15199500 SINONA CREEK NEAR CHISTOCHINA

LOCATION.--Lat 62°35'28", long 144°38'48", in SW¼ of NW¼ sec. 3, T. 9 N., R. 4 E., (Gulkana C-2 quad), Hydrologic Unit 19020101, on downstream left bank, at Glenn Highway/Tok Cutoff (Alaska Route 1) bridge, 1.8 miles NE of Chistochina.

DRAINAGE AREA.-- 167 mi^2

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,900 ft. above sea level, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	90
2	---	---	---	---	---	---	---	---	---	---	---	84
3	---	---	---	---	---	---	---	---	---	---	---	75
4	---	---	---	---	---	---	---	---	---	---	---	68
5	---	---	---	---	---	---	---	---	---	---	---	63
6	---	---	---	---	---	---	---	---	---	---	---	59
7	---	---	---	---	---	---	---	---	---	---	---	59
8	---	---	---	---	---	---	---	---	---	---	---	58
9	---	---	---	---	---	---	---	---	---	---	---	65
10	---	---	---	---	---	---	---	---	---	---	---	70
11	---	---	---	---	---	---	---	---	---	---	---	80
12	---	---	---	---	---	---	---	---	---	---	---	90
13	---	---	---	---	---	---	---	---	---	---	---	88
14	---	---	---	---	---	---	---	---	---	---	---	95
15	---	---	---	---	---	---	---	---	---	---	---	91
16	---	---	---	---	---	---	---	---	---	---	---	81
17	---	---	---	---	---	---	---	---	---	---	---	73
18	---	---	---	---	---	---	---	---	---	‡28	---	69
19	---	---	---	---	---	---	---	---	---	---	---	67
20	---	---	---	---	---	---	---	---	---	---	---	66
21	---	---	---	---	---	---	---	---	---	---	---	63
22	---	---	---	---	---	---	---	---	---	---	---	59
23	---	---	---	---	---	---	---	---	---	---	---	57
24	---	---	---	---	---	---	---	---	---	---	---	58
25	---	---	---	---	---	---	---	---	---	---	---	68
26	---	---	---	---	---	---	---	---	---	---	---	67
27	---	---	---	---	---	---	---	---	---	---	---	55
28	---	---	---	---	---	---	---	---	---	---	‡163	70
29	---	---	---	---	---	---	---	---	---	---	---	70
30	---	---	---	---	---	---	---	---	---	---	---	65
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	2123
MEAN	---	---	---	---	---	---	---	---	---	---	---	70.8
MAX	---	---	---	---	---	---	---	---	---	---	---	95
MIN	---	---	---	---	---	---	---	---	---	---	---	55
AC-FT	---	---	---	---	---	---	---	---	---	---	---	4210

‡ Result of discharge measurement

15199500 SINONA CREEK NEAR CHISTOCHINA—Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	60	e14	e5.7	e5.5	e13	e6.1	e25	66	18	15	17
2	73	e58	e13	e5.7	e5.5	e13	e6.1	e28	68	20	14	16
3	85	e55	e12	e5.7	e5.6	e13	e6.1	e35	76	20	14	16
4	104	e52	e11	e5.7	e5.8	e12	e6.1	e40	73	21	15	16
5	100	e50	e10	e5.7	e6.0	e12	e6.3	e46	64	20	15	15
6	87	e48	e9.8	e5.7	e7.1	e11	e6.3	e54	58	19	14	15
7	86	e45	e9.5	e5.7	e8.0	e11	e6.8	e65	51	18	13	14
8	96	e42	e9.0	e5.6	e9.0	e10	e7.3	e77	58	17	12	14
9	95	e40	e8.5	e5.6	e10	e9.2	e7.5	e100	58	17	12	14
10	91	e36	e8.0	e5.6	e12	e8.5	e7.7	145	50	16	11	14
11	72	e33	e7.7	e5.6	e14	e7.9	e8.0	180	43	16	11	14
12	65	e29	e7.3	e5.6	e14	e7.2	e8.2	205	39	16	13	15
13	63	e27	e7.0	e5.6	e14	e6.8	e8.3	206	35	15	12	17
14	65	e25	e6.8	e5.6	e14	e6.4	e8.5	180	34	16	12	16
15	67	e23	e6.5	e5.6	e13	e6.3	e8.8	163	34	16	12	16
16	78	e21	e6.2	e5.6	e12	e6.2	e9.0	e156	31	16	13	15
17	104	e19	e6.0	e5.6	e12	e6.2	e9.3	e149	29	14	13	15
18	118	e18	e5.9	e5.5	e11	e6.2	e9.5	e140	27	14	13	15
19	131	e17	e5.8	e5.5	e11	e6.4	e9.8	e134	26	13	12	15
20	146	e16	e5.8	e5.5	e10	e6.5	e10	e131	29	13	11	15
21	163	e16	e5.8	e5.5	e10	e6.7	e11	e126	28	14	12	15
22	149	e15	e5.8	e5.5	e10	e6.7	e11	e120	27	15	13	15
23	127	e15	e5.8	e5.5	e10	e6.5	e12	e117	29	15	12	14
24	111	e15	e5.8	e5.5	e10	e6.4	e13	e114	26	14	12	15
25	97	e15	e5.8	e5.5	e12	e6.3	e14	e116	23	14	12	15
26	81	e16	e5.8	e5.5	e12	e6.2	e15	e127	22	14	12	16
27	73	e16	e5.8	e5.5	e13	e6.3	e16	125	21	13	12	15
28	e70	e16	e5.8	e5.5	e13	e6.3	e18	122	21	13	12	15
29	67	e15	e5.7	e5.5	---	e6.2	e20	102	20	13	11	15
30	62	e15	e5.7	e5.5	---	e6.2	e22	88	19	13	12	15
31	60	---	e5.7	e5.5	---	e6.1	---	76	---	14	16	---
TOTAL	2850	868	233.3	172.9	289.5	248.7	307.7	3492	1185	487	393	454
MEAN	91.9	28.9	7.53	5.58	10.3	8.02	10.3	113	39.5	15.7	12.7	15.1
MAX	163	60	14	5.7	14	13	22	206	76	21	16	17
MIN	60	15	5.7	5.5	5.5	6.1	6.1	25	19	13	11	14
AC-FT	5650	1720	463	343	574	493	610	6930	2350	966	780	901

SUMMARY STATISTICS	FOR 2003 WATER YEAR	
ANNUAL TOTAL	10981.1	
ANNUAL MEAN	30.1	
HIGHEST ANNUAL MEAN		
LOWEST ANNUAL MEAN		
HIGHEST DAILY MEAN	206	May 13
LOWEST DAILY MEAN	a5.5	Jan 18
ANNUAL SEVEN-DAY MINIMUM	5.5	Jan 18
MAXIMUM PEAK FLOW	231	May 13
MAXIMUM PEAK STAGE	7.23	May 13
MAXIMUM PEAK STAGE	b9.63	Apr 27
ANNUAL RUNOFF (AC-FT)	21780	
ANNUAL RUNOFF (CFSM)	0.18	
ANNUAL RUNOFF (INCHES)	2.45	
10 PERCENT EXCEEDS	87	
50 PERCENT EXCEEDS	14	
90 PERCENT EXCEEDS	5.7	

a Jan. 18 to Feb. 2
b Backwater from ice
e Estimated

15200280 GULKANA RIVER AT SOURDOUGH

LOCATION.--Lat 62°31'15", long 145°31'51", in SE¼ NE¼ sec. 35, T. 9 N., R. 2 W. (Gulkana C-4 quad), Hydrologic Unit 19020102, near left bank on downstream side of pier of Alyeska Pipeline Service Company bridge, 0.3 mi downstream from Sourdough Creek and 0.8 mi southwest of Sourdough.

DRAINAGE AREA.--1,770 mi^2.

PERIOD OF RECORD.--October 1972 to September 1978, May to September 1982, October 1988 to September 1993, May 1997 to current year.

REVISED RECORDS.--WRD AK-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,845.96 ft above sea level (levels of Alyeska Engineering).

REMARKS.--Records good except for estimated daily discharges, which are poor. Rain gage at station. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2340	1670	e1200	e880	e720	e620	e530	e1150	2770	1200	1280	1330
2	3690	1640	e1150	e870	e720	e620	e520	e1250	3060	1160	1240	1790
3	4050	1660	e1150	e870	e720	e620	e520	e1400	2800	1280	1150	1860
4	3500	1750	e1150	e870	e720	e610	e520	e1550	2480	1690	1070	2110
5	3040	1760	e1100	e870	e720	e590	e520	e1700	2250	1840	1010	2010
6	2770	1670	e1100	e860	e710	e580	e520	e1900	2150	1660	964	1790
7	2600	1570	e1100	e850	e700	e580	e520	e2050	2150	1500	911	1600
8	2590	1550	e1050	e840	e690	e580	e520	2300	2060	1390	863	1450
9	2510	e1500	e1050	e840	e690	e570	e520	2450	1920	1290	822	1340
10	2210	e1400	e1050	e830	e680	e570	e520	2490	1810	1190	778	1290
11	2120	e1400	e1050	e820	e680	e570	e520	2490	1730	1120	751	1230
12	2060	e1400	e1000	e820	e680	e570	e520	2600	1690	1060	735	1180
13	1990	e1400	e1000	e820	e680	e570	e520	2740	1660	1020	719	1210
14	1940	e1300	e1000	e820	e670	e560	e520	2940	1570	983	720	1240
15	1880	e1300	e1000	e810	e660	e560	e525	2840	1540	945	722	1200
16	1930	e1300	e990	e800	e660	e560	e530	2690	1630	923	722	1120
17	2080	e1300	e990	e800	e650	e560	e535	2700	1630	883	718	1070
18	2170	e1200	e990	e800	e650	e560	e540	3220	1590	854	702	1030
19	2230	e1200	e970	e800	e640	e550	e545	3270	1550	832	707	963
20	2360	e1100	e960	e800	e640	e550	e555	2950	1600	800	705	924
21	2590	e1100	e950	e790	e640	e550	e565	2640	1820	785	692	914
22	2630	e1100	e950	e780	e640	e550	e595	2450	2010	770	700	883
23	2490	e1200	e950	e760	e640	e540	e630	2330	2000	780	692	853
24	2360	e1200	e930	e750	e640	e540	e680	2270	1930	807	685	849
25	2200	e1200	e930	e740	e630	e540	e720	2350	1820	785	693	875
26	2080	e1200	e920	e730	e630	e540	e770	2540	1660	768	736	935
27	1970	e1200	e900	e720	e630	e530	e830	2740	1530	770	771	957
28	1730	e1200	e890	e720	e630	e530	e900	2680	1420	843	796	976
29	1810	e1200	e890	e720	---	e530	e980	2520	1340	980	797	1020
30	1800	e1200	e890	e720	---	e530	e1050	2460	1260	1040	792	1140
31	1730	---	e890	e720	---	e530	---	2480	---	1190	899	---
TOTAL	73450	40870	31140	24820	18760	17460	18240	74140	56430	33138	25542	37139
MEAN	2369	1362	1005	801	670	563	608	2392	1881	1069	824	1238
MAX	4050	1760	1200	880	720	620	1050	3270	3060	1840	1280	2110
MIN	1730	1100	890	720	630	530	520	1150	1260	768	685	849
AC-FT	145700	81070	61770	49230	37210	34630	36180	147100	111900	65730	50660	73670
CFSM	1.34	0.77	0.57	0.45	0.38	0.32	0.34	1.35	1.06	0.60	0.47	0.70
IN.	1.54	0.86	0.65	0.52	0.39	0.37	0.38	1.56	1.19	0.70	0.54	0.78

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY)#

MEAN	1064	598	444	373	327	315	476	3074	2709	1485	1335	1440
MAX	2369	1362	1005	801	670	563	1344	5630	4969	2696	2821	4253
(WY)	2003	2003	2003	2003	2003	2003	1993	1989	1977	1992	1992	1990
MIN	437	287	208	200	200	200	227	836	1150	637	714	505
(WY)	1975	1976	1974	1974	1974	1974	2000	2002	1998	1976	1989	1974

15200280 GULKANA RIVER AT SOURDOUGH—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003#	
ANNUAL TOTAL	467513		451129			
ANNUAL MEAN	1281		1236		1138	
HIGHEST ANNUAL MEAN					1564	1992
LOWEST ANNUAL MEAN					658	1998
HIGHEST DAILY MEAN	7070	Aug 22	4050	Oct 3	12100	Sep 12 1990
LOWEST DAILY MEAN	a270	Apr 16	b520	Apr 2	c200	Dec 6 1973
ANNUAL SEVEN-DAY MINIMUM	270	Apr 16	520	Apr 2	200	Dec 6 1973
MAXIMUM PEAK FLOW			4290	Oct 3	d12700	Sep 12 1990
MAXIMUM PEAK STAGE			8.01	Oct 3	11.26	Sep 12 1990
MAXIMUM PEAK STAGE			f11.12	Apr 29		
ANNUAL RUNOFF (AC-FT)	927300		894800		824400	
ANNUAL RUNOFF (CFSM)	0.72		0.70		0.64	
ANNUAL RUNOFF (INCHES)	9.83		9.48		8.74	
10 PERCENT EXCEEDS	2600		2360		2620	
50 PERCENT EXCEEDS	1000		980		650	
90 PERCENT EXCEEDS	290		560		250	

\# See period of record, partial years used in monthly statistics
a Apr. 16-28
b Apr. 02-14
c Dec. 6, 1973 to Apr. 12, 1974
d From rating curve extended above 4,600 ft^3/s
e Estimated
f Backwater from ice

15215990 NICOLET CREEK NEAR CORDOVA

LOCATION.--Lat 60°31'09", long 145°47'23", in SW¼ SW¼ SE¼ sec. 32, T. 15 S., R. 3 W. (Cordova C-5 quad), Hydrologic Unit 19020201, on right bank 275 ft upstream from culvert for Whitshed Road, 475 ft upstream from mouth and 2.1 mi southwest of Cordova.

DRAINAGE AREA.--0.75 mi^2.

PERIOD OF RECORD.--Annual maximum, water years 1991-99. September 1999 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 40 ft above sea level, from topographic map.

REMARKS.--Records good except for discharges greater than 60 ft^3/s, which are fair; and estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	20	9.7	2.1	9.7	13	0.44	0.37	e9.5	e2.0	1.7	2.2
2	3.7	34	4.5	1.2	14	4.0	0.45	0.32	e3.0	e3.5	1.6	1.9
3	1.7	9.2	4.7	20	65	2.7	0.46	0.29	e2.0	e2.5	1.0	18
4	1.3	32	21	23	80	1.5	0.40	0.35	e1.0	e2.0	0.81	9.2
5	2.5	5.4	3.3	4.5	124	0.98	0.36	7.1	e22	e1.5	0.64	2.3
6	14	14	1.7	2.6	11	0.66	0.38	12	e26	e1.5	0.53	1.5
7	34	5.6	12	1.6	2.9	0.65	0.37	1.9	e8.0	e1.0	0.45	1.2
8	2.5	1.9	10	1.2	4.2	0.63	1.8	1.0	e4.0	e1.0	0.39	0.97
9	1.3	1.3	4.7	1.2	15	e0.50	2.3	3.9	e2.5	e1.0	0.34	2.9
10	0.97	1.5	18	1.1	84	e0.50	7.1	68	e2.0	e0.50	0.31	1.6
11	4.1	14	11	6.1	51	e0.50	3.3	46	e1.5	e0.50	0.30	1.1
12	24	3.6	2.2	4.1	18	e0.10	2.1	13	e1.0	e0.50	12	1.0
13	7.9	16	5.9	2.8	4.1	e0.10	2.7	4.1	e1.0	e0.50	48	0.97
14	8.1	24	2.2	2.2	1.9	2.2	2.5	3.1	e1.0	e0.50	43	0.73
15	52	12	1.3	1.7	1.3	3.2	1.6	2.9	e1.0	e0.50	73	0.61
16	21	2.2	1.1	4.8	1.0	3.6	3.3	e2.5	e1.0	e2.0	76	0.55
17	5.0	3.8	1.3	33	0.89	3.1	2.1	e2.0	e0.50	e6.0	50	0.51
18	7.1	18	1.6	24	0.72	1.2	1.8	e2.0	e0.50	e2.0	5.2	0.46
19	42	37	0.99	22	0.78	1.9	1.1	e1.5	e0.50	e1.0	2.9	0.46
20	46	24	0.88	25	0.60	3.9	6.9	e1.5	e1.0	e0.80	14	14
21	17	6.2	0.64	3.0	0.56	2.6	48	e1.5	e1.0	2.5	3.8	30
22	5.0	43	4.2	1.4	0.55	0.91	9.4	e1.5	e1.0	2.2	2.1	2.1
23	2.6	14	14	1.7	0.84	0.79	2.3	e1.5	e1.0	1.4	1.4	1.4
24	12	22	4.3	0.99	15	4.8	1.4	e1.5	e7.5	0.99	1.1	1.9
25	57	15	e1.5	0.70	7.2	3.1	1.0	e1.5	e27	2.3	3.4	7.2
26	35	52	e1.5	0.58	37	1.4	0.85	e1.5	e7.0	2.3	81	e2.5
27	3.4	57	e1.0	2.2	13	2.8	0.71	e1.0	e5.0	5.8	18	e1.5
28	6.8	9.1	e0.50	5.2	16	5.3	0.62	e1.0	e4.0	26	13	e35
29	33	53	e0.50	6.5	---	3.3	0.54	e1.0	e3.0	15	3.7	e43
30	21	43	e7.0	7.2	---	1.2	0.44	e1.5	e2.5	28	7.9	e14
31	25	---	12	3.2	---	0.65	---	e7.0	---	2.9	4.9	---
TOTAL	521.97	593.8	165.21	216.87	580.24	71.77	106.72	194.33	148.00	120.19	472.47	200.76
MEAN	16.8	19.8	5.33	7.00	20.7	2.32	3.56	6.27	4.93	3.88	15.2	6.69
MAX	57	57	21	33	124	13	48	68	27	28	81	43
MIN	0.97	1.3	0.50	0.58	0.55	0.10	0.36	0.29	0.50	0.50	0.30	0.46
AC-FT	1040	1180	328	430	1150	142	212	385	294	238	937	398
CFSM	22.5	26.4	7.11	9.33	27.6	3.09	4.74	8.36	6.58	5.17	20.3	8.92
IN.	25.89	29.45	8.19	10.76	28.78	3.56	5.29	9.64	7.34	5.96	23.43	9.96

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)#

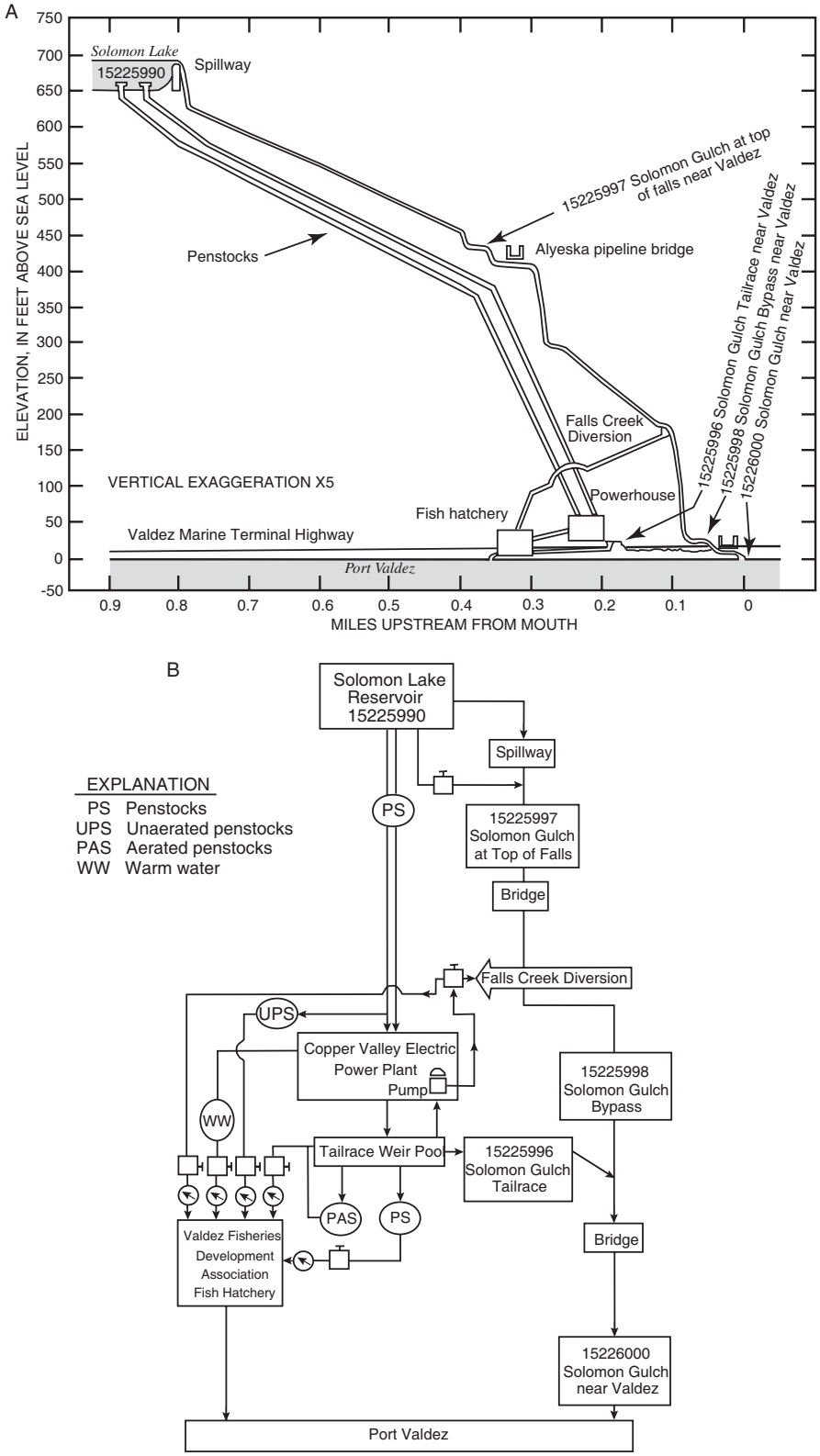
MEAN	16.7	12.7	13.9	15.5	9.93	5.92	8.78	10.5	6.12	5.31	9.66	8.89
MAX	20.2	19.8	20.4	26.6	20.7	10.2	11.3	16.1	9.35	6.79	15.2	10.9
(WY)	2001	2003	2000	2001	2003	2000	2002	2000	2002	2001	2003	2002
MIN	10.4	6.88	5.33	7.00	2.00	2.32	3.56	6.27	1.59	3.88	4.97	6.69
(WY)	2002	2002	2003	2003	2002	2003	2003	2003	2001	2003	2001	2003

\# See Period of Record and Remarks
e Estimated

15215990 NICOLET CREEK NEAR CORDOVA—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003#	
ANNUAL TOTAL	3749.65		3392.33			
ANNUAL MEAN	10.3		9.29		10.3	
HIGHEST ANNUAL MEAN					11.7	2001
LOWEST ANNUAL MEAN					9.06	2002
HIGHEST DAILY MEAN	144	Apr 19	124	Feb 5	144	Apr 19 2002
LOWEST DAILY MEAN	0.36	Jul 17	a0.10	Mar 12	a0.10	Mar 12 2003
ANNUAL SEVEN-DAY MINIMUM	0.73	Jul 11	0.41	Apr 1	0.19	Jun 27 2001
MAXIMUM PEAK FLOW			b301	May 10	cd988	Nov 3 1994
MAXIMUM PEAK STAGE			f25.00	May 10	d19.60	Nov 3 1994
ANNUAL RUNOFF (AC-FT)	7440		6730		7500	
ANNUAL RUNOFF (CFSM)	13.7		12.4		13.8	
ANNUAL RUNOFF (INCHES)	185.98		168.26		187.47	
10 PERCENT EXCEEDS	32		26		31	
50 PERCENT EXCEEDS	3.9		2.5		4.0	
90 PERCENT EXCEEDS	0.89		0.52		0.92	

\# See Period of Record and Remarks
a Mar. 12 and 13
b From rating curve extended above 33 ft^3/s on basis of step-backwater analysis
c From rating curve extended above 66 ft^3/s on basis of slope-area measurement of peak flow
d Site and datum then in use
f From crest-stage gage



Solomon Gulch (A) profile and (B) schematic diagram of flows.

15225990 SOLOMON LAKE NEAR VALDEZ

LOCATION.--Lat 61°04'25", long 146°18'08", in NE$^1/_4$ SW$^1/_4$ sec. 21, T. 9 S.,R. 6 W.(Valdez A-7 SE quad), Hydrologic Unit 19020201, within Valdez Corporate boundary, at outlet of Solomon Lake, 0.7 mi upstream from mouth of Solomon Gulch, and 4.6 mi southeast of Valdez.

DRAINAGE AREA.--19.2 mi^2.

PERIOD OF RECORD.--October 1991 to current year. Additional unpublished records prior to period of record available from Copper Valley Electric Association and in station files of Geological Survey.

REMARKS.--Reservoir is formed by a rockfill dam at outlet of Solomon Lake. Reservoir is used for power; power-plant operation began January 6, 1982. Usable capacity is 31,500 acre-feet below spillway crest at 685 ft. Discharge released to the penstocks is accounted for at Solomon Gulch Tailrace (station 15225996). Releases through the dam to maintain minimum flows, spillway releases, and incremental flow are accounted for at the Solomon Gulch at top of falls gage (station 15225997).

COOPERATION.--Reservoir contents furnished by Copper Valley Electric Association.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents 32,500 acre-ft, September 21, 1993, from crest-stage gage and rating extended above 31,500 acre-ft; minimum contents, 2,167 acre-ft, May 1, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 31,900 acre-ft October 21, elevation, 685.87 ft, from crest-stage gage and rating extended above 31,500 acre-ft; minimum contents, 4,430 acre-ft, April 29, elevation, 626.7 ft.

MONTH END RESERVOIR ELEVATION, IN FEET, AND CONTENTS, IN ACRE FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	ELEVATION	CONTENTS	CHANGE IN CONTENTS
SEP 30	685.1	31,500	----
OCT 31	685.4	31,700	+200
NOV 30	684.8	31,300	-400
DEC 31	673.6	24,000	-7,300
JAN 31	669.6	21,800	-2,200
FEB 28	664.3	19,200	-2,600
MAR 31	645.9	11,000	-8,200
APR 30	627.8	4,700	-6,300
MAY 31	644.6	10,400	+5,700
JUN 30	667.2	20,600	+10,200
JUL 31	682.1	29,100	+8,500
AUG 31	685.4	31,700	+2,600
SEP 30	684.6	31,100	-600
		CAL YR 2002	+4,600
		WTR YR 2003	-400

15225996 SOLOMON GULCH TAILRACE NEAR VALDEZ

LOCATION.--Lat 61°05'01", long 146°18'10", in NE¼ SE¼ SW¼ sec. 16, T. 9 S., R. 6 W. (Valdez A-7 SE quad), Hydrologic Unit 19020201, within Valdez Corporate boundary, on left wingwall of tailrace pool of Copper Valley Electric Association powerhouse facility, 350 ft upstream from mouth at Solomon Gulch, and 3.8 mi southeast of Valdez.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--September 1986 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 40 ft above sea level, from topographic map.

REMARKS.--Records fair. Discharge shown herein is flow through the Solomon Gulch Power Plant turbines. Solomon Lake, 0.8 mi upstream, supplies water to the power-plant through two 48-in. diameter penstocks. Water for the fish hatchery, diverted upstream from the gage, is not included in these published daily values. Annual mean discharge for these diversions for 2003 water year was 12.0 ft^3/s.

COOPERATION.--Records of daily discharge diverted to the fish hatchery are furnished by Valdez Fisheries Development Association. Copper Valley Electric Association provides tables of hourly power output through the turbines.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 293 ft^3/s, January 2 and 3, 1992, gage height, 3.04 ft; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 274 ft^3/s, November 13, December 12 and 13, gage height, 3.03; no flow for periods on November 26, May 20,and 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	210	201	74	41	92	221	106	189	217	195	205
2	201	210	218	91	42	93	208	106	201	218	198	211
3	199	202	216	94	41	107	207	98	200	215	201	180
4	193	203	214	88	40	107	218	96	204	204	202	173
5	188	201	216	71	41	107	208	106	204	210	204	140
6	189	211	220	58	39	109	209	109	180	210	208	187
7	200	211	221	52	40	106	221	107	196	218	201	188
8	192	220	212	48	39	80	220	105	194	176	142	196
9	190	213	225	43	36	83	219	111	191	223	153	197
10	195	211	215	39	40	123	118	112	200	223	181	191
11	193	219	198	40	44	123	55	132	160	223	202	197
12	181	209	230	38	43	135	63	195	129	219	203	184
13	175	222	226	46	42	132	69	191	148	221	208	180
14	185	165	224	49	40	125	65	195	200	214	207	177
15	194	74	223	52	38	123	68	135	197	186	135	185
16	192	75	220	46	38	109	62	95	200	190	156	179
17	191	75	219	46	41	114	68	93	205	188	211	183
18	187	83	145	40	113	111	67	97	193	188	213	152
19	181	85	89	40	151	90	65	99	210	182	214	88
20	183	83	89	38	123	109	64	53	211	185	219	67
21	193	98	93	42	87	110	79	89	214	186	217	56
22	122	112	107	44	116	99	72	86	197	188	211	59
23	162	101	102	44	113	100	71	101	223	186	205	56
24	167	90	95	48	119	112	78	123	223	190	168	60
25	97	93	90	43	116	107	89	159	188	185	208	60
26	104	100	79	40	111	172	94	195	201	180	217	63
27	129	150	83	44	106	214	93	198	165	174	217	64
28	171	170	80	43	105	209	104	196	163	186	212	71
29	213	205	81	44	---	206	104	199	209	189	215	115
30	214	199	80	45	---	211	104	159	219	189	206	169
31	209	---	75	43	---	217	---	195	---	184	211	---
TOTAL	5595	4700	4986	1573	1945	3935	3583	4041	5814	6147	6140	4233
MEAN	180	157	161	50.7	69.5	127	119	130	194	198	198	141
MAX	214	222	230	94	151	217	221	199	223	223	219	211
MIN	97	74	75	38	36	80	55	53	129	174	135	56
AC-FT	11100	9320	9890	3120	3860	7810	7110	8020	11530	12190	12180	8400

CAL YR 2002 TOTAL 49914 MEAN 137 MAX 230 MIN 41 AC-FT 99000
WTR YR 2003 TOTAL 52692 MEAN 144 MAX 230 MIN 36 AC-FT 104500

15225997 SOLOMON GULCH AT TOP OF FALLS NEAR VALDEZ

LOCATION.--Lat 61°04'45", long 146°18'11", in SE¼ NE¼ NW¼ sec. 21, T. 9 S., R. 6 W. (Valdez A-7 SE quad), Hydrologic Unit 19020201, within Valdez Corporate boundary, on right bank, 72 ft above Alyeska Pipeline Service Company Bridge, 150 ft upstream from top of falls, 0.3 mi upstream from mouth, and 4.2 mi southeast of Valdez.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--September 1986 to current year.

REVISED RECORDS.--WDR AK-00-1: 1999.

GAGE.--Water-stage recorder. Elevation of gage is 400 ft above sea level, from topographic map. Prior to October 1, 1991, discharge computed for site 150 ft downstream at datum 72.00 ft higher.

REMARKS.--Records fair except for periods of, August 13-19, August 27 to September 5, and September 30, which are poor and periods of estimated daily discharges, which are poor. Discharge shown herein represents controlled releases from bypass valve and flow over the spillway of dam at Solomon Lake, 0.5 mi upstream, plus inflow between the spillway and the gage. Spillway crest elevation is 685 ft above sea level, from construction plans. Water for power generation is diverted from Solomon Lake (see records for station 15225996). Water is diverted for fish hatchery use 1,150 ft downstream from gage. Reservoir spilled most of October, November 1-7, 30, December 1, August 13-21, 26-31, September 1-6, and 30.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,280 ft^3/s, October 11, 1986, by computation of peak flow by several indirect measurement methods; gage height, 82.20 ft from water surface profiles for 1986 flood at top of falls and at datum 72.00 ft lower (12.90 ft from profile at present site and datum); minimum daily discharge, about 0.20 ft^3/s, January 23 to April 6, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,210 ft^3/s, October 21, gage height, 8.07 ft; minimum daily discharge, 2.7 ft^3/s, July 01.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	172	161	e4.9	3.8	3.1	3.8	13	4.0	2.7	7.4	118
2	106	186	9.2	e4.8	3.6	3.2	4.2	11	4.2	3.0	6.9	34
3	7.8	225	7.3	e5.8	3.6	3.6	4.4	11	3.9	4.1	5.9	45
4	5.7	421	10	6.6	5.8	4.3	4.4	9.3	3.7	3.3	5.7	76
5	5.6	301	8.0	6.7	9.5	4.2	4.4	9.6	4.6	3.1	5.0	57
6	7.2	63	7.1	4.7	8.1	4.2	4.3	10	7.0	2.9	4.7	6.9
7	89	18	6.5	5.9	6.2	4.2	4.1	9.7	6.1	3.1	4.4	4.8
8	350	7.1	6.3	5.9	5.7	4.2	3.9	9.0	4.8	3.7	4.3	4.6
9	45	6.3	5.9	5.9	5.5	4.2	3.9	9.5	4.2	3.6	4.2	4.8
10	5.9	5.8	5.6	5.9	5.4	3.9	4.3	15	4.0	3.7	4.1	4.6
11	7.7	5.7	5.5	5.9	5.3	3.9	4.3	12	3.7	3.7	4.1	4.5
12	11	5.6	5.8	5.9	5.8	e3.8	4.2	11	3.7	3.6	7.7	4.4
13	8.3	5.1	5.7	5.0	5.6	e3.7	4.4	9.2	3.6	3.5	25	4.7
14	197	5.1	5.4	4.4	5.1	e3.6	5.5	8.4	5.1	3.7	208	5.0
15	208	5.2	5.3	4.5	4.6	3.5	5.5	8.7	4.3	3.9	285	4.8
16	572	5.0	5.3	4.4	4.3	3.4	5.0	8.8	4.1	3.9	438	4.7
17	193	4.9	5.5	4.5	4.1	3.5	5.5	8.5	3.9	4.1	363	4.7
18	151	4.8	5.2	5.4	3.9	3.4	5.8	8.3	4.1	4.2	206	4.7
19	278	4.7	5.2	4.8	3.8	3.5	6.1	7.8	4.8	4.0	117	4.5
20	710	5.4	5.1	4.4	3.7	3.4	6.7	7.1	8.0	4.0	33	4.6
21	790	5.0	e5.2	4.4	3.5	3.6	7.4	6.8	7.6	6.2	9.3	4.7
22	277	14	e5.1	4.3	3.3	3.7	6.6	6.5	7.4	6.0	5.1	4.6
23	148	12	e5.8	4.3	3.3	3.7	7.6	5.9	6.6	5.1	4.6	4.4
24	51	12	e6.0	4.2	3.3	3.8	8.5	6.3	7.0	4.7	4.4	4.4
25	432	10	e5.7	4.2	3.2	4.0	9.0	5.4	6.1	5.1	4.4	4.7
26	668	30	e5.3	4.1	3.2	3.8	18	5.2	6.4	5.0	9.8	4.8
27	241	51	e5.1	3.9	3.2	3.7	15	4.6	5.8	5.0	193	4.5
28	71	11	e5.1	3.9	3.2	3.9	13	4.0	4.9	5.6	205	5.4
29	456	37	e5.0	3.8	---	4.3	16	3.7	3.8	7.6	146	19
30	435	257	e4.4	3.8	---	3.9	16	4.4	2.9	7.4	167	32
31	378	---	e5.0	3.8	---	3.9	---	4.2	---	6.5	209	---
TOTAL	7096.2	1895.7	338.6	151.0	129.6	117.1	211.8	253.9	150.3	136.0	2697.0	490.8
MEAN	229	63.2	10.9	4.87	4.63	3.78	7.06	8.19	5.01	4.39	87.0	16.4
MAX	790	421	161	6.7	9.5	4.3	18	15	8.0	7.6	438	118
MIN	5.6	4.7	4.4	3.8	3.2	3.1	3.8	3.7	2.9	2.7	4.1	4.4
AC-FT	14080	3760	672	300	257	232	420	504	298	270	5350	974

CAL YR 2002 TOTAL 14969.6 MEAN 41.0 MAX 1110 MIN 2.3 AC-FT 29690
WTR YR 2003 TOTAL 13668.0 MEAN 37.4 MAX 790 MIN 2.7 AC-FT 27110

e Estimated

15226000 SOLOMON GULCH NEAR VALDEZ

LOCATION.--Lat 61°05'02", long 146°18'13", in NE¼ SE¼ SW¼ sec. 16, T. 9 S., R. 6 W. (Valdez A-7 SE quad), Hydrologic Unit 19020201, at bridge crossing at mouth and 3.8 mi southeast across Port Valdez from Valdez.

DRAINAGE AREA.--19.7 mi^2.

PERIOD OF RECORD.--July to December 1948, October 1949 to September 1956, and September 1986 to current year.

GAGE.--Nonrecording gage. Elevation of gage is at sea level. July 9, 1948 to May 21, 1950, nonrecording gage, and May 22, 1950 to September 30, 1956, water-stage recorder at about present site and datum.

REMARKS.-- Records fair. Discharge data represent the flow at mouth which includes Solomon Gulch at top of falls (station 15225997), power plant tailrace (station 15225996), and all fish hatchery diversions. Water for power generation is diverted by a dam at Solomon Lake, 0.8 mi upstream. Water is diverted for the fish hatchery by a 24-in. penstock aeration system, and a 24-in. penstock line from the tailrace weir pool. An unaerated penstock and an 8-in. pipe for warm water supply are upstream. Additional water is diverted to the fish hatchery from Solomon Gulch bypass channel about 750 ft above gage, by means of a 12-in. diameter pipe. The fish hatchery discharges water directly into Port Valdez. Average daily diversion to fish hatchery for 2003 water year was 12.0 ft^3/s. Power generation began January 6, 1982.

