Prepared in cooperation with
ALASKA WATER STUDY COMMITTEE
and the STATE OF ALASKA, DEPARTMENT OF
NATURAL RESOURCES, DIVISION OF GEOLOGICAL
AND GEOPHYSICAL SURVEYS

SURFACE WATER

TABLE 1.—BASIN CHARACTERISTICS OF STATIONS USED IN REGRESSION ANALYSIS.

Station number	Station name	Drainage area A mi²	Main channel slope S ft/mi	Stream length L mi	Mean basin elevation E ft	Area of lakes and ponds LP % of A	Forest area F % of A	Glacier area G % of A	Annual precip-itation P inches	Annual snow-fall Sn inches	January minimum temp. J °F
15239000	Bradley R nr Homer	54.0	191	13.3	2,800	6	7	36	120	200	16
15239500	Fritz C nr Homer	10.4	150	9.8	880	0	68	0	25	70	16
15239800	Diamond C nr Homer	5.35	142	4.7	890	0	37	0	25	70	16
15239900	Anchor R nr Anchor Point	133	45.8	26.2	1,120	0	60	0	25	90	14
15240000	Anchor R at Anchor Point	226	51.0	28.0	970	0	53	0	25	80	13
15240500	Cook Inlet tr nr Ninilchik	1.69	21.0	3.2	150	0	37	0	20	70	12
15241600	Ninilchik R at Ninilchik	131	12.7	21.0	670	1	95	0	20	70	11
15242000	Kasilof R nr Kasilof	738	68.3	55.0	1,810	15	39	28	50	170	10
15243950	Porcupine C nr Primrose	16.8	316	7.4	2,300	0	34	5	70	90	10
15244000	Ptarmigan C at Lawing	32.6	220	14.6	2,800	6	46	12	90	90	10
15246000	Grant C nr Moose Pass	44.2	150	12.8	2,900	10	20	18	90	90	10
15248000	Trail R nr Lawing	181	89.0	28.0	2,470	2	9	11	90	90	10
15250000	Falls C nr Lawing	11.8	477	8.1	3,480	0	19	6	80	90	10
15254000	Crescent C nr Cooper Landing	31.7	136	14.7	2,700	13	38	0	50	110	8
15258000	Kenai R at Cooper Landing	634	26.8	60.0	2,650	5	13	10	80	140	10
15260000	Cooper C nr Cooper Landing	31.8	194	9.9	2,400	16	44	6	60	110	8
15260500	Stetson C nr Cooper Landing	8.60	459	4.8	3,200	0	47	0	50	110	8
15264000	Russian R nr Cooper Landing	61.8	116	23.5	2,100	4	51	12	70	180	10
15266300	Kenai R at Soldotna	2,010	10.7	118	1,750	5	29	11	60	120	8
15266500	Beaver C nr Kenai	51.0	4.75	13.5	140	15	67	0	20	60	6
15267900	Resurrection C nr Hope	149	126	19.8	2,750	0	24	0	30	65	6
15269500	Granite C nr Portage	28.2	236	9.6	2,220	0	36	7	60	80	10
15270400	Donaldson C nr Wibel	4.07	696	3.6	2,580	0	31	0	50	80	10
15271900	Cub C nr Sunrise	1.80	1,460	2.8	2,670	0	11	0	30	80	10
15272530	California C at Girdwood	6.96	745	5.9	2,480	0	36	4	80	140	8
15272550	Glacier C at Girdwood	62.0	455	11.0	2,610	0	28	11	80	160	10
15273900	SF Campbell C at canyon mouth nr Anchorage	25.2	255	9.2	2,760	1	8	0	24	80	6
15274000	SF Campbell C nr Anchorage	30.4	246	11.5	2,530	1	26	0	22	80	6
15274300	NF Campbell C nr Anchorage	13.4	389	10.6	2,670	2	30	0	22	80	6
15274600	Campbell C nr Spenard	69.7	162	19.2	1,680	1	46	0	20	70	6
15274800	SB SF Chester C nr Anchorage	10.8	384	6.0	1,340	0	68	0	18	70	6
15275000	Chester C at Anchorage	20.0	226	11.4	800	1	61	0	18	70	6
15275100	Chester C at Arctic Blvd at Anchorage	27.2	169	12.8	780	1	59	0	17	70	6
15276000	Ship C nr Anchorage	90.5	119	19.0	3,100	1	13	0	34	80	8
15277100	Eagle R at Eagle River	192	112	33.5	3,120	0	15	13	50	90	8
15277200	Meadow C at Eagle River	7.43	533	7.5	2,980	0	20	0	20	70	7
15280000	Eklutna C nr Palmer	119	265	18.0	3,700	3	7	17	55	80	7
15281000	Knik R nr Palmer	1,180	183	43.0	4,000	4	11	54	100	140	6
15282000	Caribou C nr Sutton	289	91.1	30.0	4,190	0	10	0	28	80	2
15282400	Puritan C nr Sutton	8.51	679	3.7	3,000	1	45	0	20	70	0
15284000	Matanuska R at Palmer	2,070	79.7	77.0	4,000	0	14	12	35	80	4
15286000	Cottonwood C nr Wasilla	28.5	44.0	11.4	500	6	85	0	20	55	5
15290000	Little Susitna R nr Palmer	61.9	187	14.9	3,700	0	16	5	50	50	4
15291000	Susitna R nr Denali	950	56.6	51.0	4,510	1	1	25	60	400	-6
15291100	Raft C nr Denali	4.33	617	4.0	4,700	0	12	0	32	350	-8
15291200	Maclaren R nr Paxson	280	133	23.0	4,520	1	0	19	55	400	-6
15291500	Susitna R nr Cantwell	4,140	10.0	107	3,560	2	5	7	32	200	-4
15292000	Susitna R at Gold Creek	6,160	10.2	189	3,420	1	7	5	29	200	-4
15292400	Chulitna R nr Talkeetna	2,570	23.0	87.0	3,760	1	22	27	55	250	-5
15292700	Talkeetna R nr Talkeetna	2,007	35.0	90.3	3,630	0	25	7	70	150	-2
15292800	Montana C nr Montana	164	114	25.0	1,930	3	54	0	40	90	0
15293000	Caswell C nr Caswell	19.6	53.8	12.3	400	3	72	0	35	70	0
15294300	Skwentna R nr Skwentna	2,250	30.6	98.0	2,810	5	34	16	43	140	-5
15294500	Chakachatna R nr Tyonek	1,120	48.8	54.5	3,900	4	17	30	75	400	0

