760	5,700
18	2,550							3,300	7,600	8,270	6,260	5,270
19	2,400							4,500	8,970	8,330	5,840	4,980
20	2,300							5,600	8,940	8,100	5,900	4,690
21	2,200							6,800	8,820	8,130	5,720	4,390
22	2,100	(*)						*7,740	8,330	8,220	6,730	4,150
23	2,100							7,460	8,610	8,330	13,600	4,040
24	2,000			(*)				7,410	11,100	8,610	11,600	3,980
25	1,900							7,220	*26,300	8,820	9,800	3,900
26	1,800							6,890	22,000	9,150	10,800	3,630
27	1,800							6,210	18,400	9,300	10,400	3,390
28	1,700							5,800	16,200	9,640	10,200	3,160
29	1,600				-			6,970	13,800	9,610	9,840	2,900
30	1,500							8,160	12,200	*9,450	9,180	2,690
31	1,500	-			- -		- - - - -	9,240	- - - - -	9,360	8,700	- - - -
Total	95,290	39,000	24,800	13,330	10,080	13,330	18,000	112,850	329,650	281,550	262,250	179,330
Mean	3,074	1,300	800	430	360	430	600	3,640	10,990	9,082	8,460	5,978
Ac-ft	189,000	77,360	49,190	26,440	19,990	26,440	35,700	223,800	653,900	558,400	520,200	355,700

Calendar year 1952: Max 26,600 Min - Mean 3,595 Ac-ft 2,609,000
Water year 1952-53: Max 26,300 Min - Mean 3,779 Ac-ft 2,736,000

Peak discharge (base, 12,000 cfs).--June 3 (7 a.m.) 12,000 cfs (7.62 ft); June 25 (7 a.m.) 27,900 cfs (10.73 ft); July 4 (4 p.m.) 12,400 cfs (7.72 ft); Aug. 4 (3 a.m.) 13,000 cfs (7.86 ft); Aug. 23 (11:30 a.m.) 14,500 cfs (8.23 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 19 to May 21 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 2 discharge measurements, weather records, and records for station near Windy.

NENANA RIVER NEAR HEALY

Suspended sediment June to September 1953

Day	June			July			August			September		
	Mean discharge (cfs)	Suspended sediment		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		Mean concentration (ppm)	Tons per day
1				11,200	1,490	45,100	9,360	2,800	a 70,800	9,580	500	a 12,900
2				10,000	825	22,300	10,700	3,540	a 102,000	9,210	478	11,900
3				8,790	691	16,400	12,400	4,300	a 144,000	8,100	296	6,470
4				11,100	1,440	a 43,200	11,400	3,000	92,300	7,520	213	4,320
5				10,600	1,370	39,200	8,520	1,500	34,500	8,360	358	8,080
6				9,180	1,190	a 29,500	7,460	890	17,900	10,400	580	a 16,300
7				8,380	905	20,500	7,600	1,450	29,800	9,450	510	13,000
8				8,190	820	18,100	7,960	1,380	29,700	8,190	380	a 8,400
9				9,740	850	a 22,400	7,600	1,000	a 20,500	7,320	251	4,960
10				9,180	820	20,300	6,780	706	12,900	6,600	135	2,410
11				8,790	725	17,200	6,600	622	11,100	6,000	50	a 810
12				8,730	890	a 21,000	6,650	545	9,790	5,840	40	a 630
13				8,850	1,130	27,000	6,310	540	9,200	5,840	70	1,100
14				9,090	1,220	29,900	6,440	672	11,700	6,470	172	3,000
15				9,030	1,220	29,700	7,600	972	19,900	7,110	242	4,650
16				8,880	1,120	a 26,900	7,540	910	18,500	6,470	199	3,480
17				8,500	1,070	24,600	6,760	754	13,800	5,700	122	1,880
18				8,270	968	21,600	6,260	444	7,500	5,270	101	1,440
19				8,330	990	22,300	5,840	420	a 6,620	4,980	68	914
20				8,100	1,010	a 22,100	5,900	531	8,460	4,690	70	a 890
21				8,130	1,040	a 22,800	5,720	810	a 12,500	4,390	76	901
22				8,220	1,130	a 25,100	6,730	3,860	s 91,000	4,150	61	684
23				8,330	1,300	a 29,200	13,600	7,390	s 285,000	4,040	33	360
24				8,610	1,500	34,900	11,600	2,670	s 90,700	3,980	38	408
25				8,820	1,620	38,600	9,800	715	18,900	3,900	35	369
26				9,150	1,880	46,400	10,800	1,360	39,700	3,630	30	290
27				9,300	2,000	50,200	10,400	936	26,300	3,390	20	a 180
28				9,640	2,250	a 58,600	10,200	780	a 21,500	3,160	23	196
29				9,610	2,450	a 63,600	9,840	603	16,000	2,900	20	157
30				9,450	3,030	77,300	9,180	460	a 11,400	2,690	18	131
31				9,360	3,300	83,400	8,700	378	8,800	--	--	--
Total				281,550	--	1,049,400	262,250	--	1,292,850	179,330	--	111,210

Total discharge for period (cfs-days) 940,440
Total load for period (tons) 4,016,860

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

NENANA RIVER NEAR HEALY--Continued

Particle-size analyses of suspended sediment, June to August 1953

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

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000
1953																
June 23	6:25 p.m.	8,410		605	--	--	--	--	--	--	60	68	81		97	100	S
June 25	3:35 p.m.	26,500		5,180	--	--	--	--	--	--	80	88	96		99	100	S
June 26	6:35 p.m.	20,500		3,210	--	--	--	--	--	--	76	83	90		96	99	S
July 15	7:15 p.m.	8,970		1,150	1,370	16	25	36	45	54	63	70	85		98	100	BSWCM
Aug. 15	8:40 a.m.	7,680		1,080	2,740	--	17	--	30	--	53	62	79		95	99	PSWCM
Aug. 22	6:30 p.m.	8,100		8,280	--	--	--	--	--	--	75	87	96		99	100	S
Aug. 23	6:30 p.m.	13,600		5,820	--	--	--	--	--	--	68	78	89		97	99	S

Measurements of streamflow in Alaska made at points other than regular gaging stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. Measurements believed to have been made under base-flow conditions are identified by an asterisk (*) to the left of the discharge figure. These measurements when correlated with the simultaneous discharge of a nearby stream where continuous records are available will give a picture of the low-flow potentiality of stream. The column headed, "Measured previously" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made in Alaska at points other than gaging stations during the water years 1951-53

Southeastern Alaska

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Delta (Ruth) Creek.	Thomas Bay...	Lat 56°48', long 132°47', at mouth, 13 miles northeast of Petersburg.	10.3	1947-50	1950 Oct. 24 Nov. 29 1951 Apr. 15 Sept. 6 Nov. 28 1952 Feb. 2 Mar. 27 Dec. 2	36.8 *6.51 *19.0 65.6 *14.0 *22.0 59.6 *20.0
Sheep Creek..	Gastineau Channel.	Lat 58°16'20", long 134°19'10", 50 ft above diversion dam, 1.0 mile above mouth, and 4 miles southeast of Juneau.	-		1951 Feb. 9 Dec. 28 1952 Feb. 19 Apr. 17 1953 Feb. 3	*5.79 *12.2 *6.23 23.4 *9.13
Do.....	....do.....	Lat 58°15'40", long 134°19'25", at mouth, 4¼ miles southeast of Juneau.	-		1952 Feb. 19 Apr. 17	*7.42 35.1
Lemon Creek..	....do.....	Lat 58°21'35", long 134°29'50", at highway bridge, 5 miles northwest of Juneau.	-		1950 Dec. 19 1951 Apr. 19 May 7 1952 Apr. 22	*21.3 *28.6 155 *40.4
Jordan Creek.	Fritz Cove...	Lat 58°21'55", long 134°34'45", at highway bridge, 3 miles southeast of Auke Bay.	-		1951 Oct. 30 1952 Jan. 16 Apr. 22	*1.84 0 *13.8
Nugget Creek.	Mendenhall River.	Lat 58°25', long 134°30', ¼ mile below Fall Creek and 6½ miles northeast of Auke Bay.	-		1952 Aug. 25	*193
Montana Creek	....do.....	Lat 58°23'55", long 134°36'30", at highway bridge, 2 miles northeast of Auke Bay.	-	1950	1952 Jan. 16 Apr. 22 Aug. 14	*10.6 *50.5 *55.7
Duck Creek...	....do.....	Lat 58°22'10", long 134°35'15", at highway bridge, 1 mile above mouth and 2¾ miles southeast of Auke Bay.	-		1951 Oct. 30	*1.11
Lake Creek...	Auke Creek...	Lat 58°23'40", long 134°37'50", 50 ft above highway bridge and 1 mile northeast of Auke Bay.	-	1950	1950 Dec. 19 1952 Aug. 14	*.55 0
Auke Creek...	Auke Bay.....	Lat 58°23'05", long 134°38'00", at Auke Lake Outlet, 0.4 mile above mouth and ½ mile east of Auke Bay.	3.75	1948-50	1950 Nov. 17 Dec. 19 1951 Feb. 23 Apr. 19 May 7 Aug. 21 Oct. 30 1952 Jan. 16 Apr. 22 Aug. 14	*3.36 *2.55 *3.13 *16.3 40.9 29.3 *3.44 *2.47 *19.4 *.72
Wadleigh Creek.	....do.....	Lat 58°23'10", long 134°39'20", at highway bridge at Auke Bay, 0.1 mile above mouth.	-	1950	1950 Dec. 19 1951 Feb. 23 1952 Jan. 16 Apr. 22	*.89 *.60 *.28 *7.08
Peterson Creek.	Favorite Channel.	Lat 58°29'10", long 134°46'30", at highway bridge, ½ mile above mouth and 8 miles northwest of Auke Bay.	-	1948-50	1950 Nov. 22	*2.41

* Base flow.

Discharge measurements made in Alaska at points other than gaging stations during the water years 1951-53--Continued

Streams on Revillagigedo Island

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Grace Creek..	Behm Canal...	Lat 55°39', long 130°58', ⅝ mile above mouth and 32 miles northeast of Ketchikan.	30.2	1946-47, 1949	1951 Sept.15 1952 Feb. 8 1953 Aug. 20	216 348 *158
Alaska west of longitude 141°						
Christochina River.	Copper River.	Lat 62°36', long 144°38', at bridge on Glenn Highway, 2 miles above mouth and 3 miles northeast of Christochina.	-	1948	1951 July 22 Aug. 9 1952 June 29 July 28 July 31 Aug. 23	3,160 2,560 4,210 5,950 7,580 1,820
Ptarmigan Creek.	Tsina River..	Lat 61°10'50", long 145°39'00", at bridge on Richardson Highway, 1 mile above mouth and 21½ miles east of Valdez.	-		1953 July 2	780
Allison Creek	Prince William Sound.	Lat 61°05', long 146°22', 150 ft above mouth and 4 miles southwest of Valdez.	-	1950	1950 Oct. 5	21.7
Lowe River...	....do.....	Lat 61°05'00", long 145°53'35", at lower bridge on Richardson Highway, 13 miles east of Valdez.	-	1950	1950 Oct. 7 Nov. 27 1951 Feb. 27 May 3 June 9 Aug. 19 Sept. 9 Nov. 10 1952 Mar. 21 May 24 July 28 Sept.14 Nov. 6 1953 Jan. 19	399 63.7 *37.2 159 4,010 4,070 3,850 393 *27.3 828 8,860 1,150 856 *92.1
Do.....	....do.....	Lat 61°05'50", long 145°51'30", at upper bridge on Richardson Highway just above Bear Creek, 14 miles east of Valdez.	-		1952 Oct. 11 1953 Mar. 20 May 7 May 15 June 9 July 3 July 29 Aug. 3 Aug. 11 Sept.19	1,110 46.3 403 653 3,770 5,080 4,300 7,940 3,410 975
Lost Creek...	Salmon Creek.	Lat 60°11'50", long 149°22'30", 0.2 mile above Grouse Lake tributary and 6.5 miles northeast of Seward.	7.96	1948-50	1950 Oct. [illegible] Nov. 9 1951 Jan. 30 Mar. 30 May 31 July 6 July 24 Aug. 25	24.4 0 0 0 69.1 134 36.4 26.4
North Fork Anchor River.	Anchor River.	In SE¼ sec. 4, T. 5 S., R. 15 W., at mouth at Anchor Point.	-		1951 Aug. 23 1952 Mar. 5	26.5 19.4
Anchor River.	Cook inlet...	In SE¼ sec. 4, T. 5 S., R. 15 W., at Anchor Point just above North Fork Anchor River.	-	1949	1951 July 28 Aug. 23	76.0 94.2
Do.....	....do.....	In SE¼ sec. 4, T. 5 S., R. 15 W., at Anchor Point.	-		1951 July 27	102
Stariski Creek.	....do.....	On line between secs. 1 and 12, T. 4 S., R. 15 W., at bridge on Sterling Highway, 6 miles north of Anchor Point.	-		1951 July 27 1952 Mar. 5	17.3 *14.0
Deep Creek...	....do.....	On line between secs. 3 and 4, T. 2 S., R. 14 W., at bridge on Sterling Highway, ¾ mile above mouth and 1½ miles southwest of Ninilchik.	-		1951 July 27 Aug. 23 1952 Mar. 6	128 132 *150

* Base flow.