COOPERATION.--Records of daily discharge diverted to the fish hatchery are furnished by Valdez Fisheries Development Association. Copper Valley Electric Association provides tables of hourly power output through the turbines and monthly storage values for Solomon Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	424	390	370	e87	52	102	235	124	195	222	226	352
2	335	404	235	e103	53	103	219	122	207	223	232	274
3	235	435	231	e107	52	118	218	115	206	221	234	254
4	227	632	232	102	54	119	229	111	210	209	235	278
5	222	510	232	86	58	118	218	122	211	215	236	227
6	224	282	235	71	55	120	219	125	189	215	240	224
7	317	237	236	66	55	117	231	121	203	223	232	222
8	570	235	226	61	53	91	230	118	200	182	173	231
9	263	227	239	56	50	94	229	125	196	229	185	230
10	229	225	229	52	53	135	127	131	204	229	213	224
11	229	233	212	53	57	134	64	149	164	229	233	230
12	221	223	244	51	57	e146	72	209	133	224	238	216
13	211	236	240	58	56	e143	78	203	152	225	260	213
14	410	180	237	60	53	e136	75	206	205	240	442	210
15	430	87	236	63	51	133	80	147	201	212	448	218
16	792	89	233	57	50	119	73	107	204	216	621	212
17	412	89	232	57	52	125	80	105	209	214	602	216
18	366	96	158	52	125	122	79	108	197	214	446	185
19	487	98	102	52	162	101	77	110	215	208	358	120
20	921	96	102	50	134	119	76	63	219	211	279	100
21	1010	111	e106	54	98	121	91	99	222	214	253	89
22	427	134	e120	56	127	110	84	95	204	217	243	92
23	338	121	e116	56	124	111	85	110	230	214	237	88
24	246	110	e109	60	131	124	92	132	230	218	199	92
25	557	110	e103	54	127	118	104	166	194	213	239	93
26	800	138	e92	51	122	185	118	202	207	208	253	96
27	398	209	e96	55	118	226	114	205	171	202	437	96
28	270	189	e93	55	116	220	123	202	168	215	446	104
29	677	250	e94	56	---	218	126	205	213	220	390	162
30	657	464	e91	57	---	223	126	165	222	219	401	231
31	595	---	e88	55	---	229	---	201	---	214	449	---
TOTAL	13500	6840	5569	1953	2295	4280	3972	4403	5981	6715	9680	5579
MEAN	435	228	180	63.0	82.0	138	132	142	199	217	312	186
MAX	1010	632	370	107	162	229	235	209	230	240	621	352
MIN	211	87	88	50	50	91	64	63	133	182	173	88
AC-FT	26780	13570	11050	3870	4550	8490	7880	8730	11860	13320	19200	11070

ADJUSTED FOR CHANGE IN STORAGE IN SOLOMON LAKE

MEAN	439	221	61.0	27.2	35.1	4.7	26.6	235	371	355	354	176
AC-FT	26980	13170	3750	1670	1950	290	1580	14430	22060	21820	21800	10470
CFSM	22.27	11.23	3.10	1.38	1.78	0.24	1.35	11.91	18.82	18.01	18.00	8.93
IN	25.71	12.55	3.57	1.59	1.86	0.28	1.51	13.75	21.02	20.79	20.77	9.98

e Estimated

15226000 SOLOMON GULCH NEAR VALDEZ—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2003, BY WATER YEAR (WY)#

MEAN	197	109	99.9	94.0	90.3	83.8	75.6	151	184	269	299	332
MAX	435	228	180	138	130	138	132	213	229	410	462	501
(WY)	2003	2003	2003	1995	1987	2003	2003	1993	1990	2001	1993	1989
MIN	97.2	77.1	69.0	63.0	58.9	5.08	26.2	103	145	177	152	152
(WY)	1997	1993	2002	2003	2002	1991	1991	1992	1988	1991	1996	1996

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 2003#	
ANNUAL TOTAL	69111		70767			
ANNUAL MEAN	189		194		166	
ANNUAL MEAN	*194		*192		*166	
HIGHEST ANNUAL MEAN					197	1990
LOWEST ANNUAL MEAN					125	1996
HIGHEST DAILY MEAN	1330	Aug 22	1010	Oct 21	2270	Sep 24 1989
LOWEST DAILY MEAN	53	Feb 11	50	Jan 20	1.0	Apr 12 1989
ANNUAL SEVEN-DAY MINIMUM	55	Feb 11	54	Feb 11	2.3	Mar 24 1991
ANNUAL RUNOFF (AC-FT)	137100		140400		120600	
ANNUAL RUNOFF (AC-FT)	*141700		*140000		*120300	
ANNUAL RUNOFF (CFSM)	*9.87		*9.75		*8.43	
ANNUAL RUNOFF (IN)	*135.02		*133.37		*114.43	
10 PERCENT EXCEEDS	324		344		287	
50 PERCENT EXCEEDS	188		199		124	
90 PERCENT EXCEEDS	60		58		69	

PRIOR TO CONSTRUCTION OF SOLOMON GULCH HYDROELECTRIC PROJECT

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1956, BY WATER YEAR (WY)#

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	124	58.9	18.3	13.3	10.4	8.82	10.9	102	370	385	322	260
MAX	304	131	35.6	20.9	12.2	11.1	18.3	224	544	514	442	574
(WY)	1953	1953	1950	1956	1954	1953	1953	1953	1953	1955	1956	1951
MIN	48.0	21.7	4.00	1.40	3.57	7.19	6.57	36.5	261	277	254	126
(WY)	1951	1951	1949	1951	1951	1951	1950	1955	1951	1950	1950	1955

SUMMARY STATISTICS		WATER YEARS 1948 - 1956#
ANNUAL MEAN	143	
HIGHEST ANNUAL MEAN	194	1953
LOWEST ANNUAL MEAN	126	1950
HIGHEST DAILY MEAN	1530	Sep 4 1951
LOWEST DAILY MEAN	.50	Dec 31 1950
ANNUAL SEVEN-DAY MINIMUM	1.0	Jan 10 1951
MAXIMUM PEAK FLOW	a2420	Sep 4 1951
MAXIMUM PEAK STAGE	b6.50	Sep 4 1951
INSTANTANEOUS LOW FLOW	c.00	Feb 20 1954
ANNUAL RUNOFF (AC-FT)	103900	
ANNUAL RUNOFF (CFSM)	7.28	
ANNUAL RUNOFF (INCHES)	98.89	
10 PERCENT EXCEEDS	396	
50 PERCENT EXCEEDS	49	
90 PERCENT EXCEEDS	8.0	

\# See Period of Record and Remarks. Values shown on this page are unadjusted for change in storage in Solomon Lake, unless otherwise noted
* Adjusted for change in storage in Solomon Lake
a From rating curve extended above 620 ft^3/s
b Site and datum then in use
c No flow sometime during period Feb. 20 to Mar. 3, 1954, caused by temporary storage upstream

15236900 WOLVERINE CREEK NEAR LAWING

LOCATION.--Lat 60°22'14", long 148°53'48", in NE$^1/_4$ NE$^1/_4$ sec. 10, T.3 N., R.3 E. (Seward B-6 quad), Kenai Peninsula Borough, Hydrologic Unit 19020202, on the left bank, approximately 0.1 mi downstream from terminus of Wolverine Glacier, 2.0 mi upstream from mouth, 16 mi east of Lawing, Alaska.

DRAINAGE AREA.--9.51 mi^2.

PERIOD OF RECORD.--October 1966 to September 1978, October 1980 to September 1981, May 1997 to September 1997, October 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,200 ft above sea level, from topographic map.

REMARKS.--Records are poor due to large fluctuations from ice melt and alternate damming and storage releases during the melt season. Stream flow is modified by runoff from the melting of Wolverine Glacier, which covers 6.8 mi^2, more than 70% of the drainage basin. Precipitation gage and air temperature recorded at station is available from computer files at the Alaska Science Center, Water Resources Office. GOES satellite telemetry at station transmits every 4 hours. At 3,250 feet of elevation, there is a weather station recording air temperature, wind speed, and precipitation. In addition to the weather station, there are also three snow and ice balance measurement sites located in the basin. Combined snow, ice, and water balance data of the basin are published in other reports of the Geological Survey.

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 05	1300	659	2.92	Aug 12	0215	863	3.18
Jul 13	1800	567	2.78	Aug 14	1800	1270	3.59
Jul 19	1615	659	2.92	Aug 20	0500	1320	3.63
Jul 25	1400	561	2.77	Aug 29	1900	1670	3.91
Jul 29	1515	782	3.08	Sep 30	2000	*a1720	*a3.95
Aug 09	1500	975	3.30				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	e80	e100	e2.0	e2.0	e2.0	e4.0	28	127	308	367	298
2	80	e90	e90	e2.0	e2.0	e2.0	e3.0	21	104	351	329	291
3	56	e70	e200	e2.0	e2.0	e2.0	e3.0	20	96	357	288	231
4	48	e90	e70	e2.0	e2.0	e2.0	e2.0	15	106	359	317	195
5	39	e200	e40	e2.0	e2.0	e2.0	e2.0	13	311	326	352	192
6	46	e300	e20	e2.0	e2.0	e2.0	e2.0	8.3	252	350	396	202
7	74	e200	e10	e2.0	e2.0	e2.0	e2.0	8.0	200	348	385	203
8	48	e100	e9.0	e2.0	e2.0	e2.0	e2.0	9.3	152	388	489	195
9	32	e90	e8.0	e2.0	e2.0	e2.0	e2.0	23	152	405	609	199
10	24	e80	e7.0	e2.0	e2.0	e2.0	e2.0	21	180	356	590	212
11	51	e70	e6.0	e2.0	e2.0	e2.0	e2.0	9.5	221	339	470	200
12	53	e60	e6.0	e2.0	e2.0	e2.0	e2.0	8.8	279	338	569	192
13	139	e50	e5.0	e2.0	e2.0	e2.0	e2.0	9.4	320	415	482	199
14	79	e40	e5.0	e2.0	e2.0	e2.0	e2.0	7.7	291	431	878	141
15	48	e40	e5.0	e2.0	e2.0	e2.0	e2.0	9.9	266	369	778	111
16	34	e30	e4.0	e2.0	e2.0	e2.0	e2.0	15	252	314	511	103
17	24	e30	e4.0	e2.0	e2.0	e2.0	e2.0	19	222	289	408	101
18	45	e30	e4.0	e2.0	e2.0	e2.0	e2.0	21	230	338	299	94
19	128	e40	e4.0	e2.0	e2.0	e2.0	e2.0	19	220	450	327	73
20	229	e50	e3.0	e2.0	e2.0	e2.0	e2.0	20	218	454	592	65
21	180	e60	e3.0	e2.0	e2.0	e2.0	e2.0	25	212	384	320	56
22	e300	e80	e3.0	e2.0	e2.0	e2.0	e2.0	35	230	357	314	46
23	e500	e200	e3.0	e2.0	e2.0	e2.0	e3.0	54	217	329	274	43
24	e400	e100	e3.0	e2.0	e2.0	e3.0	e4.0	80	290	308	250	49
25	e300	e70	e2.0	e2.0	e2.0	e3.0	e5.0	92	307	349	243	85
26	e200	e100	e2.0	e2.0	e2.0	e4.0	e10	72	249	339	281	83
27	e100	e80	e2.0	e2.0	e2.0	e4.0	e30	84	231	306	364	75
28	e100	e70	e2.0	e2.0	e2.0	e4.0	e60	83	266	393	622	136
29	e300	e300	e2.0	e2.0	---	e4.0	40	76	315	465	982	264
30	e200	e200	e2.0	e2.0	---	e4.0	33	103	325	322	643	679
31	e100	---	e2.0	e2.0	---	e4.0	---	142	---	356	379	---
TOTAL	4070	3000	626.0	62.0	56.0	76.0	233.0	1151.9	6841	11193	14108	5013
MEAN	131	100	20.2	2.00	2.00	2.45	7.77	37.2	228	361	455	167
MAX	500	300	200	2.0	2.0	4.0	60	142	325	465	982	679
MIN	24	30	2.0	2.0	2.0	2.0	2.0	7.7	96	289	243	43
AC-FT	8070	5950	1240	123	111	151	462	2280	13570	22200	27980	9940
CFSM	13.8	10.5	2.12	0.21	0.21	0.26	0.82	3.91	24.0	38.0	47.9	17.6
IN.	15.92	11.74	2.45	0.24	0.22	0.30	0.91	4.51	26.76	43.78	55.19	19.61

a Maximum observed, may have been higher during estimated periods
e Estimated

15236900 WOLVERINE CREEK NEAR LAWING—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)#

MEAN	42.5	13.0	3.64	1.53	1.16	0.99	1.59	23.0	143	297	347	195
MAX	131	100	20.2	2.71	2.00	2.45	7.77	89.3	262	375	494	351
(WY)	2003	2003	2003	1970	1970	2003	2003	1967	1967	1967	1981	1974
MIN	13.1	2.01	0.51	0.39	0.000	0.000	0.000	0.61	31.1	146	176	80.0
(WY)	1975	2002	2001	2001	2001	2001	2001	1971	1971	1997	1997	1970

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003#	
ANNUAL TOTAL	37132.20		46429.9			
ANNUAL MEAN	102		127		91.2	
HIGHEST ANNUAL MEAN					127	2003
LOWEST ANNUAL MEAN					66.6	1970
HIGHEST DAILY MEAN	679	Jul 24	982	Aug 29	1930	Aug 28 2001
LOWEST DAILY MEAN	b0.00	Jan 25	c2.0	Dec 25	b0.00	Dec 2 2000
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 25	2.0	Dec 25	0.00	Dec 2 2000
MAXIMUM PEAK FLOW			d1720	Sep 30	d4160	Aug 28 2001
MAXIMUM PEAK STAGE			3.95	Sep 30	f6.28	Aug 21 1981
ANNUAL RUNOFF (AC-FT)	73650		92090		66100	
ANNUAL RUNOFF (CFSM)	10.7		13.4		9.59	
ANNUAL RUNOFF (INCHES)	145.25		181.62		130.35	
10 PERCENT EXCEEDS	279		356		315	
50 PERCENT EXCEEDS	50		46		6.0	
90 PERCENT EXCEEDS	0.00		2.0		0.80	

\# See Period of Record; partial years used in monthly statistics
b No flow most days during winter
c Dec. 25 to Mar. 23, and Apr. 4-22
d From rating curve extended above 1,290 ft^3/s
f From floodmarks, date approximate: flow over dense snow

15237730 GROUSE CREEK AT GROUSE LAKE OUTLET NEAR SEWARD

LOCATION.--Lat 60°11'54", long 149°22'24", in NE$^1/_4$ NE$^1/4$ NW$^1/_4$ sec. 12, T. 1 N., R. 1 W. (Seward A-7 NE quad), Kenai Peninsula Borough, Hydrologic Unit 19020202, on right bank, 200 ft downstream from Grouse Lake outlet, 0.2 mi upstream from Seward Highway, 7 mi north of Seward.

DRAINAGE AREA.--6.22 mi^2.

PERIOD OF RECORD.--June 1997 to current year.

GAGE.--Water stage recorder and crest-stage gage. Elevation of gage is 250 ft above sea level from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Rain gage recorder at station. GOES satellite telemetry and phone modem at station.

EXTREMES FOR 1998-2003 YEAR.--Peak discharge greater than base discharge of 100 ft^3/s and water year maximums (*).

Date	Time	Discharge (ft^3/s)	Gage Height(ft)	Date	Time	Discharge (ft^3/s)	Gage Height(ft)
Nov. 12, 1997	22:00	145	6.68	Dec. 27, 2001	03:45	*114	*6.36
May 09, 1998	18:00	137	6.62	May 19, 2002	22:15	106	6.29
May 30, 1998	21:15	119	6.47	Oct. 24, 2002	11:15	451	8.05
Jun. 08, 1998	06:00	*184	*6.96	Oct. 29, 2002	07:20	249	7.20
Oct. 24, 1998	17:00	112	6.41	Nov. 05, 2002	24:00	231	7.10
Sep. 22, 1999	18:15	*113	*6.42	Nov. 23, 2002	21:45	401	7.87
Jun. 07, 2000	22:15	*100	*6.30	Nov. 30, 2002	09:00	311	7.51
Nov. 20, 2000	00:15	145	6.81	Dec. 03, 2002	20:30	182	6.80
Dec. 29, 2000	22:00	140	6.78	Feb. 05, 2003	01:30	*478	*8.14
Jan. 15, 2001	09:30	227	7.11	May 10, 2003	11:15	123	6.36
Jan. 19, 2001	06:15	*269	*7.32				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	64	123	12	13	19	7.7	36	14	6.7	5.3	10
2	20	61	83	12	12	18	7.7	34	14	8.0	5.1	9.4
3	17	51	114	12	13	19	7.6	33	13	8.0	5.0	8.7
4	15	68	121	12	109	18	7.5	31	e13	7.5	5.0	8.2
5	15	132	94	11	277	16	7.4	32	e13	7.3	4.9	7.9
6	15	168	70	9.3	116	15	7.3	31	e12	7.3	4.8	7.5
7	17	105	56	9.4	66	14	7.3	25	e12	7.1	4.8	7.3
8	16	73	49	10	56	14	7.4	22	e12	7.0	4.7	7.1
9	14	56	44	12	53	13	7.5	45	e11	6.8	4.7	6.9
10	13	48	44	12	49	12	8.1	100	e11	6.7	4.6	6.7
11	15	43	40	13	47	12	8.6	67	e10	6.6	4.7	6.4
12	18	39	36	12	46	10	8.9	54	e10	6.5	5.9	6.3
13	24	35	33	12	44	9.3	9.4	42	e9.5	6.4	6.6	6.2
14	31	33	31	11	40	10	9.7	35	e9.5	6.2	8.5	5.9
15	28	30	26	11	36	12	9.3	32	e9.0	6.2	8.5	5.7
16	27	27	23	11	33	11	9.1	28	e8.5	6.2	11	5.7
17	22	25	20	11	29	11	9.3	26	8.3	6.1	12	5.7
18	20	24	20	13	24	10	9.5	23	8.2	6.0	9.7	5.7
19	19	31	18	12	20	10	9.5	21	7.9	5.9	8.5	5.6
20	38	45	17	14	18	10	10	20	7.7	5.8	9.8	6.6
21	46	50	17	14	17	9.6	14	19	7.7	5.9	8.6	7.0
22	53	80	18	14	16	9.2	30	18	7.5	5.8	7.8	6.3
23	283	326	20	13	19	9.0	30	18	7.3	5.7	7.3	6.1
24	295	208	19	13	19	9.0	27	19	7.3	5.8	6.9	5.9
25	156	118	16	13	20	8.9	26	20	7.4	5.9	6.9	5.9
26	117	103	14	12	24	8.7	29	18	7.4	5.8	9.9	6.0
27	77	80	14	12	23	8.7	33	18	7.4	5.6	9.3	5.7
28	67	60	12	12	21	8.9	35	16	7.2	5.7	11	6.2
29	157	84	14	12	---	8.5	36	15	7.0	5.7	12	11
30	138	233	13	13	---	8.1	37	15	6.8	5.7	13	15
31	90	---	12	13	---	7.8	---	15	---	5.5	11	---
TOTAL	1885	2500	1231	372.7	1260	359.7	465.8	928	286.6	197.4	237.8	214.6
MEAN	60.8	83.3	39.7	12.0	45.0	11.6	15.5	29.9	9.55	6.37	7.67	7.15
MAX	295	326	123	14	277	19	37	100	14	8.0	13	15
MIN	13	24	12	9.3	12	7.8	7.3	15	6.8	5.5	4.6	5.6
AC-FT	3740	4960	2440	739	2500	713	924	1840	568	392	472	426
CFSM	9.78	13.4	6.38	1.93	7.23	1.87	2.50	4.81	1.54	1.02	1.23	1.15
IN.	11.27	14.95	7.36	2.23	7.54	2.15	2.79	5.55	1.71	1.18	1.42	1.28

15237730 GROUSE CREEK AT GROUSE LAKE OUTLET NEAR SEWARD—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)#

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	26.3	31.7	20.3	18.9	14.4	8.96	17.3	49.0	38.3	11.1	8.06	17.8
MAX	60.8	83.3	39.7	58.0	45.0	15.6	38.6	67.9	70.7	19.2	14.3	35.3
(WY)	2003	2003	2003	2001	2003	1998	1998	1998	1998	1998	2001	1997
MIN	11.8	7.41	8.89	5.23	3.34	2.69	5.81	29.9	9.55	6.11	6.04	6.66
(WY)	1998	2002	1999	1998	1999	1999	2002	2003	2003	1997	1999	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003#	
ANNUAL TOTAL	9960.6		9938.6			
ANNUAL MEAN	27.3		27.2		22.0	
HIGHEST ANNUAL MEAN					27.3	2001
LOWEST ANNUAL MEAN					15.4	2002
HIGHEST DAILY MEAN	326	Nov 23	326	Nov 23	326	Nov 23 2002
LOWEST DAILY MEAN	3.3	Mar 28	4.6	Aug 10	a2.1	Mar 9 1999
ANNUAL SEVEN-DAY MINIMUM	3.5	Mar 22	4.7	Aug 5	2.2	Mar 4 1999
MAXIMUM PEAK FLOW			478	Feb 5	478	Feb 5 2003
MAXIMUM PEAK STAGE			b8.14	Feb 5	b8.14	Feb 5 2003
INSTANTANEOUS LOW FLOW			c4.6	Aug 9	d1.5	Apr 7 1999
ANNUAL RUNOFF (AC-FT)	19760		19710		15970	
ANNUAL RUNOFF (CFSM)	4.39		4.38		3.54	
ANNUAL RUNOFF (INCHES)	59.57		59.44		48.14	
10 PERCENT EXCEEDS	69		60		55	
50 PERCENT EXCEEDS	13		13		12	
90 PERCENT EXCEEDS	4.5		6.1		5.5	

\# See Period of Record, partial year used in monthly statistics
a Mar. 9 and 10, 1999
b From crest-stage gage.
c Aug. 9, 10, and 11
d From temporary blockage of channel upstream from gage

15238600 SPRUCE CREEK NEAR SEWARD

LOCATION.--Lat 60°04'10", long 149°27'08", in SW¼ SE¼ sec. 21, T. 1 S., R. 1 W. (Seward A-7 quad), Kenai Peninsula Borough, Hydrologic Unit 19020202, on left bank 0.7 mi upstream from mouth at Resurrection Bay and 2.4 mi south of Seward.

DRAINAGE AREA.--9.26 mi^2.

PERIOD OF RECORD.--September 1967 to September 1979, annual maximum, water years 1980-90. October 1990 to current year.

REVISED RECORDS.--WDR AK-76-1: 1966-67(M), 1970(M), 1972(M). WDR AK-77-1: 1969(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 75 ft above sea level, from topographic map.

REMARKS.--Records good, except estimated daily discharges and discharges below 7.0 ft^3/s, which are poor. Precipitation gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 21, 1966, reached a stage of 10.1 ft, from floodmarks; discharge, 3,090 ft^3/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s, and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage Height (ft)
Oct. 23	0645	1560	6.63	Nov. 29	2045	*1850	*6.82
Oct. 29	1900	1110	6.30				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	205	e260	e16	26	19	2.4	77	113	184	100	96
2	91	244	e240	e16	23	17	2.2	78	107	191	89	88
3	74	196	e480	e16	28	19	2.2	81	111	173	77	84
4	63	336	e320	16	248	18	2.0	74	113	198	68	69
5	57	527	e220	15	220	16	1.8	74	160	164	68	59
6	58	620	e190	14	96	14	1.5	64	250	154	64	56
7	84	385	e140	13	58	12	1.4	57	185	196	65	55
8	71	e160	e120	13	65	11	1.5	54	141	240	79	47
9	57	e120	e95	24	57	11	1.5	113	128	187	79	48
10	48	e96	e90	23	72	9.9	1.6	161	152	151	73	46
11	69	e86	e65	27	90	9.2	2.1	92	171	130	72	44
12	83	78	e55	24	66	10	2.4	72	189	119	138	39
13	209	65	e50	24	50	e9.0	3.5	58	234	175	312	36
14	212	58	e44	20	42	e8.0	e5.0	48	207	173	368	33
15	181	51	e38	18	35	7.1	e6.0	45	158	129	422	29
16	156	46	e32	16	28	6.9	e7.0	49	145	123	334	25
17	110	44	e30	20	25	6.6	e7.0	53	142	129	213	23
18	101	45	e28	26	21	6.5	e7.0	51	137	112	141	22
19	186	55	e26	22	18	6.4	7.4	49	145	97	148	20
20	482	92	e24	49	16	6.0	7.8	53	144	97	227	21
21	403	93	e24	37	16	5.5	e10	59	162	95	131	18
22	528	270	e22	27	15	5.1	e24	68	154	85	103	16
23	985	702	e20	22	25	4.7	e22	86	142	79	86	15
24	881	292	e20	20	31	4.4	e20	114	127	105	73	15
25	633	206	e20	18	29	4.1	e30	121	240	169	102	15
26	387	e380	e18	17	35	3.7	e35	119	169	120	215	15
27	209	e180	e18	16	29	3.6	50	147	219	95	177	16
28	209	e130	e18	15	22	3.4	57	145	186	177	263	94
29	615	e900	e18	16	---	2.9	71	116	194	154	212	220
30	351	e800	e18	21	---	2.6	78	110	194	135	184	465
31	334	---	e16	24	---	2.5	---	116	---	109	123	---
TOTAL	8054	7462	2759	645	1486	265.1	470.3	2604	4919	4445	4806	1829
MEAN	260	249	89.0	20.8	53.1	8.55	15.7	84.0	164	143	155	61.0
MAX	985	900	480	49	248	19	78	161	250	240	422	465
MIN	48	44	16	13	15	2.5	1.4	45	107	79	64	15
AC-FT	15980	14800	5470	1280	2950	526	933	5170	9760	8820	9530	3630
CFSM	28.1	26.9	9.61	2.25	5.73	0.92	1.69	9.07	17.7	15.5	16.7	6.58
IN.	32.36	29.98	11.08	2.59	5.97	1.06	1.89	10.46	19.76	17.86	19.31	7.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)#

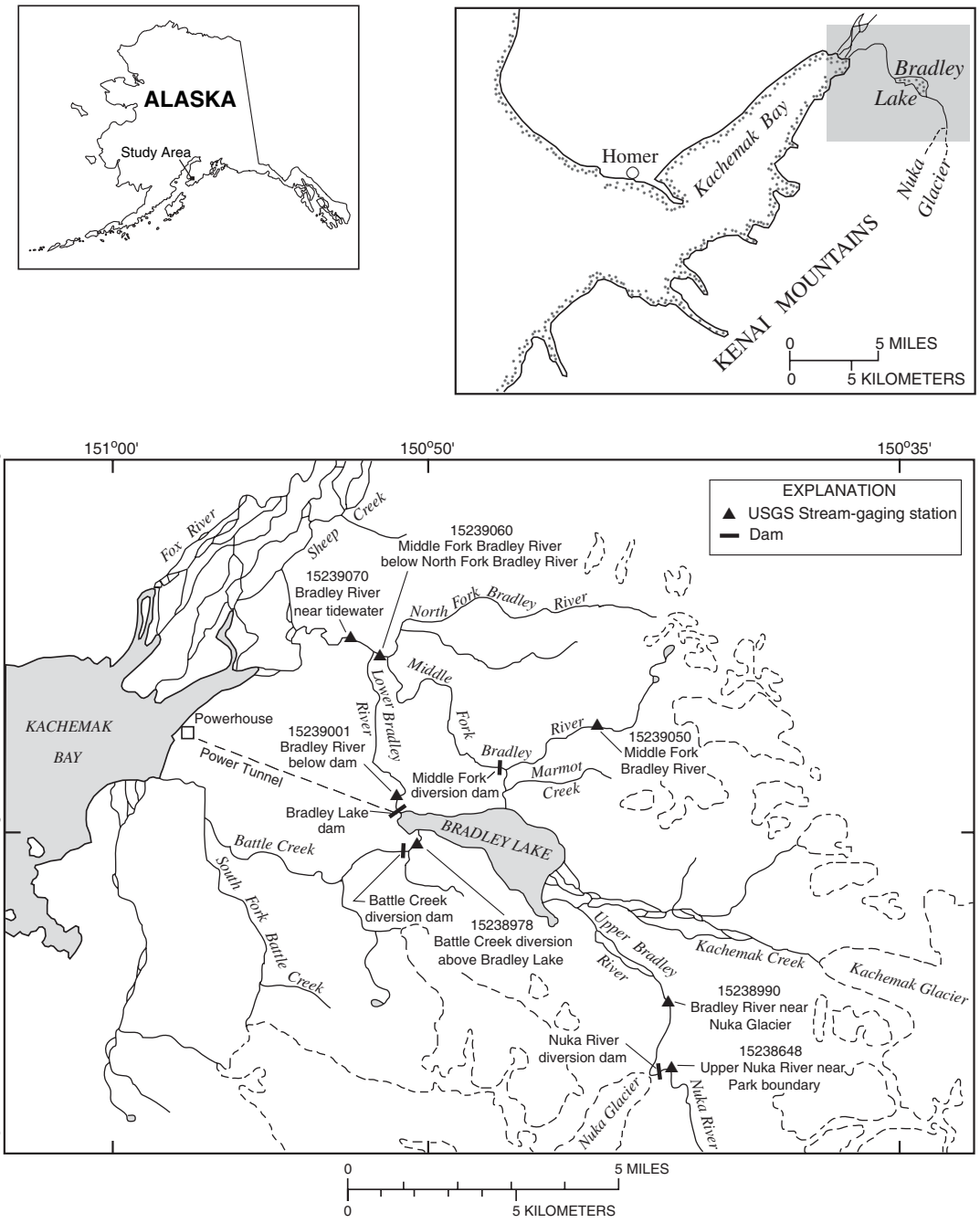
MEAN	91.9	44.8	19.0	11.4	11.3	4.10	12.5	73.4	200	189	148	167
MAX	333	249	89.0	46.1	53.1	15.3	35.6	135	318	371	323	372
(WY)	1970	2003	2003	2001	2003	1970	1969	1993	2001	1977	1977	1995
MIN	17.0	9.40	3.52	0.65	0.000	0.000	0.12	30.6	116	104	56.9	48.8
(WY)	1997	1974	1997	1974	1972	1971	1972	1971	1972	1997	1969	2000

\# See Period of Record, partial year used in monthly statistics
e Estimated

15238600 SPRUCE CREEK NEAR SEWARD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003#	
ANNUAL TOTAL	41014.20		39744.4			
ANNUAL MEAN	112		109		80.7	
HIGHEST ANNUAL MEAN					123	1977
LOWEST ANNUAL MEAN					50.6	1996
HIGHEST DAILY MEAN	985	Oct 23	985	Oct 23	1650	Oct 11 1969
LOWEST DAILY MEAN	a0.00	Mar 17	1.4	Apr 7	b0.00	Mar 1 1969
ANNUAL SEVEN-DAY MINIMUM	0.00	Mar 17	1.6	Apr 4	0.00	Mar 1 1969
MAXIMUM PEAK FLOW			1850	Nov 29	c13600	Oct 11 1986
MAXIMUM PEAK STAGE			d6.82	Nov 29	f13.96	Oct 11 1986
INSTANTANEOUS LOW FLOW			g1.1	Apr 7	0.00	Mar 1 1969
ANNUAL RUNOFF (AC-FT)	81350		78830		58480	
ANNUAL RUNOFF (CFSM)	12.1		11.8		8.72	
ANNUAL RUNOFF (INCHES)	164.77		159.66		118.45	
10 PERCENT EXCEEDS	227		230		207	
50 PERCENT EXCEEDS	72		66		34	
90 PERCENT EXCEEDS	0.10		7.6		1.5	

\# See Period of Record, partial year used in monthly statistics
a No flow Mar. 17 to Apr. 17
b No flow many days in water years 1969, 1971-76, 1992, 1996, 1999, and 2002
c Slope-area measurement of the release of water temporarily stored behind a debris-avalanche dam. Inflow into the ponded area was 5,420 ft^3/s, from a slope-area measurement made about 0.3 mi upstream at a site with a drainage area of 8.98 mi^2
d From crest-stage gage
f From floodmarks
g Apr. 7 to 10, 2003



Location of the Bradley Lake Hydroelectric Project area.

15238648 UPPER NUKA RIVER NEAR PARK BOUNDARY NEAR HOMER

LOCATION.--Lat 59°41'04", long 150°42'12" (Seldovia C-2 quad), Kenai Peninsula Borough, Hydrologic Unit 19020202, on left bank, 0.4 mi downstream from terminus of Nuka Glacier, 4.9 mi southeast of Bradley Lake, and 29 mi east of Homer, Alaska.

DRAINAGE AREA.--Indeterminate. Prior to July 29, 1990, drainage area was about 3 mi^2 and varied according to position of glacier terminus.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1980-81, prior to shift in glacier terminus; September 1984 to current year. Records prior to July 29, 1990, are not equivalent. Published as "Upper Nuka River near Homer" prior to October 1989. Low-flow records not equivalent prior to November 1987 because most low-flow measurements were made at site 0.5 mi downstream.

REVISED RECORDS.--WDR AK-89-1: 1985 (M), 1986-88.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,300 ft above sea level, from topographic map.

REMARKS.--Records fair except estimated daily discharges, which are poor. Water is diverted, 300 ft upstream from gage, into Bradley River drainage since July 29, 1990. Precipitation gage and air temperature recorder at station; daily values of precipitation and air temperature are available from the computer files of the Alaska Science Center, Water Resources Office. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	90	6.4	e0.30	e0.10	e0.40	e0.00	e0.60	15	41	27	21
2	16	111	2.5	e0.30	e0.20	e0.40	e0.00	e0.80	12	47	27	20
3	12	121	14	e0.30	e1.0	e0.50	e0.00	e1.0	6.9	47	27	19
4	10	152	10	e0.20	e3.0	e0.40	e0.00	e1.5	5.1	31	27	19
5	9.2	191	4.7	e0.20	e2.0	e0.30	e0.00	e3.0	10	26	27	18
6	9.6	119	3.0	e0.20	e1.8	e0.25	e0.00	e6.0	24	28	26	19
7	11	42	2.0	e0.20	e1.8	e0.20	e0.00	e9.0	25	34	26	19
8	7.7	35	1.9	e0.20	e1.6	e0.20	e0.00	11	19	44	27	19
9	6.4	12	3.1	e0.20	e1.6	e0.10	e0.00	26	16	38	27	19
10	4.9	3.5	2.7	e0.10	e1.4	e0.10	e0.00	25	18	25	27	19
11	5.9	1.9	e2.5	e0.10	e1.3	e0.10	e0.10	17	23	15	28	19
12	7.2	1.9	e2.0	e0.10	e1.3	e0.00	e0.10	13	25	16	29	19
13	15	1.8	e1.6	e0.10	e1.2	e0.00	e0.10	6.0	27	38	34	19
14	16	1.7	e1.5	e0.10	e1.2	e0.00	e0.10	3.4	26	31	38	17
15	15	1.8	e1.2	e0.10	e1.1	e0.00	e0.10	4.4	27	20	46	11
16	10	1.7	e1.0	e0.10	e1.1	e0.00	e0.10	6.0	27	14	37	10
17	8.2	1.7	e0.80	e0.10	e1.0	e0.00	e0.10	5.5	27	8.1	38	6.9
18	10	1.7	e0.70	e0.10	e1.0	e0.00	e0.10	3.9	26	6.5	41	3.9
19	19	1.9	e0.60	e0.10	e0.90	e0.00	e0.10	5.2	29	4.3	34	4.1
20	37	2.6	e0.50	e0.10	e0.80	e0.00	e0.10	6.1	28	3.8	28	2.7
21	45	3.6	e0.40	e0.10	e0.70	e0.00	e0.10	5.4	34	3.3	27	2.2
22	132	22	e0.40	e0.00	e0.60	e0.00	e0.20	5.5	34	2.8	27	2.4
23	389	96	e0.40	e0.00	e0.50	e0.00	e0.20	9.5	32	2.8	27	2.2
24	277	17	e0.40	e0.00	e0.50	e0.00	e0.20	16	38	4.6	27	2.1
25	142	15	e0.40	e0.00	e0.40	e0.00	e0.20	18	49	8.7	28	4.7
26	126	14	e0.40	e0.00	e0.40	e0.00	e0.25	15	45	6.6	28	8.6
27	91	4.6	e0.30	e0.00	e0.30	e0.00	e0.30	17	47	6.9	32	15
28	91	2.0	e0.30	e0.00	e0.30	e0.00	e0.30	17	45	22	54	34
29	134	14	e0.30	e0.00	---	e0.00	e0.40	16	42	28	52	50
30	118	19	e0.30	e0.00	---	e0.00	e0.40	19	39	28	34	94
31	125	---	e0.30	e0.00	---	e0.00	---	16	---	28	22	---
TOTAL	1924.1	1102.4	66.60	3.30	29.10	2.95	3.55	308.80	821.0	659.4	979	519.8
MEAN	62.1	36.7	2.15	0.11	1.04	0.095	0.12	9.96	27.4	21.3	31.6	17.3
MAX	389	191	14	0.30	3.0	0.50	0.40	26	49	47	54	94
MIN	4.9	1.7	0.30	0.00	0.10	0.00	0.00	0.60	5.1	2.8	22	2.1
AC-FT	3820	2190	132	6.5	58	5.9	7.0	613	1630	1310	1940	1030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)#

MEAN	7.51	4.28	0.28	0.039	0.20	0.007	0.012	1.38	28.7	38.4	19.7	13.3
MAX	62.1	36.7	2.15	0.16	1.56	0.095	0.12	9.96	209	272	53.1	41.1
(WY)	2003	2003	2003	1995	1994	2003	2003	2003	1999	1999	1998	2002
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.06	2.96	0.97	1.72
(WY)	1992	1992	1991	1991	1991	1991	1992	1998	1992	1991	1991	1991

\# See Period of Record and Remarks. Not adjusted to account for changes in drainage area
e Estimated

15238648 UPPER NUKA RIVER NEAR PARK BOUNDARY NEAR HOMER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003#	
ANNUAL TOTAL	8724.00		6420.00			
ANNUAL MEAN	23.9		17.6		9.54	
HIGHEST ANNUAL MEAN					a45.6	1999
LOWEST ANNUAL MEAN					1.09	1991
HIGHEST DAILY MEAN	389	Oct 23	389	Oct 23	389	Oct 23 2002
LOWEST DAILY MEAN	b0.00	Jan 4	c0.00	Jan 22	d0.00	Nov 3 1990
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 4	0.00	Jan 22	0.00	Nov 3 1990
MAXIMUM PEAK FLOW			565	Oct 23	565	Oct 23 2002
MAXIMUM PEAK STAGE			f4.48	Oct 23	f4.48	Oct 23 2002
ANNUAL RUNOFF (AC-FT)	17300		12730		6910	
10 PERCENT EXCEEDS	70		38		17	
50 PERCENT EXCEEDS	2.2		4.7		0.25	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

PRIOR TO REGULATION AND DIVERSION OF NUKA RIVER

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1989, BY WATER YEAR (WY)#

		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUGSEP
MEAN	47.6	7.01	2.83	1.48	.49	.21	.22	23.8	34.7	141	180	131
MAX	72.0	24.9	9.00	5.79	2.24	.87	.72	117	81.2	307	432	321
(WY)	1987	1987	1987	1985	1985	1985	1985	1986	1989	1989	1989	1989
MIN	3.84	.024	.000	.000	.000	.000	.000	.016	.76	6.41	12.1	7.08
(WY)	1989	1989	1989	1989	1988	1988	1988	1987	1987	1988	1986	1988

SUMMARY STATISTICSWATER YEARS 1985 - 1989#

ANNUAL MEAN	47.9	
HIGHEST ANNUAL MEAN	96.2	1989
LOWEST ANNUAL MEAN	8.60	1988
HIGHEST DAILY MEAN	1240	Aug 25 1989
LOWEST DAILY MEAN	g.00	May 6 1987
ANNUAL SEVEN-DAY MINIMUM	.00	May 6 1987
INSTANTANEOUS PEAK FLOW	h1630	Aug 25 1989
INSTANTANEOUS PEAK STAGE	5.47	Aug 25 1989
ANNUAL RUNOFF (AC-FT)	34700	
10 PERCENT EXCEEDS	183	
50 PERCENT EXCEEDS	1.1	
90 PERCENT EXCEEDS	.00	

\# See Period of Record and Remarks. Not adjusted to account for changes in drainage area
a Diversion dam failed Jun. 17, 1999; repaired Sep. 25, 1999
b From Jan. 4 - May 12
c From Jan. 22-31 and Mar. 12 - Apr. 10
d No flow most days during winter
f From crest-stage gage
g No flow many days each year since 1987 during winter through Jun
See Period of Record for remark on low-flow records
h From rating curve extended above 380 ft^3/s

15238978 BATTLE CREEK DIVERSION ABOVE BRADLEY LAKE NEAR HOMER

LOCATION.--Lat 59°44'45", long 150°50'22", in SW¼ NE¼ sec. 17, T. 5 S., R. 9 W. (Seldovia C-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on right bank 0.6 mi upstream from Bradley Lake and 25 mi east of Homer.

DRAINAGE AREA.--0.95 mi^2.

PERIOD OF RECORD.--August 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,350 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. The entire flow of Battle Creek at the station has been diverted into Bradley Lake since October 1991.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 50 ft^3/s and maximums (*).