ANNUAL DISCHARGE

The annual discharge of streams in the Cook Inlet basin is dependent on many variables, of which the dominant one is the size of the drainage basin. The Susitna River drains slightly more than one-half of the Cook Inlet basin and has the largest mean annual discharge, about 49,000 ft³/s (cubic feet per second). This figure is based on 3 years of record for a station near the mouth and comparison with a long-term station upstream. In declining order of discharge are other large rivers, the Yentna and Chulitna (both tributaries of the Susitna), the Knik, the Skwentna, and the Kenai.

Variation from year to year in annual discharge is primarily dependent on variation in precipitation. In the Cook Inlet basin the average coefficient of variation (standard deviation divided by mean) for the 38 gaging stations having 5 or more years of record is 0.20. This means that in two-thirds of the years the annual discharge will be within 20 percent of the mean annual discharge; annual discharge rarely varies by more than 50 percent from the mean annual discharge. Glaciers tend to reduce the variation in annual discharge because they release water from ice and firn storage in dry years and store water as snow and firn during wet years. In the Cook Inlet basin there are 10 gaging stations that have more than 15 percent of their drainage area covered by glaciers (table 1). The average coefficient of variation for these stations is 0.14.

An equation to estimate mean annual discharge at ungaged locations was determined by regression analysis using data for gaged stations. The independent variables in the regression analysis were the basin characteristics, which consist of seven physical and three climatic characteristics.