Discharge measurements made in Alaska at points other than gaging stations during the water years 1951-53--Continued

Alaska west of longitude 141°--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Ninilchik River.	Cook inlet...	In NE¼ sec. 34, T. 1 S., R. 14 W., at bridge on Sterling Highway at Ninilchik, ¾ mile above mouth.	-		1951 July 30 Aug. 22 1952 Mar. 7	52.4 68.3 *52.9
Crooked Creek.	Kasilof River	Lat 60°17'50", long 151°16'20", at bridge on Sterling Highway, 6½ miles south of Kasilof.	-		1951 July 30 Aug. 22 1952 Mar. 7	37.2 44.9 *29.2
Moose River..	Kenai River..	Lat 60°32'15", long 150°45'10", at bridge on Sterling Highway, 1,000 ft above mouth and 11 miles east of Soldotna.	-		1951 July 26 Aug. 22 1952 Mar. 10	79.3 128 *61.5
Beaver Creek.	....do.....	In SE¼ sec. 36, T. 6 N., R. 11 W., at bridge on Kenai-Soldotna Highway, 4 miles east of Kenai.	-		1951 July 26 Aug. 22 1952 Mar. 8	15.4 13.6 *15.5
North Fork Campbell Creek.	Campbell Creek.	In SW¼ sec. 35, T. 13 N., R. 3 W., at road bridge, 2 miles above confluence with South Fork and 5½ miles southeast of Anchorage.	-	1947-49	1951 Dec. 3 1952 Feb. 21 Mar. 22	17.1 *6.2 *5.6
Russian Jack Springs.	Chester Creek	In NE¼ sec. 22, T. 13 N., R. 3 W., at Anchorage prison farm, 3½ miles east of Anchorage.	-	1948	1951 Nov. 30 1952 Feb. 9 1953 Feb. 4 Feb. 10 Feb. 16 Feb. 23 Mar. 4 Mar. 13 Mar. 26 Apr. 21 Apr. 28 May 8 June 4 June 16 June 29 July 21 Aug. 20 Sept.11	*5.59 *4.20 *6.40 *5.73 *6.07 *5.55 *5.41 *5.77 *5.03 *5.89 *5.80 6.14 5.51 5.38 5.18 5.71 6.28 6.75
Chester Creek	Cook inlet...	On line between secs. 19 and 20, T. 13 N., R. 3 W., at Anchorage, 2¼ miles above mouth.	-	1947-49	1951 Dec. 3 Dec. 15 1952 Feb. 9 Mar. 22	20.2 14.1 *13.1 *11.7
South Fork Eagle River	Eagle River..	Lat 61°18', long 149°28', ½ mile above mouth and 15 miles northeast of Anchorage.	-		1951 Oct. 3 Dec. 29 1952 Mar. 8	79.6 15.4 *13.0
Eagle River..	Cook inlet...	In SE¼ sec. 11, T. 14 N., R. 2 W., at bridge on Glenn Highway, 7 miles above mouth and 13 miles northeast of Anchorage.	-	1949-50	1951 July 24 Dec. 4 1952 Jan. 6 Feb. 3 Mar. 1 Mar. 22 Apr. 4 Aug. 26 Sept.30	1,840 98.0 *61.9 *49.1 *60.1 *55.3 *40.7 1,240 693
Peters Creek.	....do.....	Lat 61°24', long 149°27', at bridge on Glenn Highway just above mouth of Little Peters Creek, 20 miles northeast of Anchorage.	-		1951 Dec. 31 1952 Feb. 22 Mar. 2 Apr. 26	44.5 27.8 *24.3 *21.5
Eklutna Creek	....do.....	Lat 61°20', long 149°00', just above Eklutna Lake, 14 miles southeast of Eklutna.	-		1952 Oct. 6	582

* Base flow.

Discharge measurements made in Alaska at points other than gaging stations during the water years 1951-53--Continued

Alaska west of longitude 141°--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Knik River...	Cook inlet...	In SE¼ sec. 2, T. 16 N., R. 2 E., at bridge on Glenn Highway, 7 miles south of Palmer.	-	1948-50	1951	
					July 20	13,000
					July 22	44,900
					July 25	142,000
					July 27	190,000
					Aug. 2	23,100
					1952	
					Aug. 4	74,600
					Aug. 5	104,000
					Aug. 7	172,000
					Aug. 8	207,000
					Aug. 11	52,700
					1953	
					July 21	122,000
					July 23	254,000
					July 25	113,000
					July 27	55,100
					July 29	42,300
Beaver Creek.	Yukon River..	Lat 65°29', long 147°39', about 1 mile below Fossil Creek and 45 miles north of Fairbanks.	-		1951	
					Apr. 13	*35.0
					May 31	a2,500
					June 20	566
					July 17	661
					Aug. 12	567
					Sept. 1	a1,000
					Nov. 25	244
					Dec. 29	80.2
					1952	
					Feb. 3	*61.3
					Mar. 23	*59.2
					Apr. 2	*66.1
					May 3	96.9
					May 17	a120
					June 19	4,500
Windy Creek..	Jack River...	Lat 63°25'50", long 148°54'30", at bridge on Alaska RR., 1 mile above mouth and 3 miles northeast of Cantwell.	-		1951	
					Aug. 5	217
					Sept. 4	a700
Colville River.	Arctic Ocean.	Lat 69°22', long 152°07', at Umiat, ¾ mile above Seabee Creek.	-		1953	
					Apr. 2	0
					July 28	6,500
					Sept.10	13,000

* Base flow.
a Estimated.

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA

Chemical analyses, in parts per million, water years October 1950 to September 1953

Dste of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Csl-cium (Ca)	Mag-nesium (Mg)	Sodium (Na)	Potas-sium (K)	Bicar-bonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evap-orstion at 180°C)	Hardness as $CaCO_3$		Specific conduct-ance (micro-mhos at 25°C)	pH	Color
														Calcium, mag-nesium	Non-carbon-ate			
DOROTHY CREEK NEAR JUNEAU																		
Oct. 20, 1950	75	8.4	0.03	2.7	0.8	2.8		13	4.1	0.8		0.2	36	10	0	26.6	6.8	3
MAUNELUK RIVER NEAR KOBUK																		
June 20, 1952		3.7		14	1.8	0.6	1.0	42	10	0.0		0.8	53	42	8	84.7	6.4	4
AMBLER RIVER NEAR KOBUK																		
July 24, 1952		6.6		35	6.4	1.3	0.7	125	10	1.0		1.1	124	113	12	214	6.5	3
BEAVER CREEK NEAR SHUNGNAK																		
July 12, 1952		6.9		17	1.8	1.4	0.8	50	10	1.0		1.0	64	50	9	110	6.9	20
KOBUK RIVER AT SHUNGNAK																		
July 18, 1952		7.0		22	2.6	1.6	1.1	71	10	3.0		0.9	83	67	8	140	6.7	5
KOBUK RIVER AT KIANA																		
Aug. 22, 1952		4.6		39	8.4	1.2	0.6	133	15	2.0		1.4	138	132	23	245	7.3	10
SLANA RIVER NEAR MENTASTA																		
May 14, 1953.....		7.8	0.02	34	11	2.7	1.6	114	41	1.0	0.2	0.4	156	130	37	256	7.5	3

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
SLANA RIVER NEAR SLANA																		
Aug. 29, 1951		5.1	0.03	56	12	2.4		115	93	1.8	0.1	0.5	228	189	95	372	7.3	5
Feb. 6, 1952		14	.01	52	11	1.1		150	49	2.0	.0	.9	210	175	552	323	7.8	5
June 4		8.0	.03	37	8.5	2.6		108	40	1.5	.0	.7	152	127	39	243	7.3	5
Dec. 10		14	.02	56	12	3.3	3.3 1.5	169	59	1.2	.0	.5	231	189	50	358	6.7	2
Feb. 17, 1953		14	.02	55	10	3.3	2.0	163	54	1.2	.0	.7	221	180	46	347	7.3	3
May 14		8.7	.02	37	8.3	3.1	1.7	115	36	1.2	.3	.2	153	126	32	249	7.5	3
July 27		5.8	.02	40	7.7	1.5	1.2	100	53	.0	.0	.3	159	131	49	267	7.5	3
SLANA RIVER NEAR SLANA (NABESNA ROAD)																		
June 3, 1952		9.7	0.04	30	7.0	2.9		94	27	2.8	0.1	0.7	127	104	27	201	7.2	20
PORCUPINE CREEK NEAR SLANA																		
Feb. 6, 1952		15	0.01	74	12	6.2		217	63	2.0	0.0	1.6	295	234	56	445	7.5	12
June 4		9.4	.01	34	6.2	4.4		106	28	2.0	.1	1.2	138	110	24	215	7.2	10
July 27, 1953		8.8	.01	44	5.0	1.5	1.2	123	37	.0	.0	.0	159	130	30	260	7.8	4
AHTEL CREEK NEAR SLANA																		
Feb. 6, 1952		14	0.01	37	5.3	0.8		96	31	2.8	0.1	1.0	146	114	35	227	7.5	5
Dec. 12		18	.01	34	4.6	3.2	1.2	95	33	1.5	.1	.8	143	104	26	217	7.0	3
May 14, 1953		9.6	.02	25	3.6	1.9	1.1	68	22	1.0	.0	.6	98	77	22	153	7.5	15
July 27		13	.03	24	5.1	1.6	1.5	77	22	0	.1	.3	106	81	18	170	7.5	5
INDIAN RIVER NEAR CHISTOCHINA																		
Aug. 29, 1951		14	0.02	23	3.8	2.0		79	9.9	1.0	0.2	0.3	93	73	8	145	7.3	10
June 4, 1952		11	.02	15	3.3	.1		49	7.6	1.5	.2	.7	66	51	11	88.7	7.0	30
May 14, 1953		10	.06	17	2.2	1.6	1.1	62	4.1	2.0	--	.6	78	51	1	111	6.9	30
July 27		14	.02	24	3.0	2.3	1.7	89	7.4	0	0.1	.2	96	72	0	155	7.3	7

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
CHISTOCHINA RIVER NEAR CHISTOCHINA																		
Aug. 29, 1951		6.8	0.04	52	9.0	3.5		113	74	3.0	--	0.5	220	167	74	351	7.6	4
Dec. 10, 1952		12	.02	48	8.5	3.3	1.7	149	43	1.0	0.0	.3	191	156	34	309	6.7	4
Feb. 17, 1953		15	.01	54	10	4.3	2.4	172	44	2.2	.0	.4	217	178	37	342	7.3	3
May 14		7.7	.06	26	4.2	1.9	1.3	80	19	1.5	--	.4	101	82	17	170	7.0	20
July 27		5.3	.02	39	6.4	3.8	3.6	99	50	.8	.2	.2	158	124	42	255	7.7	0
CHISTOCHINA RIVER AT CHISTOCHINA																		
Feb. 6, 1952		17	0.01	76	13	2.5		206	62	2.5	0.0	0.7	286	243	74	440	7.7	5
Aug. 26		8.2	.03	32	7.4	1.9	1.7	94	38	1.0	.1	.2	137	111	34	227	7.6	3
SINONA RIVER AT SINONA																		
Feb. 6, 1952		16	0.01	41	8.0	4.3		156	12	2.5	0.1	0.6	165	135	7	261	7.6	5
SINONA RIVER NEAR CHISTOCHINA																		
May 14, 1953		8.8	0.06	18	3.5	1.8	1.5	70	4.4	0.5		0.6	74	59	2	122	6.9	25
July 27		14	.02	32	6.5	3.4	1.8	131	7.7	.2	0.2	.2	131	107	0	215	7.5	8
TULSONA CREEK AT TULSONA																		
Aug. 29, 1951		10	0.02	36	9.6	3.9		154	7.4	2.0	0.3	0.4	146	129	3	257	7.7	20
TULSONA CREEK NEAR GAKONA																		
May 14, 1953		9.1	0.12	17	4.1	3.4	1.7	75	3.0	1.2		0.8	93	59	0	130	7.0	50
July 27		6.2	.04	34	4.9	6.6	3.0	155	5.3	.7	0.1	.6	141	117	0	254	7.7	25
GAKONA RIVER AT GAKONA																		
Mar. 14, 1951	60	17	0.04	60	15	18	2.8	246	30	22	--	0.5	287	211	10	457	8.1	8
Apr. 12	80	20	.01	61	14	20	3.7	232	40	19	0.3	.4	293	210	20	487	7.9	10
June 22	1,290	9.0	.24	32	5.0	7.3		105	23	4.0	.0	.7	133	100	14	234	--	10