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 13	1030	56	6.19	Nov. 30	0315	62	6.29
Oct. 22	2345	137	7.35	Dec. 03	1545	80	6.59
Oct. 23	2300	151*	7.50*	Feb. 04	1300	61	6.27
Oct. 29	1700	80	6.60	Sep. 28	2315	61	6.28
Nov. 05	2130	107	6.98	Sep. 30	2345	117	7.11
Nov. 23	1530	80	6.60				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	9.9	14	0.00	0.00	0.00	0.00	0.86	9.5	14	2.1	4.0
2	3.1	11	6.4	0.00	0.00	0.00	e0.00	1.1	8.1	23	1.8	3.0
3	2.1	13	42	0.00	0.02	0.05	0.00	1.3	8.0	18	1.5	2.4
4	1.7	30	22	0.00	26	0.03	e0.00	1.1	8.3	13	1.3	1.9
5	1.6	74	17	0.00	7.8	0.00	e0.00	1.1	18	13	1.3	1.6
6	1.6	48	14	0.00	1.7	0.00	0.00	0.71	20	10	1.3	1.3
7	1.9	18	7.3	0.00	0.76	0.00	0.00	0.55	14	9.8	1.2	1.2
8	1.9	8.3	4.7	0.00	1.2	0.00	0.00	0.64	12	11	1.6	0.98
9	1.3	4.9	3.7	0.00	1.3	0.00	0.00	3.9	22	11	1.8	0.92
10	1.3	2.9	3.3	0.07	1.6	0.00	0.00	4.9	27	8.7	1.6	0.87
11	2.6	2.6	2.4	0.64	1.7	0.00	e0.00	1.8	21	9.0	2.4	0.69
12	3.4	2.3	2.0	0.73	1.1	e0.00	e0.00	1.1	20	9.0	3.2	0.57
13	24	1.7	1.5	0.61	0.58	e0.00	e0.00	0.71	22	7.8	3.1	0.47
14	12	1.4	1.0	0.35	0.34	e0.00	e0.00	0.47	30	8.3	4.7	0.34
15	9.2	1.2	0.87	0.22	0.12	e0.00	e0.00	0.32	27	7.2	5.5	0.18
16	6.5	0.81	0.72	0.34	0.01	e0.00	e0.00	0.27	21	9.5	6.7	0.12
17	5.1	0.50	0.78	1.2	0.00	e0.05	e0.00	0.50	14	7.9	4.6	0.07
18	4.1	1.2	0.70	0.95	0.00	e0.03	e0.00	0.69	14	7.8	2.8	0.02
19	7.0	1.3	0.62	0.49	0.00	e0.02	0.00	0.91	13	5.3	3.6	0.00
20	23	1.7	0.56	0.46	0.00	e0.00	0.01	1.3	9.7	4.3	7.4	0.01
21	14	2.1	0.60	0.40	0.00	e0.00	0.07	1.6	13	4.5	3.4	0.12
22	64	13	0.58	0.19	0.00	e0.00	0.14	1.9	11	4.2	2.6	0.06
23	121	62	0.45	0.06	0.00	e0.00	0.13	3.4	10	4.9	2.1	0.05
24	57	26	0.26	0.00	0.00	e0.00	0.35	4.7	12	7.0	1.9	0.13
25	24	16	0.13	0.00	0.00	e0.00	0.55	5.0	15	5.3	2.0	0.65
26	15	21	0.05	0.00	0.00	0.00	0.63	7.1	11	3.6	3.3	0.43
27	8.4	10	0.00	0.00	0.00	0.00	0.84	13	10	3.3	5.0	0.19
28	10	5.6	0.00	0.00	0.00	0.00	0.93	13	10	4.0	17	8.2
29	44	20	0.00	0.00	---	0.00	0.77	8.8	10	2.9	11	18
30	18	43	0.00	0.00	---	0.00	0.82	11	11	2.3	13	29
31	23	---	0.00	0.00	---	0.00	---	9.9	---	2.1	5.8	---
TOTAL	516.0	453.41	147.62	6.71	44.23	0.18	5.24	103.63	451.6	251.7	126.6	77.47
MEAN	16.6	15.1	4.76	0.22	1.58	0.006	0.17	3.34	15.1	8.12	4.08	2.58
MAX	121	74	42	1.2	26	0.05	0.93	13	30	23	17	29
MIN	1.3	0.50	0.00	0.00	0.00	0.00	0.00	0.27	8.0	2.1	1.2	0.00
AC-FT	1020	899	293	13	88	0.4	10	206	896	499	251	154
CFSM	17.5	15.9	5.01	0.23	1.66	0.01	0.18	3.52	15.8	8.55	4.30	2.72
IN.	20.21	17.75	5.78	0.26	1.73	0.01	0.21	4.06	17.68	9.86	4.96	3.03

e Estimated

15238978 BATTLE CREEK DIVERSION ABOVE BRADLEY LAKE NEAR HOMER—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)#

MEAN	3.85	2.24	0.59	0.056	0.25	0.002	0.13	2.71	14.1	11.3	5.72	6.76
MAX	16.6	15.1	4.76	0.22	1.58	0.015	0.67	7.67	23.5	20.1	14.5	16.9
(WY)	2003	2003	2003	2003	2003	1998	1997	1993	1998	2001	2001	1995
MIN	0.21	0.009	0.000	0.000	0.000	0.000	0.000	0.21	5.55	1.83	0.094	0.91
(WY)	1997	2000	1996	1996	1996	1994	1999	1999	1996	1996	1996	1992

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1992 - 2003#	
ANNUAL TOTAL	2326.86		2184.39			
ANNUAL MEAN	6.37		5.98		4.02	
HIGHEST ANNUAL MEAN					5.98	2003
LOWEST ANNUAL MEAN					1.23	1996
HIGHEST DAILY MEAN	121	Oct 23	121	Oct 23	121	Oct 23 2002
LOWEST DAILY MEAN	a0.00	Jan 1	b0.00	Dec 27	c0.00	Jun 3 1992
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Dec 27	0.00	Jan 11 1993
MAXIMUM PEAK FLOW			151	Oct 23	151	Oct 23 2002
MAXIMUM PEAK STAGE			7.50	Oct 23	7.50	Oct 23 2002
MAXIMUM PEAK STAGE					d8.06	May 20 1999
ANNUAL RUNOFF (AC-FT)	4620		4330		2910	
ANNUAL RUNOFF (CFSM)	6.71		6.30		4.24	
ANNUAL RUNOFF (INCHES)	91.11		85.54		57.55	
10 PERCENT EXCEEDS	16		17		13	
50 PERCENT EXCEEDS	2.0		1.3		0.41	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

\# See Period of Record and Remarks, partial years used in summary statistics
a No flow many days during the winter
b No flow many days during the winter, and Sep. 19
c No flow many days most winters, and Jun. 3, 1992 (observation), Aug. 4, Aug. 5, Aug. 9, and Aug. 14 - Sep. 11, 1986.
d Backwater from ice jam

15238990 UPPER BRADLEY RIVER NEAR NUKA GLACIER NEAR HOMER

LOCATION.--Lat 59°42'02", long 150°42'09", (Seldovia C-2 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on left bank 1.0 mi downstream from Nuka Glacier terminus, 2.7 mi upstream from confluence with Kachemak Creek, 3.7 mi southeast of Bradley Lake, and 29 mi east of Homer. Prior to July 22, 1991 at site 0.2 mi downstream.

DRAINAGE AREA.--Indeterminate. Prior to July 29, 1990, drainage area was about 10 mi^2 and varied according to position of glacier terminus.

PERIOD OF RECORD.--October 1979 to current year. Prior to October 1989, published as Upper Bradley River near Homer.

REVISED RECORDS.--WDR AK-86-1: 1980-85, WRD AK-96-1: 1991-95.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,250 ft above sea level, from topographic map. Prior to July 22, 1991 at site 0.2 mi downstream at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow diverted from Upper Nuka River into Upper Bradley River drainage since July 29, 1990. Air temperature recorder at station, daily values of air temperature available from the computer files of the Alaska Science Center, Water Resources Office. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	e75	151	e2.0	e0.30	e0.80	0.00	e8.0	117	292	407	315
2	99	124	105	e1.5	e1.0	e0.80	0.00	e10	98	351	350	304
3	65	174	439	e1.5	e3.0	e1.0	0.00	e13	97	364	293	228
4	55	323	225	e1.5	e15	e0.80	0.00	e16	92	388	280	183
5	61	983	255	e1.0	e12	e0.70	0.00	e22	148	343	292	147
6	81	548	201	e1.0	e10	e0.60	0.00	e29	200	332	278	184
7	153	269	120	e0.90	e8.0	e0.50	0.00	38	171	387	309	188
8	e70	151	97	e0.80	e8.0	e0.50	0.00	41	142	517	433	145
9	e60	125	110	e0.70	e7.0	e0.45	0.00	103	134	485	459	186
10	e45	97	76	e0.60	e7.0	e0.35	e0.00	78	175	434	408	197
11	e55	88	54	e0.60	e6.0	e0.30	e0.10	43	207	425	450	183
12	e65	81	48	e0.50	e6.0	e0.30	e0.25	36	222	421	622	154
13	e140	62	43	e0.50	e5.0	e0.25	e0.25	32	261	493	1070	162
14	e150	53	e35	e0.50	e5.0	e0.25	e0.25	31	261	550	1150	100
15	e140	47	e25	e0.40	e4.0	e0.20	e0.25	36	244	488	937	75
16	e90	41	e20	e0.40	e4.0	e0.20	e0.25	37	236	484	718	62
17	e75	37	e20	e0.40	e3.5	e0.10	e0.30	34	218	469	426	61
18	e90	35	e15	e0.40	e3.5	e0.10	e0.40	32	217	508	284	55
19	e180	34	e15	e0.40	e3.0	e0.10	e0.50	33	225	435	474	44
20	e340	44	e10	e0.40	e2.5	e0.00	e0.70	35	210	416	445	41
21	e420	52	e10	e0.40	e2.0	e0.00	e0.90	37	239	396	287	37
22	e1200	180	e9.0	e0.40	e1.5	e0.00	e1.0	42	223	368	272	33
23	e1800	670	e8.0	e0.40	e1.5	e0.00	e1.5	58	214	379	215	34
24	e700	260	e7.0	e0.40	e1.0	0.00	e1.5	71	270	558	191	34
25	e120	172	e6.0	e0.40	e1.0	0.00	e2.0	80	321	648	309	43
26	e110	263	e5.0	e0.30	e0.90	0.00	e2.5	80	233	591	563	42
27	e75	127	e4.0	e0.30	e0.60	0.00	e3.0	122	238	495	780	48
28	e75	78	e3.5	e0.30	e0.70	0.00	e4.0	118	233	543	1100	313
29	e110	247	e3.0	e0.30	---	0.00	e5.0	114	248	443	963	728
30	e100	413	e2.5	e0.30	---	0.00	e6.0	122	262	397	695	1280
31	e110	---	e2.0	e0.30	---	0.00	---	116	---	420	421	---
TOTAL	7023	5853	2124.0	19.80	123.00	8.30	30.65	1667.0	6156	13820	15881	5606
MEAN	227	195	68.5	0.64	4.39	0.27	1.02	53.8	205	446	512	187
MAX	1800	983	439	2.0	15	1.0	6.0	122	321	648	1150	1280
MIN	45	34	2.0	0.30	0.30	0.00	0.00	8.0	92	292	191	33
AC-FT	13930	11610	4210	39	244	16	61	3310	12210	27410	31500	11120

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)#

MEAN	85.4	28.7	7.71	0.56	0.69	0.021	0.15	22.5	218	407	448	348
MAX	227	195	68.5	4.75	4.39	0.27	1.02	93.6	363	763	597	851
(WY)	2003	2003	2003	2001	2003	2003	2003	1993	2001	2001	1993	1995
MIN	12.9	2.40	0.000	0.000	0.000	0.000	0.000	0.008	94.4	106	293	117
(WY)	1997	2000	1995	1991	1991	1991	1992	1998	1999	1999	1998	1992

\# See Period of Record and Remarks. Not adjusted to account for changes in drainage area
e Estimated

15238990 UPPER BRADLEY RIVER NEAR NUKA GLACIER NEAR HOMER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003#	
ANNUAL TOTAL	58972.80		58311.75			
ANNUAL MEAN	162		160		131	
HIGHEST ANNUAL MEAN					181	2001
LOWEST ANNUAL MEAN					91.1	1998
HIGHEST DAILY MEAN	a1800	Oct 23	a1800	Oct 23	b3600	Sep 21 1995
LOWEST DAILY MEAN	c0.00	Feb 3	d0.00	Mar 20	f0.00	Dec 5 1990
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 3	0.00	Mar 20	0.00	Dec 5 1990
MAXIMUM PEAK FLOW			2930	Sep 30	g4100	Sep 20 1995
MAXIMUM PEAK STAGE			h14.46	Sep 30	i15.10	Sep 20 1995
ANNUAL RUNOFF (AC-FT)	117000		115700		95210	
10 PERCENT EXCEEDS	430		441		422	
50 PERCENT EXCEEDS	55		58		6.5	
90 PERCENT EXCEEDS	0.00		0.30		0.00	

PRIOR TO DIVERSION FROM UPPER NUKA RIVER

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1989, BY WATER YEAR (WY)#

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	106	22.8	10.2	4.67	1.74	1.35	1.29	38.3	161	290	349	292
MAX	279	75.7	54.6	15.1	4.82	6.50	4.67	92.0	270	458	595	673
(WY)	1980	1980	1987	1981	1981	1984	1981	1986	1988	1981	1986	1982
MIN	26.3	2.60	.50	.000	.000	.000	.000	.33	102	149	133	63.1
(WY)	1986	1988	1989	1989	1989	1989	1986	1987	1985	1985	1985	1983

SUMMARY STATISTICS	WATER YEARS 1980 - 1989 #	
ANNUAL MEAN	107	
HIGHEST ANNUAL MEAN	154	1986
LOWEST ANNUAL MEAN	49.6	1985
HIGHEST DAILY MEAN	1890	Aug 27 1986
LOWEST DAILY MEAN	f.00	Dec 25 1979
ANNUAL SEVEN-DAY MINIMUM	.00	Dec 25 1979
INSTANTANEOUS PEAK FLOW	j2530	Oct 10 1986
INSTANTANEOUS PEAK STAGE	k9.86	Oct 10 1986
ANNUAL RUNOFF (AC-FT)	77650	
10 PERCENT EXCEEDS	338	
50 PERCENT EXCEEDS	15	
90 PERCENT EXCEEDS	.50	

\# See Period of Record and Remarks. Not adjusted to account for changes in drainage area
a Estimated discharge, but may have been higher during period of no gage-height record, Oct. 8 to Nov. 1
b Estimated discharge, but may have been higher during period of no gage-height record, Sep. 21 to Sep. 22, 1995
c From Feb. 3 to Apr. 27
d From Mar. 20 to Apr. 10
f No flow in winter most years
g From rating curve extended above 400 ft^3/s on basis of slope-area measurement of peak flow
h From crest-stage gage
i From floodmarks
j From rating curve extended above 440 ft^3/s on basis of slope-area measurement of peak flow
k Site and datum then in use

15239000 BRADLEY RIVER NEAR HOMER

LOCATION.--Lat 59°45'30", long 150°51'02", in SW¼ SE¼ NW¼ sec. 8, T. 5 S., R. 9 W. (Seldovia D-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, about 1,300 ft downstream from Bradley Lake dam, 3.3 mi upstream from confluence with Middle Fork Bradley River, and 26 mi northeast of Homer.

DRAINAGE AREA.--About 65 mi^2 since July and August 1990, when additional water was diverted into the basin. Prior drainage area was about 54 mi^2.

PERIOD OF RECORD.--July to August 1955, October 1957 to September 1990 (discharge). October 1991 to current year (beginning month reservoir contents and monthly discharges).

REVISED RECORDS.--WSP 2136: 1960(M), 1965. WDR AK-77-1: 1958, 1961, 1963(M), 1966, 1967, 1970, 1972, 1974, 1976.

GAGE.--Nonrecording gage. Datum of gage is 1,054.16 ft above sea level (levels of dam-site survey for Alaska Power Authority). Totalizing flow meters on penstocks to two turbines in Bradley powerhouse. Lake-level sensor. July 13-22, 1955, non-recording lake gage at site 1 mi upstream and July 23 to August 5, 1955, at site 3 mi upstream at different datum. Prior to November 4, 1980, and April 29 to October 5, 1986, water-stage recorder at site 500 ft upstream at different datum and November 4, 1980 to April 28, 1986, water-stage recorder 1,300 ft upstream at different datum. April 29, 1986 to September 30, 1989, water-stage recorder at present site and datum.

REMARKS.--Reservoir is formed by an earthen dam with impermeable core and concrete face at the outlet of Bradley Lake. Construction began November 1986 and was completed in April 1991. Total and usable capacities below the spillway crest of 1,180 ft are 547,500 and 284,200 acre-ft, respectively. Reservoir is used for power. Discharge released through turbines is computed using totalizing flow meters; release flow enters Kachemak Bay and is not returned to stream. Spill, dam seepage, and fish-water bypass are measured at Bradley River below Dam (15239001) gage. Reservoir capacity table furnished by the Alaska Energy Authority.

COOPERATION.--Reservoir elevations and power generation discharge provided by the Homer Electric Association, for the Alaska Energy Authority.

AVERAGE DISCHARGE.--44 years (water years 1958 to 1989, and 1992 to current year), 461 ft^3/s, 334,000 acre-ft/yr. The inflow diversions from Middle Fork Bradley River and Battle Creek into the reservoir are excluded. Flow diverted from Upper Nuka River into Upper Bradley since July 29, 1990 was not measurable and is included in the following tabulations.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 557,700 acre-ft, November 6, 2002, elevation 1182.6 ft; minimum contents observed, 246,600 acre-ft, April 23, 1997, elevation 1069.3 ft. Maximum computed discharge, 8,800 ft^3/s, October 10, 1986, gage height, 10.90 ft from floodmarks, site and datum then in use. Maximum discharge, September 21-22, 1995 was probably higher, as indicated by extremes for period of record on these dates for other sites in the Bradley River basin; minimum daily, about 9.0 ft^3/s, December 7, 1986, result of power tunnel construction at dam site.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 557,700 acre-ft, November 6, elevation 1182.6 ft; minimum contents not determined.

BEGINNING OF MONTH RESERVOIR ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS, IN ACRE FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	ELEVATION	CONTENTS	CHANGE IN CONTENTS
Oct 1	1,164.3	489,800	--
Nov 1	1,179.5	545,500	+55,700
Dec 1	1,178.8	542,700	-2,800
Jan 1	1,170.8	512,500	-30,200
Feb 1	1,163.0	485,200	-27,300
Mar 1	1,156.3	461,400	-23,800
Apr 1	no data	414,000e	-47,400e
May 1	no data	384,000e	-30,000e
Jun 1	1,126.6	366,600	-17,400e
Jul 1	1,138.7	404,200	+37,600
Aug 1	1,158.7	469,900	+65,700
Sep 1	1,175.3	529,000	+59,100
Oct 1	1,171.9	516,800	-12,200
		CAL YR 2002	+45,800
		WTR YR 2003	+27,000

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

MONTH	CHANGE IN CONTENTS	POWER GENERATION	BRADLEY RIVER BELOW DAM 15239001	MIDDLE FORK BRADLEY RIVER 15239050	BATTLE CREEK DIVERSION 15238978	BRADLEY RIVER 15239000
OCT	+906	681	38.8	136	16.6	1,470
NOV	-47	1,210	217	106	15.1	1,260
DEC	-490	932	28.1	37.5	4.76	427
JAN	-444	560	43.1	8.86	0.22	149
FEB	-428	641	40.4	22.9	1.58	228
MAR	-771	786	38.0	5.59	0.01	47
APR	-504	672	38.8	4.11	0.17	203e
MAY	-283	499	48.2	20.4	3.34	241e
JUN	+632	597	36.3	126	15.1	1,120
JUL	+1,070	460	55.7	202	8.12	1,370
AUG	+961	789	85.5	162	4.08	1,670
SEP	-205	909	85.3	66.6	2.58	720
CAL YR 2002	+59	679	49.2	68.6	6.37	713
WTR YR 2003	+33	728	62.8	75.3	5.98	743

e Estimated

15239001 BRADLEY RIVER BELOW DAM NEAR HOMER

LOCATION.--Lat 59°45'30", long 150°51'02", in SW¼ SE¼ NW¼ sec. 8, T. 5 S., R. 9 W. (Seldovia D-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on right bank about 1,300 ft downstream from Bradley Lake Dam, 3.3 mi upstream from Middle Fork Bradley River, and 26 mi northeast of Homer.

DRAINAGE AREA.--About 66 mi^2 since October 1991, when additional water was diverted into the basin. Prior drainage area was about 54 mi^2.

PERIOD OF RECORD.--October 1989 to current year. Prior to 1990 water year, records are equivalent to "Bradley River near Homer" (station no. 15239000).

GAGE.--Water-stage recorder. Datum of gage is 1,054.16 ft above sea level (levels of dam-site survey for Alaska Power Authority).

REMARKS.--No estimated daily discharges. Records fair. Nuka River and Middle Fork Bradley River were diverted into Bradley Lake, upstream from dam, beginning July 29 and August 7, 1990, respectively. Reservoir began filling April 26, 1991. Water has been diverted out of the basin through the turbines since hydro-power generation began on June 28, 1991. Battle Creek was diverted into reservoir in October 1991. Rain gage and air temperature recorder at station, daily values of precipitation and air temperature available from the computer files of the Alaska Science Center, Water Resources Office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,480 ft^3/s November 6, 2002 gage height, 7.15 ft; minimum, 0.00 ft^3/s, from rating curve extended below 0.18 ft^3/s, most likely ponded water, but no measurable flow, June 9 and June 10, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,480 ft^3/s, Nov. 6, gage height, 7.15 ft; minimum, 0.26 ft^3/s, Nov. 16., gage-height 1.67 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	8.3	0.96	43	42	40	37	48	49	44	83	80
2	57	8.5	1.0	43	42	40	38	48	49	32	83	81
3	57	11	13	44	43	39	38	48	48	32	84	85
4	57	14	1.5	43	28	39	38	48	49	45	87	93
5	57	765	27	43	19	39	38	47	50	45	91	91
6	57	2350	9.6	43	43	39	38	47	36	45	92	90
7	57	1790	0.49	43	43	39	38	46	38	45	91	91
8	56	1010	0.47	44	43	39	38	46	41	35	91	91
9	56	426	0.45	44	43	38	38	43	46	35	87	91
10	57	80	0.45	44	42	38	38	38	28	45	88	94
11	56	14	3.1	45	42	38	39	37	21	48	89	99
12	54	0.70	12	44	42	38	39	48	24	48	86	103
13	55	0.35	13	44	42	38	38	53	23	48	86	108
14	55	0.42	33	43	42	38	38	52	20	49	85	108
15	55	0.31	46	43	42	38	38	53	11	49	86	107
16	55	0.28	46	44	41	38	38	53	19	50	81	108
17	55	0.36	45	45	41	38	38	57	25	54	80	107
18	55	0.43	45	44	41	38	38	64	27	60	88	107
19	55	0.61	45	43	41	38	38	56	29	59	88	108
20	29	1.3	45	43	41	38	39	57	32	59	87	97
21	7.3	1.4	45	43	41	38	39	56	34	59	88	89
22	11	3.2	45	43	41	38	39	56	32	61	90	80
23	11	6.9	45	43	42	37	39	56	37	66	93	67
24	4.8	5.9	45	42	41	37	40	51	45	63	92	59
25	14	2.7	44	42	41	37	40	45	39	61	93	55
26	2.9	5.6	44	42	41	37	40	44	46	66	92	57
27	0.98	0.67	44	42	41	37	40	40	47	83	90	57
28	20	0.72	43	42	41	37	40	36	53	86	67	59
29	5.5	5.7	43	42	---	37	41	40	47	88	69	50
30	17	2.8	43	42	---	37	43	40	43	83	69	47
31	16	---	43	42	---	37	---	41	---	83	75	---
TOTAL	1202.48	6517.15	872.02	1337	1132	1179	1163	1494	1088	1726	2651	2559
MEAN	38.8	217	28.1	43.1	40.4	38.0	38.8	48.2	36.3	55.7	85.5	85.3
MAX	57	2350	46	45	43	40	43	64	53	88	93	108
MIN	0.98	0.28	0.45	42	19	37	37	36	11	32	67	47
AC-FT	2390	12930	1730	2650	2250	2340	2310	2960	2160	3420	5260	5080

CAL YR 2002 TOTAL 17955.00 MEAN 49.2 MAX 2350 MIN 0.04 AC-FT 35610
WTR YR 2003 TOTAL 22920.65 MEAN 62.8 MAX 2350 MIN 0.28 AC-FT 45460

15239050 MIDDLE FORK BRADLEY RIVER NEAR HOMER

LOCATION.--Lat 59°46'42", long 150°45'15", in NW$^1/_4$ NE$^1/_4$ sec.2, T.5 S., R.9 W. (Seldovia D-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on left bank 6.0 mi upstream from mouth and 27 mi east of Homer.

DRAINAGE AREA.--9.25 mi^2.

PERIOD OF RECORD.--October 1979 to current year. Published as Bradley River tributary near Homer prior to October 1989.

REVISED RECORDS.-- WDR AK-86-1: 1980(P), 1981-82(M), 1984(M). WRD AK-2000-1: 1995-1997.

GAGE.--Water-stage recorder. Elevation of gage is 2,300 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Precipitation gage and air temperature recorder at station; daily values of air temperature and precipitation are available from the computer files of the Alaska Science Center, Water-Resources office.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximums (*)
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Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct.23	2330	*1310	9.49	Dec. 3	1300	385	9.28
Oct. 29	1630	316	9.14	Aug. 28	1630	445	9.37
Nov. 5	2000	1020	*10.09				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	98	70	e11	7.3	6.7	e4.2	e5.4	46	170	146	136
2	54	97	53	e10	7.2	7.4	e4.2	e5.8	46	238	134	126
3	47	107	242	e10	120	7.3	e4.2	e6.1	49	228	124	114
4	43	160	125	e9.5	156	6.9	e4.1	e6.5	49	213	119	103
5	43	525	90	e9.5	64	7.0	e4.1	e6.8	67	207	118	88
6	44	387	68	e9.5	19	6.7	e4.0	e7.3	74	195	118	82
7	53	174	54	e9.5	12	6.6	e4.0	e7.8	66	195	118	80
8	48	115	43	e9.0	11	6.5	e4.0	e8.3	60	229	141	73
9	44	90	36	e9.0	11	6.5	e4.0	e8.8	79	238	158	73
10	38	74	33	e9.0	12	6.5	e4.0	e9.2	120	220	160	70
11	46	65	e29	e10	12	6.4	e3.9	e10	153	210	206	66
12	52	58	e26	e10	11	e6.2	e3.9	e10	185	216	225	62
13	99	51	e23	e9.5	10	e5.7	e3.8	e11	184	213	222	61
14	83	47	e21	e9.5	9.4	e5.7	e3.8	e12	190	224	228	50
15	66	e42	e19	e9.5	9.0	e5.5	e3.8	14	196	217	224	40
16	65	e37	e17	9.3	8.6	e5.5	e3.8	15	176	218	210	37
17	56	e34	e17	9.6	8.3	e5.2	e3.8	15	162	226	165	34
18	57	e32	e17	8.8	8.0	e5.1	e3.8	16	152	228	129	32
19	90	e30	e16	8.6	7.8	e5.0	e3.8	18	160	200	139	31
20	128	e29	e16	8.6	7.5	e5.0	e3.8	20	148	195	155	31
21	100	e28	e16	8.3	7.4	e4.9	e3.8	22	151	185	120	28
22	322	80	e15	8.2	7.3	e4.8	e3.9	25	149	172	113	27
23	909	210	e15	8.0	25	e4.7	e4.0	29	146	180	104	25
24	577	112	e14	7.9	48	e4.6	e4.2	34	148	220	100	24
25	204	72	e14	7.7	15	e4.6	e4.3	35	148	210	121	24
26	156	97	e13	7.7	12	e4.5	e4.4	38	135	182	150	23
27	119	71	e13	7.7	8.0	e4.5	e4.6	49	127	170	165	22
28	116	49	e12	e7.5	8.8	e4.4	e4.8	48	128	186	271	46
29	208	72	e12	e7.5	---	e4.4	e5.0	44	142	169	269	151
30	164	136	e11	7.5	---	e4.2	e5.2	47	148	150	220	240
31	128	---	e11	7.4	---	e4.2	---	47	---	144	161	---
TOTAL	4223	3179	1161	274.8	642.6	173.2	123.2	631.0	3784	6248	5033	1999
MEAN	136	106	37.5	8.86	22.9	5.59	4.11	20.4	126	202	162	66.6
MAX	909	525	242	11	156	7.4	5.2	49	196	238	271	240
MIN	38	28	11	7.4	7.2	4.2	3.8	5.4	46	144	100	22
AC-FT	8380	6310	2300	545	1270	344	244	1250	7510	12390	9980	3970
CFSM	14.7	11.5	4.05	0.96	2.48	0.60	0.44	2.20	13.6	21.8	17.6	7.20
IN.	16.98	12.78	4.67	1.11	2.58	0.70	0.50	2.54	15.22	25.13	20.24	8.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

MEAN	47.4	20.5	9.65	5.88	5.40	3.70	3.33	16.9	96.9	163	144	103
MAX	144	106	37.5	17.0	23.0	7.17	4.42	44.5	162	221	204	220
(WY)	1987	2003	2003	1981	2003	1981	2001	1990	1998	2001	2001	1995
MIN	15.6	5.29	4.45	3.82	2.86	1.30	2.38	5.45	44.7	111	86.9	38.7
(WY)	1997	1985	1985	1991	1991	1986	1999	1987	1985	1996	1996	1992

e Estimated

15239050 MIDDLE FORK BRADLEY RIVER NEAR HOMER—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	47.4	20.5	9.65	5.88	5.40	3.70	3.33	16.9	96.9	163	144	103
MAX	144	106	37.5	17.0	23.0	7.17	4.42	44.5	162	221	204	220
(WY)	1987	2003	2003	1981	2003	1981	2001	1990	1998	2001	2001	1995
MIN	15.6	5.29	4.45	3.82	2.86	1.30	2.38	5.45	44.7	111	86.9	38.7
(WY)	1997	1985	1985	1991	1991	1986	1999	1987	1985	1996	1996	1992

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1980 - 2003	
ANNUAL TOTAL	25024.4		27471.8			
ANNUAL MEAN	68.6		75.3		52.0	
HIGHEST ANNUAL MEAN					75.3	2003
LOWEST ANNUAL MEAN					34.6	1996
HIGHEST DAILY MEAN	909	Oct 23	909	Oct 23	966	Sep 20 1995
LOWEST DAILY MEAN	a2.5	Apr 20	b3.8	Apr 13	c1.1	Mar 28 1986
ANNUAL SEVEN-DAY MINIMUM	2.5	Apr 20	3.8	Apr 13	1.1	Mar 28 1986
MAXIMUM PEAK FLOW			d1310	Oct 23	1470	Sep 20 1995
MAXIMUM PEAK STAGE			10.09	Nov 5	10.09	Nov 5 2002
MAXIMUM PEAK STAGE					f16.16	May 12 1998
ANNUAL RUNOFF (AC-FT)	49640		54490		37640	
ANNUAL RUNOFF (CFSM)	7.41		8.14		5.62	
ANNUAL RUNOFF (INCHES)	100.64		110.48		76.31	
10 PERCENT EXCEEDS	161		202		155	
50 PERCENT EXCEEDS	48		38		12	
90 PERCENT EXCEEDS	3.2		4.8		3.3	

a Apr. 20-27
b Apr. 13-21
c From Mar. 28 to Apr. 10, 1986
d Oct. 23-24
f Backwater from ice

15239060 MIDDLE FORK BRADLEY RIVER BELOW NORTH FORK BRADLEY RIVER NEAR HOMER

LOCATION.--Lat 59°47'54", long 150°51'48", in SE¼ NE¼ SW¼ sec. 29, T. 4 S., R. 9 W. (Seldovia D-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on left bank 100 ft upstream from confluence with the main stem Bradley River, 0.2 mi below the mouth of the North Fork Bradley River, 5.5 mi downstream from the Middle Fork Bradley River diversion dam, and 25 mi east of Homer.

DRAINAGE AREA.--24.8 mi^2.

PERIOD OF RECORD.--August 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 200 ft above sea level, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Water from upper Middle Fork Bradley River (15239050) is diverted into Bradley Lake at Middle Fork Bradley River diversion dam, located 5.5 mi upstream. Air temperature recorder at station, daily values of air temperature are available from the computer files of the Alaska Science Center, Water Resources Office.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	203	263	e13	e18	21	5.2	83	75	71	27	47
2	78	161	154	e14	20	27	5.1	84	71	87	26	41
3	70	142	726	e13	24	31	5.0	88	72	83	24	36
4	62	205	417	e13	363	27	4.8	81	72	74	22	32
5	61	1520	252	e12	423	e26	4.7	77	87	72	21	29
6	56	937	169	e11	178	e24	4.5	65	104	67	21	27
7	62	400	124	e10	105	e22	4.4	58	90	68	20	25
8	55	249	101	e9.5	109	e20	4.4	59	80	77	22	24
9	49	160	89	e10	108	e18	4.5	98	82	76	28	22
10	46	118	80	e11	124	e17	4.5	122	99	67	26	21
11	54	97	70	e10	117	e16	6.0	88	103	62	29	20
12	58	84	64	e10	92	e15	9.4	73	104	61	35	19
13	121	74	56	e9.0	75	e14	12	63	117	62	32	18
14	130	e65	43	e10	65	e13	11	57	120	65	34	17
15	117	e60	e33	e10	56	e12	10	55	116	60	33	15
16	107	55	e28	e9.0	44	e12	9.0	53	96	58	40	14
17	95	53	e28	e9.0	45	e12	8.9	52	83	55	34	14
18	85	52	e27	e9.0	39	11	10	53	77	53	24	14
19	92	53	e26	e9.0	33	10	12	57	77	48	22	13
20	127	61	e25	e8.0	30	e9.5	14	61	71	45	38	14
21	124	82	e23	e8.0	e29	e9.0	15	63	73	43	28	16
22	344	210	e21	e8.0	27	e8.5	19	65	72	39	24	14
23	1950	1810	e19	e8.0	28	e8.0	23	73	71	39	22	14
24	1610	537	e18	e7.0	29	e7.5	34	78	70	48	21	15
25	541	368	e18	e7.0	27	7.1	44	77	68	45	21	19
26	371	375	e17	e7.0	26	7.2	53	79	64	38	28	17
27	243	220	e16	e8.0	24	6.8	60	94	61	34	30	15
28	268	138	e14	e10	22	6.4	66	93	61	37	58	23
29	498	271	e13	e12	---	6.1	70	81	67	34	69	68
30	410	505	e13	e14	---	5.7	81	84	67	29	68	86
31	289	---	e13	e16	---	5.4	---	81	---	27	55	---
TOTAL	8263	9265	2960	314.5	2280	435.2	614.4	2295	2470	1724	982	749
MEAN	267	309	95.5	10.1	81.4	14.0	20.5	74.0	82.3	55.6	31.7	25.0
MAX	1950	1810	726	16	423	31	81	122	120	87	69	86
MIN	46	52	13	7.0	18	5.4	4.4	52	61	27	20	13
AC-FT	16390	18380	5870	624	4520	863	1220	4550	4900	3420	1950	1490
CFSM	10.7	12.5	3.85	0.41	3.28	0.57	0.83	2.99	3.32	2.24	1.28	1.01
IN.	12.39	13.90	4.44	0.47	3.42	0.65	0.92	3.44	3.71	2.59	1.47	1.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)#

MEAN	79.5	83.7	31.4	20.0	21.3	10.0	21.3	111	178	104	48.2	69.2
MAX	267	309	95.5	75.3	81.4	20.7	36.4	155	277	193	120	116
(WY)	2003	2003	2003	2001	2003	1998	1998	2002	2001	2001	2001	1997
MIN	23.2	16.2	7.69	2.68	2.00	2.74	9.59	74.0	82.3	45.7	12.5	25.0
(WY)	1997	2000	1997	1999	1999	1999	1999	2003	2003	1997	1996	2003

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003#	
ANNUAL TOTAL	38288.2		32352.1			
ANNUAL MEAN	105		88.6		65.7	
HIGHEST ANNUAL MEAN					90.8	2001
LOWEST ANNUAL MEAN					44.0	1997
HIGHEST DAILY MEAN	1950	Oct 23	1950	Oct 23	1950	Oct 23 2002
LOWEST DAILY MEAN	5.2	Apr 17	a4.4	Apr 7	b1.0	Feb 5 1999
ANNUAL SEVEN-DAY MINIMUM	5.4	Apr 11	4.5	Apr 4	1.0	Feb 5 1999
MAXIMUM PEAK FLOW			c3940	Oct 24	c3940	Oct 24 2002
MAXIMUM PEAK STAGE			16.27	Oct 24	16.27	Oct 24 2002
ANNUAL RUNOFF (AC-FT)	75940		64170		47620	
ANNUAL RUNOFF (CFSM)	4.23		3.57		2.65	
ANNUAL RUNOFF (INCHES)	57.43		48.53		36.01	
10 PERCENT EXCEEDS	227		140		158	
50 PERCENT EXCEEDS	54		44		33	
90 PERCENT EXCEEDS	6.4		9.0		6.0	

\# See Period of Record; partial years used in monthly statistics
a Apr. 7-8
b Feb. 5-12, 1999
c From rating curve extended above 32 ft^3/s on basis of comparison of instantaneous discharge of Bradley River below Dam (15239001) and instantaneous discharge of Bradley River near Tidewater (15239070)
e Estimated

15239070 BRADLEY RIVER NEAR TIDEWATER NEAR HOMER

LOCATION.--Lat 59°48'06", long 150°52'58", in SE¼ NE¼ sec. 30, T. 4 S., R. 9 W. (Seldovia D-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on right bank 0.7 mi upstream from mouth, 0.8 mi downstream from Middle Fork Bradley River, 4.3 mi downstream from Bradley Lake outlet and dam site, and 25 mi east of Homer.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 25 ft above sea level, from topographic map.