Information about the physical characteristics was obtained from U.S. Geological Survey topographic maps. Drainage area (A), in square miles (mi²), is the total drainage area upstream from the gaging site and is determined by planimetry. Main-channel slope (S), in feet per mile, is the average slope between points 10 percent and 85 percent of the distance along the main stream from the gaging site to the basin divide. Stream length (L), in miles, is the length of the main channel between the gaging site and the basin divide measured along the channel that drains the largest basin. Mean basin elevation (E), in feet above sea level, is the mean elevation of the drainage basin measured by the grid-sampling method. Area of lakes and ponds (LP), in percent, is the percentage of the total drainage area occupied by lakes and ponds and is measured by the grid-sampling method from topographic maps having a blue overprint which indicates lakes and ponds. Area of forests (F), in percent, is the percentage of the total drainage area shown as forested. This is measured by the grid-sampling method from topographic maps having a green overprint which indicates forest cover. Area of glacier (G), in percent, is the percentage of the total drainage area shown as glacier and is measured by the grid-sampling method.

The three climatic characteristics were determined from isohyetal maps using the grid-sampling method. Mean annual precipitation (P) and Mean annual snowfall (Sn), both in inches, were obtained from National Weather Service publications (National Weather Service, 1972). The Mean minimum January temperature (J), in degrees Fahrenheit, was calculated from a map by Johnson and Hartman (1969).

Gaging stations with 5 or more years of annual discharge record were selected for use in the regression analysis. Thirty-eight gaging stations in the Cook Inlet basin meet this criterion, and their mean annual discharge are shown in table 2. The basin characteristics for the 38 gaging stations used in the annual discharge regression analysis and for additional stations used in other regression analyses explained in later sections of this report are included in table 1. It was necessary to add the value of 1 to LP, F, and G and the value of 10 to J to avoid 0 or negative numbers in using the logarithms of the variables.

Using the standard step-backward regression procedure, only A, P, and E were seen to be significant at the five percent level, and mean annual discharge could be calculated with a standard error of +24 and -20 percent. The relationship $Q_a = 0.0119\ A^{0.99}\ E^{0.22}\ P^{0.93}$ indicates that the mean annual discharge is almost directly proportional to drainage area. Annual precipitation is a significant factor in determining mean annual discharge, and mean elevation of the basin is a positive, but less significant, factor.