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
COPPER RIVER NEAR GAKONA																		
Apr. 12, 1951		24	0.01	32	6.6	17		120	23	15	0.4	0.5	178	107	9	288	7.8	5
June 6, 1952		11	.03	20	4.3	3.2		65	15	3.5	.1	.7	90	68	14	250	7.2	30
GULKANA RIVER ABOVE SUMMIT LAKE NEAR PAXSON																		
June 17, 1952		6.2	0.10	6.2	1.6	0.8	0.6	27	5.1	0.0	0.0	0.3	34	22	0	45.2	6.9	8
Aug. 12		13		13	2.3	2.6	1.0	56	2.0	.0		.3	62	42	0	92.1	6.5	5
Aug. 25		11		12	2.6	4.1		51	5.6	1.0		.7	62	41	0	82.9	6.8	6
GULKANA RIVER BELOW SUMMIT LAKE NEAR PAXSON																		
June 17, 1952		5.6	0.02	10	2.3	2.6		41	4.1	1.5	0.0	0.1	46	34	1	68.5	7.0	4
SUMMIT LAKE NEAR PAXSON																		
Aug. 20, 1952		6.4		11	1.8	1.9	0.8	46	1.0	1.0		0.4	47	36	0	78.1	6.7	9
GULKANA RIVER AT SUMMIT LAKE																		
June 22, 1951		9.9	0.11	13	2.4	4.4		55	5.7	0.5	0.0	0.1	63	42	0	93.3	6.8	10
GULKANA RIVER AT SUMMIT LAKE OUTLET NEAR PAXSON																		
July 22, 1952		5.5	0.00	9.4	4.0	1.4	0.6	44	5.8	1.2	0.1	0.5	50	40	4	73.6	7.1	3
Aug. 25		5.2	.02	10	2.2	5.6		46	6.0	1.0		1.1	54	34	0	73.2	7.1	5
GULKANA LAKE NEAR PAXSON																		
Aug. 27, 1952		10		13	3.0	3.7	1.8	58	2.0	3.0		0.4	66	45	0	97.5	6.3	10

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
GULKANA RIVER NEAR PAXSON																		
June 22, 1951		5.2	0.02	11	2.1	2.7		44	3.0	1.5	0.2	0.1	48	36	0	85.7	7.2	5
July 29, 1953		4.7	.02	11	2.7	1.6	0.3	46	3.1	.0	.0	.1	46	38	1	78.6	7.5	5
July 30		10	.01	14	2.7	2.6	.4	61	2.5	1.0	0	.1	63	46	0	100	6.9	10
HAGGARD CREEK NEAR HAGGARD																		
June 22, 1951		3.3	0.03	5.7	3.0	1.3		26	2.7	0.5		0.4	30	27	5	55.8	6.7	110
June 17, 1952		3.8	.22	6.0	1.2	1.2	1.2	24	2.0	1.0		.5	49	20	1	41.6	6.1	80
July 22		3.9	.28	7.2	3.0	1.3	.6	29	2.1	1.2	0.1	1.9	36	30	6	58.5	6.3	100
HAGGARD CREEK NEAR SOURDOUGH																		
July 30, 1953		1.7	0.17	12	3.7	2.0	0.2	53	7.1	1.2		1.0	76	45	2	93.0	6.8	60
SOURDOUGH CREEK NEAR SOURDOUGH																		
June 17, 1952		2.9	0.01	8.0	3.5	0.5		37	1.6	0.5		1.1	60	34	4	67.4	6.6	70
July 22		5.7	.18	11	4.4	3.7	0.8	51	1.0	4.0	0.1	1.8	58	46	4	101	6.6	80
Aug. 25		5.3	.03	15	7.4	6.0	1.1	68	4.0	12		1.4	106	68	12	140	7.2	70
SOURDOUGH CREEK AT SOURDOUGH																		
July 30, 1953		3.8	0.31	16	7.8	7.4	1.4	76	1.5	7.2	0.1	1.0	122	72	10	174	7.3	70
GULKANA RIVER AT GULKANA																		
Apr. 12, 1951		17	0.03	40	9.4	14		129	6.1	40	0.2	0.8	191	138	33	360	7.6	10
June 22		8.7	.04	16	4.0	4.4		64	3.5	6.0	.2	1.1	75	56	4	142	7.7	40

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
BEAR CREEK NEAR GULKANA																		
Apr. 26, 1951		8.8	0.01	15	7.5	1.6		80	1.2	2.6		1.7	78	68	3	146	7.5	110
June 22		11	.02	31	10	5.0		127	7.6	12	0.0	.5	140	118	14	246	7.3	20
WEST BRANCH TAZLINA RIVER AT TAZLINA GLACIER																		
July 19, 1952		5.3		12	1.9	1.5	0.9	35	10	0.0		0.3	49	37	10	76.0	6.6	2
EAST BRANCH TAZLINA RIVER AT TAZLINA GLACIER																		
July 17, 1952		6.1		11	1.0	1.4	0.7	34	6.0	1.0		0.4	44	32	4	73.9	6.4	2
TAZLINA LAKE NEAR TAZLINA GLACIER																		
July 25, 1952		4.9		17	1.6	2.1	0.7	53	10	0.0		0.4	63	50	6	110	6.9	7
NELCHINA RIVER NEAR EUREKA																		
Aug. 11, 1952		5.3		20	3.1	1.5	0.8	73	8.0	0.0		0.5	75	64	2	119	7.1	2
EUREKA CREEK NEAR EUREKA																		
Aug. 12, 1952		8.0		31	4.4	14	1.0	125	15	4.0		0.4	139	96	0	238	6.5	10
MUSKEG CREEK NEAR EUREKA																		
Apr. 30, 1953		3.7	0.02	11	3.4	12	2.0	54	15	4.5		0.8	114	42	0	126	7.0	140
LITTLE NELCHINA RIVER NEAR EUREKA																		
May 6, 1951		5.8	0.02	24	2.4	5.3		66	25	0.8	--	--	116	70	16	163	7.8	60
Feb. 7, 1952		13	.01	74	9.2	12		238	46	3.0	0.0	0.9	286	222	28	449	7.8	5
Apr. 18		15	.02	58	10	14		205	41	3.0	.0	1.0	247	186	18	388	7.7	5
May 13		11	.03	53	8.6	10		155	57	2.5	.0	.2	219	168	41	346	7.6	8
June 4		7.2	.12	16	2.6	4.1	0.8	47	17	.0	.1	1.2	72	50	12	115	6.9	60
Apr. 30, 1953		6.3	--	31	4.1	6.8	1.5	86	36	1.0	--	0.9	130	95	25	206	7.3	45

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
CACHE CREEK NEAR EUREKA																		
Apr. 30, 1953		4.1	0.02	13	3.4	7.4	2.2	52	14	2.0		0.4	112	46	3	118	7.0	120
TOKAINA CREEK AT TAZLINA LAKE																		
July 11, 1952		14		22	4.8	3.4	1.8	84	10	1.0		0.9	99	76	6	156	7.1	9
KAINA CREEK AT TAZLINA LAKE																		
July 10, 1952		5.9		16	1.7	1.7	0.8	48	10	0.0		0.6	60	48	8	106	6.4	5
MENDELTNA RIVER AT MENDELTNA																		
Feb. 7, 1952		17	0.01	58	7.4	6.4		199	21	2.2	0.1	1.0	218	175	12	345	7.9	7
June 4		6.9	.02	20	3.9	4.2		78	7.3	11.8	.1	.9	96	66	2	136	7.3	30
TOLSONA CREEK AT TOLSONA																		
Dec. 12, 1952		13	0.09	38	11	20	2.0	200	3.5	15	0.1	0.6	202	143	0	336	7.5	20
Apr. 30, 1953		13	.09	34	8.2	20	2.8	179	4.4	9.0		.4	202	120	0	295	7.7	50
TOLSONA CREEK NEAR GLENNALLEN																		
May 6, 1951		5.8	0.08	18	4.5	6.9		81	6.9	3.4			105	63	0	144	--	100
May 13, 1952		11	.08	30	9.4	18		160	6.7	10	0.1	0.7	177	114	0	265	7.3	55
June 4		5.4	.21	13	2.6	3.6	1.6	52	3.3	2.5		.7	78	44	1	96.6	6.7	40
TAZLINA RIVER NEAR GLENNALLEN																		
Mar. 14, 1951		5.2	0.03	24	3.9	8.1		75	17	10	--	0.3	105	76	14	174	7.8	7
Apr. 12		5.8	.07	26	3.7	5.3		79	12	9.6	0.1	.6	102	80	15	208	7.6	5
June 23		4.7	.13	18	2.5	3.4		54	16	1.0	.1	.2	74	55	11	117	7.0	5
Aug. 7		4.8	.06	20	2.6	4.8		60	16	2.7	.1	1.5	82	61	11	128	7.5	10

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
MOOSE CREEK AT GLENNALLEN																		
May 13, 1952.....		5.4	0.20	10	5.4	0.3		52	2.7	1.2	0.1	0.6	86	47	5	91.0	7.0	120
KLUTINE RIVER NEAR COPPER CENTER																		
Mar. 14, 1951.....	240	7.8	0.04	18	5.1	3.9		74	9.5	2.5	--	0.3	84	66	5	151	7.7	7
Apr. 12.....	230	6.3	.08	17	2.7	4.0		59	10	1.9	0.1	.7	72	54	5	127	7.5	7
Apr. 25.....	250	7.4	.04	--	--	1.9		61	5.1	1.5	--	.8	--	54	4	127	7.6	25
June 23.....	2,340	5.6	.11	15	2.1	.8		45	9.2	.8	.0	.4	56	46	9	93.0	6.6	5
Aug. 9.....	4,190	3.9	.07	14	2.0	2.5		43	8.1	3.2	.0	.5	55	43	8	93.3	7.5	10
COPPER RIVER AT COPPER CENTER																		
Oct. 30, 1952		9.7	0.06	28	5.8	12	1.4	92	18	24	0.0	0.3	145	93	18	237	7.1	3
Dec. 12.....		10	.05	27	4.4	13	1.3	87	16	21	.0	.4	136	85	14	232	6.9	5
Jan. 28, 1953		15	.03	36	7.0	15	1.6	108	18	30	.0	.3	176	119	3	306	7.2	2
Feb. 27.....		17	.06	40	8.6	19	2.3	124	20	40	.0	.8	209	136	34	359	7.3	4
Mar. 31		18	.03	42	8.6	19	2.1	130	25	38	--	.3	217	140	33	362	7.7	3
WORTHINGTON RIVER NEAR VALDEZ																		
Aug. 20, 1953		1.3	0.05	4.7	0.2	0.4	0.2	14	2.2	0.6	0.0	0.1	17	13	1	32.8	6.0	15
STEWART CREEK NEAR VALDEZ																		
Dec. 12, 1952.....		7.0	0.02	15	1.3	1.4	0.6	43	15	0.0	0.0	1.1	63	44	9	97.6	6.2	4
Aug. 20, 1953		2.2	.03	8.9	.2	.8	.1	22	6.1	.0	0	.1	29	23	5	50.3	7.0	10
TSINA RIVER NEAR VALDEZ																		
Dec. 11, 1952		5.0	0.02	23	1.0	2.2	3.0	60	16	0.8	0.0	1.2	82	62	13	133	6.3	2
Aug. 20, 1953		2.6	.04	7.9	.3	.5	.1	21	5	1.8	--	.1	29	21	4	45.9	7.3	8