REMARKS.--Records good, except for November 5 to 20 and estimated daily discharges, which are poor. Flow occasionally affected by high tides. Intermittent regulation during construction at the Bradley River dam site began in November 1986. Flow has been regulated since the reservoir began filling April 26, 1991. (See station 15239001.) Upper Nuka River was diverted into Upper Bradley River on July 29, 1990; flow from about 10 mi^2 of Middle Fork Bradley River upstream drainage has been seasonally diverted into the Bradley Lake reservoir since August 7, 1990. Battle Creek was diverted into the reservoir in October 1990. Water has been diverted out of the basin through the turbines since hydropower generation began June 28, 1991. Rain gage and air temperature recorder at station; daily values of precipitation and air temperature available from the computer files of the Alaska Science Center, Water Resources Office. GOES satellite telemetry at station.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	226	291	e58	e61	50	e45	149	140	126	119	134
2	140	197	197	e59	e68	54	47	149	133	138	118	123
3	131	177	913	e59	e76	56	47	156	134	126	117	124
4	123	251	458	e58	e400	53	47	145	135	132	118	132
5	122	2390	271	e57	503	49	46	139	162	129	121	126
6	116	3490	200	e56	218	e49	46	119	178	121	123	123
7	124	2240	136	e55	141	e48	46	109	158	121	121	122
8	116	1430	108	e55	146	e48	46	110	147	125	123	120
9	108	654	95	e56	144	e48	46	168	157	118	124	118
10	105	260	86	e57	158	e48	46	219	156	119	123	121
11	115	134	72	e57	149	e47	48	162	158	117	126	124
12	116	99	76	e56	124	e47	55	148	152	116	130	125
13	187	82	69	e55	103	e47	60	139	172	116	126	131
14	199	72	92	e55	90	e47	58	128	174	120	129	128
15	183	67	82	e55	79	e47	57	125	156	114	129	127
16	172	58	79	e55	71	e47	56	122	136	113	132	125
17	158	57	e78	e56	72	e60	55	123	131	111	117	124
18	149	57	e76	e55	e70	e52	56	138	122	118	120	123
19	157	64	e75	e54	e90	e51	57	130	126	110	118	123
20	182	92	e73	e53	e70	e50	60	137	117	105	133	118
21	149	137	e72	e53	54	e50	65	139	126	103	123	106
22	433	305	e70	e53	53	e49	74	141	117	100	121	94
23	1950	2240	e68	e53	59	e48	74	150	122	107	123	79
24	1460	737	e67	e51	60	e47	85	153	131	113	120	70
25	647	434	e66	e51	57	e47	95	142	121	109	120	69
26	418	412	e64	e51	56	e47	105	143	123	107	126	67
27	253	255	e62	e53	53	e46	112	159	118	123	127	66
28	307	177	e59	e54	52	e46	119	151	127	132	139	75
29	574	336	e58	e55	---	e46	124	140	127	132	146	114
30	449	679	e58	e56	---	e46	140	146	120	121	144	125
31	319	---	e58	e59	---	e46	---	140	---	119	133	---
TOTAL	9815	17809	4229	1710	3277	1516	2017	4419	4176	3661	3889	3356
MEAN	317	594	136	55.2	117	48.9	67.2	143	139	118	125	112
MAX	1950	3490	913	59	503	60	140	219	178	138	146	134
MIN	105	57	58	51	52	46	45	109	117	100	117	66
AC-FT	19470	35320	8390	3390	6500	3010	4000	8770	8280	7260	7710	6660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)#

MEAN	112	130	70.9	64.2	67.5	52.4	69.1	159	186	142	132	135
MAX	317	594	136	137	117	70.5	93.8	205	263	185	178	224
(WY)	2003	2003	2003	2001	2003	1998	1993	1992	1998	2001	1995	1995
MIN	64.0	51.2	47.1	41.6	42.2	43.9	50.5	120	114	115	105	104
(WY)	1998	2000	1998	1999	1999	1999	1999	1996	1997	1997	2002	1993

\# See Period of Record and Remarks
e Estimated

15239070 BRADLEY RIVER NEAR TIDEWATER NEAR HOMER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1992 - 2003#	
ANNUAL TOTAL	61874		59874			
ANNUAL MEAN	170		164		110	
HIGHEST ANNUAL MEAN					164	2003
LOWEST ANNUAL MEAN					83.8	1996
HIGHEST DAILY MEAN	3490	Nov 6	3490	Nov 6	3490	Nov 6 2002
LOWEST DAILY MEAN	44	Apr 8	45	Apr 1	a40	Dec 15 1992
ANNUAL SEVEN-DAY MINIMUM	45	Apr 4	46	Mar 26	40	Jan 28 1999
MAXIMUM PEAK FLOW			6200	Nov 5	6200	Nov 5 2002
MAXIMUM PEAK STAGE			b10.83	Nov 5	b10.83	Nov 5 2002
INSTANTANEOUS LOW FLOW					17	Mar 28 1989
ANNUAL RUNOFF (AC-FT)	122700		118800		79870	
10 PERCENT EXCEEDS	262		198		177	
50 PERCENT EXCEEDS	108		118		92	
90 PERCENT EXCEEDS	50		51		48	

PRIOR TO REGULATION AND DIVERSION OF BRADLEY DAM

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1989, BY WATER YEAR (WY)#

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	808	224	198	145	82.1	74.0	72.8	462	1032	1390	1318	966
MAX	1908	480	503	223	114	163	101	676	1357	1577	1781	1746
(WY)	1987	1984	1987	1985	1985	1984	1989	1987	1988	1988	1988	1989
MIN	363	86.1	78.9	72.5	37.4	27.4	42.5	282	862	1153	907	470
(WY)	1984	1986	1988	1989	1989	1989	1985	1985	1986	1983	1983	1983

SUMMARY STATISTICS	WATER YEARS 1983 - 1989#	
ANNUAL MEAN	583	
HIGHEST ANNUAL MEAN	722	1987
LOWEST ANNUAL MEAN	475	1985
HIGHEST DAILY MEAN	10000	Oct 11 1986
LOWEST DAILY MEAN	19	Dec 7 1986
ANNUAL SEVEN-DAY MINIMUM	22	Mar 26 1989
MAXIMUM PEAK FLOW	c11000	Oct 11 1986
MAXIMUM PEAK STAGE	b13.73	Oct 11 1986
INSTANTANEOUS LOW FLOW	d17	Mar 28 1989
ANNUAL RUNOFF (AC-FT)	422700	
ANNUAL RUNOFF (CFSM)	7.11	
ANNUAL RUNOFF (IN)	96.67	
10 PERCENT EXCEEDS	1470	
50 PERCENT EXCEEDS	388	
90 PERCENT EXCEEDS	52	

\# See Period of Record and Remarks
a Dec. 15 to Dec. 18, 1992; Apr. 20 to Apr. 21, 1995; Jan. 9 and Apr. 22, 1997; Mar. 5, 1998; Jan. 16 to Jan. 20, and Jan. 28 to Feb. 12, 1999
b From floodmarks
c From rating curve extended above 2,400 ft^3/s on basis of runoff comparisons with nearby stations
d Minimum recorded, but may have been less during period of ice effect, Mar. 28 to Mar. 31, 1989

15241600 NINILCHIK RIVER AT NINILCHIK

LOCATION.--Lat 60°02'56", long 151°39'48", in NE$^1/_4$ sec. 34, T. 1 S., R. 14 W. (Kenai A-5 quad), Kenai Peninsula Borough, Hydrologic Unit 19020301, on right bank 60 ft downstream from bridge, 0.9 mi upstream from mouth, at Ninilchik.

DRAINAGE AREA.--135 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1963 to September 1985, October 1998 to September 2003 (discontinued).

REVISED RECORDS.--WDR AK-01-1: Drainage area.

GAGE.--Water-stage-recorder. Datum of gage is 8.37 ft above NAVD of 1988. Prior to October 1, 1965, at site 0.2 mi upstream at different datum.

REMARKS.--Records good, except for estimated daily discharges, which are poor. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	235	e270	278	e64	e66	e120	e110	121	83	76	60	67
2	258	e240	236	e62	e64	e120	e110	116	89	117	56	65
3	198	e210	235	e60	e62	e120	e110	119	88	129	54	62
4	164	e170	254	e60	e100	e120	e110	118	84	101	53	61
5	139	e210	223	e58	e140	e120	e110	130	86	81	53	64
6	175	e320	194	e58	e150	e120	e110	123	95	76	52	65
7	189	332	171	e56	e160	e120	e120	115	112	71	52	62
8	175	233	155	e54	e160	e110	e120	108	102	67	52	61
9	144	159	144	e60	e160	e110	e120	125	96	64	51	61
10	119	128	140	e120	e160	e110	e120	170	114	61	51	63
11	127	158	134	e160	e160	e110	e130	186	208	61	52	61
12	222	146	131	e160	e160	e110	e140	156	246	63	63	60
13	209	118	134	e160	e150	e100	e150	142	197	61	64	59
14	178	146	98	e150	e150	e94	e150	155	156	58	69	59
15	167	143	e94	e140	e150	e110	e140	148	123	56	137	58
16	209	127	e88	e130	e140	e130	e140	140	108	55	187	58
17	192	124	e84	e120	e130	e130	e140	126	110	56	163	59
18	190	127	e82	e120	e130	e120	e150	120	99	56	130	60
19	181	e150	e80	e110	e120	e110	159	118	98	54	105	61
20	169	e160	e80	e100	e120	e110	153	116	92	54	93	62
21	153	154	e78	e95	e120	e110	153	106	89	55	82	63
22	147	165	e78	e90	e110	e96	176	107	109	56	73	62
23	576	650	e78	e80	e110	e96	190	111	103	56	67	62
24	e5400	1610	e78	e78	e110	e96	186	109	90	58	63	63
25	2010	1190	e76	e76	e110	e96	173	102	85	64	62	70
26	e1050	671	e76	e74	e110	e98	154	103	103	66	90	78
27	e700	463	e76	e72	e110	e100	159	115	111	61	114	72
28	e500	313	e74	e70	e120	e100	153	99	102	60	97	73
29	e300	265	e72	e70	---	e100	148	e90	88	65	84	90
30	e500	281	e70	e68	---	e100	137	84	78	73	77	108
31	e300	---	e68	e66	---	e100	---	84	---	68	72	---
TOTAL	15276	9433	3859	2841	3532	3386	4221	3762	3344	2099	2478	1969
MEAN	493	314	124	91.6	126	109	141	121	111	67.7	79.9	65.6
MAX	5400	1610	278	160	160	130	190	186	246	129	187	108
MIN	119	118	68	54	62	94	110	84	78	54	51	58
AC-FT	30300	18710	7650	5640	7010	6720	8370	7460	6630	4160	4920	3910
CFSM	3.65	2.33	0.92	0.68	0.93	0.81	1.04	0.90	0.83	0.50	0.59	0.49
IN.	4.21	2.60	1.06	0.78	0.97	0.93	1.16	1.04	0.92	0.58	0.68	0.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2003, BY WATER YEAR (WY)#

MEAN	143	105	66.2	57.3	59.6	65.7	158	229	117	86.3	88.0	115
MAX	493	314	124	91.6	126	109	548	488	238	151	155	204
(WY)	2003	2003	2003	2003	2003	2003	1974	1977	1964	1980	1981	1982
MIN	78.2	41.1	42.0	36.8	36.0	36.9	41.4	81.7	62.2	57.6	47.8	54.6
(WY)	1969	1964	1966	1974	1974	1974	1985	1969	1969	1983	1969	1969

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1963 - 2003#	
ANNUAL TOTAL	55296		56200			
ANNUAL MEAN	151		154		108	
HIGHEST ANNUAL MEAN					154	2003
LOWEST ANNUAL MEAN					55.4	1969
HIGHEST DAILY MEAN	5400	Oct 24	5400	Oct 24	5400	Oct 24 2002
LOWEST DAILY MEAN	45	Mar 22	a51	Aug 9	30	Jul 20 1966
ANNUAL SEVEN-DAY MINIMUM	45	Mar 22	52	Aug 5	32	Jan 9 1983
MAXIMUM PEAK FLOW			b6600	Oct 24	b6600	Oct 24 2002
MAXIMUM PEAK STAGE			9.39	Oct 24	9.39	Oct 24 2002
ANNUAL RUNOFF (AC-FT)	109700		111500		78110	
ANNUAL RUNOFF (CFSM)	1.12		1.14		0.80	
ANNUAL RUNOFF (INCHES)	15.24		15.49		10.85	
10 PERCENT EXCEEDS	279		202		197	
50 PERCENT EXCEEDS	78		110		76	
90 PERCENT EXCEEDS	50		60		49	

\# See Period of Record, partial years used in monthly statistics
a Aug. 9, 10
b From rating curve extended above 700 ft^3/s on basis of slope-area measurement of peak flow
e Estimated

15241600 NINILCHIK RIVER AT NINILCHIK—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952-53, 1955-58, 1963-65, 1967-68, 1975, 1978-79, and 1998 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: May to September 1963, October 1964 to July 1965, and October 1998 to September 2003 (discontinued).
SEDIMENT: October 1963 to July 1965.

INSTRUMENTATION.--Electronic water temperature recorder set for one-hour recording interval, October 1 to 29, and 15-minute recording interval, October 20 to September 30.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the river by cross sections on May 29 and July 21. No variation was found within the cross sections. No variation was found between mean stream temperature and sensor temperature.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 20.5°C, July 4, 1999 and July 15, 2003; minimum, 0.0°C on many days during fall and winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 20.5°C,July 15; minimum, 0.0°C on many days during fall and winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Stream width, feet (00004)	Location in X-sect. looking downstrm ft from l bank (00009)	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Temperature, water, deg C (00010)	Temperature, air, deg C (00020)
MAY 2003							
29...	1421	40.5	6.00	3.31	89	12.0	15.0
29...	1422	40.5	14.0	3.31	89	12.0	15.0
29...	1423	40.5	22.0	3.31	89	12.0	15.0
29...	1424	40.5	30.0	3.31	89	12.0	15.0
29...	1425	40.5	38.0	3.31	89	12.0	15.0
JUL							
21...	1718	37.4	32.0	3.02	55	16.0	15.0
21...	1719	37.4	25.0	3.02	55	16.0	15.0
21...	1720	37.4	18.0	3.02	55	16.0	15.0
21...	1721	37.4	11.0	3.02	55	16.0	15.0
21...	1722	37.4	4.00	3.02	55	16.1	15.0

WATER TEMPERATURE, (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.0	6.5	7.0	3.5	3.0	3.5	1.5	0.5	1.0	0.5	0.0	0.5
2	7.0	5.5	6.0	3.5	3.0	3.5	1.0	0.5	0.5	0.5	0.5	0.5
3	5.5	4.0	4.5	3.5	3.0	3.0	2.0	1.0	1.5	0.5	0.0	0.5
4	4.5	3.5	4.0	4.0	3.5	3.5	1.0	0.5	1.0	0.5	0.0	0.5
5	5.0	4.0	4.5	4.5	4.0	4.0	1.0	0.5	1.0	0.5	0.5	0.5
6	5.5	4.5	5.0	5.0	4.5	4.5	0.5	0.5	0.5	0.5	0.0	0.5
7	7.0	5.0	6.0	4.5	3.5	4.0	0.5	0.0	0.5	0.5	0.0	0.5
8	6.0	4.5	5.0	3.5	2.5	3.0	0.5	0.0	0.5	0.5	0.0	0.0
9	4.5	2.5	3.5	---	---	---	0.5	0.0	0.0	0.0	0.0	0.0
10	3.0	1.5	2.5	---	---	---	0.5	0.0	0.0	0.0	0.0	0.0
11	3.5	3.0	3.5	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
12	4.5	3.5	4.0	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
13	5.0	4.0	4.5	---	---	---	0.0	0.0	0.0	0.5	0.0	0.0
14	5.0	3.5	4.5	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
15	5.0	4.0	4.5	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
16	5.0	4.0	4.5	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
17	4.5	3.5	4.0	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
18	5.0	4.0	4.5	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
19	6.0	5.0	5.0	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
20	6.0	5.0	5.5	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
21	5.5	4.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	5.5	4.5	4.5	1.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
23	6.0	5.5	5.5	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
24	6.0	5.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	5.5	5.0	5.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
26	5.0	4.5	4.5	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0
27	4.5	3.0	3.5	0.5	0.0	0.5	0.5	0.0	0.5	0.0	0.0	0.0
28	3.0	2.5	3.0	0.5	0.0	0.5	0.5	0.0	0.5	0.0	0.0	0.0
29	4.0	3.0	3.5	1.0	0.5	0.5	0.5	0.0	0.5	0.0	0.0	0.0
30	3.5	3.0	3.5	1.5	1.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0
31	3.5	3.0	3.5	---	---	---	0.5	0.5	0.5	0.0	0.0	0.0
MONTH	8.0	1.5	4.5	---	---	---	2.0	0.0	0.3	0.5	0.0	0.1

15241600 NINILCHIK RIVER AT NINILCHIK—Continued

WATER TEMPERATURE, (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	0.0	0.0	0.0	0.5	0.0	0.0	2.0	0.0	0.5	9.0	6.0	7.5
2	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0	10.0	6.5	8.0
3	0.0	0.0	0.0	0.5	0.0	0.5	1.5	0.0	0.0	10.0	6.5	8.5
4	0.0	0.0	0.0	0.5	0.0	0.0	1.5	0.0	0.5	9.5	7.5	8.0
5	0.5	0.0	0.0	0.5	0.0	0.0	1.5	0.0	0.5	8.5	6.5	7.5
6	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.5	9.5	6.0	7.5
7	0.5	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.5	9.5	6.0	8.0
8	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.5	9.5	7.5	8.5
9	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.5	9.0	7.5	8.5
10	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	9.0	7.0	8.0
11	0.5	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.5	9.5	6.5	8.0
12	0.0	0.0	0.0	0.5	0.0	0.5	0.5	0.0	0.0	9.0	6.5	8.0
13	0.0	0.0	0.0	0.5	0.0	0.5	1.5	0.0	0.5	8.5	6.0	7.0
14	0.5	0.0	0.0	0.5	0.0	0.5	2.5	0.5	1.5	8.5	5.5	7.0
15	0.5	0.0	0.5	0.5	0.0	0.0	2.0	1.0	1.5	10.0	6.5	8.0
16	0.5	0.0	0.5	1.0	0.0	0.0	3.0	1.0	1.5	11.0	7.5	9.5
17	0.5	0.0	0.0	1.0	0.0	0.0	3.5	1.5	2.5	10.5	8.0	9.5
18	0.5	0.0	0.0	0.0	0.0	0.0	4.5	1.5	3.0	9.5	7.0	8.5
19	0.5	0.0	0.0	0.0	0.0	0.0	4.5	2.0	3.5	11.5	7.0	9.0
20	0.5	0.0	0.0	0.5	0.0	0.0	4.0	2.5	3.0	12.5	8.0	10.5
21	0.5	0.0	0.0	0.0	0.0	0.0	3.5	2.5	3.0	12.5	9.0	11.0
22	0.5	0.0	0.0	0.0	0.0	0.0	3.5	2.5	3.0	13.0	9.5	11.0
23	0.0	0.0	0.0	0.5	0.0	0.0	6.0	2.0	4.0	13.5	11.0	12.0
24	0.5	0.0	0.0	0.0	0.0	0.0	5.5	3.5	4.5	13.5	10.5	11.5
25	0.0	0.0	0.0	1.0	0.0	0.0	7.0	4.0	5.5	14.0	10.0	12.0
26	0.5	0.0	0.0	1.0	0.0	0.0	8.0	4.5	6.5	13.5	11.0	12.0
27	0.5	0.0	0.0	0.0	0.0	0.0	8.5	5.5	7.0	12.0	10.0	10.5
28	0.5	0.0	0.0	1.5	0.0	0.5	8.5	5.5	7.0	13.5	9.5	9.0
29	---	---	---	1.5	0.0	0.5	9.0	5.5	7.5	14.0	11.0	12.5
30	---	---	---	1.0	0.0	0.5	9.0	6.0	7.5	14.0	12.0	13.0
31	---	---	---	1.5	0.0	0.5	---	---	---	13.5	11.5	12.5
MONTH	0.5	0.0	0.0	1.5	0.0	0.1	9.0	0.0	2.5	14.0	5.5	9.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	11.0	12.0	18.0	15.5	16.0	16.5	13.5	15.5	12.5	10.0	11.5
2	13.5	10.5	12.0	17.0	14.0	15.5	16.5	13.5	15.0	12.5	10.0	11.5
3	14.5	11.0	12.5	17.5	14.0	15.5	16.0	13.0	14.5	12.5	10.5	11.5
4	14.5	11.5	12.5	18.0	14.5	16.5	16.0	12.5	14.5	12.0	10.0	11.0
5	12.5	11.0	12.0	17.5	15.5	16.0	16.5	13.0	15.0	11.0	9.5	10.5
6	12.5	11.0	11.5	18.5	14.5	16.0	16.5	14.0	15.0	11.5	9.0	10.0
7	14.0	10.5	12.0	19.5	15.5	17.5	17.0	14.0	15.5	11.0	8.5	10.0
8	13.5	12.0	12.5	20.0	16.5	18.5	18.0	14.5	16.0	10.5	8.0	9.5
9	12.5	11.5	12.0	20.0	17.0	18.5	18.5	15.0	17.0	10.5	9.0	9.5
10	12.0	11.5	11.5	18.5	17.0	17.5	18.0	15.0	17.0	10.5	8.5	9.5
11	11.5	11.0	11.0	18.0	16.5	17.0	17.5	15.5	16.0	10.5	8.0	9.5
12	14.5	11.0	12.0	18.5	15.0	16.5	16.0	14.0	15.0	10.5	8.5	9.5
13	16.0	13.0	14.0	19.5	15.5	17.5	15.5	14.0	14.5	10.5	8.5	10.0
14	15.5	14.5	15.0	20.0	17.0	18.5	14.0	13.0	13.5	10.0	7.5	8.5
15	15.0	14.0	14.5	20.5	17.0	18.5	13.0	12.5	13.0	8.5	6.0	7.0
16	14.5	12.5	13.5	20.0	17.0	18.0	13.0	12.5	12.5	7.0	5.0	6.0
17	15.0	12.5	13.5	17.0	15.5	16.0	13.5	11.5	12.5	6.5	5.0	6.0
18	15.0	12.5	14.0	18.0	15.0	16.0	13.0	11.0	12.0	6.5	4.5	5.5
19	16.0	12.5	14.0	18.0	15.0	16.5	12.0	10.5	11.5	5.5	4.0	5.0
20	16.5	13.0	15.0	17.5	15.5	16.5	11.5	10.0	11.0	5.5	4.5	5.0
21	16.0	13.5	14.5	17.0	15.5	16.0	13.5	10.5	12.0	6.5	5.0	5.5
22	16.0	12.5	14.0	18.0	15.5	16.5	13.5	10.5	12.0	6.0	4.5	5.5
23	16.0	13.5	14.5	17.5	15.0	16.5	13.0	10.5	12.0	5.5	4.0	5.0
24	15.0	13.0	13.5	17.5	15.0	16.0	13.5	11.5	12.5	5.5	4.5	5.0
25	14.0	12.5	13.0	15.0	14.5	14.5	13.5	12.0	12.5	6.5	5.0	6.0
26	13.5	12.0	13.0	16.5	13.5	15.0	12.5	11.0	12.0	6.5	5.0	5.5
27	14.0	12.0	13.0	16.0	14.0	14.5	12.0	11.5	11.5	7.0	5.0	6.0
28	16.5	12.5	14.0	14.5	13.0	13.5	12.5	11.0	11.5	7.0	6.0	6.5
29	17.0	13.5	15.5	14.5	13.0	13.5	12.5	11.5	11.5	7.5	6.5	7.0
30	18.5	14.5	16.5	15.5	13.0	14.0	13.0	10.5	11.5	7.5	7.0	7.5
31	---	---	---	17.0	13.5	15.0	12.5	10.0	11.5	---	---	---
MONTH	18.5	10.5	13.3	20.5	13.0	16.2	18.5	10.0	13.5	12.5	4.0	7.9

15243900 SNOW RIVER NEAR SEWARD

LOCATION.--Lat 60°17'42", long 149°20'38", in NE¼ SW¼ sec. 6, T. 2 N., R. 1 E. (Seward B-7 quad), Kenai Peninsula Borough, Hydrologic Unit 19020302, on left bank, 0.5 mi below the Alaska Railroad bridge, 3.0 mi upstream from the mouth at Kenai Lake, and 13.5 mi north of Seward.

DRAINAGE AREA.--128 mi^2 (revision pending).

PERIOD OF RECORD.--August to September of 1970, 1974, 1977 and April 1997 to current year.

GAGE.--Water stage recorder. Elevation of gage is 470 ft above sea level, from topographic map. Prior to April 9, 1998 at site 0.5 mi upstream at different datum.

REMARKS.--Record poor. Rain gage at station. GOES satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Glacier-dammed lake outburst flood about August 31, 1967, 55,000 ft^3/s from rating curve extended above 27,000 ft^3/s, gage-height 42.60 ft from floodmarks, site and datum then in use.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1550	2280	2030	e160	e230	e200	e90	625	1300	2550	2640	2730
2	e950	3770	1390	e150	e200	e200	e90	573	1190	2860	2440	2460
3	e720	1920	2030	e140	e200	e190	e85	570	1100	2940	2160	2330
4	e480	3280	2400	e130	e1200	e180	e85	551	1100	2950	1910	1900
5	e390	6470	2000	e120	2580	e170	e85	557	1480	2870	1930	1600
6	e440	7160	1480	e120	1170	e160	e85	526	1890	2730	2100	1470
7	e510	3660	1120	e110	741	e150	e85	463	1730	2970	2320	1500
8	e440	2460	894	e120	617	e140	e85	450	1610	3280	2730	1430
9	e360	1880	780	e120	e500	e130	e85	646	1450	3470	3030	1410
10	e340	1550	750	e130	e420	e120	e85	1100	1570	3350	3220	1440
11	e400	1400	674	e130	e380	e120	e90	892	1800	3360	3070	1330
12	e520	1280	609	e150	e360	e100	e95	763	2000	3370	3640	1270
13	1110	1170	560	e140	e340	e100	e100	659	2400	3600	3570	1280
14	1880	1100	e480	e140	e320	e100	e100	589	2560	3950	4160	1060
15	e1200	1040	e440	e130	e300	e100	e100	550	2290	3890	4830	799
16	e1000	974	e400	e120	e280	e100	e100	563	2110	3540	4410	683
17	e900	939	e380	e130	e260	e100	e100	629	2050	3270	3500	621
18	e800	932	e400	e130	e240	e100	e100	607	2020	3300	2730	581
19	1260	988	e380	e130	e220	e95	e110	577	2020	3260	2500	514
20	3350	1120	e340	e130	e200	e95	e100	586	1990	3390	3660	514
21	3490	1130	e340	e150	e190	e90	e180	606	2080	3390	2790	468
22	3780	1630	e300	e170	e180	e100	e340	642	1970	3140	2370	411
23	10600	5970	e260	e200	e190	e105	e310	741	1990	3010	2140	377
24	10600	3200	e250	e180	e200	e95	e280	932	2000	2980	2060	397
25	6950	2040	e240	e160	e220	e90	e290	1050	2240	3130	2180	529
26	4860	2700	e230	e140	e240	e90	e360	1060	2130	3120	2820	551
27	3030	1870	e220	e130	e240	e90	473	1030	2090	2970	3130	522
28	2470	1370	e190	e130	e220	e90	534	981	2010	3140	4070	849
29	5090	1790	e200	e150	---	e90	580	929	2130	3320	4640	2080
30	4080	4090	e180	e190	---	e90	627	1000	2360	2980	4780	3140
31	2700	---	e170	e210	---	e90	---	1210	---	2680	3490	---
TOTAL	76250	71163	22117	4440	12438	3670	5829	22657	56660	98760	95020	36246
MEAN	2460	2372	713	143	444	118	194	731	1889	3186	3065	1208
MAX	10600	7160	2400	210	2580	200	627	1210	2560	3950	4830	3140
MIN	340	932	170	110	180	90	85	450	1100	2550	1910	377
AC-FT	151200	141200	43870	8810	24670	7280	11560	44940	112400	195900	188500	71890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)#

MEAN	1175	637	373	224	172	104	167	815	2249	3169	2993	3009
MAX	2506	2372	713	524	444	220	277	1412	2714	3281	5598	6294
(WY)	1999	2003	2003	2001	2003	1998	1998	2002	2002	1998	1977	1974
MIN	279	163	87.3	57.0	42.0	39.2	81.8	491	1780	2866	1764	1157
(WY)	1998	2002	1999	1999	1999	1999	1999	2001	1999	1999	1998	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1970 - 2003#	
ANNUAL TOTAL	568072		505250			
ANNUAL MEAN	1556		1384		1177	
HIGHEST ANNUAL MEAN					1412	2001
LOWEST ANNUAL MEAN					965	2000
HIGHEST DAILY MEAN	a10600	Oct 23	a10600	Oct 23	b23800	Sep 20 1974
LOWEST DAILY MEAN	65	Mar 16	85	Apr 3	c36	Mar 3 1999
ANNUAL SEVEN-DAY MINIMUM	65	Mar 16	85	Apr 3	37	Feb 26 1999
MAXIMUM PEAK FLOW			13400	Nov 6	b26400	Sep 20 1974
MAXIMUM PEAK STAGE			13.53	Nov 6	d40.75	Sep 20 1974
INSTANTANEOUS LOW FLOW					36	Mar 3 1999
ANNUAL RUNOFF (AC-FT)	1127000		1002000		852600	
10 PERCENT EXCEEDS	3350		3330		3130	
50 PERCENT EXCEEDS	1100		780		450	
90 PERCENT EXCEEDS	70		100		72	

\# See Period of Record, partial years used in monthly summary statistics
a Oct. 23 and Oct. 24, 2002
b Result of release of stored water from glacier-dammed lake
c Mar. 3 and Mar. 4, 1999
d Site and datum then in use
e Estimated

15258000 KENAI RIVER AT COOPER LANDING

LOCATION.--Lat 60°29'34", long 149°48'28", in SE$^1/_4$ sec. 28, T. 5 N., R. 3 W. (Seward B-8 quad), Kenai Peninsula Borough, Hydrologic Unit 19020302, Chugach National Forest, on right bank 10 ft downstream from bridge on Sterling Highway, 0.9 mi upstream from Bean Creek, 0.9 mi east of Cooper Landing, and at Kenai Lake outlet.

DRAINAGE AREA.--634 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1947 to current year.

REVISED RECORDS.--WSP 2136: 1964 (M).

GAGE.--Water-stage recorder. Datum of gage is 419.92 ft above sea level (levels by Alaska Department of Transportation). See WSP 2136 for history of changes prior to August 28, 1965. August 28, 1965 to January 21, 1974, at site 10 ft upstream at present datum. January 22, 1974 to September 30, 1981, non-recording gage at site 40 ft upstream at present datum.

REMARKS.--Records good. Diversion from Cooper Lake to Kenai Lake above gage through Cooper Lake power plant began May 1961. No diversions occurred during November. Rain gage at station. GOES satellite telemetry and telephone modem at station.

COOPERATION.--Records of diversion provided by Chugach Electric Association.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3930	10900	7280	1600	1060	1480	775	1280	3360	5850	5770	6320
2	3830	10100	7010	1560	1030	1470	760	1380	3490	6140	5600	5990
3	3620	9450	6750	1530	1060	1410	739	1490	3590	6470	5420	5690
4	3360	8730	6920	1490	1220	1360	728	1590	3670	6790	5190	5390
5	3160	8910	6860	1430	1990	1320	713	1660	3760	7000	4950	5040
6	2940	11100	6510	1390	2470	1290	694	1750	4020	7000	4800	4680
7	2800	11500	6020	1350	2670	1250	679	1810	4290	7020	4710	4420
8	2680	10700	5540	1320	2760	1220	671	1860	4450	7150	4700	4210
9	2560	9470	5070	1310	2760	1180	664	1940	4510	7410	4850	4010
10	2470	8310	4650	1280	2740	1150	652	2030	4560	7590	5050	3810
11	2380	7290	4290	1260	2700	1120	643	2130	4740	7710	5260	3670
12	2320	6420	3960	1240	2620	1080	654	2200	4970	7720	5500	3540
13	2330	5710	3700	1210	2560	1050	653	2240	5380	7740	5780	3330
14	2440	5120	3420	1190	2460	1010	652	2250	5870	7940	6020	3170
15	2510	4620	3160	1170	2360	1010	662	2240	6180	8130	6480	3040
16	2510	4230	2930	1150	2280	1010	661	2230	6320	8120	6980	2910
17	2540	3900	2780	1140	2190	1000	678	2240	6350	7940	7100	2730
18	2550	3620	2650	1160	2110	983	680	2240	6310	7670	6860	2570
19	2550	3430	2530	1160	2030	976	689	2220	6230	7430	6490	2460
20	2750	3340	2410	1160	1960	955	705	2210	6150	7280	6270	2350
21	3200	3240	2300	1130	1890	938	722	2220	6120	7230	6150	2280
22	3640	3220	2250	1120	1820	928	736	2250	6030	7090	5900	2190
23	6350	4280	2230	1110	1780	909	758	2270	5980	6930	5600	2100
24	11300	5920	2170	1110	1730	898	787	2340	5880	6730	5300	2010
25	14700	6380	2110	1090	1680	880	814	2460	5870	6550	5080	1950
26	15200	6540	2020	1080	1630	866	855	2600	5880	6460	5010	1930
27	13900	6570	1920	1100	1560	860	912	2730	5820	6360	5030	1870
28	12200	6320	1830	1090	1540	850	984	2850	5700	6210	5160	1870
29	11700	6030	1770	1050	---	826	1060	2960	5640	6200	5560	1990
30	12600	6810	1720	1060	---	808	1170	3060	5670	6130	6150	2300
31	12000	---	1660	1060	---	793	---	3200	---	5940	6460	---
TOTAL	173020	202160	116420	38100	56660	32880	22550	67930	156790	217930	175180	99820
MEAN	5581	6739	3755	1229	2024	1061	752	2191	5226	7030	5651	3327
MAX	15200	11500	7280	1600	2760	1480	1170	3200	6350	8130	7100	6320
MIN	2320	3220	1660	1050	1030	793	643	1280	3360	5850	4700	1870
MED	3160	6400	2930	1160	2010	1010	709	2230	5680	7020	5560	2970
AC-FT	343200	401000	230900	75570	112400	65220	44730	134700	311000	432300	347500	198000
CFSM	8.80	10.6	5.92	1.94	3.19	1.67	1.19	3.46	8.24	11.1	8.91	5.25
IN.	10.15	11.86	6.83	2.24	3.32	1.93	1.32	3.99	9.20	12.79	10.28	5.86

ADJUSTED TO EXCLUDE DIVERSION FROM COOPER LAKE

MEAN	5551	6670	3648	1122	1852	933	639	2070	5123	6919	5559	3246
CFSM	8.76	10.52	5.75	1.77	2.92	1.47	1.01	3.26	8.08	10.91	8.77	5.12
IN	10.09	11.74	6.63	2.04	3.04	1.70	1.13	3.76	9.01	12.58	10.11	5.71
AC-FT	341330	396890	224280	68980	102840	57360	38050	127260	304840	425430	341840	193180

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)#

MEAN	3314	1872	1169	835	682	524	549	1928	5433	7002	6354	5254
MAX	8955	6739	3755	2807	2066	1122	1071	3508	10010	10480	11430	11490
(WY)	1980	2003	2003	1981	1981	1977	1980	1990	1953	1980	1977	1967
MIN	1264	654	364	310	251	208	262	658	3268	4868	3651	2629
(WY)	1956	1951	1951	1951	1949	1951	1952	1952	1972	1996	1969	1969

See Period of Record and Remarks; partial years used in monthly statistics

15258000 KENAI RIVER AT COOPER LANDING—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003#	
ANNUAL TOTAL	1398984		1359440			
ANNUAL MEAN	3833		3724		2928	
ANNUAL MEAN	*3695		*3622		*2853	
HIGHEST ANNUAL MEAN					4499	1977
LOWEST ANNUAL MEAN					2102	1969
HIGHEST DAILY MEAN	15200	Oct 26	15200	Oct 26	22500	Sep 21 1974
LOWEST DAILY MEAN	478	Apr 16	643	Apr 11	100	Mar 28 1964
ANNUAL SEVEN-DAY MINIMUM	484	Apr 12	654	Apr 10	190	Mar 15 1951
MAXIMUM PEAK FLOW			15600	Oct 26	a23100	Sep 21 1974
MAXIMUM PEAK STAGE			14.74	Oct 26	17.18	Sep 21 1974
INSTANTANEOUS LOW FLOW			635	Apr 11	b0.00	Mar 27 1964
ANNUAL RUNOFF (AC-FT)	2775000		2696000		2121000	
ANNUAL RUNOFF (AC-FT)	*2680000		*2620000		*2067000	
ANNUAL RUNOFF (CFSM)	*5.83		*5.71		*4.50	
ANNUAL RUNOFF (INCHES)	*79.10		*77.54		*61.11	
10 PERCENT EXCEEDS	7120		7050		6980	
50 PERCENT EXCEEDS	3570		2730		1660	
90 PERCENT EXCEEDS	583		922		419	

\# See Period of Record and Remarks; partial years used in monthly statistics
Values shown on this page are unadjusted for inflow from diversion, unless otherwise noted
* Adjusted to account for inflow from diversion, see Remarks
a Result of release of stored water from glacier-dammed lake at head of unnamed glacier in the Snow River Basin
b No flow, Mar. 27 and Mar. 28, 1964, caused by earthquake

15258000 KENAI RIVER AT COOPER LANDING—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-53, 1955-60, 1966-74, 1976, 1994, and December 2002 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Water year 1950, and December 2002 to current year.

INSTRUMENTATION.--Electronic water-temperature recorder set for 15 minute recording interval.

REMARKS.--Probe installed on December 21, 2002. No record January 7-27, April 11-14, 23 to May 3 due to probe problems. Records represent water temperature at the sensor within 0.5°C. Light shore ice occurs near the gage.

EXTREMES FOR PERIOD OF DAILY RECORED.--
WATER TEMPERATURE: Maximum, 16.5°C, August 10, 2003; minimum, 0.0°C, several days in January and March, 2003.

EXTREMES FOR CURRENT PERIOD.--
WATER TEMPERATURE: Maximum, 16.5°C, August 10; minimum, 0.0°C, several days in January and March.