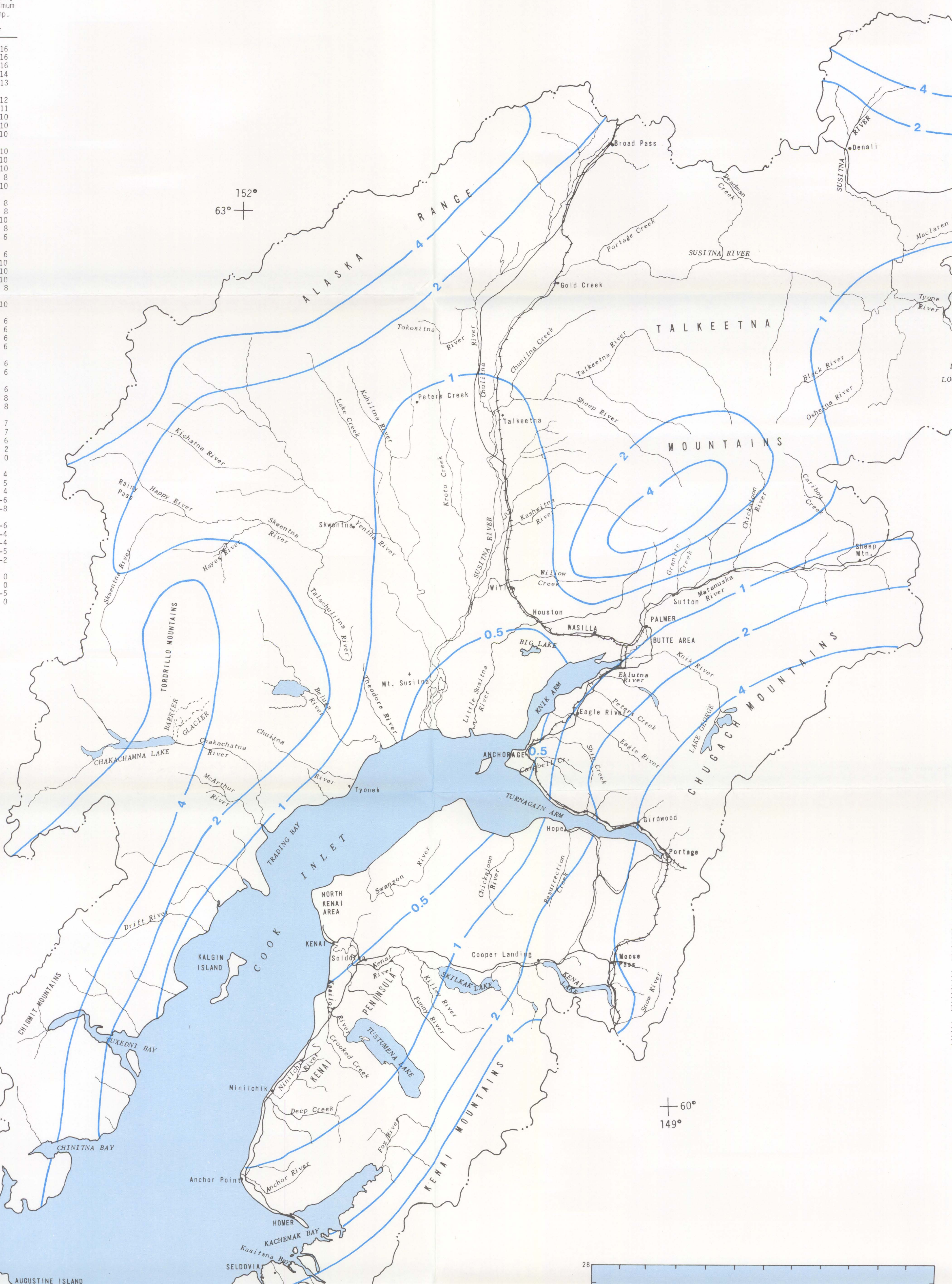
As an example of a calculation of discharge for an ungaged basin, the mean annual discharge for the Susitna River near its mouth is estimated as follows: The three significant independent variables were determined from the appropriate maps as: Drainage area (A) = 19,400 mi²; mean basin elevation (E) = 3,200 ft; mean annual precipitation (P) = 45 in.

$$Q_a = 0.0119\ A^{0.99}\ E^{0.22}\ P^{0.93}$$
$$Q_a = 0.0119\ (19{,}400)^{0.99}\ (3{,}200)^{0.22}\ (45)^{0.93}$$
$$Q_a = 43{,}000\ ft^3/s.$$

In estimating discharge characterisics for ungaged streams in the basin, it is important to use the same methods and maps as were used in the report in deriving the basin characteristics for the ungaged site. It is also important to use values within the range of basin characteristic values used in the regression analysis. Unrealistic values of discharge may result if these guidelines are not followed.

The 38 gaging stations are not evenly distributed throughout the Cook Inlet basin; 26 stations are on the Kenai Peninsula or in the Anchorage area. Therefore, use of the equation in areas such as the west side of Cook Inlet or the nonmountainous areas of the Susitna River basin may also give unrealistic results.

Dividing the mean annual discharge by the drainage area gives the mean annual unit runoff (discharge per square mile). Mean annual precipitation is the dominant factor in determing mean annual unit runoff. In the study area, the largest amounts of precipitation occur in the Kenai, Chugach, and Talkeetna Mountains and the Alaska Range. In the higher elevations of these mountains, annual unit runoff is in excess of 4 (ft³/s)/mi² (cubic feet per second per square mile), and in some areas of the Chugach and Kenai Mountains this value probably exceeds 8 (ft³/s)/mi². The lowest annual unit runoff occurs at the lower elevations of the leeward side of the Chugach and Kenai Mountains. The Kenai lowlands, Anchorage flats, and the low-lying area between the Knik Arm and Mount Susitna have annual unit runoff of less than 0.5 (ft³/s)/mi². The accompanying map shows areal distribution of mean annual unit runoff in the Cook Inlet basin. This map was drawn on the basis of mean annual unit runoff values for the 38 gaging stations and computed values from the mean annual discharge regression equation given above. The contours are highly speculative on the west side of Cook Inlet, on the west side of the Susitna River basin, and in most mountain areas.