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
CASCADE CREEK NEAR VALDEZ																		
June 3, 1952		4.3	0.03	15	1.1	2.1		40	8.6	2.0	0.1	2.1	55	42	9	84.2	7.0	5
PTARMIGAN CREEK NEAR WORTMANNS																		
Aug. 7, 1951		1.8	0.05	7.0	0.5	0.9		17	4.3	1.8	--	0.7	33	20	6	41.5	6.6	5
Mar. 25, 1952.....		4.6	.05	22	.9	2.3		62	9.8	1.5	0.0	.5	72	59	8	121	7.4	5
Sept. 30		4.9	.03	14	.8	0.9	0.6	36	12	.0	.1	.6	52	38	9	80.0	7.2	3
SOUTH FORK WORTHINGTON RIVER NEAR WORTMANNS																		
Aug. 7, 1951		2.9	0.08	4.4	0.5	1.5		11	1.8	0.8		0.1	19	13	4	23.0	5.8	5
June 3, 1952		2.0	.16	13	.8	.9		28	14	.0		.3	45	36	13	74.8	6.7	4
Sept. 30		2.1	.09	9.8	.7	0.5	0.6	25	8.6	.0	0.1	.3	35	27	7	55.8	7.1	5
NORTH FORK WORTHINGTON RIVER NEAR WORTMANNS																		
Aug. 7, 1951		1.1	0.02	5.5	0.8	0.5		16	3.0	1.2		0.2	22	17	4	35.6	6.0	5
June 3, 1952		2.6	--	12	.2	4.8		33	8.0	4.0		.6	48	31	4	66.0	6.8	5
Sept. 30		2.2	.02	10	.6	0.7	0.6	26	6.7	.0	0.1	.3	34	27	6	54.0	6.8	5
TSINA RIVER NEAR WORTMANNS																		
May 4, 1951.....		4.9	0.01	20	2.0	1.2		50	15	0.9	--	3.5	75	58	17	118	6.8	10
Aug. 7		1.6	.10	--	--	--		24	5.3	.2	0.0	.7	--	--	--	50.2	7.1	55
Mar. 25, 1952		4.6	.01	25	1.3	2.0		65	15	1.5	.1	1.0	82	68	14	139	7.3	5
June 3		5.0	.01	16	.8	4.1		42	13	1.8	.1	1.8	63	43	9	97.1	7.1	4
Sept. 30		3.4	.06	14	1.4	5.2		42	14	1.8	--	.5	61	41	6	102	7.0	6
STUART CREEK NEAR WORTMANNS																		
Aug. 7, 1951		3.4	0.04	8.3	0.9	1.8		23	6.2	1.8		0.5	40	24	6	58.8	6.8	5
STUART CREEK AT STUART																		
June 3, 1952.....		5.9	0.03	13	1.0	3.7		38	9.9	1.0	0.1	1.9	55	37	5	74.3	7.1	5

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
TIEKEL RIVER NEAR VALDEZ																		
Dec. 11, 1952		6.6	0.01	19	1.0	2.1	0.7	50	13	1.8	0.1	1.5	70	51	10	115	6.5	2
June 25, 1953		5.6	.00	8.6	.6	2.1	.4	26	7.5	.7	--	.3	39	24	3	59.9	6.5	5
Aug. 20		4.4	.00	13	.8	1.4	.1	36	6.4	1.5	.1	.4	46	36	6	80.1	7.5	0
TIEKEL RIVER AT TIEKEL																		
Mar. 25, 1952		5.6	0.02	19	1.2	3.4		48	12	4.8	0.1	1.1	70	52	13	115	7.0	5
June 3		7.8	.01	19	1.2	3.6		48	13	4.0	.1	1.6	74	52	13	111	6.9	5
Sept. 30		4.5	.02	18	1.7	1.3	1.1	44	14	.8	.0	.7	64	52	16	100	6.9	5
LITTLE TONSINA RIVER NEAR TONSINA																		
June 3, 1952		7.9	0.04	15	1.4	1.3	1.5	44	9.2	0.5	0.1	0.8	59	44	8	87.1	6.9	15
Dec. 12		11	.09	19	2.4	1.9	.8	63	9.2	1.0	.1	.7	77	58	6	116	6.5	3
Aug. 20, 1953		7.0	.08	13	1.1	1.2	.2	42	5.9	.6	0	.5	50	37	3	78.5	7.5	10
TONSINA RIVER AT TONSINA																		
Mar. 13, 1951	85	8.3	0.08	16	4.4	5.2		63	14	2.0	--	0.4	81	58	6	132	7.8	9
Apr. 9	90	8.9	.08	19	3.0	2.8		67	6.7	2.0	--	.6	77	60	5	127	7.1	10
May 4	150	7.3	.07	14	2.0	3.2		51	6.6	1.0	--	--	71	43	1	88.3	7.6	40
June 8	3,190	4.3	.29	10	.7	.5		28	3.8	.4	0.1	1.4	35	28	5	62.3	7.5	5
Aug. 7	1,820	4.5	.13	9.7	1.3	2.2		32	6.6	.5	.1	.4	41	30	3	--	--	--
TONSINA RIVER AT LOWER TONSINA																		
July 8, 1952		5.6	0.20	12	2.8	1.0	0.6	40	7.4	0.5	0.1	0.5	50	41	9	76.3	7.2	15
Sept. 12		6.5	.32	16	2.7	1.5	.7	51	7.0	1.0	--	.3	61	51	9	97.3	7.1	10
Sept. 30		8.1	.10	15	1.8	1.3	1.1	44	8.1	.8	.1	.5	59	45	9	85.5	6.9	10
Feb. 18, 1953		8.6	.08	24	3.8	2.6	1.1	85	14	1.5	.0	.5	98	75	5	155	7.5	7
COPPER RIVER ABOVE CHITINA RIVER NEAR CHITINA																		
Apr. 11, 1951		20	0.03	34	7.8	23	1.9	118	21	28		0.5	194	117	20	326	7.8	5

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
COPPER RIVER AT CHITINA																		
July 8, 1952		5.6	0.02	19	3.8	3.2	1.5	68	17	3.2	0.2	0.3	87	64	8	150	6.9	2
July 17		5.6	.06	20	3.6	4.8		63	16	4.5	.1	.3	89	65	13	147	7.8	5
COPPER RIVER NEAR CHITINA																		
Jan. 16, 1953		11	0.02	30	5.3	8.7	1.6	94	27	13	0.1	0.6	144	98	21	236	6.5	2
Feb. 18		13	.01	36	8.0	11	2.1	115	29	20	.0	.5	174	124	30	289	7.3	2
May 26		7.1	.03	21	3.8	4.6	1.4	72	15	5.0	.0	.4	94	68	9	157	6.9	2
POWER CREEK NEAR CORDOVA																		
June 10, 1951	504	3.9	0.02					18	3.8	1.7	0.0	0.8				48.0	7.5	5
LOWE RIVER NEAR VALDEZ																		
Aug. 7, 1951	--	3.0	0.03	9.4	0.8	1.0		23	8.1	1.0	--	0.4	35	27	8	58.8	6.1	5
Mar. 25, 1952	--	4.4	0.02	31	1.5	4.3		68	29	3.5	0.2	1.7	113	84	28	182	7.4	5
June 3	--	4.2	.09	16	1.1	2.7		34	18	1.5	.0	2.0	62	44	17	95.4	6.8	5
Sept. 30	--	3.4	.05	17	1.1	3.9		38	22	.5	--	.8	67	47	16	108	6.8	4
Dec. 10	--	4.1	.01	27	1.3	3.4	2.7	56	32	0.0	.0	1.8	100	72	26	160	6.3	3
June 9, 1953	--	4.5	.03	10	.4	3.6	1.3	25	9.9	2.8	.1	.6	46	27	6	64.9	7.3	10
July 29	a3,770	2.4	.04	9.6	.9	.5	2.1	28	8.2	.0	.0	.4	38	28	5	66.2	6.9	5
Aug. 20	a4,300	2.0	.10	9.0	1.7	.6	1.5	27	10	.2	.0	.4	37	29	7	71.6	7.2	15
SHEEP CREEK NEAR VALDEZ																		
Mar. 25, 1952		4.1	0.01	49	2.3	1.9		87	58	2.5	0.0	0.7	167	132	60	262	7.4	4
June 3		3.7	.06	22	1.0	3.2		49	21	1.8	.0	1.6	78	59	19	126	7.5	5
Sept. 30		2.5	.14	17	1.0	3.1		40	19	.2	--	.5	63	46	14	102	6.8	5
Dec. 11		4.2	.02	37	1.8	1.5	1.1	74	42	1.0	.0	1.4	127	101	40	207	6.5	2
SOLOMON GULCH NEAR VALDEZ																		
Feb. 28, 1951	11	5.6	0.01	9.4	5.3		30	16	16	57		0.8	132	45	32	246	7.6	6
June 8	320	2.5	.03					14	4.9	.8	0.0	1.1				32.7	7.6	5

a Instantaneous discharge.

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MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
FRITZ CREEK AT HOMER																		
July 1, 1951		32		4.8	2.9	8.9		32	8.0	5.5		1.2	79	24	0	74.3	7.2	30
NORTH FORK ANCHOR RIVER NEAR HOMER																		
Mar. 5, 1952		43	0.19	8.2	4.6	9.8		60	1.4	6.5	0.1	0.9	92	39	0	107	7.1	20
ANCHOR RIVER NEAR HOMER																		
July 24, 1952		31	0.33	6.4	3.6	5.1	1.6	44	2.1	3.0	0.1	1.1	76	31	0	82.8	6.6	20
Aug. 22		28	.34	10	3.1	6.1	1.6	54	3.6	3.5	.1	.6	84	39	0	99.1	7.3	40
NORTH FORK ANCHOR RIVER AT ANCHOR POINT																		
June 2, 1953		18	0.03	3.4	1.3	5.3	1.4	22	3.6	5.0		0.9	50	14	0	51.7	7.4	20
NORTH FORK ANCHOR RIVER NEAR ANCHOR POINT																		
July 7, 1951		23	0.38	8.3	3.1	5.7		44	3.8	3.5		1.0	70	33	0		7.4	
SOUTH FORK ANCHOR RIVER AT ANCHOR POINT																		
June 2, 1953		16	0.03	2.6	1.3	3.9	0.9	18	5.1	4.8		1.4	45	12	0	46.6	7.3	25
ANCHOR RIVER NEAR ANCHOR POINT																		
July 7, 1951		27	0.22	7.1	4.1	6.3		48	4.0	3.0		0.7	76	35	0		7.3	
STARISKI CREEK NEAR HAPPY VALLEY																		
July 10, 1951		26		6.4	3.4	6.5		43	2.0	4.0		0.1	69	29	0	88.0	7.3	30
Mar. 5, 1952		45	0.25	8.4	4.4	8.4		56	2.2	5.8	0.1	.9	90	39	0	104	6.9	30