WATER TEMPERATURE (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	2.0	1.0	1.5
2	---	---	---	---	---	---	---	---	---	2.0	0.5	1.5
3	---	---	---	---	---	---	---	---	---	1.5	0.5	1.0
4	---	---	---	---	---	---	---	---	---	1.5	0.5	1.0
5	---	---	---	---	---	---	---	---	---	1.0	0.0	0.5
6	---	---	---	---	---	---	---	---	---	1.0	0.0	0.5
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	3.0	2.5	2.5	---	---	---
22	---	---	---	---	---	---	3.0	2.0	2.5	---	---	---
23	---	---	---	---	---	---	3.0	2.0	2.5	---	---	---
24	---	---	---	---	---	---	3.0	2.0	2.5	---	---	---
25	---	---	---	---	---	---	2.5	1.5	2.0	---	---	---
26	---	---	---	---	---	---	2.5	1.5	2.0	---	---	---
27	---	---	---	---	---	---	2.0	1.0	1.5	---	---	---
28	---	---	---	---	---	---	2.5	1.0	1.5	2.0	1.0	1.5
29	---	---	---	---	---	---	2.5	1.5	2.0	2.0	0.5	1.5
30	---	---	---	---	---	---	2.0	1.5	2.0	2.5	1.5	2.0
31	---	---	---	---	---	---	2.0	1.0	1.5	2.0	1.5	2.0
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

15258000 KENAI RIVER AT COOPER LANDING—Continued

WATER TEMPERATURE (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.0	1.5	1.5	3.0	1.5	2.5	2.5	0.5	1.5	---	---	---
2	2.0	1.0	1.5	3.0	2.0	2.5	3.0	0.5	2.0	---	---	---
3	2.5	1.5	2.0	3.5	1.0	2.5	4.0	0.5	2.0	---	---	---
4	2.5	2.0	2.0	3.0	0.5	2.0	3.5	1.5	2.0	5.5	4.5	5.0
5	2.5	2.0	2.0	3.0	0.5	1.5	3.5	1.5	2.5	5.5	4.5	5.0
6	2.5	1.5	2.0	2.5	1.0	1.5	3.0	1.5	2.0	7.0	4.0	5.0
7	2.5	1.5	2.0	3.0	1.0	1.5	3.0	1.5	2.0	6.0	4.0	5.0
8	2.5	2.0	2.0	2.5	1.0	1.5	3.0	1.5	2.5	7.0	5.0	6.0
9	2.5	2.0	2.5	2.0	0.0	1.0	3.0	2.0	2.5	6.0	5.0	5.5
10	2.5	2.0	2.0	2.5	0.5	1.5	3.0	2.0	2.5	6.0	4.5	5.0
11	2.5	2.0	2.5	2.5	0.5	1.5	---	---	---	6.5	4.5	5.0
12	3.0	2.0	2.5	2.0	0.0	1.0	---	---	---	6.0	4.5	5.5
13	2.5	1.5	2.0	2.0	0.5	1.0	---	---	---	7.0	4.5	5.5
14	2.5	1.5	2.0	1.5	1.0	1.5	---	---	---	6.5	4.5	5.5
15	2.5	1.5	2.0	2.0	1.0	1.5	3.0	2.5	2.5	6.5	4.5	5.0
16	2.5	1.5	2.0	2.0	1.0	1.5	3.5	2.0	3.0	6.0	4.5	5.0
17	2.5	1.5	2.0	2.5	1.0	1.5	4.0	2.5	3.0	7.0	4.0	5.5
18	2.5	1.5	2.0	3.0	1.0	1.5	4.5	2.5	3.0	7.5	4.5	6.0
19	2.5	1.5	2.0	1.5	1.0	1.5	4.5	2.5	3.5	8.0	5.0	6.5
20	2.5	1.5	2.0	2.5	1.0	1.5	4.0	3.0	3.0	8.0	5.5	6.5
21	2.5	1.5	2.0	3.0	1.0	1.5	3.5	2.5	3.0	8.0	5.5	7.0
22	2.0	1.5	2.0	3.0	1.0	2.0	4.0	3.0	3.5	9.0	6.0	7.0
23	2.5	1.5	2.0	2.5	1.5	2.0	---	---	---	9.0	6.0	7.5
24	2.5	1.5	2.0	2.0	1.0	1.5	---	---	---	7.5	5.0	6.0
25	2.5	1.5	2.0	3.5	1.0	2.0	---	---	---	7.5	5.5	6.5
26	3.0	2.0	2.0	3.5	2.0	2.5	---	---	---	8.5	5.5	7.0
27	3.5	1.5	2.5	3.0	1.5	2.0	---	---	---	7.5	6.5	7.0
28	3.0	2.0	2.0	3.5	1.5	2.0	---	---	---	8.0	6.0	7.0
29	---	---	---	3.5	0.0	1.5	---	---	---	9.0	6.0	7.0
30	---	---	---	2.0	0.0	1.0	---	---	---	8.0	6.5	7.5
31	---	---	---	2.5	0.0	1.0	---	---	---	8.0	6.5	7.0
MONTH	3.5	1.0	2.0	3.5	0.0	1.6	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.5	6.5	7.0	9.0	6.5	7.5	12.0	10.5	11.0	12.5	11.5	12.0
2	7.0	6.5	7.0	9.5	8.0	8.5	11.5	9.0	10.5	12.0	11.0	11.5
3	8.0	6.5	7.0	10.0	7.0	9.0	12.0	9.0	10.5	12.0	10.5	11.5
4	8.5	7.5	8.0	9.5	7.5	8.5	12.0	10.0	10.5	12.5	11.5	12.0
5	8.0	7.0	7.5	10.5	9.0	10.0	11.0	9.5	10.0	12.5	11.5	12.0
6	7.5	7.0	7.0	11.0	9.5	10.5	12.5	9.5	10.5	12.0	10.5	11.5
7	7.5	6.5	7.0	10.0	8.5	9.5	13.5	10.0	11.5	11.5	9.0	10.5
8	8.0	7.0	7.5	9.0	6.5	8.0	12.0	10.5	11.0	12.0	11.0	11.5
9	8.0	7.5	7.5	10.5	7.0	9.0	15.0	10.0	12.0	12.0	11.0	11.5
10	8.0	7.5	8.0	12.0	10.0	11.0	16.5	14.0	15.0	12.0	11.0	11.5
11	8.5	7.5	8.0	11.5	10.0	11.0	16.0	15.0	15.5	12.0	10.5	11.0
12	8.5	6.5	7.5	12.5	10.5	11.5	15.0	14.5	15.0	11.5	10.5	11.0
13	8.0	5.5	6.5	11.0	10.0	10.5	15.0	14.0	14.5	11.5	9.0	10.5
14	8.5	7.5	8.0	12.5	9.0	10.5	14.5	14.0	14.0	10.0	7.5	9.0
15	8.5	7.5	8.0	12.5	11.0	11.5	14.0	13.0	13.5	8.5	7.0	8.0
16	9.0	8.0	8.5	12.5	11.5	12.0	13.5	13.0	13.5	9.0	7.5	8.5
17	9.0	7.5	8.0	12.5	11.5	12.0	13.5	12.5	13.0	9.5	8.5	9.0
18	9.0	7.5	8.5	12.5	11.5	12.0	13.5	12.0	12.5	9.0	8.0	8.5
19	9.0	7.5	8.5	12.5	11.0	12.0	13.5	12.5	13.0	9.0	8.0	8.5
20	9.0	8.0	8.5	14.0	11.0	12.5	13.0	12.5	12.5	8.5	7.5	8.0
21	10.0	7.5	9.0	14.0	12.0	13.0	13.0	12.0	12.5	9.0	7.5	8.0
22	10.0	8.5	9.5	13.5	13.0	13.0	13.0	11.5	12.0	9.0	7.5	8.5
23	10.0	8.5	9.5	13.5	13.0	13.0	13.0	11.5	12.0	8.5	8.0	8.0
24	9.5	9.0	9.5	13.5	12.5	13.0	12.5	10.0	11.5	8.5	8.0	8.0
25	9.5	8.5	9.0	13.0	12.0	12.5	12.5	12.0	12.0	8.5	8.0	8.0
26	9.0	8.5	9.0	13.0	12.0	12.5	12.5	12.0	12.0	9.0	7.5	8.0
27	9.0	8.5	9.0	12.5	12.0	12.5	12.5	12.0	12.0	8.5	8.0	8.0
28	9.0	7.5	8.0	12.5	12.0	12.0	12.5	12.0	12.0	9.5	8.0	8.5
29	9.0	7.0	8.0	12.5	12.0	12.0	12.5	11.5	12.0	9.0	8.0	8.5
30	8.5	6.5	7.5	13.0	12.0	12.5	12.5	11.0	12.0	9.0	8.5	9.0
31	---	---	---	13.0	11.0	12.0	12.0	11.0	11.5	---	---	---
MONTH	10.0	5.5	8.1	14.0	6.5	11.1	16.5	9.0	12.3	12.5	7.0	9.7

15261000 COOPER CREEK AT MOUTH NEAR COOPER LANDING

LOCATION.--Lat 60°28′50″, long 149°52′50″, in NW¼ SW¼ sec. 31, T. 5 N., R. 3 W. (Seward B-8 quad), Hydrologic Unit 19020302 Kenai Peninsula Borough,on left bank, approximately 0.5 mi upstream from mouth, and 1.5 mi west of Cooper Landing.

DRAINAGE AREA.--48.6 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1957 to January 1965, August 1998 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 450 ft above sea level, from topographic map. From October 1957 to January 1965, 0.4 mi upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Since July 1959, entire flow from 31.8 mi^2 of drainage area has been regulated by dam at Cooper Lake outlet. No spilling since 1959 except for period May 1961 to October 1962. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	174	118	e25	14	25	e12	52	77	89	52	36
2	52	144	93	e25	14	26	e12	50	72	113	50	34
3	45	129	128	e25	14	26	e12	52	72	102	46	34
4	41	138	124	e27	129	24	e12	51	72	81	42	34
5	40	195	107	e25	187	e23	e12	49	86	82	41	32
6	39	228	111	e24	110	e22	12	42	105	77	41	31
7	43	119	102	e23	81	e21	12	39	93	77	41	30
8	42	96	90	e23	72	e19	11	40	82	94	43	29
9	45	80	78	e32	64	e18	11	52	82	102	44	28
10	46	69	70	e28	64	e17	10	62	102	100	46	28
11	53	57	65	e25	61	e17	10	53	112	96	49	27
12	59	51	60	e24	58	e16	9.5	50	120	93	55	27
13	79	46	53	e22	51	e16	11	48	124	87	51	26
14	104	40	e51	e21	45	e15	11	44	122	98	50	26
15	101	36	e47	e20	41	e15	13	41	118	100	50	25
16	98	34	e44	e20	e39	e15	13	43	106	92	55	25
17	97	33	e41	20	e38	e15	15	42	99	90	54	24
18	98	31	e39	19	e36	e14	15	42	97	82	47	23
19	105	29	e38	18	e34	e14	16	45	101	77	41	22
20	150	32	e36	18	e33	e14	17	48	100	74	41	25
21	153	30	e33	18	e31	e14	18	51	102	75	38	28
22	165	57	e31	17	e30	e14	19	53	94	72	36	26
23	649	188	e28	e17	e29	e14	20	59	87	66	35	25
24	554	142	e28	e18	29	e13	22	69	77	70	34	25
25	277	76	e28	e20	28	e13	24	72	73	72	35	26
26	226	84	e28	e23	28	e13	30	71	70	66	42	24
27	141	71	e27	e21	27	e13	39	74	67	62	41	23
28	145	57	e27	16	26	e13	46	73	65	64	41	24
29	314	87	e26	16	---	e12	51	71	68	64	44	31
30	277	184	e26	16	---	e12	52	75	78	60	43	29
31	236	---	e26	15	---	e12	---	78	---	54	40	---
TOTAL	4528	2737	1803	661	1413	515	567.5	1691	2723	2531	1368	827
MEAN	146	91.2	58.2	21.3	50.5	16.6	18.9	54.5	90.8	81.6	44.1	27.6
MAX	649	228	128	32	187	26	52	78	124	113	55	36
MIN	39	29	26	15	14	12	9.5	39	65	54	34	22
AC-FT	8980	5430	3580	1310	2800	1020	1130	3350	5400	5020	2710	1640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2003, BY WATER YEAR (WY)#

MEAN	77.5	53.3	27.1	20.3	16.8	12.1	18.4	97.0	187	142	80.8	72.5
MAX	264	285	82.9	58.9	50.5	28.0	50.3	219	412	326	226	309
(WY)	1958	1958	1958	1958	2003	1958	1958	1961	1958	1961	1961	1961
MIN	20.7	11.9	10.0	8.00	6.43	4.50	9.00	42.6	73.7	68.1	38.0	21.6
(WY)	1964	1964	1964	1964	1999	1999	1960	1964	1963	1960	1963	1963

\# See Period of Record, partial years used in monthly statistics
e Estimated

15261000 COOPER CREEK AT MOUTH NEAR COOPER LANDING—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1958 - 2003#	
ANNUAL TOTAL	21807.3		21364.5			
ANNUAL MEAN	59.7		58.5		68.1	
HIGHEST ANNUAL MEAN					a174	1958
LOWEST ANNUAL MEAN					29.9	1963
HIGHEST DAILY MEAN	174	May 26	649	Oct 23	ab810	Sep 22 1961
LOWEST DAILY MEAN	7.8	Apr 16	9.5	Apr 12	c4.0	Mar 19 1999
ANNUAL SEVEN-DAY MINIMUM	8.1	Apr 11	10	Apr 8	4.0	Mar 19 1999
MAXIMUM PEAK FLOW	d213	May 23	f1230	Oct 23	f1230	Oct 23 2002
MAXIMUM PEAK STAGE	d10.92	May 23	f12.45	Oct 23	f12.45	Oct 23 2002
MAXIMUM PEAK STAGE			g13.60	Jan 8	g13.60	Jan 8 2003
INSTANTANEOUS LOW FLOW	h		i7.3	Apr 10	j3.1	Mar 1 1960
ANNUAL RUNOFF (AC-FT)	43250		42380		49350	
10 PERCENT EXCEEDS	141		106		174	
50 PERCENT EXCEEDS	39		42		35	
90 PERCENT EXCEEDS	9.5		15		10	

\# See Period of Record, partial years used in monthly statistics
a Includes natural flow or spill from area upstream from Cooper Lake dam
b Caused by release of water behind log jam upstream. Site and datum then in use
c From Mar. 19 to Apr. 14, 1999
d Also occurred on May 25, 2002
f From high water mark
g Backwater from ice
h Not determined. See Lowest Daily Mean
i Also occurred on Apr. 11
j Caused by temporary storage behind ice jam upstream (observed)

15261000 COOPER CREEK AT MOUTH NEAR COOPER LANDING—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1998 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: August 1998 to current year.

INSTRUMENTATION.--Electronic water-temperature recorder set for 15 minute recording interval.

REMARKS.--Records represent water temperature at the sensor within 0.5°C. No record from January 22-27 due to dead batteries. Temperature at the sensor was compared with the average for the stream by cross section on April 16. No variations were found within the cross section. No variation was found between mean stream temperature and sensor temperature. Heavy shore ice occurs near the gage.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 11.5°C, July 14, 1999 and August 8-9, 2003; Minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 11.5°C, August 8-9; Minimum, 0.0°C on many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Stream width, feet (00004)	Locatn in X-sect. looking dwnstrm ft from l bank (00009)	Gage height, feet (00065)	Instan-taneous dis-charge, cfs (00061)	Sam-pling method, code (82398)	Sampler type, code (84164)	Temper-ature, water, deg C (00010)	Temper-ature, air, deg C (00020)
APR									
16...	1600	31.3	5.00	9.80	15	10	8010	2.0	3.0
16...	1602	31.3	10.0	9.80	15	10	8010	2.0	3.0
16...	1604	31.3	15.0	9.80	15	10	8010	2.0	3.0
16...	1606	31.3	20.0	9.80	15	10	8010	2.0	3.0
16...	1608	31.3	25.0	9.80	15	10	8010	2.0	3.0

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	5.0	4.0	4.5	4.5	3.0	3.5	3.0	2.5	2.5	0.0	0.0	0.0
2	4.5	2.5	3.5	4.5	4.0	4.0	3.0	2.5	3.0	0.0	0.0	0.0
3	3.5	1.5	2.5	4.5	3.5	4.0	4.0	3.0	3.5	0.0	0.0	0.0
4	4.0	2.0	3.0	4.5	4.0	4.5	3.5	3.0	3.0	0.0	0.0	0.0
5	4.5	3.0	4.0	5.0	4.0	4.5	3.5	3.0	3.5	0.0	0.0	0.0
6	5.0	4.0	4.5	4.5	4.0	4.0	3.5	2.5	3.0	0.0	0.0	0.0
7	5.0	4.0	4.5	4.0	2.0	3.0	2.5	1.5	2.0	0.0	0.0	0.0
8	4.0	1.5	3.0	2.0	1.5	2.0	2.5	2.0	2.5	0.0	0.0	0.0
9	1.5	0.5	1.0	1.5	0.5	1.0	3.0	2.0	2.5	0.0	0.0	0.0
10	3.5	0.5	2.0	1.0	0.5	0.5	3.0	2.0	2.5	0.0	0.0	0.0
11	4.0	3.0	3.5	2.5	0.5	1.5	2.0	1.0	1.0	0.0	0.0	0.0
12	4.5	3.5	4.0	2.0	1.0	1.5	1.0	1.0	1.0	0.0	0.0	0.0
13	5.0	3.5	4.5	2.0	0.5	1.5	1.0	0.0	0.5	0.0	0.0	0.0
14	4.5	3.0	3.5	2.0	1.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0
15	5.0	3.5	4.0	2.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
16	5.0	3.0	3.5	1.5	1.0	1.5	0.0	0.0	0.0	1.0	0.0	0.5
17	4.5	2.5	3.5	2.0	1.5	2.0	0.0	0.0	0.0	1.5	0.5	1.0
18	5.5	4.0	5.0	2.0	1.0	1.5	0.0	0.0	0.0	1.0	0.5	0.5
19	6.0	5.0	5.5	1.5	1.0	1.5	0.0	0.0	0.0	1.0	0.5	1.0
20	5.5	4.5	5.0	1.5	1.0	1.5	0.0	0.0	0.0	1.5	1.0	1.0
21	4.5	4.0	4.5	2.0	1.5	2.0	0.0	0.0	0.0	1.0	0.0	0.5
22	5.0	4.0	4.5	2.5	1.0	2.0	1.0	0.0	0.5	---	---	---
23	5.0	4.5	5.0	2.5	1.0	2.0	1.0	0.0	0.5	---	---	---
24	5.0	4.0	4.5	3.0	2.0	2.5	0.5	0.0	0.5	---	---	---
25	4.5	3.5	4.0	3.0	2.5	3.0	0.0	0.0	0.0	---	---	---
26	3.5	3.0	3.5	3.5	2.5	3.0	0.0	0.0	0.0	---	---	---
27	3.0	2.0	2.5	3.0	2.0	2.5	0.0	0.0	0.0	---	---	---
28	4.0	2.0	3.0	2.5	2.0	2.0	0.0	0.0	0.0	1.0	0.5	1.0
29	4.5	3.5	4.0	3.0	2.5	3.0	0.0	0.0	0.0	1.5	1.0	1.0
30	4.5	4.0	4.0	3.5	3.0	3.0	0.0	0.0	0.0	1.5	1.0	1.0
31	4.5	4.0	4.0	---	---	---	0.0	0.0	0.0	1.5	1.0	1.0
MONTH	6.0	0.5	3.8	5.0	0.5	2.4	4.0	0.0	1.0	---	---	---

15261000 COOPER CREEK AT MOUTH NEAR COOPER LANDING—Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.0	1.0	1.0	1.5	1.0	1.0	0.0	0.0	0.0	5.0	1.5	3.0
2	1.0	0.0	0.5	2.5	1.0	1.5	0.0	0.0	0.0	5.0	1.5	3.0
3	1.5	0.0	1.0	2.0	1.0	1.5	0.5	0.0	0.0	5.0	1.5	3.0
4	1.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0	0.0	4.5	2.0	3.5
5	1.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.5	3.5	2.5	3.0
6	1.5	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.5	5.0	1.0	2.5
7	2.0	1.5	1.5	0.0	0.0	0.0	1.0	0.5	0.5	5.0	1.5	3.0
8	2.0	2.0	2.0	0.0	0.0	0.0	1.5	0.5	1.0	5.5	2.0	4.0
9	2.0	1.5	2.0	0.0	0.0	0.0	1.5	1.0	1.0	4.5	3.0	4.0
10	2.0	1.5	2.0	0.0	0.0	0.0	1.5	1.0	1.0	4.5	2.5	3.5
11	2.5	2.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0	4.5	2.5	3.5
12	2.5	1.5	2.0	0.0	0.0	0.0	1.5	1.0	1.5	4.0	2.0	3.0
13	2.0	1.0	1.5	0.0	0.0	0.0	1.5	1.0	1.5	5.5	2.5	3.5
14	1.5	0.5	1.0	0.0	0.0	0.0	2.5	0.5	1.0	5.0	1.5	3.5
15	0.5	0.0	0.0	0.0	0.0	0.0	1.5	1.0	1.0	5.0	2.5	4.0
16	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	1.5	5.0	2.5	4.0
17	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.0	1.5	5.0	2.0	3.5
18	0.0	0.0	0.0	0.0	0.0	0.0	3.0	1.0	1.5	5.5	2.0	3.5
19	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.5	1.5	6.0	1.5	3.5
20	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.0	1.5	6.5	1.5	4.0
21	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.5	2.0	6.5	2.0	4.0
22	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.5	2.0	7.0	2.0	4.5
23	1.0	0.0	0.5	0.0	0.0	0.0	4.0	1.5	2.5	7.0	3.0	5.0
24	1.5	0.5	1.0	0.0	0.0	0.0	4.0	1.0	2.5	6.5	3.0	4.5
25	2.0	1.0	1.5	0.0	0.0	0.0	4.5	1.0	2.5	7.5	3.5	5.0
26	2.0	1.0	1.5	0.0	0.0	0.0	4.5	1.5	2.5	7.0	3.0	5.0
27	1.5	1.0	1.0	0.0	0.0	0.0	5.0	1.5	3.0	5.0	4.0	4.5
28	2.0	1.0	1.5	0.0	0.0	0.0	5.5	1.5	3.0	7.0	2.0	4.5
29	---	---	---	0.0	0.0	0.0	5.0	1.5	3.0	7.5	2.5	4.5
30	---	---	---	0.0	0.0	0.0	5.0	1.5	3.0	6.5	3.5	5.0
31	---	---	---	0.0	0.0	0.0	---	---	---	6.5	3.5	5.0
MONTH	2.5	0.0	0.9	2.5	0.0	0.1	5.5	0.0	1.5	7.5	1.0	3.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.0	3.0	4.5	7.5	5.0	6.5	9.0	5.0	7.0	7.5	5.0	6.5
2	7.5	3.0	5.0	6.5	5.0	6.0	9.0	4.5	7.0	8.5	6.0	7.0
3	7.5	3.0	5.0	7.0	3.5	5.0	8.5	5.5	7.0	8.0	6.5	7.0
4	6.5	2.5	4.5	9.0	4.0	6.5	9.0	5.0	7.0	7.5	5.0	6.5
5	6.0	4.0	5.0	8.0	5.0	6.5	9.5	5.0	7.5	7.5	4.5	6.0
6	6.0	4.0	4.5	9.0	5.0	7.0	10.0	6.0	8.0	7.0	4.5	6.0
7	7.5	2.5	4.5	10.5	5.0	7.5	11.0	6.5	8.5	7.0	4.0	5.5
8	6.5	3.0	4.5	10.0	5.5	7.5	11.5	7.5	9.5	7.0	4.5	6.0
9	7.5	4.0	5.5	10.0	5.0	7.5	11.5	7.5	9.5	7.5	5.5	6.5
10	6.5	4.0	5.5	9.0	5.5	7.0	11.0	7.5	9.5	7.0	4.5	6.0
11	7.0	4.0	5.5	8.5	6.0	7.0	10.0	7.5	9.0	6.5	4.0	5.5
12	8.5	3.5	6.0	10.0	4.5	7.0	9.0	8.0	8.5	7.0	4.5	6.0
13	7.5	4.0	5.5	10.5	5.5	7.5	8.5	7.0	8.0	7.0	5.0	6.0
14	7.5	4.0	5.5	10.5	6.0	8.0	8.5	7.0	8.0	5.0	2.5	3.5
15	7.0	4.0	5.0	10.0	5.5	7.5	9.0	7.5	8.0	3.0	1.0	2.5
16	7.5	3.5	5.5	9.5	6.0	7.5	8.0	7.0	7.5	3.0	1.0	2.0
17	7.0	3.5	5.0	8.0	5.5	6.5	8.0	6.5	7.0	3.5	1.0	2.5
18	7.5	4.5	5.5	9.5	6.0	7.5	8.0	5.5	6.5	2.5	1.5	2.0
19	7.0	4.5	5.5	10.5	5.0	7.5	8.0	6.0	7.0	3.5	1.0	2.0
20	7.5	4.5	6.0	10.0	6.5	8.0	7.5	6.0	6.5	3.0	1.0	2.0
21	6.5	4.5	5.5	8.0	6.5	7.0	7.5	5.0	6.0	4.0	2.0	3.0
22	8.0	4.0	6.0	8.0	6.0	7.0	8.5	5.0	6.5	3.5	2.0	2.5
23	6.5	4.0	5.5	10.5	6.0	8.0	8.0	4.5	6.5	4.0	1.5	2.5
24	6.0	4.5	5.0	8.5	7.0	7.0	9.0	6.0	7.5	5.0	3.0	4.0
25	6.5	4.5	5.5	8.0	6.0	7.0	8.0	7.0	7.5	5.0	3.5	4.5
26	6.5	3.5	5.0	8.5	6.0	7.5	8.5	7.0	7.5	4.5	2.0	3.5
27	8.0	4.5	6.0	7.5	6.0	7.0	8.0	6.5	7.0	4.0	3.0	3.5
28	8.5	4.5	6.0	8.0	6.5	7.0	8.5	6.5	7.5	7.5	3.5	6.0
29	9.5	4.5	6.5	9.0	6.0	7.5	8.0	6.5	7.0	8.0	6.0	7.0
30	9.5	5.0	7.0	8.0	6.0	7.0	8.0	6.0	7.0	8.0	7.5	7.5
31	---	---	---	9.0	6.0	7.5	7.5	5.0	6.5	---	---	---
MONTH	9.5	2.5	5.4	10.5	3.5	7.1	11.5	4.5	7.5	8.5	1.0	4.7

15266110 KENAI RIVER BELOW SKILAK LAKE OUTLET NEAR STERLING

LOCATION.--Lat 60°28'00", long 150°35'56", in SW¼ NW¼ sec. 1, T. 4 N., R. 8 W. (Kenai B-2 quad), Kenai Peninsula Borough, Hydrologic Unit 19020302, on right bank, 3.5 mi downstream from Skilak Lake, 7 mi southeast of Sterling.

DRAINAGE AREA.--1,206 mi^2.

PERIOD OF RECORD.--June 1997 to current year.

REVISED RECORDS.-- WRD-AK-00-1: Drainage area.

GAGE.--Water stage recorder. Elevation of gage is 240 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Rain gage recorder at station. GOES satellite telemetry and phone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9200	19300	14900	2990	e1680	2570	1310	1260	3460	9260	12700	12400
2	9050	18400	13900	2880	1650	2510	1300	1320	3580	9650	12400	12600
3	8710	17500	13300	2780	1760	2440	1280	1370	3760	10100	12100	12400
4	8290	16600	13000	2690	1860	2380	1260	1490	3930	10400	11800	12300
5	7810	16300	12700	2610	1960	2320	1230	1500	4130	10700	11400	11700
6	7440	17300	12300	2540	2170	2240	1220	1560	4320	11000	10900	11100
7	7010	17900	11700	2440	2490	2170	1200	1630	4490	11200	10600	10500
8	6670	17500	11100	2380	2700	2110	1190	1710	4780	11400	10400	9990
9	6330	16600	10500	2420	2800	2050	1170	1910	5060	11700	10300	9520
10	6010	15600	9810	2410	2990	2000	1140	1900	5340	12100	10400	9020
11	5820	14500	9230	2360	3140	1930	1120	1960	5690	12400	10800	8510
12	5480	13400	8610	2310	3240	1900	1130	2030	6030	12800	10900	8080
13	5460	12400	7980	2240	3340	1700	1100	2130	6470	13000	11400	7740
14	5190	11500	7390	2190	3370	e2000	1100	2230	7050	13300	11800	7510
15	5130	10800	6840	2150	3360	e2010	1130	2290	7630	13600	12300	7220
16	5110	10000	6380	2120	3340	1880	1120	2350	8160	13900	13200	6900
17	5040	9330	5990	2080	3300	1810	1130	2410	8580	14300	14000	6500
18	4980	8780	5610	2070	3250	1760	1110	2470	8860	14400	14400	6100
19	4910	8490	5250	2010	3190	1730	1090	2480	9070	14300	14700	5790
20	4980	8280	4950	1980	3110	1720	1130	2520	9210	14400	14500	5400
21	5200	8200	4700	1960	3060	1680	1130	2550	9390	14400	14200	5100
22	5570	8470	4510	1910	2980	1630	1100	2600	9440	14400	13800	4790
23	7400	10200	4400	1870	e2950	1600	1090	2610	9420	14100	13100	4550
24	11600	12500	4210	1830	2920	1570	1100	2660	9400	14300	12500	4300
25	15200	14200	4040	1810	2840	1530	1100	2690	9380	14200	12000	4110
26	17200	17000	3840	1780	2820	1510	1110	2760	9240	13900	11900	3950
27	18300	20300	3650	1740	2720	1480	1120	2920	9220	13700	11500	3750
28	18700	19800	3500	1760	e2650	1460	1140	2940	9140	13600	11400	3710
29	19000	17800	3370	1750	---	1440	1180	3040	9080	13300	11300	3490
30	19900	16100	3230	1700	---	1390	1220	3160	9120	13200	11700	3710
31	20000	---	3110	1700	---	1360	---	3310	---	13000	12100	---
TOTAL	286690	425050	234000	67460	77640	57880	34750	69760	212430	396010	376500	222740
MEAN	9248	14170	7548	2176	2773	1867	1158	2250	7081	12770	12150	7425
MAX	20000	20300	14900	2990	3370	2570	1310	3310	9440	14400	14700	12600
MIN	4910	8200	3110	1700	1650	1360	1090	1260	3460	9260	10300	3490
AC-FT	568600	843100	464100	133800	154000	114800	68930	138400	421400	785500	746800	441800
CFSM	7.67	11.7	6.26	1.80	2.30	1.55	0.96	1.87	5.87	10.6	10.1	6.16
IN.	8.84	13.11	7.22	2.08	2.39	1.79	1.07	2.15	6.55	12.22	11.61	6.87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)#

MEAN	6455	4852	2713	1932	1680	1198	1077	2477	8150	13050	11940	9714
MAX	9248	14170	7548	2960	2773	1867	1241	3036	9795	15400	13600	13860
(WY)	2003	2003	2003	2001	2003	2003	1998	2002	1998	2001	2001	2001
MIN	3937	2106	1387	1164	891	870	888	2210	6156	11960	10310	5659
(WY)	2001	2002	2002	1999	1998	1998	2002	2001	1997	1999	1998	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003#	
ANNUAL TOTAL	2534210		2460910			
ANNUAL MEAN	6943		6742		5455	
HIGHEST ANNUAL MEAN					6742	2003
LOWEST ANNUAL MEAN					4742	2000
HIGHEST DAILY MEAN	20300	Nov 27	20300	Nov 27	20300	Nov 27 2002
LOWEST DAILY MEAN	812	Apr 26	a1090	Apr 19	776	Mar 13 1998
ANNUAL SEVEN-DAY MINIMUM	833	Apr 21	1110	Apr 19	792	Mar 9 1998
MAXIMUM PEAK FLOW			21400	Nov 27	21400	Nov 27 2002
MAXIMUM PEAK STAGE			13.95	Nov 27	13.95	Nov 27 2002
INSTANTANEOUS LOW FLOW			910	Mar 13	b765	Mar 12 1998
ANNUAL RUNOFF (AC-FT)	5027000		4881000		3952000	
ANNUAL RUNOFF (CFSM)	5.76		5.59		4.52	
ANNUAL RUNOFF (INCHES)	78.17		75.91		61.46	
10 PERCENT EXCEEDS	13000		14200		12800	
50 PERCENT EXCEEDS	7390		4980		3060	
90 PERCENT EXCEEDS	983		1450		1060	

\# See Period of Record, partial year used in monthly statistics
a Apr. 19 and 23
b Mar. 12 and 13, 1998 and Apr. 20, 2002
e Estimated

15266150 KENAI RIVER BELOW MOUTH OF KILLEY RIVER NEAR STERLING

LOCATION.--Lat 60°29'28", long 150°37'50", in NW¼ SW¼ SE¼ sec. 26, T. 5 N., R. 8 W. (Kenai B-2 quad), Kenai Peninsula Borough, Hydrologic Unit 19020302, on right bank, 1.5 mi downstream from Killey River, 4.5 mi southeast of Sterling.

DRAINAGE AREA.--1,496 mi^2.

PERIOD OF RECORD.--June 1997 to current year.

GAGE.--Water stage recorder. Elevation of gage is 230 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. GOES satellite telemetry and phone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9890	22400	18000	3310	1920	2610	e1450	1620	4600	11100	14300	13200
2	9720	21100	16200	3200	1850	2560	e1400	1690	4700	11800	13900	13200
3	9270	19800	15300	3110	1950	2500	e1400	1760	4800	12600	13600	13000
4	8790	19400	16300	3030	2050	2420	e1350	1890	4910	12600	13200	12800
5	8270	19600	15200	2930	2300	2350	e1350	1910	5150	12800	12800	12200
6	7930	24100	14200	2840	2730	2230	e1300	1940	5690	13100	12400	11600
7	7540	24600	13200	2730	2980	2160	e1300	1980	5930	13300	12100	10900
8	7220	22000	12300	2650	3240	2100	e1250	2050	6030	13700	11900	10300
9	6840	20400	11500	2700	3310	2030	e1250	2280	6300	14100	11800	9850
10	6510	18800	10800	2700	3500	1980	e1200	2360	6770	14600	11900	9320
11	6340	17200	10100	2670	3670	1930	e1200	2390	7370	14800	12200	8880
12	6120	15900	9480	2630	3750	1890	e1150	2440	7900	15100	12700	8410
13	6060	14400	8940	2560	3760	1310	e1150	2510	8460	15300	13100	8100
14	6180	13300	8460	2500	3740	2050	e1140	2590	9360	15600	13500	7750
15	5870	12300	7860	2430	3710	2060	1160	2680	10100	16100	14200	7340
16	5800	11500	7280	2390	3590	1890	1200	2740	10300	16400	15100	6950
17	5680	10800	6940	2350	3480	1890	1230	2820	10500	16800	15600	6560
18	5600	10100	6560	2350	3410	1920	1230	2910	10700	16800	15800	6180
19	5610	9820	6090	2320	3320	1900	1240	2940	10900	16700	16100	5910
20	5840	9660	5690	2280	3210	1880	1260	2990	11100	16500	16100	5660
21	5990	9570	5440	2240	3120	1840	1280	3060	11300	16600	15600	5440
22	6170	9810	5270	2200	3060	1770	1270	3140	11300	16400	14900	5110
23	9180	12800	5130	2130	e3000	1680	1280	3210	11300	16100	14100	4820
24	19700	17800	4920	2090	3020	1640	1290	3320	11200	16200	13500	4580
25	22600	17900	4740	2060	2910	e1600	1320	3410	11200	16200	12900	4380
26	21400	20500	4450	2040	2880	e1600	1330	3580	11000	15900	12800	4240
27	21400	24100	4180	2000	2780	e1550	1380	3850	10800	15500	12500	4040
28	21400	23400	3970	1980	e2700	e1550	1430	3990	10700	15400	12300	3990
29	22000	20600	3760	1970	---	e1500	1490	4050	10700	15300	12800	4060
30	24600	19500	3570	1940	---	e1500	1550	4220	10900	15000	13000	4570
31	23800	---	3460	1920	---	e1450	---	4440	---	14700	13200	---
TOTAL	339320	513160	269290	76250	84940	59340	38830	86760	261970	463100	419900	233340
MEAN	10950	17110	8687	2460	3034	1914	1294	2799	8732	14940	13550	7778
MAX	24600	24600	18000	3310	3760	2610	1550	4440	11300	16800	16100	13200
MIN	5600	9570	3460	1920	1850	1310	1140	1620	4600	11100	11800	3990
AC-FT	673000	1018000	534100	151200	168500	117700	77020	172100	519600	918600	832900	462800
CFSM	7.32	11.4	5.81	1.64	2.03	1.28	0.87	1.87	5.84	9.99	9.05	5.20
IN.	8.44	12.76	6.70	1.90	2.11	1.48	0.97	2.16	6.51	11.52	10.44	5.80

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)#

MEAN	6990	5469	3022	2052	1766	1275	1240	2877	9400	14580	12950	10200
MAX	10950	17110	8687	3140	3034	1914	1490	3823	11080	18240	15930	14240
(WY)	2003	2003	2003	2001	2003	2003	1998	2002	1998	2001	2001	2001
MIN	4291	2139	1633	1126	989	926	1010	2456	7701	12580	11020	6196
(WY)	2001	2002	2002	1999	1998	1999	1999	1999	1997	1999	1998	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003#	
ANNUAL TOTAL	2871945		2846200			
ANNUAL MEAN	7868		7798		6003	
HIGHEST ANNUAL MEAN					7798	2003
LOWEST ANNUAL MEAN					5010	2000
HIGHEST DAILY MEAN	a24600	Oct 30	a24600	Oct 30	a24600	Oct 30 2002
LOWEST DAILY MEAN	963	Apr 16	1140	Apr 14	b800	Apr 19 1997
ANNUAL SEVEN-DAY MINIMUM	978	Apr 11	1170	Apr 10	836	Apr 1 1999
MAXIMUM PEAK FLOW			27300	Nov 6	27300	Nov 6 2002
MAXIMUM PEAK STAGE			13.52	Nov 6	13.52	Nov 6 2002
ANNUAL RUNOFF (AC-FT)	5697000		5645000		4349000	
ANNUAL RUNOFF (CFSM)	5.26		5.21		4.01	
ANNUAL RUNOFF (INCHES)	71.41		70.77		54.52	
10 PERCENT EXCEEDS	15000		16200		14000	
50 PERCENT EXCEEDS	8270		5690		3320	
90 PERCENT EXCEEDS	1120		1580		1150	

\# See Period of Record, partial year used in monthly statistics
a Oct. 30 and Nov. 7
b Apr. 19, 1997 and Apr. 6-7, 1999
e Estimated

15266300 KENAI RIVER AT SOLDOTNA

LOCATION.--Lat 60°28'39", long 151°04'46", in W½ SW¼ sec. 32, T. 5 N., R. 10 W. (Kenai B-3 quad), Kenai Peninsula Borough, Hydrologic Unit 19020302, near center of span on downstream side of bridge on Sterling Highway, 1.0 mi southwest of Soldotna.

DRAINAGE AREA.--1,951 mi^2.

PERIOD OF RECORD.--May 1965 to current year.

REVISED RECORDS.--WRD AK-00-1 drainage area.

GAGE.--Water-stage recorder. Datum of gage is 35.34 ft above sea level. Prior to May 1, 1997, non-recording gage at same site and datum.

REMARKS.--Records good, except for estimated daily discharges, which are poor. GOES satellite telemetry and phone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10500	23000	18400	e3600	e2050	3260	1740	2020	4780	11300	14400	13500
2	10200	22100	17000	3520	2070	3160	e1700	2080	4860	12000	14100	13500
3	9820	21000	16300	e3500	2230	3200	e1680	2180	5010	12600	13700	13300
4	9390	20300	16600	e3450	2340	3030	e1680	2300	5140	12700	13300	12900
5	9030	20200	16100	e3400	2520	2860	e1640	2240	5380	12700	12900	12600
6	8770	22500	15200	e3350	2840	2710	e1600	2210	5850	12900	12400	12000
7	8680	24100	14500	e3300	3070	2580	e1580	2240	6150	13300	12100	11400
8	8200	21600	13600	e3250	3430	2490	e1560	2310	6260	13600	11900	10900
9	7510	20100	12700	3230	3530	2460	e1540	2510	6520	13900	11700	10400
10	7170	18800	12000	3180	3760	e2400	e1520	2690	6990	14200	11700	9830
11	7320	17800	11300	3200	3960	e2300	e1520	2760	7810	14400	11800	9250
12	7260	16800	10400	3040	4130	e2200	e1510	2860	8410	14800	12400	8790
13	7170	15500	9580	2780	4170	2200	e1510	2860	8970	15100	12800	8540
14	6890	14400	8590	2720	4150	e2150	e1500	2930	9590	15400	13200	7930
15	6810	13500	7890	e2700	4090	e2100	e1540	3020	10400	15700	13800	7480
16	6780	12400	7240	e2700	3920	e2150	e1570	3020	10800	15800	14700	7190
17	6540	11600	7070	2770	3780	e2150	e1590	3080	11000	16000	15300	6880
18	6680	10800	6540	2790	3710	e2150	e1620	3160	11100	16200	15500	6640
19	6680	10500	6080	2730	3630	e2150	e1640	3230	11200	16100	15700	6210
20	7020	10200	5760	2630	3520	e2150	e1670	3310	11300	16200	15800	5920
21	7090	9830	5710	2440	3420	2160	e1700	3460	11400	16200	15500	5610
22	7400	10200	5610	e2400	3390	2110	e1740	3560	11500	15900	15000	5280
23	9880	12700	5430	e2400	3580	2120	e1770	3660	11400	15700	14400	5130
24	19100	17500	5090	e2350	3590	2090	1790	3800	11400	15700	13900	4990
25	25100	18400	4860	e2350	3430	2040	1820	3940	11300	15800	13300	4660
26	23100	19900	4610	e2300	3490	2000	1830	3920	11000	15700	13100	4450
27	22700	22200	4410	e2300	3420	1940	1890	4080	10800	15500	12800	4290
28	22100	22400	4180	e2250	3430	1860	1930	4310	10800	15300	12500	4290
29	22400	20700	3970	e2200	---	1910	1940	4400	10900	15100	13000	4480
30	24200	19400	3840	e2150	---	e1850	1990	4520	11100	14900	13200	4930
31	24200	---	3770	e2100	---	1800	---	4760	---	14900	13300	---
TOTAL	365690	520430	284330	87080	94650	71730	50310	97420	269120	455600	419200	243270
MEAN	11800	17350	9172	2809	3380	2314	1677	3143	8971	14700	13520	8109
MAX	25100	24100	18400	3600	4170	3260	1990	4760	11500	16200	15800	13500
MIN	6540	9830	3770	2100	2050	1800	1500	2020	4780	11300	11700	4290
AC-FT	725300	1032000	564000	172700	187700	142300	99790	193200	533800	903700	831500	482500
CFSM	6.05	8.89	4.70	1.44	1.73	1.19	0.86	1.61	4.60	7.53	6.93	4.16
IN.	6.97	9.92	5.42	1.66	1.80	1.37	0.96	1.86	5.13	8.69	7.99	4.64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)#

MEAN	7272	3782	2394	1911	1684	1365	1560	3173	8578	13520	14370	11640
MAX	14370	17350	9172	4290	4575	2696	2836	5645	12570	18740	24890	21280
(WY)	1970	2003	2003	1981	1981	1981	1980	1990	1980	1977	1977	1995
MIN	2852	1631	1132	823	822	800	812	1950	4940	9696	8706	5873
(WY)	1993	1974	1976	1976	1976	1976	1972	1973	1972	1973	1969	1969

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003#	
ANNUAL TOTAL	2987610		2958830			
ANNUAL MEAN	8185		8106		5983	
HIGHEST ANNUAL MEAN					8810	1977
LOWEST ANNUAL MEAN					4002	1973
HIGHEST DAILY MEAN	25100	Oct 25	25100	Oct 25	41400	Sep 24 1995
LOWEST DAILY MEAN	a1000	Apr 8	1500	Apr 14	b770	Apr 1 1966
ANNUAL SEVEN-DAY MINIMUM	1030	Apr 4	1520	Apr 9	774	Apr 1 1966
MAXIMUM PEAK FLOW			28100	Oct 25	42200	Sep 24 1995
MAXIMUM PEAK STAGE			12.28	Oct 25	14.50	Sep 24 1995
MAXIMUM PEAK STAGE					c22.62	Jan 18 1969
INSTANTANEOUS LOW FLOW			d		b770	Apr 1 1966
ANNUAL RUNOFF (AC-FT)	5926000		5869000		4334000	
ANNUAL RUNOFF (CFSM)	4.20		4.15		3.07	
ANNUAL RUNOFF (INCHES)	56.97		56.42		41.67	
10 PERCENT EXCEEDS	15100		16000		14200	
50 PERCENT EXCEEDS	8680		6210		3270	
90 PERCENT EXCEEDS	1250		2010		1200	

\# See Period of Record; partial years used in monthly statistics
a Apr. 8 to Apr. 10
b Apr. 1 to Apr. 4, 1966
c Backwater from ice
d Not determined, see lowest daily mean
e Estimated

15271000 SIXMILE CREEK NEAR HOPE

LOCATION.--Lat 60°49'15", long 149°25'31", in SW¼ SE¼ sec. 34, T. 8 N., R. 1 W. (Seward D-7 quad), Kenai Peninsula Borough, Hydrologic Unit 19020302, Chugach National Forest, on left bank, 6.0 mi upstream from mouth at Turnagain Arm, and 10.6 mi southeast of Hope.