MEAN ANNUAL RUNOFF, IN CUBIC FEET PER SECOND PER SQUARE MILE (Based on annual runoff for 38 gaging stations and regression equation).

MONTHLY DISCHARGE

The seasonal distribution of streamflow reflects the influence of precipitation, air temperature, solar radiation, and natural storage in the drainage basin. Figure 10 shows the seasonal trend for three types of streams in the Cook Inlet basin--the lowland streams, typified by streams on the west side of the Kenai Peninsula and in the Anchorage area; the low-elevation mountain streams which do not flow from glaciers; and the high-elevation mountain streams which usually are fed by glaciers.

Kenai Peninsula - Anchorage Lowlands

Streamflow generally decreases from November through March, with the annual minimum ocurring in February or March. During the period from December to March, 20 percent of the annual flow is discharged, with about 4 percent being discharged during the month having minimum flow. The increase in solar radiation in April and May and above-freezing air temperatures result in snowmelt-related peak discharges in April or early May. About 17 percent of the annual discharge occurs during May, the month of maximum flow in this part of the study area. Streamflow decreases during the dry period, June and July; summer low flows are only slightly greater than winter low flows. Streamflow increases in August, September, and October due to rainstorms and decreased evapotranspiration. During the period May through September, 53 percent of the annual flow is discharged.

Low-Elevation Mountain Area

Streamflow in this area begins to decrease in October and reaches its minimum in March. From December through March, 10 percent of the annual flow is discharged; March, the minimum flow month, contributes about 2 percent of the annual flow. Streamflow begins to increase in late April due to snowmelt and increases through June, the maximum flow month, when about 22 percent of the annual flow is discharged. After most of the snow has melted, streamflow diminishes through July and August, but summer low flows are from four to eight times greater than winter low flows. Fall rainstorms tend to moderate the rate of recession, so that September streamflow is only slightly less than that of August. Between May and September, 73 percent of the annual flow is discharged.

High-Elevation Mountain Area

The seasonal distribution of streamflow in this area exhibits the widest range of values of the study area. Only 6 percent of the annual flow occurs from December through March, whereas 84 percent occurs between May and September. Streamflow is at a minimum in March or April; each of these months accounts for only 1 percent of the annual flow. Streamflow begins to increase in May due to snowmelt and increases rapidly throughout June. The flow peaks in July or August, and July is usually the maximum flow month. During September the decrease in streamflow caused by the decrease in solar radiation and lower air temperatures far exceeds any increase due to rainstorms. The rapid decrease continues through October.

Monthly discharge equations for ungaged sites

Equations to estimate monthly streamflow at ungaged sites in Cook Inlet basin were obtained by regression analysis. The number of streams representing each of the three basin types discussed above is too small to give statistically reliable results from regression analyses for each basin type. The mean monthly discharge for each month for the 38 gaging stations that have 5 or more years of record and the basin characteristics that are described in "Annual Discharge" were used as input. The mean monthly discharges are shown in table 3.

The regression equation takes the form:

$$q_n = aA^bE^c(LP + 1)^d(G + 1)^eP^f(J + 10)^g$$

where

q_n = dependent variable, the mean monthly discharge for the nth month where n=1=January, n=10=October, and so forth.

a = regression constant

b to g = regression coefficients for the independent variables (basin characteristics).

A, E, LP, G, P, and J = basin characteristics as defined in "Annual Discharge"

The results of the regression analysis including the standard error of estimate are given in the table below. Only the independent variables that were statistically significant were used in the final equations.