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
DEEP CREEK NEAR NINILCHIK																		
Mar. 6, 1952		43	0.07	7.7	5.5	4.2		52	1.4	4.0	0.3	0.5	81	42	0	91.9	7.0	10
July 25		26	.14	6.3	3.6	4.2		44	1.5	1.0	.1	.5	65	30	0	76.1	6.4	10
Jan. 30, 1953		36	.11	6.6	3.2	4.2	1.5	43	4.4	1.8	.0	.3	79	30	0	76.1	7.1	8
Aug. 7		27	.30	6.8	3.3	4.9	1.8	48	2.3	.5	.1	1.0	72	30	0	82.2	6.9	25
NINILCHIK RIVER AT NINLCHIK																		
Mar. 7, 1952		50	0.13	10	5.5	8.7		72	1.1	4.0	0.1	0.5	104	48	0	123	6.9	20
June 20		38	.09	8.2	3.0	7.4	1.2	53	3.6	3.0	.1	.8	91	33	0	92.3	6.7	15
July 25		23	.15	8.2	5.3	6.8	1.6	54	2.1	1.5	.1	1.0	76	42	0	93.9	6.6	30
Aug. 22		34	.25	8.3	3.8	6.7	1.7	58	3.5	.2	.1	.7	88	36	0	99.1	6.9	30
Jan. 30, 1953		44	.19	8.4	4.1	8.2	2.2	63	5.4	2.5	.0	.6	107	38	0	104	7.6	10
Aug. 7		31	.06	8.6	3.9	8.8	2.0	64	2.3	.7	.2	.5	102	38	0	111	7.1	45
KASILOF RIVER NEAR KASILOF																		
Oct. 5, 1950	4,940	5.6	0.13	6.1	1.2	5.7		26	9.1	1.3	--	--	42	20	0	55.3	6.8	5
Jan. 26, 1951	400	6.5	.87	4.5	2.1	2.9		20	5.1	1.8	--	2.5	36	20	4	52.0	7.1	20
Jan. 30, 1953	b950	5.8	.18	5.2	1.7	1.5	1.9	19	7.1	1.2	0.0	0.6	35	20	4	49.2	6.6	25
Apr. 15	627	6.9	.04	6.0	1.2	1.8	1.5	21	6.1	1.5	.1	.3	36	20	3	48.7	7.0	3
Aug. 7	7,840	4.9	.29	4.9	.5	1.3	1.5	17	5.1	1.0	.0	.4	28	14	0	40.4	6.0	20
CROOKED CREEK NEAR KASILOF																		
Mar. 7, 1952		47	0.12	8.3	5.6	3.4		55	1.4	2.8	0.1	0.7	86	44	0	95.4	7.0	20
July 25		36	.42	8.6	4.0	4.0	1.7	54	2.3	.5	.1	1.0	85	38	0	90.8	6.8	20
LOST CREEK NEAR SEWARD																		
Oct. 4, 1950	24.4	4.1	0.01	11	0.7	1.8		24	11	1.5	--	1.3	43	30	11	71.3	6.8	5
SNOW RIVER AT SEWARD																		
Jan. 30, 1953		6.9	0.17	11	0.8	1.4	1.1	29	8.4	1.5	0.0	0.5	46	32	8	72.4	7.4	8
Aug. 6		2.7	.03	5.2	.9	1.4	1.2	20	4.3	.2	.1	.3	26	17	0	38.9	6.4	4

b Estimated discharge.

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
PTARMIGAN CREEK AT LAWING																		
Oct. 4, 1950	94	7.6	0.01	15	3.2	0.5		42	14	0.4	--	2.6	64	41	7	--	7.2	4
Jan. 30, 1951	10	5.7	.02	18	2.7	1.5		46	17	1.0	--	3.0	72	56	18	120	7.5	5
Jan. 30, 1953	b 27	4.8	.11	19	1.6	1.5	1.1	48	17	.5	0.1	1.5	71	54	15	121	6.9	25
Apr. 15	31	5.7	.03	19	1.9	1.5	1.1	44	17	.5	.1	2.6	71	55	19	117	7.2	3
Aug. 6	279	4.7	.04	15	1.1	1.2	.7	39	13	.5	.0	1.2	57	42	10	95.2	6.1	10
TRAIL CREEK NEAR SHEEP MOUNTAIN																		
June 15, 1952		4.0	--	7.2	1.0	6.4	0.7	34	5.0	0.0	--	1.3	42	22	0	73.0	6.1	40
TRAIL CREEK NEAR HUNTER																		
June 4, 1953		3.6	0.02	12	0.2	1.4	0.3	27	12	0.1	--	0.2	43	31	9	69.3	6.1	5
GRANT CREEK NEAR MOOSE PASS																		
Oct. 7, 1950	139	5.3	0.08	10	0.9	1.7		26	8.2	0.8	--	1.8	42	29	7	66.5	7.0	5
Jan. 30, 1951	19	4.2	.05	10	.9	3.1		28	8.2	1.2	--	2.6	44	29	6	75.9	7.2	6
Apr. 16, 1953	26	3.4	.02	11	1.2	1.8	0.9	29	12	1.5	0.1	1.1	47	32	8	74.8	7.2	3
TRAIL RIVER NEAR LAWING																		
Jan. 30, 1951	63	5.1	0.14	14	1.8	2.1		40	10	1.2	--	2.4	56	42	10	91.9	7.1	8
Jan. 30, 1953	140	5.6	.08	15	1.3	1.4	0.8	42	11	1.0	0.0	1.6	58	44	10	93.5	7.0	8
Apr. 15	109	5.1	.02	16	1.0	3.3	1.1	43	9.7	4.0	.2	1.1	63	45	10	109	7.2	3
Aug. 6	2,550	3.3	.26	8.9	.7	.9	.6	25	7.5	.5	.0	1.1	36	25	5	57.7	6.1	30
LOST CREEK NEAR COOPER LANDING																		
Oct. 5, 1950		7.3	0.01	11	0.9	6.1		39	6.6	2.8		2.1	56	31	0	90.8	7.1	5
Jan. 29, 1951		5.6	.01					42	8.1	2.5		2.3				96.2	7.3	4
DIAMOND CREEK NEAR HOMER																		
July 10, 1951		22		4.0	1.0	8.5		26	3.3	5.2		0.6	57	14	0	68.0	7.1	40

b Estimated discharge.

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
CRESCENT CREEK NEAR COOPERING LANDING																		
Apr. 13, 1953	20	4.9	0.03	15	1.2	2.2	0.7	43	8.8	1.0	0.1	1.1	56	43	8	93.3	7.2	3
Aug. 6	143	3.7	.02	12	.7	1.5	.2	35	6.3	.2	.1	.8	43	33	4	82.3	7.0	5
QUARTZ CREEK NEAR COOPER LANDING																		
Apr. 22, 1952		6.1	0.03	15	1.9	4.0		46	11	2.8	0.0	1.0	65	45	8	101	7.1	8
May 21		6.6	.12	14	1.8	2.7		40	9.7	2.5	.0	2.3	59	42	10	89.5	7.1	10
July 25		4.5	.03	11	1.1	1.6		32	7.7	.5	.0	.6	43	32	6	68.9	6.4	5
Aug. 22		6.5	.05	13	2.2	1.8	1.1	39	11	1.0	.1	1.0	57	42	10	84.6	6.6	5
Jan. 30, 1953		6.7	.01	16	1.3	2.8	.6	48	8.9	2.5	.0	1.4	64	46	7	103	7.0	3
Aug. 6		5.2	.02	12	.6	1.6	.3	35	6.5	1.2	.1	.5	45	32	4	75	6.0	3
KENAI RIVER AT COOPER LANDING																		
Oct. 1-10, 1950	2,673	3.6	0.02	10	1.0	0.8	0.2	28	5.9	0.9	0.1	1.4	38	29	6	69.6	7.3	5
Oct. 11-20	1,774	3.6	.07	9.4	1.2	3.0		27	8.7	1.6	--	1.8	43	28	6	67.1	7.1	7
Oct. 21-31	1,249	3.8	.07	10	1.1	1.1		29	6.3	1.4	--	2.1	40	29	6	69.7	6.9	7
Nov. 1-10	850	4.0	.06	9.9	1.2	.7	1.1	28	6.4	.8	--	2.5	40	30	7	69,5	7.0	5
Nov. 11-20	640	4.3	.04	10	1.0	3.5		28	9.1	1.9	.2	1.2	45	29	6	69.7	7.4	5
Nov. 21-30	471	4.3	.05	11	.9	1.9		28	9.5	.8	.1	1.2	44	31	8	71.2	7.1	5
Jan. 30, 1953	560	3.7	.04	11	.8	.9	.9	29	7.2	1.0	.1	.8	41	30	6	67.7	6.9	7
Apr. 14	326	5.4	.03	11	1.4	1.2	1.1	33	8.6	1.2	.3	.9	47	34	7	73.5	7.0	3
Aug. 6	10,300	3.5	.07	11	.5	1.5	1.2	30	8.4	.0	.1	.9	42	30	5	68.9	6.8	20
COOPER CREEK NEAR COOPER LANDING																		
Oct. 6, 1950	89	6.5	0.03	13	1.2	1.2		33	9.5	1.5	--	1.1	50	37	10	87.9	7.0	4
May 21, 1952	--	5.4	.01	13	1.5	2.5		38	6.6	2.5	.0	3.0	53	39	7	83.1	7.1	7
June 20	--	4.0	.02	11	1.0	1.5		32	5.9	1.0	.0	1.4	42	32	5	64.0	6.8	5
July 25	--	4.3	.01	10	1.4	1.1	0.6	32	7.4	1.0	.1	1.0	43	32	5	71.3	7.2	3
Jan. 30, 1953	b37	4.8	.01	14	1.0	1.6	.9	44	6.3	1.0	.0	1.7	53	38	2	80.8	7.3	3
Apr. 14	18	4.6	.03	12	.7	1.2	.7	34	6.7	1.8	.0	1.4	46	32	4	70.5	6.9	3
Aug. 6	239	3.7	.01	8.0	2.1	1.4	.9	33	4.8	.2	.0	.4	38	29	2	62.4	7.0	4

b Estimated discharge.

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
RUSSIAN RIVER NEAR COOPER LANDING																		
Oct. 6, 1950	105	7.7	0.01	13	1.2	1.8		39	5.6	1.2	--	2.3	52	37	5	79.1	7.1	5
Jan. 27, 1951	23	6.5	.03	18	2.2	1.6		53	7.6	2.0	--	4.0	68	54	10	115	7.0	8
Apr. 14, 1953	39	6.1	.02	18	1.2	1.8	0.9	53	11	1.5	0.1	1.8	69	51	8	111	7.0	2
RESURRECTION CREEK AT HOPE																		
Oct. 7, 1950	134	9.0	0.02	15	3.2	1.2		48	8.8	3.1	--	0.3	64	51	11	104	--	5
Jan. 29, 1951	49	8.5	.05	16	2.7	5.6		52	8.6	6.8	--	2.5	76	51	8	122	7.2	7
HIDDEN CREEK NEAR COOPER LANDING																		
Jan. 30, 1953		7.9	0.01	27	3.1	3.1	1.1	96	4.4	3.2	0.1	0.5	98	80	1	172	7.4	2
Aug. 6		6.2	.02	24	2.2	3.4	1.0	86	4.6	1.5	.1	.4	86	69	0	150	7.2	5
MOOSE RIVER NEAR KENAI																		
Mar. 10, 1952		19	0.16	19	5.2	11		103	2.1	3.5	0.1	0.7	112	69	0	170	6.8	10
May 21		11	.30	15	2.8	2.7		61	1.5	1.8	.1	.5	73	49	0	103	7.0	30
June 20		9.3	.14	20	5.1	2.6		84	6.6	.2	.0	.5	86	71	2	137	7.1	15
Aug. 22		15	.10	23	4.2	4.1	1.9	90	6.3	.8	.2	.5	100	75	1	144	7.0	32
Sept. 17		13	.04	18	3.8	3.6	1.3	80	5.6	2.0	.1	.7	88	62	0	134	7.1	25
MOOSE RIVER NEAR SOLDOTNA																		
Jan. 30, 1953		17	0.11	23	6.8	5.8	2.2	144	2.8	3.0	0.0	0.7	118	86	0	188	6.8	8
Aug. 6		11	.01	26	3.7	4.7	1.1	107	2.0	2.0	.0	.3	104	80	0	176	7.1	25
SOLDOTNA CREEK NEAR SOLDOTNA																		
Aug. 6, 1953		21	0.03	18	4.4	5.8	1.9	87	0.4	2.2	0.1	0.4	97	63	0	141	6.4	15
BEAVER CREEK NEAR KENAI																		
Mar. 8, 1952		33	0.75	16	4.6	8.2		79	5.4	3.8	0.1	0.8	112	59	0	133	7.0	45