DRAINAGE AREA.--234 mi^2

PERIOD OF RECORD.--June 1979 to September 1990, August 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above sea level, from topographic map. Prior to November 26, 1979, recording gage at site 0.8 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Rain gage at station. GOES satellite telemetry at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft^3/s and maximum (*)

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage Height (ft)
Oct. 24	1700	*10800	*13.56	Nov. 23	1830	4170	11.68
Oct. 29	2130	5220	12.08	Jun. 13	2315	4170	11.68
Nov. 06	0415	6030	12.35				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	750	1980	1630	e280	246	238	176	1300	2470	2540	886	709
2	694	1850	1300	e280	239	236	178	1220	2010	2970	829	666
3	621	1590	1380	e440	235	233	173	1270	1850	2820	761	646
4	585	2030	1400	e400	484	228	172	1250	1910	2440	697	607
5	559	3370	1240	e360	1480	214	172	1180	2270	2370	685	554
6	571	4890	1090	e320	863	201	171	1050	2770	2180	708	518
7	611	3150	968	e360	648	201	170	938	2550	2220	746	506
8	609	2330	885	466	609	199	171	938	2260	2350	808	490
9	549	1850	830	400	577	195	173	1070	2150	2400	858	485
10	531	1510	812	341	564	194	176	1150	2610	2350	879	466
11	526	1360	754	292	544	199	185	1060	2910	2230	904	451
12	546	1210	694	274	517	194	202	988	3200	2080	1020	437
13	533	1080	640	262	478	198	217	958	3660	2000	909	432
14	589	983	572	241	443	218	230	890	3690	2090	968	404
15	577	904	507	305	397	253	231	851	3250	2020	1120	369
16	579	842	474	262	363	237	226	894	2880	1890	1140	350
17	557	801	522	274	335	218	234	971	2640	1680	952	334
18	554	762	527	288	339	212	249	967	2480	1520	794	321
19	607	753	474	269	306	202	258	981	2480	1440	702	306
20	1100	708	471	274	297	197	276	1050	2440	1430	1030	320
21	1010	669	465	262	295	190	294	1120	2490	1430	797	327
22	1060	820	434	e260	286	189	388	1210	2330	1330	686	315
23	5030	3340	434	e260	280	207	448	1430	2330	1230	629	301
24	6550	2460	438	e260	273	195	496	1680	2340	1320	604	303
25	4660	1840	402	e260	263	184	562	1820	2460	1340	646	364
26	3520	2260	e380	e260	259	181	687	1920	2130	1180	880	361
27	2490	1660	e340	255	252	181	881	1940	1940	1080	822	325
28	2130	1300	e320	257	246	181	1040	1770	1890	1030	940	365
29	3220	1490	e320	255	---	180	1250	1740	2070	1050	1060	526
30	3310	2260	e300	262	---	178	1310	1930	2360	970	1020	628
31	2430	---	e300	254	---	177	---	2280	---	894	814	---
TOTAL	47658	52052	21303	9233	12118	6310	11396	39816	74820	55874	26294	13186
MEAN	1537	1735	687	298	433	204	380	1284	2494	1802	848	440
MAX	6550	4890	1630	466	1480	253	1310	2280	3690	2970	1140	709
MIN	526	669	300	241	235	177	170	851	1850	894	604	301
AC-FT	94530	103200	42250	18310	24040	12520	22600	78980	148400	110800	52150	26150
CFSM	6.57	7.41	2.94	1.27	1.85	0.87	1.62	5.49	10.7	7.70	3.62	1.88
IN.	7.58	8.27	3.39	1.47	1.93	1.00	1.81	6.33	11.89	8.88	4.18	2.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2003, BY WATER YEAR (WY)#

MEAN	915	492	303	242	191	157	252	1269	2711	2226	1282	996
MAX	1777	1735	687	528	433	240	397	1811	3957	3986	2699	1556
(WY)	1981	2003	2003	1981	2003	1984	1990	1981	2001	1980	1981	1999
MIN	500	221	198	133	113	106	119	748	1736	1166	760	440

\# See Period of Record; partial years used in monthly statistics
e Estimated

15271000 SIXMILE CREEK NEAR HOPE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1979 - 2003#	
ANNUAL TOTAL	378708		370060			
ANNUAL MEAN	1038		1014		929	
HIGHEST ANNUAL MEAN					1335	1980
LOWEST ANNUAL MEAN					675	1986
HIGHEST DAILY MEAN	6550	Oct 24	6550	Oct 24	7570	Jul 12 1980
LOWEST DAILY MEAN	126	Apr 15	170	Apr 7	a80	Apr 1 1986
ANNUAL SEVEN-DAY MINIMUM	130	Mar 19	172	Apr 3	80	Apr 1 1986
MAXIMUM PEAK FLOW			10800	Oct 24	10800	Oct 24 2002
MAXIMUM PEAK STAGE			13.56	Oct 24	13.56	Oct 24 2002
INSTANTANEOUS LOW FLOW			b149	Apr 4	c29	Nov 26 1979
ANNUAL RUNOFF (AC-FT)	751200		734000		673400	
ANNUAL RUNOFF (CFSM)	4.43		4.33		3.97	
ANNUAL RUNOFF (INCHES)	60.20		58.83		53.97	
10 PERCENT EXCEEDS	2610		2350		2430	
50 PERCENT EXCEEDS	656		685		535	
90 PERCENT EXCEEDS	142		218		142	

\# See Period of Record; partial years used in monthly statistics
a Apr. 1 to Apr. 9, 1986
b Apr. 4 and Apr. 5
c Sometime between Nov. 26, 1979 and Jan. 9, 1980, during release from storage behind snow-avalanche dam upstream from former gage site, site and datum then in use

15272280 PORTAGE CREEK AT PORTAGE LAKE OUTLET NEAR WHITTIER

LOCATION.--Lat 60°47'07", long 148°50'20", in SW¼ NE¼ sec. 13, T. 8 N., R. 3 E. (Seward D-5 SW quad), Municipality of Anchorage, Hydrologic Unit 19020302, on left bank at lake outlet, 5.0 mi west of Whittier, 5.8 mi southeast of Portage, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--40.5 mi^2.

PERIOD OF RECORD.--March 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 95 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 12,500 ft^3/s, August 19, 1984 (elevation about 97.05 ft above sea level from USFS levels) by contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 4,600 ft^3/s and maximum (*).

Date	Time	Discharge (ft^3/s)	Gage Height	Date	Time	Discharge (ft^3/s)	Gage Height
Oct 24	1330	*7730	*8.78	Aug 15	0700	6440	8.24
Nov 6	0115	6500	8.27	Aug 28	1215	6190	8.13

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1330	1670	1600	99	299	183	40	296	1490	1770	1610	1670
2	1040	2210	974	91	268	171	39	284	1430	2050	1430	1360
3	693	1930	1330	102	318	148	37	289	1120	2360	1280	1330
4	514	3220	1630	118	980	132	36	291	922	2110	1140	1210
5	432	4850	1380	108	2370	117	34	424	1480	1900	1140	1070
6	407	4910	1020	99	1310	104	34	446	2920	1680	1220	914
7	455	2610	671	91	720	94	33	361	2710	1780	1300	883
8	472	1310	537	99	565	86	34	315	1740	1980	1510	883
9	399	818	510	153	514	79	39	410	1240	2070	1730	1280
10	332	586	578	154	451	73	50	831	1150	2050	1760	1450
11	348	460	504	154	412	69	51	738	1180	1990	1790	1150
12	560	402	380	149	423	64	53	552	1250	1880	2280	1030
13	933	346	310	172	359	60	60	440	1480	1970	2370	979
14	1790	313	253	154	290	60	67	370	1630	2150	4340	826
15	1210	342	211	136	237	74	74	324	1610	1990	6220	622
16	1050	328	187	135	195	75	88	313	1630	1870	4560	494
17	779	331	193	216	167	63	91	314	1460	1820	3320	423
18	831	381	197	399	145	63	100	313	1260	1920	2150	369
19	1800	574	177	e330	128	69	100	305	1190	1830	1900	326
20	4030	616	160	e370	116	76	119	299	1150	1820	3360	328
21	3210	565	171	e360	102	69	227	290	1230	1800	2250	339
22	3620	1110	234	e250	103	62	432	301	1340	1630	1590	303
23	6500	2760	315	e200	138	62	394	333	1350	1540	1310	273
24	6550	2010	317	e170	167	62	308	403	1700	1670	1200	e262
25	4230	1540	250	e150	150	60	256	547	2900	2200	1420	e325
26	2950	1830	196	e140	150	55	241	694	3010	2610	2960	e440
27	1450	1270	163	e140	151	51	245	964	3230	2120	3700	e410
28	1170	822	141	203	173	49	253	1000	2290	2320	5450	e525
29	2150	1190	132	245	---	46	272	876	1870	2780	4620	e1050
30	2770	2380	119	289	---	43	291	796	1790	2250	4080	e2500
31	2420	---	107	289	---	41	---	955	---	1830	2440	---
TOTAL	56425	43684	14947	5765	11401	2460	4098	15074	50752	61740	77430	25024
MEAN	1820	1456	482	186	407	79.4	137	486	1692	1992	2498	834
MAX	6550	4910	1630	399	2370	183	432	1000	3230	2780	6220	2500
MIN	332	313	107	91	102	41	33	284	922	1540	1140	262
AC-FT	111900	86650	29650	11430	22610	4880	8130	29900	100700	122500	153600	49640
CFSM	44.9	36.0	11.9	4.59	10.1	1.96	3.37	12.0	41.8	49.2	61.7	20.6
IN.	51.83	40.12	13.73	5.30	10.47	2.26	3.76	13.85	46.62	56.71	71.12	22.99

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)#

MEAN	636	316	163	150	135	83.7	223	591	1456	2084	2058	1785
MAX	1820	1456	482	460	407	189	393	1158	1728	2518	3164	3583
(WY)	2003	2003	2003	2001	2003	1998	1995	1995	1990	1990	1989	1995
MIN	136	90.5	26.3	26.0	26.0	26.0	36.7	286	1178	1714	1409	649
(WY)	1997	1991	1991	1991	1991	1991	2002	2001	2001	1999	1998	1992

\# See Period of Record: partial years used in monthly statistics
e Estimated

15272280 PORTAGE CREEK AT PORTAGE LAKE OUTLET NEAR WHITTIER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003#	
ANNUAL TOTAL	349774		368800			
ANNUAL MEAN	958		1010		799	
HIGHEST ANNUAL MEAN					1010	2003
LOWEST ANNUAL MEAN					656	2000
HIGHEST DAILY MEAN	6550	Oct 24	6550	Oct 24	10700	Sep 20 1995
LOWEST DAILY MEAN	27	Mar 13	33	Apr 7	a26	Dec 5 1990
ANNUAL SEVEN-DAY MINIMUM	29	Mar 8	35	Apr 2	26	Dec 5 1990
MAXIMUM PEAK FLOW			7730	Oct 24	13000	Sep 20 1995
MAXIMUM PEAK STAGE			8.78	Oct 24	10.66	Sep 20 1995
INSTANTANEOUS LOW FLOW			30	Apr 9	26	Dec 5 1990
ANNUAL RUNOFF (AC-FT)	693800		731500		578800	
ANNUAL RUNOFF (CFSM)	23.7		24.9		19.7	
ANNUAL RUNOFF (INCHES)	321.27		338.75		268.04	
10 PERCENT EXCEEDS	2140		2360		2000	
50 PERCENT EXCEEDS	671		504		320	
90 PERCENT EXCEEDS	33		76		55	

\# See Period of Record: partial years used in monthly statistics
a From Dec. 5, 1990 to Mar. 31, 1991
e Estimated

15272380 TWENTYMILE RIVER BELOW GLACIER RIVER NEAR PORTAGE

LOCATION.--Lat 60°53'53", long 148°55'19", in SW¼ SW¼ SE¼ sec. 4, T. 9 N., R. 3 E. (Seward D-6 quad), Hydrologic Unit 19020401, on right bank, 0.1 miles downstream from Glacier River, 4.0 miles upstream from mouth at Seward Highway, and 6.0 miles northeast of Portage.

DRAINAGE AREA.--141 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 2001 to current year.

REVISED RECORDS.--WDR AK-02-1: 2001.

GAGE.--Water-stage recorder. Elevation of gage is 50 ft above sea level, from topographic map.

REMARKS.--Records fair, except for estimated daily discharges, which are poor. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	2630	3230	262	557	333	e160	984	2660	3390	2990	3710
2	1570	2770	2020	254	540	301	e150	983	2460	3870	2620	3040
3	1160	2500	2070	335	550	286	142	1000	2100	4250	2360	3010
4	906	3920	2410	400	2260	266	e140	1000	1900	3850	2110	2780
5	733	6470	2000	324	6180	250	e140	1040	2610	3580	2210	2340
6	679	8410	1590	327	2740	255	e140	998	4570	3290	2450	2030
7	769	4650	1190	435	1500	237	e145	1070	4410	3510	2660	1880
8	802	2640	986	442	1180	224	144	999	3210	3900	3050	1740
9	671	1810	922	353	1070	e220	151	966	2630	4100	3400	1780
10	578	1350	986	303	1030	e220	203	1400	2580	4060	3460	1880
11	524	1080	971	345	987	e210	231	1330	2640	3960	3520	1780
12	798	929	801	321	1010	e210	248	1290	2990	3790	4250	1700
13	960	800	718	322	e900	e210	269	1150	3550	4010	4550	1640
14	1700	727	610	328	e700	e210	282	969	3610	4330	7160	1380
15	1410	761	496	329	e550	e210	257	849	3190	4030	11200	1100
16	1390	708	460	279	e450	e200	245	880	2890	3840	9530	928
17	1180	681	e440	466	e400	e200	257	898	2780	3860	7000	813
18	1110	729	e410	809	e350	e220	277	883	2740	3960	4630	724
19	2090	1030	e380	673	e330	237	282	875	2650	3750	3820	619
20	6800	1240	371	771	299	305	293	891	2530	3710	5600	578
21	5660	1170	360	761	281	328	438	891	2800	3530	4140	557
22	4960	2120	515	634	269	203	730	1020	2630	3170	3130	501
23	8540	4400	724	513	337	e200	563	1140	2790	3030	2730	452
24	11000	3670	601	488	351	e205	575	1240	3040	3380	2530	429
25	8270	2660	490	435	308	210	603	1360	4190	3650	2710	646
26	6010	3340	458	378	324	e205	652	1530	4010	3520	4250	833
27	3090	2650	e440	345	328	e200	766	1810	3880	3310	5320	817
28	2210	1760	e410	419	329	e190	848	1840	3300	3780	8390	962
29	3680	2380	e380	437	---	e185	936	1800	3160	4540	7960	2570
30	4530	4900	350	499	---	181	971	1820	3340	3840	7800	5220
31	3550	---	282	510	---	e175	---	1880	---	3330	5150	---
TOTAL	89360	74885	28071	13497	26110	7086	11238	36786	91840	116120	142680	48439
MEAN	2883	2496	906	435	932	229	375	1187	3061	3746	4603	1615
MAX	11000	8410	3230	809	6180	333	971	1880	4570	4540	11200	5220
MIN	524	681	282	254	269	175	140	849	1900	3030	2110	429
MED	1570	2250	601	400	545	210	263	1020	2840	3790	3820	1510
AC-FT	177200	148500	55680	26770	51790	14060	22290	72970	182200	230300	283000	96080
CFSM	20.4	17.7	6.42	3.09	6.61	1.62	2.66	8.42	21.7	26.6	32.6	11.5
IN.	23.58	19.76	7.41	3.56	6.89	1.87	2.96	9.71	24.23	30.64	37.64	12.78

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)#

MEAN	2059	1469	834	585	530	153	269	1118	2799	3263	3708	2132
MAX	2883	2496	906	735	932	229	375	1373	3061	3746	4603	2613
(WY)	2003	2003	2003	2002	2003	2003	2003	2002	2003	2003	2003	2001
MIN	1235	442	763	435	127	77.1	121	796	2513	2796	2700	1615
(WY)	2002	2002	2002	2003	2002	2002	2002	2001	2002	2002	2002	2003

\# See Period of Record, partial years used in monthly statistics
e Estimated

15272380 TWENTYMILE RIVER BELOW GLACIER RIVER NEAR PORTAGE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003#	
ANNUAL TOTAL	578067		686112			
ANNUAL MEAN	1584		1880		1571	
HIGHEST ANNUAL MEAN					1880	2003
LOWEST ANNUAL MEAN					1263	2002
HIGHEST DAILY MEAN	11000	Oct 24	11200	Aug 15	11200	Aug 15 2003
LOWEST DAILY MEAN	60	Mar 13	a140	Apr 4	60	Mar 13 2002
ANNUAL SEVEN-DAY MINIMUM	66	Mar 7	143	Apr 2	66	Mar 7 2002
MAXIMUM PEAK FLOW			12700	Oct 24	12700	Oct 24 2002
MAXIMUM PEAK STAGE			24.87	Oct 24	25.47	Aug 29 2001
ANNUAL RUNOFF (AC-FT)	1147000		1361000		1138000	
ANNUAL RUNOFF (CFSM)	11.2		13.3		11.1	
ANNUAL RUNOFF (INCHES)	152.51		181.02		151.42	
10 PERCENT EXCEEDS	3080		4120		3580	
50 PERCENT EXCEEDS	1270		1020		967	
90 PERCENT EXCEEDS	80		249		140	

\# See Period of Record, partial years used in monthly statistics
a Apr. 4-6

15272380 TWENTYMILE RIVER BELOW GRANITE RIVER NEAR PORTAGE—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April 2002 to current year.

INSTRUMENTATION.--Electronic water-temperature recorder set for 15 minute recording interval.

REMARKS.--Records represent water temperature at the sensor within 0.5°C. No record February 16-18 due to dead batteries. Temperature at the sensor was compared with the average for the stream by cross section on May 1 and August 6. No variation more than 0.6°C was found within the cross sections. No variation more than 0.4°C was found between mean stream temperature and sensor temperature. Heavy shore ice occurs near the gage.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 9.5°C, several days in May, June and July, 2003; Minimum, 0.0°C on many days during winter.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 9.5°C, several days in May, June and July; Minimum, 0.0°C on many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Stream width, feet (00004)	Sample location, cross section ft from rt bank (72103)	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Sampler type, code (84164)	Temperature, water, deg C (00010)	Temperature, air, deg C (00020)
MAY									
01...	1143	123	10.0	16.77	989	10	8010	4.4	10.8
01...	1145	123	30.0	16.77	989	10	8010	4.5	10.8
01...	1147	123	50.0	16.77	989	10	8010	4.7	10.8
01...	1149	123	70.0	16.77	989	10	8010	4.8	10.8
01...	1151	123	90.0	16.77	989	10	8010	5.0	10.8
AUG									
06...	1707	200	12.0	18.52	2390	10	8010	8.8	16.1
06...	1709	200	25.0	18.52	2390	10	8010	8.7	16.1
06...	1711	200	75.0	18.52	2390	10	8010	8.6	16.1
06...	1713	200	125.0	18.52	2390	10	8010	8.4	16.1
06...	1715	200	175.0	18.52	2390	10	8010	8.5	16.1

TEMPERATURE, WATER (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	4.5	4.0	4.5	4.0	3.0	3.5	3.5	3.0	3.0	0.0	0.0	0.0
2	5.0	3.5	4.0	4.5	4.0	4.0	3.0	2.5	3.0	0.0	0.0	0.0
3	4.5	2.5	3.5	4.0	4.0	4.0	3.5	3.0	3.5	0.5	0.0	0.5
4	4.5	3.0	4.0	4.5	4.0	4.5	3.5	3.0	3.5	0.5	0.0	0.5
5	4.5	3.5	4.0	5.0	4.0	4.5	3.5	3.0	3.5	0.5	0.0	0.0
6	6.0	4.0	4.5	5.0	4.0	4.5	3.5	3.0	3.0	0.0	0.0	0.0
7	5.5	4.5	5.0	4.5	3.5	4.0	3.0	2.0	2.5	0.0	0.0	0.0
8	5.0	3.0	4.0	3.5	2.5	3.0	3.0	2.5	2.5	0.0	0.0	0.0
9	4.0	2.0	3.0	2.5	2.0	2.0	3.0	2.5	3.0	0.5	0.0	0.5
10	4.0	2.0	3.0	2.0	1.0	1.5	3.0	1.0	2.0	1.0	0.5	0.5
11	4.5	3.5	4.0	3.0	2.0	2.5	2.0	0.5	1.5	0.5	0.5	0.5
12	5.5	4.0	4.5	3.0	2.0	2.5	2.0	1.5	2.0	1.5	0.5	1.0
13	5.0	4.0	4.5	2.5	2.5	2.5	1.5	0.5	1.0	1.0	0.0	0.5
14	5.0	3.5	4.0	3.0	2.5	3.0	1.5	0.5	1.0	0.0	0.0	0.0
15	4.5	3.5	4.0	3.0	3.0	3.0	1.0	0.5	0.5	0.5	0.0	0.5
16	5.0	4.0	4.5	3.0	2.5	3.0	0.5	0.0	0.0	1.5	0.5	1.0
17	4.5	4.0	4.0	3.0	2.0	2.5	1.0	0.0	0.5	1.5	0.5	1.5
18	5.0	4.0	4.5	3.0	2.5	2.5	1.0	0.5	1.0	0.5	0.0	0.5
19	5.0	4.5	4.5	3.0	2.5	2.5	1.0	0.5	1.0	1.5	0.5	1.0
20	5.0	4.5	4.5	2.5	2.5	2.5	1.0	0.5	0.5	1.5	1.0	1.5
21	5.0	4.0	4.5	3.0	2.5	2.5	1.0	0.5	1.0	1.5	1.0	1.0
22	4.5	4.0	4.5	3.5	3.0	3.0	1.0	0.5	1.0	1.0	0.5	0.5
23	5.0	4.0	5.0	3.5	3.0	3.5	1.5	0.5	1.0	0.5	0.0	0.0
24	5.5	4.5	5.0	3.5	3.0	3.0	1.5	0.5	1.0	0.5	0.0	0.5
25	4.5	4.0	4.0	3.5	3.0	3.5	1.0	0.5	0.5	1.0	0.0	0.5
26	4.5	3.5	4.0	4.0	3.0	3.5	0.5	0.0	0.0	1.0	0.5	0.5
27	3.5	2.5	3.0	3.0	3.0	3.0	0.0	0.0	0.0	1.5	0.5	1.0
28	4.0	3.0	3.5	3.0	3.0	3.0	0.0	0.0	0.0	1.5	1.5	1.5
29	4.0	3.5	4.0	4.0	3.0	3.5	0.0	0.0	0.0	1.5	1.0	1.5
30	4.5	4.0	4.0	4.0	3.0	3.5	0.5	0.0	0.0	1.5	1.0	1.5
31	4.5	4.0	4.0	---	---	---	0.0	0.0	0.0	2.0	1.0	1.5
MONTH	6.0	2.0	4.1	5.0	1.0	3.1	3.5	0.0	1.4	2.0	0.0	0.6

15272380 TWENTYMILE RIVER BELOW GRANITE RIVER NEAR PORTAGE—Continued

TEMPERATURE, WATER (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.0	1.5	3.0	1.0	2.0	2.5	0.0	1.0	7.5	2.5	4.5
2	2.0	1.0	1.0	2.5	1.5	2.0	2.5	0.0	1.0	8.0	2.5	5.0
3	1.5	1.5	1.5	4.0	1.5	2.5	3.5	0.0	1.5	8.0	2.5	5.0
4	1.5	0.5	1.0	2.5	0.5	1.5	3.5	0.0	1.5	6.0	3.5	4.5
5	1.5	0.5	1.0	2.0	0.0	1.0	4.0	0.0	1.5	5.0	3.0	4.5
6	2.0	1.0	1.5	1.5	0.0	0.5	3.5	0.0	1.5	6.5	2.5	4.5
7	2.0	1.5	1.5	1.0	0.0	0.5	4.0	1.0	2.5	8.5	3.0	5.5
8	2.0	1.5	2.0	1.0	0.0	0.5	4.5	1.5	3.0	8.0	3.5	5.5
9	2.0	1.5	2.0	1.0	0.0	0.0	3.5	1.5	2.5	5.5	4.0	4.5
10	2.0	1.5	2.0	0.5	0.0	0.0	3.5	1.5	2.5	5.0	3.5	4.0
11	2.0	2.0	2.0	0.5	0.0	0.0	6.5	1.5	3.5	6.0	3.5	4.5
12	2.5	1.5	2.0	0.5	0.0	0.0	4.0	1.0	2.5	6.5	3.5	5.0
13	2.5	1.5	2.0	0.0	0.0	0.0	3.5	2.0	2.5	8.5	3.5	5.5
14	1.5	---	---	0.0	0.0	0.0	6.5	1.0	3.0	7.0	3.5	5.0
15	1.5	1.0	1.0	0.0	0.0	0.0	3.5	1.0	2.0	7.5	4.5	5.5
16	---	---	---	0.0	0.0	0.0	5.0	1.5	3.0	7.0	4.5	5.5
17	---	---	---	0.5	0.0	0.0	4.5	2.0	3.0	7.0	4.0	5.5
18	---	---	---	1.0	0.0	0.5	7.5	2.0	4.0	8.5	4.0	6.0
19	1.0	---	---	0.5	0.0	0.5	7.5	1.0	4.0	9.5	3.0	6.0
20	1.0	0.0	0.5	1.5	0.0	0.5	5.0	2.5	3.5	9.5	3.0	6.0
21	2.0	0.5	1.0	1.0	0.0	0.5	3.5	2.0	3.0	9.0	3.5	6.0
22	2.0	1.0	1.5	1.5	0.0	0.5	4.0	1.5	2.5	9.0	3.5	6.0
23	2.0	1.0	1.5	0.0	0.0	0.0	8.0	2.0	4.5	9.5	4.5	6.5
24	2.5	1.0	1.5	0.5	0.0	0.0	8.0	2.0	4.5	8.0	4.0	6.0
25	2.0	1.0	1.5	2.0	0.5	1.0	8.5	2.0	4.5	9.5	4.5	6.5
26	2.5	1.5	2.0	2.5	0.0	1.0	8.5	2.5	5.0	6.5	5.0	5.5
27	3.0	1.5	2.0	1.5	0.5	1.0	8.0	2.5	4.5	7.0	5.0	5.5
28	2.5	2.0	2.0	2.0	0.5	1.0	8.0	2.5	5.0	8.5	4.0	6.0
29	---	---	---	3.5	0.5	2.0	8.0	2.5	5.0	8.0	4.0	6.0
30	---	---	---	2.0	0.0	1.0	8.0	2.5	5.0	9.0	4.5	6.0
31	---	---	---	2.0	0.0	0.5	---	---	---	6.0	4.5	5.5
MONTH	---	---	---	4.0	0.0	0.7	8.5	0.0	3.1	9.5	2.5	5.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.0	4.5	5.5	6.5	5.0	6.0	8.0	4.5	6.0	8.0	5.0	6.0
2	8.5	4.5	6.0	7.0	5.5	6.0	8.5	4.5	6.0	7.0	5.0	5.5
3	9.0	4.5	6.5	7.5	5.0	6.0	7.0	5.0	6.0	6.5	5.0	5.5
4	8.0	4.0	6.0	9.0	4.5	6.5	9.0	5.0	6.5	6.0	4.5	5.0
5	6.0	5.0	5.5	7.5	5.5	6.0	9.0	4.5	6.5	7.0	4.5	5.5
6	6.0	4.5	5.0	8.5	5.0	6.5	8.5	5.0	6.5	7.5	4.5	5.5
7	9.0	4.0	5.5	9.5	5.0	7.0	9.0	5.0	6.5	7.0	4.0	5.5
8	6.5	4.0	5.5	9.0	5.5	7.0	9.0	5.0	6.5	6.5	4.5	5.5
9	8.5	4.5	6.0	9.5	5.0	7.0	8.5	5.0	6.5	6.0	5.0	5.5
10	6.5	5.0	5.5	8.5	5.5	7.0	9.0	5.0	6.5	7.0	4.0	5.5
11	8.5	4.5	6.0	8.0	6.0	7.0	6.5	5.5	6.0	7.0	4.0	5.5
12	9.0	4.5	6.5	9.5	5.0	7.0	6.0	5.5	5.5	7.0	4.5	5.5
13	9.0	4.5	6.5	9.5	5.5	7.0	6.0	5.0	5.5	7.5	4.5	5.5
14	6.5	5.0	5.5	9.0	5.5	7.0	5.5	5.0	5.0	6.5	3.5	4.5
15	6.5	4.5	5.5	9.0	5.5	7.0	6.0	5.0	5.5	6.0	3.0	4.0
16	8.0	4.5	6.0	7.0	6.0	6.5	6.5	5.0	5.5	6.5	3.0	4.5
17	7.5	4.5	6.0	7.5	5.5	6.5	7.0	5.0	5.5	6.5	3.0	4.5
18	7.5	5.0	6.0	8.5	5.5	6.5	7.5	4.5	5.5	6.0	3.0	4.0
19	7.0	5.0	5.5	9.0	5.0	6.5	6.5	5.0	6.0	5.5	3.0	4.0
20	7.0	5.0	6.0	7.5	5.5	6.5	6.0	4.5	5.0	4.5	3.0	3.5
21	6.5	5.0	5.5	6.5	6.0	6.0	7.0	4.5	5.5	5.5	3.0	4.0
22	9.0	4.5	6.5	7.0	5.5	6.0	8.0	4.5	6.0	6.5	4.0	5.0
23	7.0	5.0	6.0	9.0	5.5	7.0	8.0	4.5	6.0	5.5	3.5	4.5
24	6.0	5.0	5.5	6.5	5.5	6.0	7.0	5.0	6.0	5.0	4.0	4.5
25	6.0	4.5	5.0	6.5	5.0	5.5	5.5	5.0	5.5	5.5	4.5	5.0
26	6.0	4.5	5.0	7.0	5.0	6.0	6.0	5.0	5.5	5.5	4.0	4.5
27	6.5	4.5	5.5	6.0	5.5	5.5	6.0	5.0	5.5	6.0	3.5	4.5
28	8.5	4.0	6.0	6.5	5.0	5.5	6.0	4.5	5.0	6.5	4.5	5.5
29	9.0	4.5	6.5	6.5	4.5	5.5	5.5	4.5	5.0	5.5	4.5	4.5
30	9.5	5.0	7.0	7.0	5.0	5.5	6.5	4.5	5.0	5.5	4.5	5.0
31	---	---	---	8.5	5.0	6.5	7.0	5.0	5.5	---	---	---
MONTH	9.5	4.0	5.8	9.5	4.5	6.4	9.0	4.5	5.8	8.0	3.0	4.9

15276000 SHIP CREEK NEAR ANCHORAGE

LOCATION.--Lat 61°13'32", long 149°38'06", in SW¼ SE¼ sec. 9, T. 13 N., R. 2 W. (Anchorage A-8 quad), Municipality of Anchorage, Hydrologic Unit 19020401, in Fort Richardson Military Reservation, on left bank, 800 ft downstream from diversion dam, 3.3 mi upstream from North Fork Ship Creek, and 7.8 mi east of intersection of Seward and Glenn Highways in Anchorage.

DRAINAGE AREA.--90.5 mi^2.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1936: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft above sea level, from topographic map. Prior to August 22, 1985, water-stage recorder at dam 800 ft upstream. See WSP 1936 for history of changes prior to October 1, 1954.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Discharge data represent the net flow remaining after diversion for water supply to Fort Richardson, Elmendorf Air Force Base, and Municipality of Anchorage. Average diversion for water year 2003 was 6.23 ft^3/s. Diversion began in 1944. Magnitude of discharges downstream of dam may be affected by periodic spillway adjustment.

COOPERATION.--Gage inspected and records of diversion provided by Office of Post Engineers, Fort Richardson.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	398	307	166	e95	e65	e60	e44	141	347	266	125	153
2	369	289	155	e90	e65	e60	e44	146	321	329	121	147
3	300	276	153	e90	e65	e55	e42	155	315	368	118	150
4	275	265	151	e90	e65	e55	e42	155	316	320	115	142
5	260	266	146	e90	e65	e55	e40	149	337	282	111	136
6	266	270	141	e85	e65	e55	e40	139	356	268	108	130
7	390	254	138	e85	e65	e55	e38	129	340	251	105	126
8	416	237	135	e85	e65	e55	e38	133	322	239	104	122
9	356	219	130	e85	e65	e55	e36	143	312	223	103	120
10	324	202	131	e85	e60	e50	e34	143	363	228	102	116
11	309	207	130	e85	e60	e50	e34	139	407	233	107	113
12	305	205	124	e80	e60	e50	e36	133	438	220	148	109
13	286	192	e120	e80	e60	e50	e36	128	471	207	163	112
14	272	187	e120	e80	e60	e50	e36	121	480	188	191	107
15	275	180	e110	e80	e60	e50	e36	127	459	187	189	104
16	295	176	e110	e80	e60	e50	e36	146	401	194	260	104
17	296	172	e110	e80	e60	e50	e36	162	364	183	263	104
18	311	166	e110	e80	e60	e50	e36	148	351	170	234	102
19	315	162	e110	e75	e60	e48	e38	144	342	150	209	100
20	428	157	e110	e75	e60	e48	e40	148	340	151	194	100
21	451	152	e100	e75	e60	e48	e45	163	335	161	175	101
22	419	152	e100	e75	e60	e48	e45	192	318	159	163	97
23	405	167	e100	e75	e60	e46	e50	221	307	152	151	95
24	466	154	e100	e75	e60	e46	57	261	292	156	146	95
25	502	149	e100	e70	e60	e46	61	281	277	160	154	103
26	491	158	e100	e70	e60	e46	68	280	262	148	206	101
27	418	153	e160	e70	e60	e46	82	282	240	144	194	94
28	380	144	e680	e70	e60	e46	102	282	227	140	178	97
29	380	155	e540	e70	---	e44	119	297	229	138	172	100
30	361	188	e95	e70	---	e44	135	341	245	132	167	107
31	326	---	e95	e65	---	e44	---	350	---	130	161	---
TOTAL	11045	5961	4770	2460	1725	1555	1526	5779	10114	6277	4937	3387
MEAN	356	199	154	79.4	61.6	50.2	50.9	186	337	202	159	113
MAX	502	307	680	95	65	60	135	350	480	368	263	153
MIN	260	144	95	65	60	44	34	121	227	130	102	94
AC-FT	21910	11820	9460	4880	3420	3080	3030	11460	20060	12450	9790	6720

ADJUSTED TO INCLUDE DIVERSION

MEAN	362	204	160	85.1	67.2	56.0	56.7	193	345	211	165	118
CFSM	4.00	2.26	1.76	0.94	0.74	0.62	0.63	2.14	3.81	2.33	1.82	1.31
IN	4.61	2.52	2.03	1.08	0.77	0.71	0.70	2.46	4.25	2.69	2.10	1.46
AC-FT	22240	12170	9815	5230	3730	3440	3380	11890	20530	12980	10160	7040

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)#

MEAN	152	79.5	49.1	32.1	22.9	17.4	25.4	167	452	304	207	209
MAX	356	199	154	79.4	61.6	50.2	69.7	456	798	645	510	471
(WY)	2003	2003	2003	2003	2003	2003	1990	1990	1977	1980	1981	1967
MIN	48.7	24.3	13.9	7.13	5.36	3.61	4.77	39.9	132	72.0	73.0	55.8
(WY)	1969	1969	1969	1956	1983	1956	1954	1971	1996	1996	1996	1969

\# See Period of Record and Remarks. Values shown on this page are unadjusted for diversion, unless otherwise noted
e Estimated

15276000 SHIP CREEK NEAR ANCHORAGE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003#	
ANNUAL TOTAL	61275		59536			
ANNUAL MEAN	168		163		143	
ANNUAL MEAN	*174		*169		*162	
HIGHEST ANNUAL MEAN					223	1980
LOWEST ANNUAL MEAN					67.3	1969
HIGHEST DAILY MEAN	680	Dec 28	ae680	Dec 28	1420	Aug 9 1971
LOWEST DAILY MEAN	22	Apr 8	b34	Apr 10	c0.00	Jan 2 1956
ANNUAL SEVEN-DAY MINIMUM	24	Apr 4	35	Apr 9	0.43	Jan 9 1956
MAXIMUM PEAK FLOW			d		1860	Jun 21 1949
MAXIMUM PEAK STAGE					f3.44	Jun 21 1949
MAXIMUM PEAK STAGE					g6.52	Jun 21 1949
MAXIMUM PEAK STAGE			h8.54	Dec 29	h8.54	Dec 29 2002
ANNUAL RUNOFF (AC-FT)	121500		118100		103900	
ANNUAL RUNOFF (AC-FT)	*126800		*122600		*117400	
ANNUAL RUNOFF (CFSM)	*1.93		*1.86		*1.79	
ANNUAL RUNOFF (IN)	*26.3		*25.4		*24.3	
10 PERCENT EXCEEDS	394		336		368	
50 PERCENT EXCEEDS	149		133		78	
90 PERCENT EXCEEDS	28		50		14	

\# See Period of Record and Remarks. Values shown on this page are unadjusted for diversion,unless otherwise noted
* Adjusted to account for diversion, see Remarks
a From winter flood event
b Apr. 10 and Apr. 11
c No flow during one or more days in water years 1956, 1960, 1969, and 1971
d Not determined, see highest daily mean
e Estimated
f Site and datum then in use
g Current site and datum
h From CSG mark from ice-affected winter breakout event, at current site and datum

15276200 SHIP CREEK AT GLENN HIGHWAY NEAR ANCHORAGE

LOCATION.--Lat 61°14'20", long 149°41'45", on line between sec. 6 and 7, T. 13 N., R. 2 W. (Anchorage A-8NE quad), Municipality of Anchorage, Hydrologic Unit 19020401, in Fort Richardson Military Reservation, on right bank, just downstream from the Glenn Highway Bridge, 2.6 mi downstream from the Ship Creek diversion dam, and 6.0 mi east of intersection of Seward and Glenn Highways in Anchorage.