Dependent Variable q_n	Regression Constant a	Regression Coefficient b	c	d	e	f	g	Standard Error of Estimate +	−
q_{10}	0.0194	0.99				0.90	0.47	40	29
q_{11}	.0200	.92		0.19		.72	.54	40	29
q_{12}	.0323	.91		.15		.57	.44	41	29
q_1	.0399	.92				.49	.42	49	33
q_2	.0360	.94				.42	.44	51	34
q_3	.268	.97	-0.29			.48	.35	49	33
q_4	1.14	.98	- .43			.39	.44	42	30
q_5	.0421	1.04		-.18	-0.25	1.13		58	37
q_6	.000971	.96	.75			.74		37	27
q_7	.00150	.95	.68		.21	.70		30	23
q_8	.00665	.97	.49		.30	.59		36	26
q_9	.00832	1.00	.22			1.11		43	30

Drainage area and annual precipitation are significant in each equation. The mean minimum January air temperature is significant for October through April and probably indicates that winter discharge is greater near the coast and at lower elevations where the air temperature is higher. The elevation parameter is significant in the low-flow months of March and April when there is less streamflow at higher elevations. It is also significant from June through September, reflecting the greater snowmelt at higher elevations. Lake and pond storage is significant in November and December when water in storage is slowly released to augment streamflow. In May snowmelt goes into lake and pond storage which then moderates the increase in streamflow downstream from the storage. The glacier parameter is significant in May when there is little snowmelt in glacier areas and also in the peak snow and ice melt months of July and August. Using these equations for areas where there is little data, especially for annual precipitation and mean minimum January air temperature, may provide unrealistic results.

TABLE 2.—MEAN ANNUAL DISCHARGE (DATA THROUGH 1976 WATER YEAR).

Station number	Station name	Drainage area mi²	Mean annual discharge ft³/s	(ft³/s)/mi²	inches	Years of record
15239000	Bradley R nr Homer	54.0	408	7.56	102.60	19
15239900	Anchor R nr Anchor Point	133	184	1.38	18.79	8
15240000	Anchor R at Anchor Point	226	299	1.32	17.97	13
15241600	Ninilchik R at Ninilchik	131	103	0.79	10.68	13
15242000	Kasilof R nr Kasilof	738	2,385	3.23	43.89	21
15244000	Ptarmigan C at Lawing	32.6	111	3.40	46.24	11
15246000	Grant C nr Moose Pass	44.2	193	4.37	59.30	11
15248000	Trail R nr Lawing	181	780	4.31	58.52	27
15254000	Crescent C nr Cooper Landing	31.7	75.8	2.39	32.47	17
15258000	Kenai R at Cooper Landing	634	2,678	4.22	57.36	29
15260000	Cooper C nr Cooper Landing	31.8	90.1	2.83	38.48	9
15260500	Stetson C nr Cooper Landing	8.6	24.8	2.88	39.16	5
15264000	Russian R nr Cooper Landing	61.8	124	2.01	27.30	7
15266300	Kenai R at Soldotna	2,010	5,341	2.66	36.08	11
15266500	Beaver C nr Kenai	51	25.8	0.51	6.87	9
15267900	Resurrection C nr Hope	149	244	1.64	22.24	9
15272550	Glacier C at Girdwood	62.0	253	4.08	55.42	11
15273900	SF Campbell C at canyon mouth nr Anchorage	25.2	38.4	1.52	20.70	10
15274000	SF Campbell C nr Anchorage	30.4	38.3	1.26	17.11	24
15274600	Campbell C nr Spenard	69.7	57.3	0.82	11.16	10
15275000	Chester C at Anchorage	20.0	18.2	0.91	12.36	18
15275100	Chester C at Arctic Blvd at Anchorage	27.2	16.3	0.60	8.14	10
15276000	Ship C nr Anchorage	90.5	157	1.73	23.56	30
15277100	Eagle R at Eagle River	192	495	2.58	35.01	11
15280000	Eklutna C nr Palmer	119	346	2.91	39.48	8
15281000	Knik R nr Palmer	1,180	6,761	5.73	77.81	17
15282000	Caribou C nr Sutton	289	299	1.03	14.05	21
15284000	Matanuska R at Palmer	2,070	3,857	1.86	25.30	24
15286000	Cottonwood C nr Wasilla	28.5	15.8	0.55	7.53	5
15290000	Little Susitna R nr Palmer	61.9	202	3.26	44.32	28
15291000	Susitna R nr Denali	950	2,688	2.83	38.42	17
15291200	Maclaren R nr Paxson	280	973	3.48	47.19	18
15291500	Susitna R nr Cantwell	4,140	6,242	1.51	20.47	10
15292000	Susitna R at Gold Creek	6,160	9,650	1.57	21.28	27
15292400	Chulitna R nr Talkeetna	2,570	8,748	3.40	46.22	14
15292700	Talkeetna R nr Talkeetna	2,007	4,029	2.01	27.27	12
15294300	Skwentna R nr Skwentna	2,250	6,156	2.74	37.16	17
15294500	Chakachatna R nr Tyonek	1,120	3,645	3.25	44.20	13