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
KENAI RIVER NEAR KENAI																		
May 21, 1952		5.3	0.20	9.7	2.0	2.7		35	7.1	1.2	0.1	0.4	46	32	4	71.8	7.1	10
June 20		4.7	.21	8.6	1.0	1.7		28	5.3	.0	.1	.7	36	26	3	59.0	6.7	8
July 25		3.6	.80	8.7	1.1	1.7		26	5.8	1.2	.1	.8	37	26	5	57.7	6.5	10
Jan. 30, 1953		3.6	.03	9.6	1.0	2.5	1.1	27	7.9	3.8	.0	.7	44	28	6	67.9	7.1	8
TIN CAN LYONS CREEK NEAR SUNRISE																		
June 20, 1952		3.5	0.03	8.4	0.7	3.4		24	7.1	2.2	0.1	1.1	38	24	4	53.3	6.8	5
TIN CAN LYONS CREEK NEAR PORTAGE																		
Aug. 6, 1953		2.1	0.08	5.0	0.3	0.4	0.9	12	5.8	0.0	0.0	0.3	21	14	4	34.6	6.3	12
BERTHA CREEK NEAR PORTAGE																		
Aug. 7, 1953		2.5	0.00	7.4	0.6	0.5	0.2	19	6.3	0.0	0.0	0.1	27	21	5	49.1	6.7	4
GRANITE CREEK NEAR PORTAGE																		
Aug. 6, 1953		3.7	0.01	8.7	0.2	0.9	0.8	25	4.4	0.5	0.0	0.5	32	22	2	53.9	6.1	3
TWENTYMILE CREEK NEAR PORTAGE																		
July 25, 1952		1.8	0.22	8.3	1.2	1.9		26	6.9	0.5	0.1	0.3	34	26	4	51.1	6.7	8
PORTAGE CREEK AT PORTAGE																		
July 25, 1952		1.4	0.20	6.9	0.6	1.7		19	5.9	0.8	0.1	0.3	28	20	4	39.7	6.8	8
EAST FORK SIXMILE CREEK NEAR SUNRISE																		
Jan. 30, 1953		6.2	0.00	15	0.8	1.5	1.0	41	8.1	1.5	0.0	1.5	56	41	7	95.1	6.9	3
Aug. 6		3.5	.04	8.0	.9	.8	.7	23	6.7	.0	.1	.4	32	24	5	55.6	6.7	12

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
SPOKANE CREEK NEAR SUNRISE																		
June 20, 1952		3.1	0.12	9.1	0.9	1.1		24	6.9	1.0	0.1	0.4	35	26	7	51.4	7.0	5
GRANITE CREEK NEAR SUNRISE																		
May 21, 1952.....		4.4	0.05	11	1.6	1.2		32	7.2	1.2	0.0	1.5	44	34	8	65.4	7.0	10
June 20		4 3	.06	9.4	.8	1.2		26	6.9	.0	.0	1.1	37	27	5	55.6	7.2	5
SILVERTIP CREEK NEAR SUNRISE																		
Nov. 13, 1951.....		6.0	0.01	17	1.0	4.2		47	9.7	4.0	0.1	1.4	63	46	8	99.7	7.3	6
May 21, 1952		5.1	.01	15	1.1	2.2		40	9.1	1.8	.0	2.5	57	42	9	88.4	7.1	8
July 25		3.4	.03	8.4	.7	2.3		26	5.8	1.0	.0	.2	35	24	3	50.4	6.8	5
GULCH CREEK NEAR SUNRISE																		
Nov. 13, 1951.....		9.0	0.01	14	0.8	2.7		40	4.0	3.5	0.1	2.5	58	38	5	83.2	7.3	7
CANYON CREEK NEAR SUNRISE																		
Apr. 22, 1952.....		6.5	0.15	16	1.6	3.4		45	11	3.2	0.1	0.9	65	46	10	99.4	7.4	4
May 21		6.2	.25	11	1.9	2.6		32	9.7	1.5	.1	2.7	52	35	9	77.9	7.1	20
Aug. 6, 1953		4.0	.01	9.4	.5	1.1	0.2	27	6.1	.0	.0	.2	35	25	3	58.2	6.6	3
FRESNO CREEK NEAR SUNRISE																		
Nov. 13, 1951.....		7.3	0.01	13	1.4	4.1		43	4.5	4.0	0.1	1.5	55	38	3	85.1	7.4	5
PLACER RIVER NEAR PORTAGE																		
July 25, 1952		2.0	0.17	6.0	0.7	0.6	0.6	18	5.3	0.5	0.1	0.3	25	18	3	38.1	6.6	10
Aug. 7, 1953.....		1.7	.09	6.0	.2	.7	.5	17	4.6	.0	.0	.3	22	16	2	36.2	6.5	14
ESKA CREEK NEAR PALMER																		
June 6, 1951		5.8	0.01	9.7	0.4	3.0		37	4.4	0.5		1.0	44	30	0	70.8	7.4	10
June 14		3.8	.03	5.7	1.3	3.3		25	5.0	.2	0.0	.8	32	20	0	64.8	7.4	10

Chemical analyses, in parts per million, water years October 1950 to September 1953- Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
MOOSE CREEK NEAR PALMER																		
Apr. 18, 1951		6.3	0.03	14	1.8	4.9		46	8.6	3.4	--	2.0	64	42	5	102	7.9	10
May 5		7.5	.02	13	1.9	3.2		44	5.3	2.2	0.1	2.8	58	40	4	97.0	7.2	30
May 14		6.5	.01	11	1.8	.8		36	2.5	1.9	.1	1.8	44	35	5	81.8	7.3	10
GRANITE CREEK NEAR PALMER																		
May 5, 1951		6.8	0.01	21	1.6	3.6		42	26	1.9	0.1	2.9	85	59	25	148	7.3	10
June 15		5.0	.02	15	1.3	2.0		31	19	.8		1.0	59	43	17	99.1	7.4	8
MILK CREEK NEAR GIRDWOOD																		
July 12, 1953		3.1	0.07	31	1.7	1.8	0.9	21	60	3.4		0.2	112	84	6	189	6.4	3
Aug. 16		3.5	.03	11	.6	.1	.3	30	8	0		.3	40	30	5	63.0	6.1	3
PETERS CREEK NEAR ANCHORAGE																		
Apr. 19, 1951		9.1	0.02	25	4.9	4.8		81	23	1.1	0.3	0.3	108	83	16	184	7.7	7
June 6		5.2	.02	18	3.4	1.7		54	16	.8		.7	72	59	15	122	7.3	5
EAGLE RIVER NEAR ANCHORAGE																		
Apr. 19, 1951		5.5	0.02	21	3.5	2.7		67	14	1.2	0.3	1.0	82	67	12	146	7.5	8
June 6		3.0	.03	17	2.6	3.0		53	13	1.5		.7	67	53	10	113	7.0	5
SHIP CREEK AT ANCHORAGE																		
June 5, 1951		5.1	0.04	12	2.1	2.0		37	11	0.5		0.6	52	39	8	88.3	7.4	8
SHIP CREEK NEAR ANCHORAGE																		
June 5, 1951		4.8	0.02	11	1.8	1.4		32	10	0.4	0.1	0.5	46	35	9	78.7	7.3	5

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
SOUTH FORK CAMPBELL CREEK NEAR ANCHORAGE																		
Mar. 22, 1951	5	11	0.03	15	2.0	6.8		48	19	0.1		1.4	79	46	6	101	--	7
May 1	20	9.9	.01	12	2.2	2.9		40	10	.8	0.2	.5	58	39	6	96.9	7.3	10
June 4	114	4.5	.01	5.4	1.1	1.9		17	6.7	.5		.7	29	18	4	49.0	7.4	10
CHESTER CREEK AT ANCHORAGE																		
May 8, 1952		11	0.03	16	4.8	4.4		69	7.9	2.5	0.1	0.9	85	60	3	125	7.3	30
FISH CREEK NEAR KNIK																		
Aug. 14, 1952		7.8	0.02	15	3.1	2.0	0.8	62	4.9	0.5	0.2	0.6	65	50	0	102	7.0	10
HICKS CREEK AT WATCHTOWER																		
June 6, 1952		7.6	0.04	29	5.6	9.5		85	43	0.5	0.2	0.5	138	95	26	227	7.2	55
KNIK RIVER NEAR PALMER																		
Apr. 19, 1951		6.1	--	--	--	--		93	--	3.0	--	0.8	--	93	--	208	--	--
June 6		3.5	0.02	23	2.8	2.5		65	18	1.2	--	.7	84	69	16	146	7.8	5
July 23, 24, 25, 26		5.3	--	14	2.2	3.7		47	8.9	2.8	--	.4	60	44	6	94.1	7.5	5
July 27-31, Aug. 1-3		3.7	.15	13	2.4	1.2		40	7.7	2.5	0.1	.3	57	42	10	84.7	7.5	7
Sept. 25		2.4	.02	17	1.8	1.2		43	14	1.2	.2	.4	64	50	15	102	6.6	4
Aug. 4, 1953		3.7	.02	17	1.0	1.0	0.4	48	10	.0	.0	.3	57	46	7	101	7.0	5
KINGS RIVER NEAR SUTTON																		
Feb. 27, 1953		6.7	0.03	28	1.7	3.8	0.9	66	27	4.0	0.0	1.2	106	78	24	176	7.5	3
KINGS RIVER NEAR PALMER																		
May 5, 1951		7.2	0.01	24	2.3	3.1	1.9	66	21	3.2	0.1	1.5	97	69	15	172	7.4	5
June 15		5.9	.02	21	1.7	1.6		47	21	1.2		1.0	77	59	21	134	7.3	5

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
CARIBOU CREEK NEAR SHEEP MOUNTAIN																		
May 5, 1951		6.6	0.01	29	4.2	9.4		68	45	4.4	0.1	1.3	134	90	34	232	7.3	60
CARIBOU CREEK NEAR SUTTON																		
Oct. 30, 1952		10	0.02	57	10	24	1.6	131	114	3.2	0.2	1.4	286	185	78	442	7.2	2
Feb. 27, 1953		16	.06	127	21	50	2.8	266	245	29	.1	1.6	624	404	186	911	7.6	3
Apr. 30		5.7	--	29	3.6	10	1.7	73	46	1.0	--	1.3	134	87	27	213	7.1	60
CHICKALOON RIVER AT CHICKALOON																		
May 5, 1951		6.9	0.01	27	4.2	11	1.9	86	25	7.0	0.2	1.1	127	85	14	223	7.4	8
June 7		5.1	.02	18	1.9	2.4	.9	58	13	2.1	.0	.5	70	53	99	121	7.5	5
Aug. 19		6.1	.08	32	4.1	6.7		78	38	4.5	.3	.8	141	97	33	227	7.2	5
COAL CREEK NEAR CHICKALOON																		
Aug. 16, 1951		2.9	0.02	32	5.4	4.1		66	52	1.2	0.1	0.9	131	102	48	224	7.0	10
MATANUSKA RIVER AT CHICKALOON																		
May 5, 1951		6.4	0.01	32	4.9	8.8	2.4	87	38	6.4	0.2	1.0	143	100	29	245	7.4	15
MATANUSKA RIVER ABOVE KINGS RIVER NEAR PALMER																		
Nov. 21, 1951		8.0	0.01	50	7.0	9.8		111	66	10	0.1	1.2	214	154	63	332	7.5	5
COTTONWOOD CREEK AT WASILLA																		
Oct. 31, 1950	14	8.7	0.02	33	4.4	3.9		126	3.8	0.9	0.0	0.6	117	100	0	192	7.5	5
Mar. 21, 1951	10	12	.01	37	4.6	5.1		136	8.0	.8	--	1.6	139	111	0	225	8.0	10
May 24	14	7.9	.03	33	4.4	2.8		121	5.3	1.1	.0	.3	114	100	1	201	8.5	5

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
SUSITNA RIVER AT GOLD CREEK																		
Aug. 6, 1953	23,400	5.6	0.01	22	1.8	3.0	3.7	66	16	1.8	0.0	0.3	87	62	8	150	7.2	8
LITTLE SUSITNA RIVER NEAR PALMER																		
Mar. 19, 1951.....	15	6.8	0.01	12	3.8	12	45	5.1	20		0.9	83	46	9	144	7.6	5	
Apr. 18	25	3.6	.03	12	2.8	6.3	41	3.5	12		1.3	62	41	8	119	7.7	5	
May 24	206	5.5	.01	4.7	1.4	9.8	35	4.4	3.2		1.3	48	18	0	82.2	7.3	5	
UGANIK RIVER NEAR KODIAK																		
Oct. 6, 1951		5.0		5.0	1.1	2.9	16	6.3	2.2		0.7	31	17	4	45.4	6.9	8	
KUSKOKWIM RIVER AT CROOKED CREEK																		
Apr. 15, 1951	10,300	14		28	8.3	4.6	115	15	2.0		1.8	130	104	10	206			
June 26	67,200	8.9	0.11	22	5.4	1.6	78	14	.6	0.2	1.0	92	77	13	152	6.8	20	
BROWN SLOUGH AT BETHEL																		
Sept. 13, 1951.....		6.2	0.11	2.6	1.0	1.8	11	2.1	1.0	0.4	1.2	22	11	2	29.3	7.1	80	
BROOKS RIVER NEAR KING SALMON																		
Sept. 8, 1953.....		9.3	0.03	9.5	2.2	4.0	0.7	30	11	5.0		0.0	57	33	8	92.5	6.9	
LOGGING CABIN CREEK NEAR FORTYMILE HOUSE																		
July 28, 1953.....		15	0.08	11	1.7	2.8	1.1	28	16	0	0.1	0.7	83	34	12	91.2	6.6	40
WEST FORK DENNISON RIVER NEAR CHICKEN																		
June 13, 1953.....		10	0.18	8.6	2.5	3.0	1.2	30	9.8	0.2		0.8	92	32	7	71.0	6.3	110
July 29		15	.01	8.8	2.8	3.8	.7	38	6.1	1.8	0.2	.2	82	33	2	79.1	6.6	55