DRAINAGE AREA.--103.4 mi^2.

PERIOD OF RECORD.-- October 2002 to September 2003.

GAGE.--Water-stage recorder. Elevation of gage is 279 ft. above sea level, from topographic map.

REMARKS.--Records fair, except for estimated daily discharges, which are poor. Discharge data represent the net flow remaining after diversion for water supply to Fort Richardson, Elmendorf Air Force Base, and Municipality of Anchorage. Average diversion for water year 2003 was 6.23 ft^3/s. Diversion began in 1944. Magnitude of discharges downstream of dam may be affected by periodic spillway adjustment.

COOPERATION.--Gage inspected and records of diversion provided by Office of Post Engineers, Fort Richardson.

EXTREMES FOR CURRENT YEAR.-- Maximum daily discharge, 680 ft^3/s (estimated), December 28, 2002, maximum gage height 9.2 ft, from floodmarks, December 28, 2002; minimum daily discharge 37 ft^3/s, April 12, 2003.

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e400	e305	e170	e100	e65	61	40	133	329	e270	124	146
2	e370	e290	e160	e95	e65	62	44	138	296	e320	121	142
3	e300	e275	e155	e90	e65	63	44	151	304	e360	118	149
4	e270	e265	e155	e90	e65	60	42	152	302	e310	116	141
5	e260	e265	e150	e90	e65	54	43	146	314	e270	110	135
6	e260	e270	e145	e85	e65	49	44	138	343	e260	107	132
7	e390	e250	e140	e85	e60	e45	45	128	e330	e240	104	127
8	e410	e235	e140	e85	e60	e45	44	130	e320	e230	103	120
9	e350	e220	e135	e85	e60	e45	43	138	295	e220	102	116
10	e320	e200	e130	e85	e60	e45	40	137	327	e220	101	110
11	e310	e205	e130	e85	e60	e45	38	135	397	e230	106	107
12	e300	e205	e125	e80	e55	e45	37	134	449	e220	140	103
13	e280	e190	e115	e80	e55	e45	42	127	e480	e210	151	105
14	e270	e185	e115	e80	e55	e45	41	122	e490	209	172	101
15	e270	e185	e110	e80	e55	e55	38	123	e470	195	172	99
16	e290	e180	e110	e80	e55	e55	38	134	399	200	e240	97
17	e295	e175	e110	e80	e55	e55	41	147	354	184	e250	95
18	e310	e170	e110	e80	e55	e55	42	138	337	171	e225	94
19	e315	e165	e110	e75	e55	45	41	132	314	155	208	92
20	e425	e160	e110	e75	e55	40	43	139	317	156	176	93
21	e450	e155	e100	e75	e55	39	45	152	314	164	162	94
22	e420	e155	e100	e75	e55	44	46	164	296	163	155	92
23	e405	e170	e100	e75	e55	e45	49	182	289	151	153	91
24	e460	e155	e100	e75	e55	e45	55	203	280	153	145	92
25	e500	e150	e100	e70	e55	e45	60	236	267	157	153	98
26	e490	e160	e100	e70	e55	e45	65	255	253	147	187	97
27	e420	e155	e160	e70	e55	42	77	263	229	142	185	91
28	e380	e145	e680	e70	e55	41	105	266	219	137	168	93
29	e380	e155	e540	e70	---	39	115	302	225	136	158	97
30	e360	e190	127	e70	---	40	123	285	248	130	157	103
31	e325	---	124	e65	---	40	---	302	---	128	147	---
TOTAL	10985	5985	4856	2470	1625	1479	1570	5332	9787	6238	4716	3252
MEAN	354	200	157	79.7	58.0	47.7	52.3	172	326	201	152	108
MAX	500	305	680	100	65	63	123	302	490	360	250	149
MIN	260	145	100	65	55	39	37	122	219	128	101	91
AC-FT	21790	11870	9630	4900	3220	2930	3110	10580	19410	12370	9350	6450
CFSM	3.43	1.93	1.51	0.77	0.56	0.46	0.51	1.66	3.16	1.95	1.47	1.05
IN.	3.95	2.15	1.75	0.89	0.58	0.53	0.56	1.92	3.52	2.24	1.70	1.17

WTR YR 2003 TOTAL 58295 MEAN 160 MAX 680 MIN 37 AC-FT 115600 CFSM 1.54 IN. 20.97

ADJUSTED TO INCLUDE DIVERSIONS

MEAN	360	205	162	85.4	63.6	53.5	58.2	179	334	210	158	114
CFSM	3.48	1.98	1.57	0.83	0.62	0.52	0.56	1.73	3.23	2.03	1.53	1.10
IN	4.01	2.22	1.81	0.95	0.64	0.60	0.63	2.00	3.61	2.34	1.76	1.23
AC-FT	22120	12220	9990	5250	3530	3290	3460	11010	19880	12900	9720	6770

e Estimated

15276320 SHIP CREEK BELOW FISH HATCHERY NEAR ANCHORAGE

LOCATION.--Lat 61°14'36", long 149°43'19", in SW¼ NE¼ SE¼ sec. 1, T. 13 N., R. 3 W. (Anchorage A-8NE quad), Municipality of Anchorage, Hydrologic Unit 19020401, in Fort Richardson Military Reservation, on left bank, 0.5 mi downstream from fish hatchery, 0.8 mi upstream of the Fort Richardson Elmendorf border, 3.3 mi downstream from diversion dam, and 6.0 mi east of intersection of Seward and Glenn Highways in Anchorage.

DRAINAGE AREA.--Pending.

PERIOD OF RECORD.--October 2002 to September 2003.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Discharge data represent the net flow remaining after diversion for water supply to Fort Richardson, Elmendorf Air Force Base, and Municipality of Anchorage. Average diversion for water year 2003 was 6.23 ft^3/s. Diversion began in 1944. Magnitude of discharges downstream of dam may be affected by periodic spillway adjustment.

EXTREMES FOR CURRENT YEAR.--Maximum discharge and gage-height unknown, minimum daily discharge, 34 ft^3/s, April 10 and 11.

COOPERATION.--Gage inspected and records of diversion provided by Office of Post Engineers, Fort Richardson.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e380	e280	e160	e90	e60	e55	e44	121	325	258	120	152
2	e360	e260	e150	e85	e60	e55	e44	120	305	313	117	147
3	e280	e240	e150	e85	e60	e50	e42	129	301	355	114	149
4	e260	e240	e150	e85	e60	e50	e42	132	306	306	111	143
5	e240	e240	e140	e85	e60	e50	e40	127	325	271	107	136
6	e240	e240	e140	e80	e60	e50	e40	120	344	257	103	131
7	e380	e220	e130	e80	e60	e50	e38	112	330	240	101	127
8	e400	e220	e130	e80	e60	e50	e38	114	314	228	99	123
9	e340	e200	e120	e80	e60	e50	e36	123	306	217	98	120
10	e300	e200	e120	e80	e55	e50	e34	124	353	224	97	118
11	e280	e200	e120	e80	e55	e50	e34	125	422	231	102	115
12	e280	e200	e120	e75	e55	e50	e36	124	471	214	140	111
13	e260	e190	e110	e75	e55	e50	e36	119	507	201	155	113
14	e260	e190	e110	e75	e55	e50	e36	117	517	186	182	108
15	e260	e180	e100	e75	e55	e50	e36	118	499	186	180	105
16	e280	e170	e100	e75	e55	e50	e36	132	414	191	245	103
17	e280	e170	e100	e75	e55	e50	e36	149	375	179	252	101
18	e300	e160	e100	e75	e55	e50	e36	138	355	166	224	99
19	e300	e160	e100	e70	e55	e48	e36	136	342	147	201	97
20	e400	e150	e100	e70	e55	e48	e38	140	336	147	186	98
21	e440	e150	e95	e70	e55	e48	e40	151	333	155	171	98
22	e400	e150	e95	e70	e55	e48	e42	165	315	154	159	97
23	e380	e160	e95	e70	e55	e46	e46	188	302	147	148	94
24	e440	e150	e95	e70	e55	e46	e50	207	287	150	142	94
25	e480	e140	e95	e65	e55	e46	55	221	276	156	146	101
26	e470	e150	e95	e65	e55	e46	61	244	261	143	196	101
27	e400	e150	e160	e65	e55	e46	71	253	241	138	187	94
28	e360	e140	e680	e65	e55	e46	87	257	231	135	172	96
29	e360	e150	e540	e65	---	e44	102	268	231	133	166	100
30	e340	e180	e90	e65	---	e44	113	316	243	126	162	107
31	e300	---	e90	e60	---	e44	---	328	---	124	159	---
TOTAL	10450	5630	4580	2305	1585	1510	1425	5118	10167	6078	4742	3378
MEAN	337	188	148	74.4	56.6	48.7	47.5	165	339	196	153	113
MAX	480	280	680	90	60	55	113	328	517	355	252	152
MIN	240	140	90	60	55	44	34	112	231	124	97	94
AC-FT	20730	11170	9080	4570	3140	3000	2830	10150	20170	12060	9410	6700

WTR YR 2003 TOTAL 56968 MEAN 156 MAX 680 MIN 34 AC-FT 113000

e Estimated

15278000 EKLUTNA LAKE NEAR PALMER

LOCATION.--Lat 61°24'39", long 149°07'20", in NE¼ NE¼ sec. 18, T. 15 N., R. 2 E. (Anchorage B-6 quad), Municipality of Anchorage, Hydrologic Unit 19020402, on north shore, 0.7 mi upstream from lake outlet, 12 mi upstream from mouth of Eklutna River, and 14 mi south of Palmer.

DRAINAGE AREA.--119 mi^2.

PERIOD OF RECORD.--November 1946 to September 1962 (fragmentary after January 1955), June 1983 to current year. Fragmentary records for the period October 1962 to June 1983 available from Eklutna Hydroelectric Project.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Alaska Power Administration). Prior to June 1983, non-recording gage at lake outlet at datum of 859.8 ft above sea level.

REMARKS.--Lake outlet consists of earth and rockfill dam with uncontrolled spillway crest at an elevation of 871 ft. Prior to 1965, control structure 1400 ft upstream with spillway crest at elevation of 867.5 ft which could be flash-boarded to elevation of 871 ft. Outflow was controlled by the flash boards and sluice gates. Dead storage below elevation of 859 ft. Reservoir is used for power generation and water supply. GOES satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 877.68 ft, September 25, 1995; minimum observed, 814.2 ft, June 1, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 867.15 ft, September 8; minimum, 831.29 ft, June 5.

GAGE-HEIGHT, FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	864.13	863.26	861.44	857.80	852.95	848.36	841.19	834.60	831.78	837.56	855.58	866.36
2	864.10	863.18	861.37	857.66	852.78	848.12	840.99	834.40	831.67	838.08	855.83	866.45
3	863.98	863.11	861.27	857.56	852.62	847.86	840.79	834.20	831.58	838.70	856.07	866.65
4	863.88	863.02	861.14	857.46	852.43	847.60	840.61	834.04	831.49	839.25	856.24	866.84
5	863.80	863.01	861.02	857.31	852.28	847.35	840.42	833.92	831.41	839.78	856.42	866.93
6	863.75	863.16	860.91	857.16	852.10	847.10	840.26	833.98	831.43	840.40	856.65	866.98
7	863.71	863.17	860.85	857.01	851.91	846.87	840.09	834.03	831.45	840.92	856.92	867.07
8	863.65	863.13	860.76	856.85	851.71	846.63	839.87	834.07	831.45	841.51	857.26	867.10
9	863.58	863.08	860.64	856.70	851.56	846.40	839.67	834.12	831.46	842.12	857.69	867.09
10	863.50	863.03	860.54	856.53	851.46	846.14	839.42	834.15	831.59	842.77	858.14	867.03
11	863.39	862.98	860.48	856.36	851.33	845.92	839.16	834.20	831.76	843.46	858.65	866.93
12	863.29	862.90	860.42	856.18	851.27	845.72	838.93	834.26	831.96	844.20	859.39	866.85
13	863.18	862.80	860.31	855.99	851.21	845.50	838.76	834.30	832.27	844.87	860.07	866.83
14	863.04	862.71	860.16	855.85	851.07	845.28	838.58	834.26	832.72	845.63	860.73	866.80
15	862.96	862.61	860.02	855.73	850.91	845.00	838.37	834.15	833.15	846.39	861.54	866.69
16	862.88	862.51	859.87	855.57	850.73	844.71	838.15	834.00	833.50	847.17	862.26	866.53
17	862.79	862.41	859.74	855.41	850.58	844.47	837.94	833.83	833.77	847.88	862.76	866.43
18	862.65	862.29	859.60	855.27	850.52	844.24	837.73	833.68	833.95	848.48	863.08	866.29
19	862.52	862.16	859.48	855.08	850.54	844.00	837.53	833.58	834.21	849.03	863.35	866.18
20	862.56	862.04	859.35	854.93	850.56	843.76	837.35	833.48	834.43	849.63	863.57	866.07
21	862.63	861.95	859.22	854.79	850.44	843.57	837.13	833.33	834.65	850.27	863.74	865.96
22	862.61	861.86	859.14	854.63	850.21	843.38	836.78	833.07	834.86	850.88	863.92	865.78
23	862.60	861.79	859.13	854.45	849.97	843.15	836.44	832.83	835.12	851.45	864.05	865.58
24	862.80	861.74	859.01	854.28	849.67	842.92	836.17	832.68	835.43	852.08	864.21	865.42
25	863.07	861.67	858.87	854.07	849.38	842.71	835.95	832.59	835.74	852.71	864.42	865.25
26	863.28	861.58	858.68	853.88	849.12	842.47	835.73	832.48	835.98	853.21	864.71	865.07
27	863.34	861.55	858.53	853.70	848.87	842.28	835.49	832.38	836.21	853.69	864.98	864.89
28	863.36	861.49	858.37	853.54	848.61	842.07	835.17	832.25	836.47	854.15	865.28	864.75
29	863.34	861.42	858.21	853.43	---	841.81	834.99	832.13	836.80	854.56	865.61	864.69
30	863.33	861.45	858.04	853.30	---	841.61	834.79	832.01	837.15	854.92	865.95	864.84
31	863.31	---	857.90	853.13	---	841.39	---	831.86	---	855.26	866.21	---
MEAN	863.26	862.44	859.82	855.54	850.96	844.79	838.15	833.51	833.51	846.81	861.14	866.21
MAX	864.13	863.26	861.44	857.80	852.95	848.36	841.19	834.60	837.15	855.26	866.21	867.10
MIN	862.52	861.42	857.90	853.13	848.61	841.39	834.79	831.86	831.41	837.56	855.58	864.69

15280200 EKLUTNA RIVER AT OLD GLENN HIGHWAY AT EKLUTNA

LOCATION.--Lat 61°27'01", long 149°22'02", in NE$^1/_4$ SW$^1/_4$ NE$^1/_4$ sec. 25, T. 16 N., R. 1 W. (Anchorage B-7 quad), Municipality of Anchorage, Hydrologic Unit 19020402, on right bank, 1.3 mi upstream from mouth, 0.7 mi south of Eklutna.

DRAINAGE AREA.--172 mi^2.

PERIOD OF RECORD.--May 1 2002 to current year

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Records are fair except for estimated daily discharges, which are poor. Flow regulated by Eklutna Reservoir, 11 mi upstream, for power generation and water supply. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	63	33	e20	21	22	e15	24	28	81	49	40
2	73	60	32	e23	21	23	e14	22	28	90	50	39
3	62	57	32	e22	22	23	e14	22	27	88	47	39
4	63	55	31	e22	24	22	e14	e21	29	89	45	39
5	62	55	31	e22	26	23	e14	e20	32	88	42	35
6	61	55	30	e22	23	e22	e14	e19	35	84	40	34
7	70	52	29	e21	22	e21	e14	19	35	84	38	34
8	66	48	30	e21	24	e18	15	19	38	82	37	33
9	65	e45	29	e21	25	e12	17	19	38	78	36	32
10	64	e44	29	e22	28	e7.0	17	19	46	75	36	32
11	65	e45	29	e22	26	e7.0	20	19	55	74	37	31
12	64	e44	26	e22	25	e10	28	20	65	66	43	30
13	63	e43	e25	e22	25	e12	27	19	81	65	40	32
14	63	42	e24	e22	23	e15	28	18	93	57	38	30
15	63	42	e23	e22	23	e16	27	19	111	e60	39	29
16	64	41	e15	e22	e22	e16	27	20	104	67	39	29
17	64	e40	e10	e22	e21	e16	22	21	106	66	38	28
18	66	e39	e15	e22	e20	e16	22	20	99	62	38	28
19	67	38	e20	e22	e19	e15	20	19	99	59	38	27
20	68	37	e24	e22	e19	e15	20	19	101	59	38	27
21	70	37	e24	22	e18	e14	21	19	102	59	38	27
22	69	36	e24	e21	e18	e14	22	20	99	58	39	26
23	69	36	e25	e21	e19	e13	25	20	100	57	36	26
24	68	36	e25	e20	e20	e13	28	20	108	56	37	27
25	69	35	e25	e19	e21	e14	29	22	97	58	37	26
26	70	35	e20	e19	e21	e14	29	22	87	56	38	26
27	67	35	e12	e19	22	e15	29	23	80	54	37	25
28	67	34	e8.0	e20	22	e15	27	24	79	53	40	25
29	67	35	e10	e21	---	e15	24	26	77	52	39	26
30	66	36	e15	e21	---	e15	25	27	78	50	39	26
31	64	---	e22	22	---	e15	---	29	---	50	39	---
TOTAL	2050	1300	727.0	661	620	488.0	648	650	2157	2077	1227	908
MEAN	66.1	43.3	23.5	21.3	22.1	15.7	21.6	21.0	71.9	67.0	39.6	30.3
MAX	73	63	33	23	28	23	29	29	111	90	50	40
MIN	61	34	8.0	19	18	7.0	14	18	27	50	36	25
AC-FT	4070	2580	1440	1310	1230	968	1290	1290	4280	4120	2430	1800
CFSM	0.38	0.25	0.14	0.12	0.13	0.09	0.13	0.12	0.42	0.39	0.23	0.18
IN.	0.44	0.28	0.16	0.14	0.13	0.11	0.14	0.14	0.47	0.45	0.27	0.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)#

MEAN	66.1	43.3	23.5	21.3	22.1	15.7	21.6	36.7	74.7	60.1	51.4	47.3
MAX	66.1	43.3	23.5	21.3	22.1	15.7	21.6	52.5	77.5	67.0	63.2	64.4
(WY)	2003	2003	2003	2003	2003	2003	2003	2002	2002	2003	2002	2002
MIN	66.1	43.3	23.5	21.3	22.1	15.7	21.6	21.0	71.9	53.3	39.6	30.3
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2002	2003	2003

SUMMARY STATISTICS	FOR 2003 WATER YEAR	
ANNUAL TOTAL	13513.0	
ANNUAL MEAN	37.0	
HIGHEST ANNUAL MEAN		
LOWEST ANNUAL MEAN		
HIGHEST DAILY MEAN	111	Jun 15
LOWEST DAILY MEAN	a7.0	Mar 10
ANNUAL SEVEN-DAY MINIMUM	11	Mar 9
MAXIMUM PEAK FLOW	131	Jun 21
MAXIMUM PEAK STAGE	85.87	Jun 21
MAXIMUM PEAK STAGE	b87.68	Mar 13
ANNUAL RUNOFF (AC-FT)	26800	
10 PERCENT EXCEEDS	69	
50 PERCENT EXCEEDS	28	
90 PERCENT EXCEEDS	16	

\# See Period of Record. Partial years used in monthly statistics
a Mar. 10 and 11
b Backwater from ice
e Estimated

15281000 KNIK RIVER NEAR PALMER

LOCATION.--Lat 61°30'18", long 149°01'50", in NE$^1/_4$ SE$^1/_4$ sec. 2, T.16 N., R.2 E. (Anchorage C-6 quad), Matanuska-Susitna Borough, Hydrologic Unit 19020402, near the right bank on downstream side of bridge on Old Glenn Highway, 7 mi south of Palmer, 7 mi upstream from Alaska Railroad bridge, 9 mi downstream from Friday Creek, and about 17 mi downstream from Knik Glacier.

DRAINAGE AREA.--1,180 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1959 to January 1988, annual maximum, water year 1989, October 1991 to September 1992, and April, 2001 to current year.

REVISED RECORDS.--WRD-AK-77-1: 1974-75(M).

GAGE.--Water-stage recorder. Datum of gage is 33.68 ft above North American Vertical Datum of 1988. Prior to June 27, 1960, nonrecording gage, and June 27, 1960 to Apr. 25,1974, water-stage recorder at old bridge 100 ft upstream at original 1929 datum. Apr. 26, 1974 to Apr. 18, 1976, recording gage at site 0.4 mi upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flood peaks due to outbreak of glacier-dammed Lake George, 1948-62, 1964, 1965, published in WSP 1936. Streamflow augmented by glaciers, which cover 54 percent of the basin.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1948, 359,000 ft^3/s, July 18, 1958, gage height, 25.30 ft, at site in use beginning 1959, from outbreak of glacier-dammed Lake George.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9050	10400	e4000	e2200	e2000	1160	e640	3100	9850	20000	22600	18400
2	8660	8810	e3800	e2200	e2400	1180	e640	3180	9950	22700	20900	16600
3	7360	8060	e3500	e2200	2890	1170	e620	3130	9980	25100	19500	16300
4	6260	8080	e3300	e2200	3270	1120	e620	3160	10200	24000	17400	16500
5	5620	9840	e3100	e2200	5190	1120	e620	3310	10500	24700	17100	14900
6	5270	12900	e3000	e2200	7150	1110	e600	3260	11300	25700	18200	12900
7	5220	12300	e2900	e2200	5030	e1100	e600	3110	11400	25800	19500	11900
8	5520	9770	e2900	e2200	3930	e1000	e600	3110	11500	27800	21100	11500
9	5230	7960	e2800	e2200	3600	e940	e600	3280	11600	30100	23500	11300
10	4840	7090	e2800	e2200	3520	e900	e620	3800	12900	32000	25400	10500
11	4620	6820	e2700	e2200	3480	e860	e630	4090	14600	31900	27000	e9700
12	4850	5350	e2700	e2200	3220	e860	690	3840	15800	31400	28500	e9400
13	4860	5750	e2600	e2200	2850	e800	789	3720	17900	31100	29200	e10000
14	5260	4810	e2600	e2200	2450	e800	1070	3630	20900	32200	30400	9310
15	5440	4140	e2500	e2100	2160	e800	1230	3590	20500	33200	36600	7520
16	5910	3900	e2500	e2100	e2000	e740	1170	3710	20700	34400	41500	6260
17	6050	3820	e2400	e2100	e1800	e740	1120	3920	19900	34300	39600	5630
18	6000	3790	e2400	e2100	e1600	e740	1100	4120	20100	33000	33600	5240
19	6490	3480	e2400	e2100	e1500	e720	1130	4210	21200	30700	27700	4870
20	8380	e3470	e2400	e2100	e1450	e720	1150	4190	21100	31200	24900	4470
21	11100	e3470	e2400	e2100	e1400	e720	1210	4200	19600	31900	22000	4180
22	11500	e3400	e2400	e2100	e1350	e700	1340	4350	18400	29000	18700	3840
23	13800	e3400	e2400	e2100	e1300	e700	1470	4990	18400	27000	17700	3560
24	18300	e3500	e2400	e2100	e1300	e700	1540	5480	19200	29700	17500	3360
25	21100	e3800	e2300	e2100	e1300	e680	1630	5900	18700	27900	18300	3270
26	21600	e4000	e2300	e2000	e1250	e680	1740	6520	17200	25000	18900	3390
27	15300	e4000	e2300	e2000	e1240	e680	2010	8920	16000	24800	19100	e3700
28	11400	e4100	e2300	e2000	1220	e660	2370	9250	15800	25300	19900	3850
29	10700	e4100	e2300	e2000	---	e660	2580	8470	16300	25000	22400	5790
30	13100	e4200	e2300	e2000	---	e660	2740	9190	18100	25000	22400	10100
31	12000	---	e2300	e2000	---	e640	---	9660	---	23400	20900	---
TOTAL	280790	178510	83000	65900	71850	26060	34869	148390	479580	875300	742000	258240
MEAN	9058	5950	2677	2126	2566	841	1162	4787	15990	28240	23940	8608
MAX	21600	12900	4000	2200	7150	1180	2740	9660	21200	34400	41500	18400
MIN	4620	3400	2300	2000	1220	640	600	3100	9850	20000	17100	3270
AC-FT	556900	354100	164600	130700	142500	51690	69160	294300	951200	1736000	1472000	512200
CFSM	7.68	5.04	2.27	1.80	2.17	0.71	0.98	4.06	13.5	23.9	20.3	7.29
IN.	8.85	5.63	2.62	2.08	2.27	0.82	1.10	4.68	15.12	27.59	23.39	8.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)#

MEAN	4494	1906	1022	909	790	658	922	3807	12900	23710	21460	11180
MAX	9419	5950	2677	3781	2566	1314	1534	7347	19960	37450	28300	16960
(WY)	1970	2003	2003	1981	2003	1977	1983	1981	1969	1960	1979	1974
MIN	1782	637	500	460	338	260	348	1039	2598	17440	15260	6594
(WY)	1982	1969	1974	1976	1962	1962	1972	1965	1965	1970	1969	1992

\# See Period of Record; partial years used in monthly statistics
e Estimated

15281000 KNIK RIVER NEAR PALMER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003#	
ANNUAL TOTAL	3091880		3244489			
ANNUAL MEAN	8471		8889		7004	
HIGHEST ANNUAL MEAN					8889	2003
LOWEST ANNUAL MEAN					5590	1973
HIGHEST DAILY MEAN	33600	Jul 25	41500	Aug 16	341000	Jul 26 1961
LOWEST DAILY MEAN	a850	Feb 11	b600	Apr 6	c260	Mar 1 1962
ANNUAL SEVEN-DAY MINIMUM	850	Feb 11	609	Apr 3	260	Mar 1 1962
MAXIMUM PEAK FLOW			d42700	Aug 16	fg355000	Jul 26 1961
MAXIMUM PEAK STAGE			d13.06	Aug 16	24.35	Jul 17 1960
ANNUAL RUNOFF (AC-FT)	6133000		6435000		5074000	
ANNUAL RUNOFF (CFSM)	7.18		7.53		5.94	
ANNUAL RUNOFF (INCHES)	97.47		102.28		80.65	
10 PERCENT EXCEEDS	23000		24800		21100	
50 PERCENT EXCEEDS	4140		4000		2100	
90 PERCENT EXCEEDS	850		976		500	

\# See Period of Record; partial years used in monthly statistics
a Feb. 11 to Mar. 19
b Apr. 6-9
c Mar. 1-31, 1962
d Aug. 16 and 17
f Site then in use, caused by release of stored water from outbreak of glacier-dammed Lake George
g Gage height, 24.3 ft

15281000 KNIK RIVER NEAR PALMER—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948-1958, 1961-1972, 1974-1975, 1989 and current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: Water years 1962-1966.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Time	Strem width, feet (0004)	Location in X-sect. looking dwnstrm ft from l bank (00009)	Gage height, feet (00065)	Starting time, 24 hour clock, hr:min (82074)	Ending time, 24 hour clock, hr:min (82073)	Instantaneous discharge, cfs (00061)	Sampling method code (82398)	Sampler type, code (84164)	Temperatire. water. deg C (00010)	Temperature air deg C (00020)	Suspended sediment concentration mg/L (80154)	Suspended sediment load tons/d (80155)
JUN													
13...	1311	397	--	10.14	1311.00	1425.00	19000	20	3055	5.5	17.0	--	--
13...	1500	397	510	10.18	1507.00	1811.00	17800	1000	1100	5.5	17.0	--	--
JUL													
03...	1410	400	--	11.04	1410.00	1515.00	24700	20	3055	5.5	19.0	364	24300
03...	1540	400	510	10.99	1540.00	1721.00	24300	1000	1100	5.5	19.0	--	--
12...	1456	400	--	11.64	1456.00	1531.00	30000	20	3055	8.5	22.0	711	57800
12...	1555	400	510	11.60	1555.00	1706.00	29800	1000	1100	8.5	22.0	--	--
12...	1728	400	--	11.58	1728.00	1920.00	29800	--	8010	8.5	22.0	--	--
AUG													
14...	1234	390	--	11.70	1234.00	1303.00	30200	20	3055	4.0	13.0	610	49700
14...	1316	390	510	11.71	1316.00	1417.00	30300	1000	1100	4.0	13.0	--	--
SEP													
19...	1410	388	--	6.96	1410.00	1434.00	4820	20	3055	1.5	.0	205	2670
19...	1512	388	702	6.98	1512.00	1728.00	4820	1000	1100	1.5	.0	--	--

Date	Suspnd. sediment, seive diametr percent <.063mm (70311)	Bedload sediment discharge, tons/d (80225)	Bedload sedimnt dschrge average unit cmposit t/d/ft (04122)	Compstd samples in x-sec bedload measmnt number (04118)	Number of sampling points, count (00063)	Verticals in composite sample, number (04119)	Horizontal width of vertical, feet (04121)	Rest time on bed for bed load sample, seconds (04120)	Bag mesh size, bedload sampler mm (30333)	Tether line used in sampling (yes=1) code (04117)	Bedload sediment, sieve diametr percent <.25mm (80228)	Bedload sediment, sieve diametr percent <.5mm (80229)	Bedload sediment, sieve diametr percent <1mm (80230)
JUN													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	8760	22.1	2	1	19	20.0	20	.025	1	.0	15	46
JUL													
03...	86	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	6700	16.8	2	1	19	20.0	15	.025	1	.0	13	35
12...	86	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	9010	22.5	2	1	19	20.0	15	.025	1	.0	12	38
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
14...	64	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	9700	24.9	2	1	19	20.0	15	.025	1	.0	10	36
SEP													
19...	32	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	480	1.24	2	1	20	10.0	60	.025	1	.0	26	65

15281000 KNIK RIVER NEAR PALMER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Bedload sedi-ment, sieve diametr percent <2mm (80231)	Bedoad sedi-ment, sieve diametr percent <4mm (80232)	Bedoad sedi-ment, sieve diametr percent <8mm (80233)	Bedoad sedi-ment, sieve diametr percent <16mm (80234)	Bedoad sedi-ment, sieve diametr percent <32mm (80235)	Bed sedi-ment, dry svd sve dia percent <.25mm (80166)	Bed sedi-ment, dry svd dve dia percent <.5mm (80167)	Bed sedi-ment, dry svd dve dia percent <1mm (80168)	Bed sedi-ment, dry svd dve dia percent <2mm (80169)	Bed sedi-ment, dry svd dve dia percent <4mm (80170)	Bed sedi-ment, dry svd dve dia percent <8mm (80171)	Bed sedi-ment, dry svd dve dia percent <16mm (80172)	Bed sedi-ment, dry svd dve dia percent <32mm (80173)
JUN													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	74	90	98	100	--	--	--	--	--	--	--	--	--
JUL													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
03...	66	85	95	100	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
12...	66	83	94	99	100	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	.0	13	35	59	77	91	99	100
AUG													
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	65	83	95	99	100	--	--	--	--	--	--	--	--
SEP													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	82	91	97	100	100	--	--	--	--	--	--	--	--

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE

LOCATION.--Lat 61°50'20", long 147°24'31", in SE¼ SE¼ NW¼ sec. 11, T. 20 N., R. 11 E. (Anchorage D-2 quad), Matanuska-Susitna Borough, Hydrologic Unit 19020402, on left bank 5 ft downstream from culvert on old alignment (1/2 mile upstream from new alignment) Glenn Highway, and 3.5 mi northeast of Sheep Mountain Lodge.

DRAINAGE AREA.--1.09 mi^2

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual maximum, water years 1968-69, 1971, 1989-95. October 1995 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,950 ft above sea level, from topographic map. Prior to 1971 crest-stage gage at site above culvert at different datum, June 2, 1989 to September 30, 1995, crest-stage gage at same site and datum.

REMARKS.--Records are poor. Goes satellite telemetry at station.Rain gauge at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.75	e0.21	e0.03	e0.01	e0.0	e0.0	e0.0	e0.02	0.77	0.26	0.22	0.45
2	e0.63	e0.21	e0.03	e0.01	e0.0	e0.0	e0.0	e0.02	0.81	0.26	0.20	0.42
3	0.63	e0.20	e0.03	e0.01	e0.0	e0.0	e0.0	e0.03	0.68	0.27	0.21	0.39
4	0.64	e0.20	e0.03	e0.01	e0.0	e0.0	e0.0	e0.03	0.63	0.27	0.22	0.38
5	0.65	e0.19	e0.03	e0.01	e0.0	e0.0	e0.0	e0.04	0.82	0.25	0.25	0.39
6	0.60	e0.19	e0.03	e0.01	e0.0	e0.0	e0.0	e0.04	1.1	0.23	0.27	0.43
7	0.57	e0.17	e0.03	e0.01	e0.0	e0.0	e0.0	e0.05	1.5	0.19	0.30	0.40
8	0.56	e0.15	e0.02	e0.01	e0.0	e0.0	e0.0	e0.06	1.2	0.18	0.32	0.39
9	0.54	e0.13	e0.02	e0.01	e0.0	e0.0	e0.0	e0.07	0.93	0.16	0.32	0.41
10	0.53	e0.12	e0.02	e0.01	e0.0	e0.0	e0.0	e0.09	0.82	0.15	0.34	0.42
11	0.49	e0.11	e0.02	e0.01	e0.0	e0.0	e0.0	e0.11	0.74	0.17	0.42	0.43
12	e0.45	e0.10	e0.02	e0.01	e0.0	e0.0	e0.0	e0.15	0.64	0.16	0.43	0.42
13	e0.43	e0.09	e0.02	e0.01	e0.0	e0.0	e0.0	0.22	0.58	0.17	0.41	0.40
14	e0.42	e0.08	e0.02	e0.0	e0.0	e0.0	e0.0	0.59	0.57	0.18	0.35	0.40
15	e0.42	e0.07	e0.02	e0.0	e0.0	e0.0	e0.0	0.69	0.54	0.17	0.35	0.42
16	e0.41	e0.07	e0.02	e0.0	e0.0	e0.0	e0.0	0.51	0.51	0.16	0.40	0.41
17	e0.40	e0.06	e0.02	e0.0	e0.0	e0.0	e0.0	1.0	0.51	0.19	0.40	0.40
18	e0.39	e0.06	e0.02	e0.0	e0.0	e0.0	e0.0	1.8	0.52	0.21	0.40	0.38
19	e0.37	e0.05	e0.02	e0.0	e0.0	e0.0	e0.0	2.4	0.55	0.24	0.40	0.37
20	e0.35	e0.05	e0.02	e0.0	e0.0	e0.0	e0.0	2.7	0.54	0.20	0.46	0.36
21	e0.32	e0.05	e0.02	e0.0	e0.0	e0.0	e0.0	2.9	0.46	0.19	0.45	0.35
22	e0.31	e0.04	e0.02	e0.0	e0.0	e0.0	e0.0	2.6	0.40	0.20	0.48	0.33
23	e0.30	e0.04	e0.02	e0.0	e0.0	e0.0	e0.0	2.3	0.36	0.21	0.46	0.32
24	e0.29	e0.04	e0.02	e0.0	e0.0	e0.0	e0.01	2.3	0.37	0.22	0.43	0.30
25	e0.28	e0.04	e0.02	e0.0	e0.0	e0.0	e0.01	2.0	0.40	0.25	0.44	0.28
26	e0.27	e0.04	e0.02	e0.0	e0.0	e0.0	e0.01	1.7	0.35	0.24	0.45	0.27
27	e0.26	e0.04	e0.02	e0.0	e0.0	e0.0	e0.01	1.2	0.35	0.25	0.47	0.26
28	e0.25	e0.03	e0.02	e0.0	e0.0	e0.0	e0.01	1.0	0.37	0.27	0.47	0.26
29	e0.24	e0.03	e0.02	e0.0	---	e0.0	e0.02	0.94	0.33	0.28	0.46	0.26
30	e0.23	e0.03	e0.02	e0.0	---	e0.0	e0.02	0.88	0.27	0.27	0.48	0.26
31	e0.22	---	e0.01	e0.0	---	e0.0	---	0.74	---	0.23	0.47	---
TOTAL	13.20	2.89	0.68	0.13	0.0	0.0	0.09	29.18	18.62	6.68	11.73	10.96
MEAN	0.43	0.096	0.022	0.004	0.000	0.000	0.003	0.94	0.62	0.22	0.38	0.37
MAX	0.75	0.21	0.03	0.01	0.00	0.00	0.02	2.9	1.5	0.28	0.48	0.45
MIN	0.22	0.03	0.01	0.00	0.00	0.00	0.00	0.02	0.27	0.15	0.20	0.26
AC-FT	26	5.7	1.3	0.3	0.00	0.00	0.2	58	37	13	23	22
CFSM	0.39	0.09	0.02	0.00	0.00	0.00	0.00	0.86	0.57	0.20	0.35	0.34
IN.	0.45	0.10	0.02	0.00	0.00	0.00	0.00	1.00	0.64	0.23	0.40	0.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)#

MEAN	0.53	0.24	0.088	0.009	0.000	0.000	0.017	0.89	3.95	1.69	1.35	1.13
MAX	1.12	0.65	0.39	0.042	0.000	0.000	0.058	1.55	8.58	2.97	3.58	2.63
(WY)	1998	1998	1998	1999	1996	1996	1996	1998	2001	2001	1997	2000
MIN	0.17	0.000	0.000	0.000	0.000	0.000	0.000	0.25	0.56	0.22	0.38	0.37
(WY)	1997	2001	2001	1996	1996	1996	1999	1999	1996	2002	2002	2002

e Estimated

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE—Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1996 - 2002#	
ANNUAL TOTAL	453.53		94.16			
ANNUAL MEAN	1.24		0.26		0.82	
HIGHEST ANNUAL MEAN					1.46	2000
LOWEST ANNUAL MEAN					0.26	2002
HIGHEST DAILY MEAN	14	Jun 9	2.9	May 21	17	Jun 7 1997
LOWEST DAILY MEAN	a0.00	Jan 1	b0.00	Jan 14	c0.00	Dec 6 1995
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Jan 14	0.00	Dec 6 1995
MAXIMUM PEAK FLOW			6.1	May 20	d46	Jul 21 1992
MAXIMUM PEAK STAGE			f15.08	May 20	15.49	Jun 28 2000
MAXIMUM PEAK STAGE			fg17.02	Apr 28		
ANNUAL RUNOFF (AC-FT)	900		187		598	
ANNUAL RUNOFF (CFSM)	1.14		0.24		0.76	
ANNUAL RUNOFF (INCHES)	15.48		3.21		10.28	
10 PERCENT EXCEEDS	4.6		0.57		2.3	
50 PERCENT EXCEEDS	0.10		0.12		0.21	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

\# See Period of Record
a Jan. 1 to May 12
b Jan. 14 to Apr. 23
c No flow most days during winter
d From rating curve extended above 0.8 ft^3/s
f From crest-stage gage
g Flow over ice

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE—Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.28	0.16	e0.05	e0.03	e0.01	e0.01	e0.01	e0.02	2.8	0.68	0.43	1.00
2	0.27	0.16	e0.05	e0.03	e0.01	e0.01	e0.01	e0.03	2.5	0.73	0.41	0.83
3	0.26	0.16	e0.05	e0.02	e0.01	e0.01	e0.01	e0.03	2.0	0.74	0.39	0.71
4	0.25	0.16	e0.05	e0.02	e0.01	e0.01	e0.01	e0.03	2.2	0.72	0.41	0.66
5	0.25	0.17	e0.05	e0.02	e0.01	e0.01	e0.01	e0.04	2.3	0.70	0.38	0.60
6	0.24	0.16	e0.05	e0.02	e0.01	e0.01	e0.01	e0.05	2.6	0.71	0.34	0.52
7	0.24	0.15	e0.05	e0.02	e0.01	e0.01	e0.01	e0.05	2.2	0.73	0.34	0.49
8	0.23	0.15	e0.04	e0.02	e0.01	e0.01	e0.01	e0.07	2.0	0.70	0.33	0.46
9	0.21	0.15	e0.04	e0.02	e0.01	e0.01	e0.01	e0.07	2.6	0.70	0.31	0.43
10	0.20	e0.14	e0.04	e0.02	e0.01	e0.01	e0.01	e0.10	4.5	0.69	0.31	0.42
11	0.20	e0.14	e0.04	e0.02	e0.01	e0.01	e0.01	e0.12	3.2	0.64	0.32	0.41
12	0.21	e0.13	e0.04	e0.02	e0.01	e0.01	e0.01	e0.15	2.8	0.61	0.33	0.39
13	0.22	e0.12	e0.04	e0.02	e0.01	e0.01	e0.01	e0.20	2.0	0.59	0.32	0.39
14	0.21	e0.12	e0.04	e0.02	e0.01	e0.01	e0.01	e0.30	1.6	0.59	0.31	0.36
15	0.20	e0.11	e0.04	e0.01	e0.01	e0.01	e0.01	e0.34	1.4	0.57	0.32	0.32
16	0.21	e0.10	e0.04	e0.01	e0.01	e0.01	e0.01	e0.37	1.3	0.56	0.28	0.31
17	0.20	e0.09	e0.03	e0.01	e0.01	e0.01	e0.01	e0.39	1.2	0.53	0.28	0.30
18	0.20	e0.08	e0.03	e0.01	e0.01	e0.01	e0.01	e0.42	1.2	0.52	0.28	0.30
19	0.21	e0.07	e0.03	e0.01	e0.01	e0.01	e0.01	e0.50	1.2	0.47	0.27	0.28
20	0.23	e0.07	e0.03	e0.01	e0.01	e0.01	e0.01	e0.55	1.1	0.47	0.26	0.30
21	0.21	e0.07	e0.03	e0.01	e0.01	e0.01	e0.01	e0.59	1.2	0.52	0.27	0.32
22	0.19	e0.06	e0.03	e0.01	e0.01	e0.01	e0.01	e0.64	1.2	0.55	0.26	0.31
23	0.19	e0.06	e0.03	e0.01	e0.01	e0.01	e0.01	e0.70	1.1	0.51	0.24	0.29
24	0.19	e0.06	e0.03	e0.01	e0.01	e0.01	e0.01	e0.78	1.1	0.51	0.25	0.30
25	0.19	e0.06	e0.03	e0.01	e0.01	e0.01	e0.01	e0.87	0.98	0.53	0.24	0.29
26	0.19	e0.06	e0.03	e0.01	e0.01	e0.01	e0.01	1.5	0.93	0.52	0.22	0.29
27	0.18	e0.06	e0.03	e0.01	e0.01	e0.01	e0.02	2.2	0.89	0.52	0.22	0.27
28	0.18	e0.06	e0.03	e0.01	e0.01	e0.01	e0.02	2.6	0.84	0.51	0.22	0.27
29	0.18	e0.05	e0.03	e0.01	---	e0.01	e0.02	3.0	0.79	0.50	0.23	0.30
30	0.17	e0.05	e0.03	e0.01	---	e0.01	e0.02	3.2	0.70	0.46	0.25	0.30
31	0.17	---	e0.03	e0.01	---	e0.01	---	3.2	---	0.46	0.91	---
TOTAL	6.56	3.18	1.16	0.47	0.28	0.31	0.34	23.11	52.43	18.24	9.93	12.42
MEAN	0.21	0.11	0.037	0.015	0.010	0.010	0.011	0.75	1.75	0.59	0.32	0.41
MAX	0.28	0.17	0.05	0.03	0.01	0.01	0.02	3.2	4.5	0.74	0.91	1.0
MIN	0.17	0.05	0.03	0.01	0.01	0.01	0.01	0.02	0.70	0.46	0.22	0.27
AC-FT	13	6.3	2.3	0.9	0.6	0.6	0.7	46	104	36	20	25
CFSM	0.19	0.10	0.03	0.01	0.01	0.01	0.01	0.68	1.60	0.54	0.29	0.38
IN.	0.22	0.11	0.04	0.02	0.01	0.01	0.01	0.79	1.79	0.62	0.34	0.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)#

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	0.49	0.23	0.082	0.010	0.001	0.001	0.016	0.87	3.67	1.56	1.22	1.04
MAX	1.12	0.65	0.39	0.042	0.010	0.010	0.058	1.55	8.58	2.97	3.58	2.63
(WY)	1998	1998	1998	1999	2003	2003	1996	1998	2001	2001	1997	2000
MIN	0.17	0.000	0.000	0.000	0.000	0.000	0.000	0.25	0.56	0.22	0.32	0.37
(WY)	1997	2001	2001	1996	1996	1996	1999	1999	1996	2002	2003	2002

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003#	
ANNUAL TOTAL	88.29		128.43			
ANNUAL MEAN	0.24		0.35		0.77	
HIGHEST ANNUAL MEAN					1.46	2000
LOWEST ANNUAL MEAN					0.26	2002
HIGHEST DAILY MEAN	2.9	May 21	4.5	Jun 10	17	Jun 7 1997
LOWEST DAILY MEAN	a0.00	Jan 14	b0.01	Jan 15	c0.00	Dec 6 1995
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 14	0.01	Jan 15	0.00	Dec 6 1995
MAXIMUM PEAK FLOW			8.6	Jun 10	d46	Jul 21 1992
MAXIMUM PEAK STAGE			f15.28	Jun 10	15.49	Jun 28 2000
ANNUAL RUNOFF (AC-FT)	175		255		555	
ANNUAL RUNOFF (CFSM)	0.22		0.32		0.70	
ANNUAL RUNOFF (INCHES)	3.01		4.38		9.55	
10 PERCENT EXCEEDS	0.51		0.85		2.2	
50 PERCENT EXCEEDS	0.14		0.14		0.20	
90 PERCENT EXCEEDS	0.00		0.01		0.00	

\# See Period of Record
a Jan. 14 to Apr. 23
b Jan. 15 to Apr. 26
c No flow most days during winter
d From rating curve extended above 2 ft^3/s
e Estimated
f From crest-stage gage

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1996 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1996 to current year.