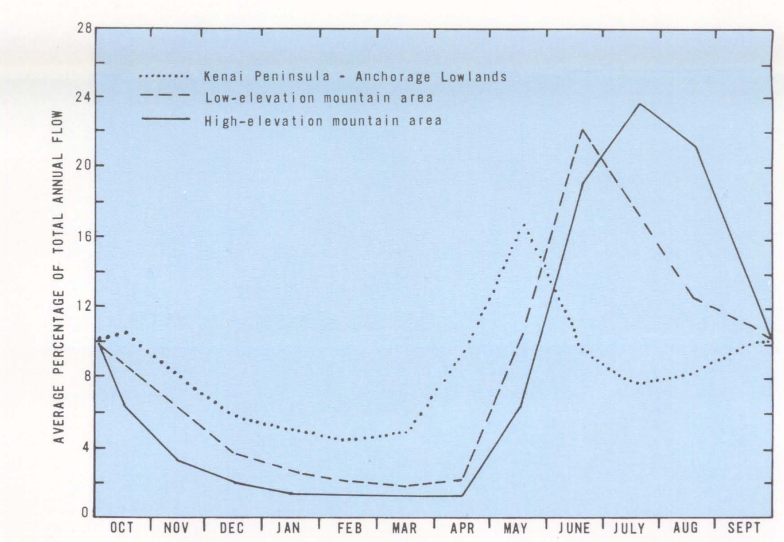


FIGURE 10.—Monthly contribution to total annual streamflow.

TABLE 3.—MEAN MONTHLY DISCHARGE (DATA THROUGH 1976 WATER YEAR).