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
MOSQUITO FORK FORTYMILE RIVER NEAR CHICKEN																		
June 14, 1953		8.6	0.19	16	2.5	3.5	0.7	51	11	1.0	0.1	1.4	104	51	9	110	7.2	65
July 29		7.5	.18	15	3.9	4.1	.6	52	15	1.6	.2	1.2	75	54	11	120	6.5	50
SOUTH FORK FORTYMILE RIVER NEAR CHICKEN																		
June 14, 1953		9.4	0.21	13	3.1	4.7	0.8	47	11	2.5	0.1	1.5	107	46	8	98.7	7.2	105
July 29		13	.14	12	3.5	5.5	1.2	46	15	1.0	.3	1.3	112	44	7	95.7	6.7	75
WALKER FORK FORTYMILE RIVER NEAR JACK WADE																		
June 14, 1953		8.8	0.11	17	6.2	6.4	1.2	68	23	1.5	0.0	1.3	126	69	13	162	7.2	55
July 29		13	.11	17	6.0	6.3	1.8	70	21	.2	.2	1.0	127	67	10	160	7.2	55
LIBERTY CREEK NEAR LIBERTY																		
July 28, 1953		8.6	0.02	41	18	3.7	1.3	139	68	1.0	0.2	0.4	211	176	62	347	7.3	14
SOLOMON CREEK NEAR LIBERTY																		
June 14, 1953		7.1	0.04	37	15	2.5	0.7	120	61	1.2	0.0	0.8	184	158	60	298	7.5	20
O'BRIEN CREEK NEAR LIBERTY																		
June 14, 1953		7.4	0.09	36	12	2.2	0.8	103	51	2.2	0.1	1.0	198	139	55	264	7.6	55
July 28		8.6	.04	46	16	2.2	1.8	142	66	0	.2	.5	239	181	64	349	7.7	35
FORTYMILE RIVER NEAR BOUNDARY																		
June 14, 1953		8.0	0.19	16	4.2	2.7	0.6	52	16	0.8	0.1	1.4	107	58	15	125	7.1	65
July 28		9.9	.12	22	6.3	1.9	1.5	74	24	0	.2	.9	130	81	20	177	7.2	55
YUKON RIVER AT EAGLE																		
July 28, 1953		6.2	0.06	26	6.3	7.8	2.4	91	25	0.5	0.3	0.5	120	91	116	199	7.5	17

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
AMERICAN CREEK NEAR EAGLE																		
July 28, 1953.....		8.2	0.03	65	32	3.1	1.8	218	114	0.2	0.0	0.6	332	294	115	528	8.0	17
TANANA RIVER NEAR NORTHWAY																		
Mar. 10, 1951.....		17	0.01	45	9.7	6.6		170	21	3.5		0.6	187	152	13	304	8.1	8
June 13.....		9.8	.12	39	6.2	6.3		133	23	2.0	0.0	1.0	153	123	14	261	7.4	10
TANANA RIVER AT NORTHWAY JUNCTION																		
July 27, 1953.....		7.1	0.00	26	4.2	0.8		90	13	2.0	0.1	0.3	102	85	11	185	8.0	0
LITTLE TOK RIVER NEAR TOK JUNCTION																		
Aug. 31, 1951.....		6.0	0.02	35	7.4	3.9		113	30	1.2	0.1	0.6	143	118	25	243	7.0	5
June 4, 1952.....		8.9	.02	38	8.5	.9		111	36	1.5	0.1	1.2	150	130	39	244	7.2	20
Dec. 10, ...		18	.01	88	20	5.1	2.1	271	92	1.0	.1	1.3	361	303	81	545	7.2	3
May 14, 1953.....		8.2	.03	43	9.4	2.8	1.6	132	40	.5	.1	.5	171	146	38	274	7.6	8
July 27.....		7.8	.02	38	7.8	3.8	3.0	122	36	0.	.1	.5	157	127	27	263	7.5	10
TOK RIVER AT BRIDGE ON GLENN HIGHWAY NEAR TOK JUNCTION																		
Aug. 30, 1951.....		5.4	0.02	48	12	2.6		112	78	0.8	0.1	0.5	203	169	77	337	7.4	4
May 14, 1953.....		7.5	.05	43	9.2	2.2	1.7	122	49	.2	.2	.6	174	145	45	277	7.6	20
July 27.....		6.9	.03	42	12	4.1	2.6	130	58	0	.0	.6	190	154	48	311	7.6	8
CLEARWATER CREEK NEAR TOK JUNCTION																		
Aug. 30, 1951.....		6.0	0.02	58	8.0	3.8		110	90	0.5	0.2	1.0	222	178	87	361	7.3	6
June 4, 1952.....		6.0	.02	38	5.4	.6		77	52	.0	.1	1.1	141	117	54	236	6.7	30
TOK RIVER (UPPER) NEAR TOK JUNCTION																		
Aug. 26, 1952.....		9.3		47	13	2.0	1.3	150	65	1.0		0.8	213	171	48	332	7.9	4

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
TOK RIVER (LOWER) NEAR TOK JUNCTION																		
June 4, 1952		8.0	0.02	43	11	2.4		125	50	1.5	0.1	1.1	179	153	50	286	7.2	7
Aug. 26		9.1	.01	52	15	2.1	1.4	152	70	.5	.1	.8	226	191	67	340	7.8	3
QUESTION MARK CREEK NEAR TOK JUNCTION																		
Dec. 10, 1952		8.9	0.01	62	16	4.3	1.6	165	92	0.0	0.0	1.0	267	220	85	423	6.9	7
May 14, 1953		7.2	.01	63	15	2.0	1.6	168	85	.0	.3	.8	258	219	81	400	7.5	3
July 27		7.9	.03	19	38	2.0	1.7	157	77	.0	.0	.8	224	204	75	388	7.5	7
TOK RIVER NEAR TOK JUNCTION																		
Oct. 18, 1950	--	14	0.01	66	16	4.2		198	71	1.0	--	2.6	272	230	68	437	7.7	5
June 13, 1951	428	9.5	.03	50	12	1.7		146	54	.6	0.1	1.2	201	174	54	346	7.2	10
June 22	103	8.3	.03	53	13	4.5		153	64	1.5	.3	.7	221	186	60	397	7.7	8
Aug. 30	520	5.4	.02	49	13	6.9		115	90	1.2	.1	.9	223	176	81	358	7.5	5
May 14, 1953	86	7.8	.06	44	10	2.2	1.6	132	49	.2	--	.9	181	151	43	299	7.5	25
July 29	919	5.8	.03	50	12	2.7	1.1	143	60	1.1	.2	1.1	204	174	57	334	6.9	5
YERRICK CREEK NEAR TOK JUNCTION																		
June 22, 1951		7.3	0.02	21	3.1	3.1		51	27	0.5	0.2	0.9	88	65	23	164	7.0	10
June 4, 1952		5.7	.07	15	3.1	1.8	2.1	38	20	1.0	.1	1.7	69	50	19	109	6.8	25
Feb. 17, 1953		8.4	.01	39	5.6	2.8	4.3	88	58	.5	.1	1.5	164	121	449	254	7.5	3
May 13		3.9	.04	19	3.1	1.2	2.3	44	25	.5	.2	1.1	78	60	24	130	7.1	25
DRY CREEK NEAR TOK JUNCTION																		
June 4, 1952		4.6	0.11	3.0	0.8	0.9	0.9	12	3.1	0.5		0.7	31	11	1	26.2	6.2	50
ROBERTSON RIVER NEAR TOK JUNCTION																		
Aug. 30, 1951		4.6	0.17	43	8.0	3.1		86	71	1.5	0.1	0.4	186	140	70	286	6.9	3
June 4, 1952		4.9	.01	44	12	2.6		109	71	.5	.1	.9	190	159	70	309	7.3	8
Aug. 26		5.2	.01	43	11	1.3	1.6	104	69	1.0	.1	.4	184	153	67	291	7.6	3
June 13, 1953		3.3	.01	39	8.3	2.9	1.4	94	61	.8	.0	.4	163	133	56	271	7.7	3
July 29		4.9	.02	40	8.6	1.6	1.6 1.5	90	60	.8	.1	.3	162	135	61	277	--	10

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
BEAR CREEK NEAR TOK JUNCTION																		
June 4, 1952		7.4	0.06	6.0	2.2	1.4	1.1	28	3.6	0.8		0.9	43	24	1	49.1	6.3	35
May 13, 1953		7.3	.07	9.6	1.6	1.7	1.4	37	4.3	.5		.9	59	31	0	71.1	6.6	50
July 29		2.9	.02	14	1.2	1.9	1.5	46	6.4	.0	0.2	.3	51	40	2	89.2	6.7	7
BERRY CREEK NEAR TOK JUNCTION																		
June 21, 1951		11	0.03	11	1.9	3.2		44	3.9	0.4	0.3	0.8	54	35	0	85.7	7.4	10
Feb. 5, 1952		17	.01	20	3.6	4.9		75	8.5	2.2	.4	1.0	95	65	3	143	7.5	10
June 4		8.9	.09	6.8	.2	1.7	0.9	24	4.0	.8	--	.8	48	18	0	46.1	7.3	45
Dec. 9,		13	.02	15	1.9	3.4	1.3	56	10	.0	0.0	.9	73	45	0	110	6.3	4
May 13, 1953		7.8	.07	8.4	1.4	2.0	1.2	31	5.1	.0	--	.9	54	27	1	61.6	7.2	50
July 29		7.7	.04	12	1.2	3.1	1.5	42	4.6	1.5	--	.8	53	35	0	84.6	6.3	7
CHIEF CREEK NEAR TOK JUNCTION																		
June 4, 1952		13	0.12	6.0	0.7	2.0	0.8	25	2.6	0.0		0	56	18	0	40.2	7.3	80
JOHNSON RIVER NEAR BIG DELTA																		
June 21, 1951		5.1	0.01	40	7.3	5.2		102	53	0.7	0.2	1.0	163	130	46	283	7.9	5
June 3, 1952		3.9	.04	39	9.2	5.4		94	63	2.5	.1	.6	170	135	58	270	7.4	3
Aug. 26		4.7	.03	39	10	1.6	2.0	90	65	.5	.2	.4	168	138	65	266	7.6	3
Dec. 9		4.7	.02	47	11	1.2	.8	118	73	1.2	.0	.7	198	165	68	322	6.5	2
May 13, 1953		4.6	.02	35	12	2.4	2.8	94	69	.2	.1	.6	173	137	60	283	7.4	2
June 13		3.6	.02	31	11	2.1	2.6	88	55	.0	.0	.4	149	123	50	258	7.5	15
June 30		5.5	.00	36	7.8	2.3	2.8	83	55	1.4	--	.4	152	122	54	266	7.1	0
July 29		5.8	.01	45	9.0	1.8	3.2	106	70	.9	.2	.0	188	149	62	306	7.6	0
VOLKMAR RIVER NEAR BIG DELTA																		
Aug. 14, 1951		11		15	6.4	3.9		70	10	2.0		1.8	85	64	6	138	7.3	30

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
LITTLE GERSTLE RIVER NEAR BIG DELTA																		
June 3, 1952		4.0	0.24	25	6.2	1.7		68	31	2.0	0.1	0.6	121	88	32	174	7.3	70
Aug. 26		7.5	.02	47	12	1.8	2.5	121	66	.2	--	.9	198	167	67	315	7.4	5
May 13, 1953		3.9	.06	33	6.1	1.4	2.0	90	40	.0	--	.9	132	107	34	226	7.1	25
July 29		5.9	.03	41	7.5	2.3	5.0	116	46	.8	.2	.7	166	133	38	280	7.6	0
GERSTLE RIVER NEAR BIG DELTA																		
June 21, 1951		5.3	0.02	36	8.5	5.1		92	54	2.2	0.2	0.8	157	125	49	280	7.7	5
Aug. 26, 1952		3.6	.01	34	9.8	1.9	1.7	85	57	1.0	.2	.5	152	125	56	248	7.5	3
May 13, 1953		3.1	.02	36	7.0	2.4	1.7	82	55	1.0	.2	.5	147	119	51	244	7.2	2
July 29		3.8	.03	28	6.5	1.3	3.0	78	37	.0	.9	.2	119	97	33	214	7.4	4
SEARS CREEK NEAR BIG DELTA																		
Feb. 5, 1952		24	0.02	29	5.0	8.1		101	20	4.5	0.1	0.5	144	93	10	213	7.3	3
Dec. 9,		23	.03	28	4.0	8.3	2.3	108	18	1.8	.1	1.1	140	87	0	209	6.8	9
GOODPASTOR RIVER NEAR BIG DELTA																		
Aug. 16, 1951		12		13	4.0	4.4		51	14	1.0		0.7	74	49	7	112	7.4	8
BANNER CREEK AT RICHARDSON																		
June 21, 1951		15	0.18	23	11	4.5		86	38	0.9	0.1	1.1	136	103	32	211	6.9	40
Feb. 5, 1952		18	.6	32	17	3.4		100	70	.8	.1	1.2	207	150	68	301	7.1	55
June 3		11	.57	12	5.8	.1		40	18	1.5	.0	.5	94	54	21	111	7.2	100
BEAVER CREEK NEAR FAIRBANKS																		
June 20, 1951		6.5	0.18	9.0	2.2	1.7		32	7.7	0.0	0.1	0.9	44	32	5	78.1	7.5	15

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
CHENA RIVER AT FAIRBANKS																		
Oct. 16, 1950	740	15	0.06	27	6.0	1.4		91	16	1.2	--	2.7	114	92	17	187	7.5	8
Mar. 6, 1951	240	17	.07	33	9.3	2.4		127	17	2.0	--	1.7	145	121	17	232	7.5	10
June 3, 1952	--	6.5	.46	15	3.7	0.9		47	14	.8	0.0	.6	80	53	14	105	7.0	80
July 25	--	9.6	.03	20	3.5	2.0	1.1	73	18	1.8	.1	1.7	96	74	14	157	7.1	10
NOYES SLOUGH AT FAIRBANKS																		
June 3, 1952		6.4	0.21	15	3.7	0.7		47	14	0.5	0.0	0.6	82	53	14	105	7.2	60
July 25		9.0	.04	21	5.3	1.8	1.0	73	15	.2	.1	1.8	91	76	16	152	6.9	20
CHENA SLOUGH NEAR FAIRBANKS																		
Oct. 16, 1950		28	0.02	46	9.7	6.9		179	18	1.8		2.1	201	155	8	307	7.8	5
Mar. 6, 1951		21	.01	43	11	2.6		168	17	1.5		.8	180	153	15	285	7.4	8
June 15		20	.03	44	8.6	5.0		168	15	1.4	0.1	.7	178	145	8	306	7.9	5
PHELAN CREEK NEAR RAPIDS																		
June 22, 1951		7.4	0.05	22	4.2	4.2		74	17	1.6	0.0	0.8	94	72	12	167	7.5	5
July 3		7.2	.05	27	2.4	3.7		80	16	1.8		.6	107	77	12	168	7.4	5
PHELAN CREEK NEAR PAXSON																		
July 30, 1953		3.1	0.02	18	2.3	1.6	1.9	56	12	0.8	0.1	0.1	68	54	8	112	6.6	10
MOSS CREEK NEAR PAXSON																		
Aug. 25, 1952		9.8		6.0	1.4	1.7	0.6	22	4.0	0.0		1.2	36	21	3	46.7	6.0	25
WILDHORSE CREEK ON DELTA RIVER NEAR PAXSON																		
Aug. 29, 1952		12		4.2	2.5	1.9	0.7	29	0.0	2.0		0.8	38	21	0	51.1	6.3	20

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
RAINY CREEK ON DELTA RIVER NEAR PAXSON																		
Aug. 9, 1952		7.3		14	3.2	1.8	0.8	50	10	1.0		0.5	63	49	7	109	6.7	2
MILLER CREEK NEAR RAPIDS																		
June 22, 1951		3.7	0.06	15	2.4	2.4		47	12	0.4	0.1	0.9	60	47	9	106	7.5	10
Aug. 31		3.4	.02	25	5.6	3.6		59	40	1.8	.2	.2	118	85	37	184	6.8	5
June 17, 1952		2.9	.06	19	3.0	1.2		50	20	.2	.0	.3	71	60	19	121	7.4	4
Aug. 25		4.5	.09	29	4.9	1.4	1.8	80	26	.0	.1	.8	108	92	27	175	7.1	--
July 30, 1953		2.8	.06	24	4.7	2.0	.7	74	23	.6	.1	.1	95	79	19	164	6.7	20
SOUTH BRANCH CASTNER CREEK NEAR RAPIDS																		
June 17, 1952		2.2	0.03	24	7.8	0.0		71	32	0.0	0.1	0.3	101	92	34	171	7.6	3
July 22		4.1	.03	26	6.8	1.1	1.3	68	35	.5	.2	.2	108	91	35	176	7.7	3
July 29, 1953		2.2	.19	17	3.6	.6	1.6	42	26	0	.2	.2	72	57	23	122	7.4	15
CASTNER CREEK NEAR RAPIDS																		
June 22, 1951		1.8	0.01	25	9.2	3.4		81	38	0.5	0.1	1.0	119	100	34	214	7.7	5
July 3		6.1	.05	34	8.2	1.4		99	36	1.8	--	.6	166	119	37	242	7.5	4
Aug. 31		1.8	.03	29	9.4	2.4		69	55	1.5	.1	.2	133	111	54	232	7.5	5
June 17, 1952		4.0	.06	20	7.0	1.5		68	24	.0	.1	.3	91	79	22	156	7.8	4
June 26		4.6	--	30	7.8	1.9	1.8	91	30	1.0	--	.9	123	108	32	217	7.0	5
July 23		4.1	.02	26	9.7	1.3	1.5	78	42	.5	.1	.2	124	106	41	212	7.7	3
July 3, 1953		2.0	.10	16	3.8	1.3	1.5	40	28	.2	.2	.2	73	56	23	127	7.9	7
CLEAR CREEK NEAR RAPIDS																		
June 22, 1951		4.2	0.01	34	40	6.4		143	138	0.4	0.0	2.3	296	249	132	495	7.9	5
July 21		4.9	--	34	40	26		154	170	2.0	--	1.2	354	249	123	475	7.5	5
June 16, 1952		1.7	.04	23	23	1.4		96	70	1.8	.1	.9	169	152	72	279	7.5	4
DELTA RIVER NEAR RAPIDS																		
July 30, 1953		5.5	0.09	18	2.3	2.3	1.8	60	12	0.0	0.1	0.3	72	54	5	119	7.4	25

MISCELLANEOUS ANALYSES OF STREAMS IN ALASKA--Continued

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
DELTA RIVER AT RAPIDS																		
July 21, 1951		5.1	--	29	6.7	3.2		94	27	1.0	--	0.8	119	100	23	214	7.1	8
June 17, 1952		7.3	0.64	18	4.3	3.4		63	14	2.2	0.1	.5	81	63	11	126	7.5	8
July 22		4.9	.06	20	2.3	2.5		61	13	.5	.1	.5	74	59	9	124	6.9	3
Aug. 25		6.1	.12	21	4.1	2.3	1.5	65	19	.8	.0	1 0	88	69	16	143	6.8	10
DELTA RIVER ABOVE EUREKA CREEK NEAR PAXSON																		
Aug. 28, 1952		7.6		6.8	1.2	2.0	1.0	28	0.0	2.0		1.3	36	22	0	55.7	6.0	50
DELTA RIVER AT EUREKA CREEK NEAR PAXSON																		
July 21, 1952		9.7		2.2	4.7	3.3	0.6	32	3.0	2.0		0.9	42	25	0	65.3	6.5	10
GUNNYSACK CREEK NEAR RAPIDS																		
July 29, 1953		1.6	0.02	22	20	1.7	1.2	93	65	0.2	0.1	0.2	158	137	61	275	7.5	4
FALLS CREEK NEAR RAPIDS																		
July 29, 1953		2.5	0.02	38	39	5.3	1.6	170	123	0.0	0.1	0.6	294	255	116	472	8.0	6
JARVIS CREEK NEAR BIG DELTA																		
July 3, 1951		7.3	0.04	32	9.5	2.1		104	33	2.2	0.1	0.6	156	119	34	247	7.5	5
July 29, 1953		3.2	.06	29	9.3	1.3	1.8	87	43	.2	.1	.4	131	111	39	228	7.4	7
TANANA RIVER AT BIG DELTA																		
July 30, 1953		9.3	0.02	35	5.2	4.3	1.8	107	24	2.0	0.1	0.4	135	109	21	234	7.6	0

Chemical analyses, in parts per million, water years October 1950 to September 1953--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
SHAW CREEK AT SHAW CREEK																		
June 21, 1951		12	0.19	12	6.4	2.6		59	9.1	1.5	0.3	1.6	75	56	8	132	7.0	60
Aug. 1		12	--	21	9.1	3.7		99	12	3.0	--	.7	110	90	9	180	6.9	30
June 3, 1952		10	.10	11	1.7	1.8	1.4	35	7.2	.5	--	1.0	73	34	6	73.6	6.8	60
July 25		14	.14	16	4.8	2.1	1.0	63	9.2	.5	.1	1.8	81	60	8	125	6.8	50
May 13, 1953		10	.09	13	3.9	2.3	1.5	52	10	.8	--	.8	81	48	6	105	6.8	40
July 30		15	1.1	19	6.2	3.0	1.9	83	11	.0	--	1.3	116	73	5	157	6.9	55
SALCHA RIVER AT SALCHAKET																		
June 15, 1951	3,250	7.3	0.06	12	2.6	2.0		40	10	0.2	--	2.0	56	41	8	99.1	7.8	20
Aug. 31	1,600	6.9	.10	18	5.3	3.0		60	22	.5	--	.7	86	67	18	153	7.9	7
Feb. 5, 1952	--	9.6	.01	21	6.3	2.0		67	23	1.5	0.2	1.5	101	78	23	160	6.8	8
June 3	--	5.3	.17	10	3.0	1.6		33	10	1.8	.1	.6	61	37	10	73.4	7.0	80
July 25	--	9.8	.02	15	5.0	1.4	0.9	49	14	.5	.1	1.3	72	59	19	113	7.0	10
Dec. 9, 1952	b360	9.2	.03	20	5.6	2.2	1.2	67	25	.2	.1	1.5	98	74	18	156	6.5	4
June 13, 1953	1,440	6.1	.15	17	4.1	1.9	1.7	54	18	0	.2	1.0	77	59	15	130	7.1	25
July 30	1,520	8.3	.14	18	4.4	1.7	1.3	60	19	.0	.0	.8	83	63	14	141	7.4	15
LITTLE SALCHA RIVER NEAR SALCHAKET																		
June 21, 1951		10	0.27	11	3.4	4.3		51	6.9	0.9	0.1	0.5	62	41	0	93.9	6.9	40
Aug. 31		10	.27	12	4.2	1.7		49	7.9	.8	.3	.8	62	47	7	98.8	7.0	40
June 3, 1952		10	1.1	7.5	2.6	.6		27	6.5	1.0	.0	.7	62	29	7	58.5	6.8	100
May 13, 1953		10	.38	8.4	2.6	1.9	1.3	36	6.1	.5	--	.7	57	32	2	75.5	6.9	30
July 30		11	.60	10	3.1	2.1	1.0	46	5.5	.8	.1	.7	58	38	0	87.6	6.1	55
NENANA RIVER NEAR HEALY FORK																		
Aug. 15, 1953	7,600	4.8	0.02	25	4.8	2.4	2.1	64	36	0.2	0.0	0.4	107	82	30	186	7.3	4
COLVILLE RIVER NEAR UMIAT																		
July 28, 1953	a6,500	1.9		13	4.8	1.5	0.5	53	10	0.5		0.3	59	52	8	109	6.8	

a Instantaneous discharge.
b Estimated discharge.

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