Station number	Station name	Mean monthly discharge, in ft³/s: Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
15239000	Bradley R nr Homer	430	177	91.1	64.1	48.6	40.2	43.0	257	743	1,016	1,076	884
15239900	Anchor R nr Anchor Point	239	144	84.3	69.8	69.2	74.8	175	577	305	131	139	202
15240000	Anchor R at Anchor Point	351	232	135	128	121	151	323	914	392	218	247	342
15241600	Ninilchik R at Ninilchik	128	90.0	57.5	50.8	53.7	61.6	148	231	121	83.1	86.3	119
15242000	Kasilof R nr Kasilof	4,001	2,042	1,142	716	569	515	517	664	1,369	3,848	6,628	6,404
15244000	Ptarmigan C at Lawing	113	89.2	42.2	23.5	17.1	14.2	21.9	88.4	247	275	211	170
15246000	Grant C nr Moose Pass	184	119	55.8	30.9	23.2	19.6	30.7	152	448	518	413	307
15248000	Trail R nr Lawing	648	400	231	147	109	98.8	155	670	1,716	2,081	1,774	1,259
15254000	Crescent C nr Cooper Landing	76.8	62.7	36.5	27.3	20.7	17.9	24.6	86.3	193	157	105	100
15258000	Kenai R at Cooper Landing	2,923	1,777	970	606	457	388	422	1,617	5,086	6,670	6,117	4,965
15260000	Cooper C nr Cooper Landing	97.6	85.5	39.9	26.9	21.7	17.4	20.0	80.6	214	204	136	122
15260500	Stetson C nr Cooper Landing	21.0	12.5	9.54	8.87	6.10	4.92	5.81	34.3	77.3	52.9	34.1	31.4
15264000	Russian R nr Cooper Landing	162	189	95.1	48.7	38.4	30.1	42.0	197	262	179	115	111
15266300	Kenai R at Soldotna	6,411	2,728	1,714	1,517	1,267	1,149	1,186	2,456	7,221	12,160	13,730	11,830
15266500	Beaver C nr Kenai	34.3	24.3	18.1	15.1	14.5	16.6	35.3	59.1	26.6	19.6	21.3	24.3
15267900	Resurrection C nr Hope	285	161	114	87.6	71.8	68.6	71.2	287	624	536	337	273
15272550	Glacier C at Girdwood	265	117	70.1	40.5	37.8	30.9	57.1	307	603	594	471	435
15273900	SF Campbell C at canyon mouth nr Anchorage	44.5	28.7	20.5	16.3	13.3	11.1	11.0	33.5	88.5	77.8	58.0	56.9
15274000	SF Campbell C nr Anchorage	44.4	26.8	17.1	12.8	9.14	7.42	8.52	35.1	95.6	76.4	63.0	61.6
15274600	Campbell C nr Spenard	71.7	42.0	29.7	20.3	13.5	13.8	25.1	55.0	122	113	92.5	88.3
15275000	Chester C at Anchorage	24.3	17.0	14.3	12.1	10.6	11.0	19.8	22.3	20.7	20.1	21.8	24.6
15275100	Chester C at Arctic Blvd at Anchorage	21.6	14.8	11.8	10.4	8.78	10.1	18.8	19.9	17.5	18.5	20.5	23.7
15276000	Ship C nr Anchorage	161	92.7	63.3	47.7	38.2	33.0	37.4	164	453	326	241	228
15277100	Eagle R at Eagle River	313	120	83.5	60.7	50.0	49.2	66.3	231	931	1,651	1,522	822
15280000	Eklutna C nr Palmer	201	142	134	129	113	102	94.2	105	502	1,098	980	528
15281000	Knik R nr Palmer	4,142	1,708	852	630	544	463	697	3,184	11,740	24,260	20,530	11,810
15282000	Caribou C nr Sutton	215	54.3	33.1	23.0	18.2	17.6	37.2	565	1,241	639	460	333
15284000	Matanuska R at Palmer	1,923	968	709	611	513	466	640	2,741	10,030	12,840	10,150	4,847
15286000	Cottonwood C nr Wasilla	20.5	20.6	17.2	15.6	13.7	14.6	16.4	15.5	13.3	19.8	18.8	18.6
15290000	Little Susitna R nr Palmer	119	57.0	35.9	28.4	22.1	18.2	20.9	194	678	521	440	286
15291000	Susitna R nr Denali	1,161	495	310	237	198	181	226	2,048	7,349	9,382	7,932	3,263
15291200	Maclaren R nr Paxson	415	172	113	91.0	79.1	71.8	83.0	841	2,923	3,152	2,559	1,154
15291500	Susitna R nr Cantwell	3,121	1,441	993	833	744	714	885	8,227	19,090	16,780	13,930	7,618
15292000	Susitna R at Gold Creek	5,660	2,419	1,723	1,420	1,204	1,079	1,340	13,370	28,010	23,810	21,880	13,530
15292400	Chulitna R nr Talkeetna	4,859	1,994	1,457	1,276	1,095	976	1,158	8,511	22,540	26,330	22,190	11,740
15292700	Talkeetna R nr Talkeetna	2,566	1,153	814	658	558	491	562	4,115	11,810	10,280	9,621	5,649
15294300	Skwentna R nr Skwentna	4,060	1,691	1,139	962	838	774	971	7,578	18,010	16,630	12,780	8,112
15294500	Chakachatna R nr Tyonek	2,468	1,206	813	613	505	445	441	1,042	5,875	11,950	12,000	6,042

WATER RESOURCES OF THE COOK INLET BASIN, ALASKA

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1980

Interior — Geological Survey, Reston, Va. — 1980 — W80017

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