INSTRUMENTATION.--Electronic water-temperature recorder set for 1-hour recording interval.

REMARKS.--No record from October 16 to May 15 due to probe froze in ice or no flow conditions. Records represent water temperature at the sensor within 0.5°C. Temperature at the sensor was compared with the stream average by cross section on July 10. No variation was found within the cross section. No variation was found between mean stream temperature and temperature at the sensor. Large stream icing forms near the gage.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 10.0°C, on July 15, 2003; minimum, 0.0°C, on many days during fall, winter, and spring breakup periods.

EXTREMES FOR 2002.--
WATER TEMPERATURE: Maximum, 8.5°C, July 23, and August 4-5; minimum, 0.0°C, on several days during fall, and spring breakup periods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	STREAM WIDTH (FT) (00004)	SAMPLE LOCATION, CROSS SECTION (FT FM R BK) (72103)	GAGE HEIGHT (FEET) (00065)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	TEMPERATURE AIR (DEG C) (00020)	SAMPLING METHOD, CODES (82398)	SAMPLER TYPE (CODE) (84164)
JUL									
10...	1302	3.60	0.6	14.36	.16	7.0	18.0	10	8010
10...	1304	3.60	1.6	14.36	.16	7.0	18.0	10	8010
10...	1306	3.60	2.6	14.36	.16	7.0	18.0	10	8010
10...	1308	3.60	3.6	14.36	.16	7.0	18.0	10	8010

WATER TEMPERATURE, (DEGREES CELSIUS), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	2.5	1.5	1.5	---	---	---	---	---	---	---	---	---
2	2.5	0.5	1.5	---	---	---	---	---	---	---	---	---
3	1.5	0.5	1.0	---	---	---	---	---	---	---	---	---
4	2.0	1.0	1.5	---	---	---	---	---	---	---	---	---
5	3.0	1.5	2.0	---	---	---	---	---	---	---	---	---
6	2.5	0.5	1.5	---	---	---	---	---	---	---	---	---
7	1.5	0.5	1.0	---	---	---	---	---	---	---	---	---
8	1.5	0.5	1.0	---	---	---	---	---	---	---	---	---
9	1.5	0.5	1.0	---	---	---	---	---	---	---	---	---
10	1.5	0.5	1.0	---	---	---	---	---	---	---	---	---
11	0.5	0.0	0.0	---	---	---	---	---	---	---	---	---
12	0.5	0.0	0.0	---	---	---	---	---	---	---	---	---
13	0.0	0.0	0.0	---	---	---	---	---	---	---	---	---
14	0.5	0.0	0.0	---	---	---	---	---	---	---	---	---
15	0.5	0.0	0.5	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE—Continued

WATER TEMPERATURE, (DEGREES CELSIUS), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	1.0	0.0	0.5
17	---	---	---	---	---	---	---	---	---	1.5	0.0	0.5
18	---	---	---	---	---	---	---	---	---	2.0	0.0	0.5
19	---	---	---	---	---	---	---	---	---	3.0	0.0	1.0
20	---	---	---	---	---	---	---	---	---	3.5	0.0	1.5
21	---	---	---	---	---	---	---	---	---	4.0	0.5	1.5
22	---	---	---	---	---	---	---	---	---	4.0	0.5	2.0
23	---	---	---	---	---	---	---	---	---	5.0	1.0	2.5
24	---	---	---	---	---	---	---	---	---	5.0	1.0	2.5
25	---	---	---	---	---	---	---	---	---	5.5	1.0	3.0
26	---	---	---	---	---	---	---	---	---	5.0	1.5	3.0
27	---	---	---	---	---	---	---	---	---	3.5	2.0	2.5
28	---	---	---	---	---	---	---	---	---	3.5	2.0	2.5
29	---	---	---	---	---	---	---	---	---	4.5	2.0	3.0
30	---	---	---	---	---	---	---	---	---	3.5	2.0	3.0
31	---	---	---	---	---	---	---	---	---	3.5	2.0	2.5
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	3.0	2.0	2.5	7.5	5.0	6.0	7.5	5.5	6.5	6.5	5.5	5.5
2	3.5	1.0	2.5	7.0	5.5	6.0	7.5	5.5	6.5	6.5	5.0	5.5
3	3.5	1.5	2.5	7.0	5.5	6.0	8.0	6.0	7.0	6.0	4.5	5.5
4	3.5	1.5	2.5	6.5	5.5	5.5	8.5	6.0	7.0	6.0	5.0	5.5
5	4.0	2.0	3.0	6.5	4.5	5.5	8.5	6.0	7.0	6.0	5.0	5.5
6	3.0	2.0	2.5	7.5	5.0	6.0	8.0	6.5	7.0	6.0	5.5	5.5
7	4.0	2.0	3.0	7.5	5.0	6.0	7.0	6.5	6.5	5.5	4.5	5.5
8	4.5	2.0	3.0	7.5	5.0	6.5	7.0	6.5	6.5	6.0	4.5	5.0
9	3.0	1.5	2.5	7.5	5.5	6.0	7.0	6.0	6.5	5.5	4.5	5.0
10	4.5	1.5	3.0	7.0	5.5	6.0	7.0	5.5	6.0	5.5	4.5	5.0
11	4.0	2.0	3.0	7.0	6.0	6.5	7.0	6.0	6.5	5.0	4.0	4.5
12	4.5	2.0	3.0	7.5	6.0	6.5	7.0	6.0	6.5	5.0	4.0	4.5
13	4.0	2.5	3.5	7.5	6.0	6.5	7.5	6.0	6.5	4.5	4.0	4.5
14	5.0	2.5	4.0	7.5	5.5	6.5	7.5	5.5	6.5	5.0	4.0	4.5
15	6.0	3.0	4.5	8.0	5.5	6.5	6.5	5.0	6.0	5.0	4.5	4.5
16	6.5	3.0	4.5	8.0	5.5	6.5	6.5	5.5	6.0	5.5	4.0	4.5
17	7.0	4.0	5.5	7.5	6.5	7.0	7.5	6.0	6.5	5.0	4.0	4.5
18	7.0	4.5	5.5	7.0	6.5	6.5	7.5	6.0	6.5	4.5	4.0	4.5
19	6.0	4.5	5.0	7.5	6.0	6.5	6.5	6.0	6.5	4.5	3.5	4.0
20	6.0	4.0	5.0	8.0	5.5	6.5	6.5	5.5	6.0	4.0	3.5	3.5
21	6.5	4.0	5.0	8.0	5.5	6.5	6.5	5.5	6.0	4.5	3.0	3.5
22	6.5	4.0	5.0	8.0	6.0	6.5	6.5	5.5	6.0	4.0	2.5	3.0
23	5.5	4.0	5.0	8.5	6.5	7.0	7.0	5.5	6.0	4.0	2.5	3.5
24	6.0	4.5	5.0	7.5	7.0	7.0	7.0	5.5	6.0	4.0	3.0	3.5
25	5.5	4.5	5.0	8.0	6.5	7.0	6.5	5.5	6.0	5.0	3.0	4.0
26	5.5	4.0	4.5	7.0	6.0	6.5	6.5	5.0	5.5	4.5	3.5	3.5
27	6.0	4.0	5.0	6.5	6.0	6.0	6.0	5.0	5.5	4.5	3.0	3.5
28	6.5	4.5	5.0	6.5	6.0	6.0	7.0	5.0	6.0	4.0	3.0	3.5
29	7.0	4.5	5.5	6.5	6.0	6.0	6.5	5.5	6.0	3.5	2.5	3.0
30	7.0	5.0	5.5	7.5	5.5	6.5	6.0	5.5	6.0	3.5	3.0	3.0
31	---	---	---	7.5	6.0	6.5	7.0	5.0	6.0	---	---	---
MONTH	7.0	1.0	4.0	8.5	4.5	6.3	8.5	5.0	6.3	6.5	2.5	4.4

REMARKS.--No record from Jan. 24 to Apr.27 due to probe froze in ice. No record from Jun. 01 to Jun. 03 due to equipment malfunction. Records represent water temperature at the sensor within 0.5°C. Large stream icing forms near the gage.

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE—Continued

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 10.0°C, on July 15, 2003 ; minimum, 0.0°C, on several days during fall, and spring breakup periods.

Temperature, water, degrees Celsius
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	3.0	2.5	2.5	1.5	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5
2	3.0	2.0	2.5	1.5	1.0	1.5	1.0	0.5	1.0	0.5	0.5	0.5
3	2.5	1.5	2.0	1.0	0.5	1.0	1.0	1.0	1.0	0.5	0.5	0.5
4	2.5	2.0	2.0	1.5	1.0	1.0	1.0	0.5	1.0	0.5	0.5	0.5
5	2.0	2.0	2.0	1.5	1.0	1.5	1.0	0.5	1.0	0.5	0.5	0.5
6	2.5	1.5	2.0	1.5	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5
7	2.5	1.5	2.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
8	2.5	1.5	2.0	1.0	0.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5
9	1.5	1.0	1.0	1.0	0.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5
10	1.5	0.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
11	2.0	1.0	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
12	2.5	1.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
13	2.0	1.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
14	2.5	1.5	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15	1.5	1.5	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
16	2.0	1.5	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17	2.0	1.0	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18	2.0	1.0	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19	2.0	1.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20	2.5	1.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21	2.0	1.0	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
22	1.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5
23	2.0	1.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0
24	2.5	1.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	---	---	---
25	2.0	1.0	1.5	0.5	0.5	0.5	0.5	0.5	0.5	---	---	---
26	2.0	1.0	1.5	1.0	0.5	0.5	0.5	0.5	0.5	---	---	---
27	1.0	0.5	0.5	1.0	0.5	1.0	0.5	0.5	0.5	---	---	---
28	1.0	0.5	1.0	1.0	0.5	1.0	0.5	0.5	0.5	---	---	---
29	1.5	1.0	1.5	1.0	0.5	1.0	0.5	0.5	0.5	---	---	---
30	1.5	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	---	---	---
31	2.0	1.0	1.5	---	---	---	0.5	0.5	0.5	---	---	---
MONTH	3.0	0.5	1.6	1.5	0.5	0.7	1.0	0.5	0.6	---	---	---

Temperature, water, degrees Celsius
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
2	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
3	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
4	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
5	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
6	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
7	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
8	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
9	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
10	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
11	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
12	---	---	---	---	---	---	---	---	---	0.5	0.0	0.0
13	---	---	---	---	---	---	---	---	---	1.0	0.0	0.0
14	---	---	---	---	---	---	---	---	---	1.0	0.0	0.5
15	---	---	---	---	---	---	---	---	---	1.0	0.0	0.5
16	---	---	---	---	---	---	---	---	---	1.0	0.0	0.5
17	---	---	---	---	---	---	---	---	---	2.0	0.0	1.0
18	---	---	---	---	---	---	---	---	---	2.0	0.0	1.0
19	---	---	---	---	---	---	---	---	---	2.0	0.0	1.0
20	---	---	---	---	---	---	---	---	---	2.5	0.0	1.0
21	---	---	---	---	---	---	---	---	---	1.5	0.5	1.0
22	---	---	---	---	---	---	---	---	---	2.0	0.5	1.5
23	---	---	---	---	---	---	---	---	---	2.0	0.5	1.0
24	---	---	---	---	---	---	---	---	---	3.0	0.5	1.5
25	---	---	---	---	---	---	---	---	---	3.0	0.5	1.5
26	---	---	---	---	---	---	---	---	---	3.5	1.0	2.0
27	---	---	---	---	---	---	---	---	---	3.0	0.5	2.0
28	---	---	---	---	---	---	0.0	0.0	0.0	3.5	1.5	2.0
29	---	---	---	---	---	---	0.0	0.0	0.0	3.5	1.5	2.0
30	---	---	---	---	---	---	0.5	0.0	0.0	3.5	1.0	2.0
31	---	---	---	---	---	---	---	---	---	3.5	1.0	2.0
MONTH	---	---	---	---	---	---	---	---	---	3.5	0.0	0.8

15281500 CAMP CREEK NEAR SHEEP MOUNTAIN LODGE—Continued

Temperature, water, degrees Celsius
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	8.0	5.5	6.5	7.5	6.0	6.5	6.0	5.0	5.5
2	---	---	---	7.0	6.0	6.5	7.5	5.5	6.5	6.0	5.0	5.5
3	---	---	---	6.5	5.5	6.0	6.5	6.0	6.5	6.0	4.5	5.0
4	4.5	1.0	2.5	8.0	4.5	6.5	7.0	6.0	6.5	6.0	4.5	5.0
5	5.0	2.0	3.0	8.5	5.5	7.0	7.5	5.5	6.5	6.0	4.5	5.0
6	5.5	2.0	3.5	8.5	6.0	7.0	8.0	6.0	7.0	6.0	4.0	5.0
7	5.0	1.5	3.0	8.5	6.5	7.5	8.0	6.0	7.0	5.5	4.0	5.0
8	4.5	1.5	3.0	9.0	6.5	7.5	8.0	6.5	7.5	6.5	4.0	5.0
9	5.5	2.5	3.5	9.5	6.5	8.0	8.0	6.5	7.0	5.5	4.0	4.5
10	6.5	3.0	4.5	8.5	7.0	8.0	8.5	6.5	7.5	5.5	4.0	4.5
11	7.0	3.5	5.0	9.0	7.0	8.0	8.0	7.0	7.5	5.5	3.5	4.5
12	7.5	4.0	5.5	9.5	7.0	8.0	8.0	7.0	7.5	5.5	4.0	4.5
13	7.0	3.5	5.0	9.0	7.0	8.0	7.5	6.5	7.0	4.5	3.5	4.0
14	5.0	3.5	4.5	9.5	7.5	8.5	7.0	6.5	7.0	3.5	2.0	3.0
15	7.5	3.5	5.5	10.0	7.5	8.5	7.5	6.5	7.0	3.0	1.5	2.0
16	7.0	4.0	5.0	9.5	7.5	8.5	7.5	6.0	7.0	3.0	1.5	2.0
17	6.5	3.5	5.0	9.0	7.0	8.0	7.0	6.5	6.5	3.0	1.5	2.0
18	8.0	4.5	6.0	9.0	6.5	8.0	7.0	6.0	6.5	2.5	1.0	1.5
19	8.0	5.0	6.0	9.5	7.0	8.0	6.5	5.5	6.0	2.0	1.0	1.5
20	7.5	5.0	6.0	9.5	7.5	8.5	6.5	5.5	6.0	2.0	1.5	1.5
21	6.0	5.0	5.5	8.5	8.0	8.0	6.5	5.5	6.0	2.5	1.5	2.0
22	7.5	4.5	6.0	9.5	7.5	8.0	6.5	5.5	6.0	2.0	1.0	1.5
23	8.0	4.5	6.0	9.5	7.5	8.5	6.5	5.5	6.0	2.0	1.0	1.5
24	7.5	5.0	6.0	9.5	7.0	8.0	7.0	6.0	6.0	2.0	1.5	1.5
25	6.5	5.0	5.5	8.0	7.5	7.5	6.5	5.5	6.0	2.5	1.5	2.0
26	7.5	4.5	6.0	8.0	6.5	7.5	6.0	5.5	6.0	2.5	1.0	1.5
27	7.0	4.5	5.5	7.5	6.5	7.0	6.0	5.0	5.5	2.5	1.5	2.0
28	7.0	4.5	5.5	7.5	6.0	7.0	6.0	5.0	5.5	2.0	1.5	2.0
29	8.0	4.5	6.5	8.0	6.5	7.0	6.0	5.0	5.5	3.5	2.0	2.5
30	8.0	5.5	6.5	8.0	6.0	7.0	6.0	5.0	5.5	3.5	2.5	3.0
31	---	---	---	7.5	6.5	7.0	5.5	5.0	5.5	---	---	---
MONTH	---	---	---	10.0	4.5	7.6	8.5	5.0	6.5	6.5	1.0	3.2

15284000 MATANUSKA RIVER AT PALMER

LOCATION.--Lat 61°36'33", long 149°04'15", in SE¼ NW¼ sec. 34, T. 18 N., R. 2 E. (Anchorage C-6 quad), Matanuska-Susitna Borough, Hydrologic Unit 19020402, on downstream left bank of Old Glenn Highway bike path bridge, and 1 mi east of Palmer.

DRAINAGE AREA.--2,070 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1949 to September 1973, May 1985 to September 1986, October 1991 to September 1992, and May 2000 to current year. Annual maximum, water year 1974 and 1995.

GAGE.--Water-stage recorder. Datum of gage is 170.92 ft above National Geodetic Vertical Datum of 1929 (Alaska Railroad Commission benchmark, prior to Mar. 27, 1964 earthquake). Prior to Nov. 2, 1950, non-recording gage at bridge 20 ft upstream at same datum. Nov. 2, 1950 to Apr.30,1952, non-recording gage at current site and same datum. May 1, 1952 to Sep. 30, 1973, July 19 to Oct. 20, 1987, and Oct. 1, 1991 to Sep. 30, 1992, water-stage recorder at site 100 ft downstream at same datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Precipitation gage at station. GOES satellite telemetry at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 21,000 ft^3/s and maximums (*).

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage Height (ft)
Jul 21	2045	a21,800	11.84	Aug 13	0515	*a24,300	*12.37

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3440	2140	1420	e630	e640	687	559	2020	5080	11600	9610	6430
2	3440	2090	1230	e630	e660	694	590	1720	4670	14100	7520	6130
3	3110	2050	1330	e630	e680	697	571	1720	4360	14500	6030	6400
4	3020	2040	1330	e620	e700	681	571	1620	4540	12500	4770	6030
5	2880	2030	1270	e620	e740	624	559	1500	5310	12800	4290	5300
6	2770	2000	1170	e620	826	531	546	1430	5940	13000	4720	5080
7	2860	1930	1040	e620	778	492	556	1350	6140	13800	5920	4970
8	3040	1820	1020	e620	822	e480	564	1370	5980	14400	7080	4670
9	2680	1800	973	e630	839	e470	569	1490	6120	e15000	9110	4500
10	e2500	1570	940	e640	858	e470	581	1630	7750	e16000	10000	4350
11	e2300	1380	944	e620	850	e460	640	1570	10600	15500	10500	4150
12	2400	1370	948	e620	811	e450	695	1450	13100	15200	14200	3990
13	e2400	1250	905	e620	795	e440	729	1390	15900	15400	18200	4060
14	e2500	1450	e880	e620	740	e450	794	1370	14700	16300	14600	3640
15	e2500	1350	837	e620	616	e460	754	1450	12600	17200	11300	3030
16	e2600	1290	728	e620	e580	e470	750	1610	10900	17000	11500	2750
17	2600	1200	e720	e620	e550	e480	831	1780	10000	16600	9940	2550
18	2590	1190	719	e620	526	e490	829	1770	10400	15000	8110	2430
19	2490	1200	e710	e620	e540	e500	842	1720	e11500	14700	6330	2330
20	2570	1240	e710	e620	e570	e510	856	1730	e11500	18000	5770	2260
21	2640	1190	e700	e620	598	e520	850	1780	e11000	20900	5670	2210
22	2500	1230	e720	e600	685	e540	900	1880	e10500	18700	5120	2170
23	2430	1470	e740	e600	733	e560	1040	2070	e11000	16300	4730	2100
24	2460	1440	e720	e600	784	e580	1160	2290	11900	15400	4790	2080
25	2450	1330	e700	e600	762	585	1370	2490	11000	13300	5180	2080
26	2420	1460	e680	e600	744	595	1510	3010	9300	10500	5440	2050
27	2350	1520	e660	e600	714	595	2080	3210	8850	10200	5040	2010
28	2140	1490	e640	e600	688	587	2290	3180	8400	11700	4540	2000
29	2230	1470	e640	e620	---	593	2170	3490	8640	10800	4390	2250
30	2260	1580	e640	e620	---	592	2140	4090	10100	9900	4840	2820
31	2200	---	e630	e620	---	595	---	4550	---	9810	6670	---
TOTAL	80770	46570	27294	19140	19829	16878	28896	63730	277780	446110	235910	106820
MEAN	2605	1552	880	617	708	544	963	2056	9259	14390	7610	3561
MAX	3440	2140	1420	640	858	697	2290	4550	15900	20900	18200	6430
MIN	2140	1190	630	600	526	440	546	1350	4360	9810	4290	2000
AC-FT	160200	92370	54140	37960	39330	33480	57320	126400	551000	884900	467900	211900
CFSM	1.26	0.75	0.43	0.30	0.34	0.26	0.47	0.99	4.47	6.95	3.68	1.72
IN.	1.45	0.84	0.49	0.34	0.36	0.30	0.52	1.15	4.99	8.02	4.24	1.92

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003, BY WATER YEAR (WY)#

MEAN	1952	1005	734	622	527	476	648	2722	10100	13120	9838	4853
MAX	3093	1793	1024	821	708	583	985	6019	17250	18750	15730	8966
(WY)	2001	1972	1972	1961	2003	2001	1964	1960	1964	2000	1971	1951
MIN	1166	568	440	349	381	360	465	1007	5415	9206	4992	2123
(WY)	1992	1959	1969	1959	1971	1971	1972	1966	1965	1973	1969	1969

\# See Period of Record; partial years used in monthly statistics
a Peak discharge adjusted to exclude surge; peak gage-height not adjusted to exclude surge
e Estimated

15284000 MATANUSKA RIVER AT PALMER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003#	
ANNUAL TOTAL	1343364		1369727			
ANNUAL MEAN	3680		3753		3822	
HIGHEST ANNUAL MEAN					4815	1957
LOWEST ANNUAL MEAN					2562	1969
HIGHEST DAILY MEAN	14700	Jul 18	20900	Jul 21	40700	Aug 10 1971
LOWEST DAILY MEAN	b490	Mar 16	440	Mar 13	234	Apr 25 1956
ANNUAL SEVEN-DAY MINIMUM	490	Mar 16	457	Mar 9	304	Apr 20 1956
MAXIMUM PEAK FLOW			a24300	Aug 13	c82100	Aug 10 1971
MAXIMUM PEAK STAGE			12.37	Aug 13	d13.60	Aug 10 1971
ANNUAL RUNOFF (AC-FT)	2665000		2717000		2769000	
ANNUAL RUNOFF (CFSM)	1.78		1.81		1.85	
ANNUAL RUNOFF (INCHES)	24.14		24.62		25.09	
10 PERCENT EXCEEDS	9850		11500		11700	
50 PERCENT EXCEEDS	2230		1720		1200	
90 PERCENT EXCEEDS	500		591		480	

\# See Period of Record; partial years used in monthly statistics
a Peak discharge adjusted to exclude surge; peak stage not adjusted to exclude surge
b Mar. 16 to 31
c From rating curve extended above 34,000 ft^3/s on basis of velocity-area study, from break-out of natural reservoir on Granite Creek tributary
d Site then in use

15284000 MATANUSKA RIVER AT PALMER—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948-1954, 1957-1968, 1985-1987, and current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: Water year 1953-1954, 1959-1966.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Strem width, feet (0004)	Location in X-sect. looking dwnstrm ft from l bank (00009)	Gage height, feet (00065)	Starting time, 24 hour clock, hr:min (82074)	Ending time, 24 hour clock, hr:min (82073)	Instantaneous discharge, cfs (00061)	Sampling method code (82398)	Sampler type, code (84164)	Temperatire. water. deg C (00010)	Temperature air deg C (00020)	Suspended sediment concentration mg/L (80154)	Suspended sediment load tons/d (80155)
JUN													
10...	1515	205	--	10.00	1515.00	1615.00	8650	20	3055	8.5	16.5	2220	51800
11...	1317	205	--	10.00	1310.00	1430.00	11500	--	--	8.5	16.5	--	--
JUL													
02...	1150	286	--	10.95	1150.00	1229.00	14700	20	3055	7.0	--	2400	95400
02...	1315	286	40.0	10.94	1315.00	1507.00	14500	1000	1170	7.0	--	--	--
16...	1315	396	40.0	11.01	1315.00	1438.00	15500	1000	1170	7.5	16.5	--	--
16...	1457	396	--	11.13	1457.00	1548.00	16200	20	3055	7.5	16.5	2690	118000
AUG													
12...	1425	398	--	11.73	1425.00	1500.00	14700	20	3055	7.0	7.0	2850	113000
12...	1627	398	40.0	11.74	1627.00	1653.00	14600	1000	1170	7.0	7.0	--	--
12...	1710	--	--	--	1710.00	1740.00	--	--	8010	--	--	--	--
SEP													
18...	1530	129	--	9.64	1530.00	1620.00	2410	20	3055	4.5	--	77	501
18...	1651	129	27.0	9.63	1651.00	1831.00	2360	1000	1170	4.5	--	--	--

Date	Suspnd. sediment, seive diametr percent <.063mm (70311)	Bedload sediment discharge, tons/d (80225)	Bedload sedimnt dschrge average unit cmposit t/d/ft (04122)	Compstd samples in x-sec bedload measmnt number (04118)	Number of sampling points, count (00063)	Verticals in composite sample, number (04119)	Horizontal width of vertical, feet (04121)	Rest time on bed for bed load sample, seconds (04120)	Bag mesh size, bedload sampler mm (30333)	Bedload sediment, sieve diametr percent <.063mm (80226)	Bedload sediment, sieve diametr percent <.125mm (80227)	Bedload sediment, sieve diametr percent <.25m (80228)	Bedload sediment, sieve diametr percent <.5mm (80229)
JUN													
10...	72	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
02...	69	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	4830	16.9	2	1	21	10.0	10	.025	--	.0	1	4
16...	--	660	1.67	2	1	22	10.0	10	.025	.0	2	6	18
16...	76	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
12...	67	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	1360	3.42	1	1	21	10.0	20	.025	.0	1	4	17
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	72	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	16	.13	2	1	21	3.0	60	.025	--	.0	1	21

15284000 MATANUSKA RIVER AT PALMER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Bedload sediment, sieve diametr percent <1mm (80230)	Bedoad sediment, sieve diametr percent <2mm (80231)	Bedoad sediment, sieve diametr percent <4mm (80232)	Bedoad sediment, sieve diametr percent <8mm (80233)	Bedoad sediment, sieve diametr percent <16mm (80234)	Bedoad sediment, sieve diametr percent <32mm (80235)	Bedoad sediment, sieve diametr percent <64mm (80236)	Bedoad sediment, sieve diametr percent <128mm (80238)	Bedoad sediment, sieve diametr percent <256mm (69160)	Bed sediment, dry svd dve dia percent <.063mm (80164)	Bed sediment, dry svd dve dia percent <.125mm (80165)	Bed sediment, dry svd dve dia percent <.25mm (80166)	Bed sediment, dry svd dve dia percent <.5mm (80167)
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
02...	5	6	8	14	31	61	89	95	100	--	--	--	--
16...	21	21	22	25	33	63	90	100	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
12...	19	19	20	22	33	58	87	100	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	1	3	6	9
SEP													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	32	40	47	53	69	93	100	--	--	--	--	--	--

Date	Bed sediment, dry svd sve dia percent <1mm (80168)	Bed sediment, dry svd dve dia percent <2mm (80169)	Bed sediment, dry svd dve dia percent <4mm (80170)	Bed sediment, dry svd dve dia percent <8mm (80171)	Bed sediment, dry svd dve dia percent <16mm (80172)	Bed sediment, dry svd dve dia percent <32mm (80173)	Bed sediment, dry svd dve dia percent <64mm (80174)	Bed sediment, dry svd dve dia percent <128mm (80175)
JUN								
10...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
JUL								
02...	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--
AUG								
12...	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--
12...	9	9	10	12	24	49	82	100
SEP								
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--

15290000 LITTLE SUSITNA RIVER NEAR PALMER

LOCATION.--Lat 61°42'37", long 149°13'47", in SE¼ NW¼ sec. 26, T. 19 N., R. 1 E. (Anchorage C-6 NW quad), Matanuska-Susitna Borough, Hydrologic Unit 19020505, on right bank 100 ft downstream from highway bridge on Wasilla-Fishhook Road, 1.5 mi north of road junction, 1.8 mi downstream from unnamed tributary, and 8 mi northwest of Palmer. Prior to October 1, 1991 at site 60 ft upstream.

DRAINAGE AREA.--61.9 mi^2.

PERIOD OF RECORD.--July 1948 to current year. Low-flow records not equivalent prior to January 1962 because most measurements below 300 ft^3/s were made at site 3.4 mi downstream.

GAGE.--Water-stage recorder. Datum of gage is 916.6 ft above sea level (river-profile survey). Prior to August 16, 1948, non-recording gage and August 17, 1948 to May 15, 1972, water-stage recorder on left bank; water-stage recorder on right bank, May 16, 1972 to September 30, 1991, at site 60 ft upstream. Prior to October 1, 1974, at datum 4.00 ft higher; October 1, 1974 to September 30, 1991, at datum 2.00 ft higher.

REMARKS.--Records fair except for estimated daily discharges, and for discharges above 700 ft^3/s, which are poor. GOES satellite telemetry at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*).

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun. 12	2315	1550	5.55	Jul. 28	0100	1490	5.50
Jul. 3	0500	*1580	*5.58				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	628	183	76	e41	32	31	27	98	442	476	492	305
2	520	174	74	e41	31	e30	23	98	417	934	411	288
3	441	170	74	e40	31	e30	23	101	384	1150	356	340
4	400	161	73	e40	e31	e30	22	94	420	684	326	337
5	369	152	72	e40	e31	e29	22	87	476	548	298	308
6	342	145	69	e39	31	e29	22	82	492	480	279	285
7	575	137	66	e39	31	e29	22	86	482	471	271	266
8	575	130	e65	e39	e32	e29	22	91	428	450	266	248
9	397	121	63	e39	e35	e29	21	114	462	439	262	227
10	357	117	e60	e38	e38	e28	21	99	729	428	258	212
11	349	e116	e60	e38	e36	e28	e22	97	999	423	269	198
12	350	e112	e55	e38	e32	e28	e24	102	1160	390	453	185
13	317	e108	e55	39	e31	e28	e24	98	1260	360	705	213
14	296	e104	e55	39	e30	e28	e26	94	1100	353	543	177
15	291	e100	e55	38	e30	e28	e26	104	774	344	435	163
16	350	100	e50	37	e30	e28	27	113	625	346	490	154
17	316	106	e50	37	e30	e28	e28	111	595	398	432	145
18	342	102	e50	37	e30	28	e30	106	684	330	385	137
19	320	97	e48	37	e30	27	e32	109	579	300	346	132
20	323	94	e48	36	e30	e26	33	119	540	301	326	128
21	326	90	e46	36	e30	e26	31	132	501	314	332	125
22	305	88	e46	35	e32	e26	33	159	520	289	321	122
23	296	87	e45	35	e32	e26	43	192	561	280	288	117
24	299	84	e45	35	e32	e26	54	224	465	266	271	121
25	286	82	e44	34	32	e26	60	248	447	243	343	125
26	274	84	e44	33	32	e26	75	282	396	221	432	119
27	248	82	e43	33	31	26	91	274	369	673	367	113
28	231	79	e43	33	31	25	93	315	368	855	338	120
29	224	80	e42	32	---	25	90	381	418	488	308	253
30	208	80	e42	32	---	24	98	417	468	408	290	279
31	196	---	e41	32	---	24	---	429	---	693	322	---
TOTAL	10751	3365	1699	1142	884	851	1165	5056	17561	14335	11215	5942
MEAN	347	112	54.8	36.8	31.6	27.5	38.8	163	585	462	362	198
MAX	628	183	76	41	38	31	98	429	1260	1150	705	340
MIN	196	79	41	32	30	24	21	82	368	221	258	113
MED	323	103	50	37	31	28	27	109	487	408	332	181
AC-FT	21320	6670	3370	2270	1750	1690	2310	10030	34830	28430	22240	11790
CFSM	5.60	1.81	0.89	0.60	0.51	0.44	0.63	2.63	9.46	7.47	5.84	3.20
IN.	6.46	2.02	1.02	0.69	0.53	0.51	0.70	3.04	10.55	8.61	6.74	3.57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)#

MEAN	141	63.3	40.3	30.8	24.9	20.5	25.4	220	665	495	408	302
MAX	391	134	61.7	54.1	41.2	29.7	68.0	649	1215	1047	909	651
(WY)	1984	1980	1980	1961	1982	1991	1990	1990	1977	1963	1971	1985
MIN	51.3	24.5	17.4	17.5	14.0	10.0	10.0	52.9	276	193	169	82.2
(WY)	1969	1969	1955	1959	1952	1956	1955	1971	1996	1996	1969	1969

\# See Period of Record for remark on low-flow records; partial years used in monthly statistics
e Estimated

15290000 LITTLE SUSITNA RIVER NEAR PALMER—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003#	
ANNUAL TOTAL	76674		73966			
ANNUAL MEAN	210		203		203	
HIGHEST ANNUAL MEAN					316	1949
LOWEST ANNUAL MEAN					95.8	1969
HIGHEST DAILY MEAN	1180	Aug 13	1260	Jun 13	5040	Aug 10 1971
LOWEST DAILY MEAN	a18	Mar 28	b21	Apr 9	c8.0	Apr 1 1956
ANNUAL SEVEN-DAY MINIMUM	18	Mar 28	22	Apr 4	8.0	Apr 1 1956
MAXIMUM PEAK FLOW			1580	Jul 3	d7840	Aug 10 1971
MAXIMUM PEAK STAGE			5.58	Jul 3	f13.00	Aug 10 1971
INSTANTANEOUS LOW FLOW			g21	Apr 6	8.0	Apr 1 1956
ANNUAL RUNOFF (AC-FT)	152100		146700		147200	
ANNUAL RUNOFF (CFSM)	3.39		3.27		3.28	
ANNUAL RUNOFF (INCHES)	46.08		44.45		44.60	
10 PERCENT EXCEEDS	523		469		560	
50 PERCENT EXCEEDS	117		106		70	
90 PERCENT EXCEEDS	19		28		21	

\# See Period of Record for remark on low-flow records; partial years used in monthly statistics
a Mar. 28 to Apr. 25
b Apr. 9 and 10
c Apr. 1 to Apr. 20, 1956; and Mar. 11 and 12, 1957
d From rating curve extended above 4,600 ft^3/s on basis of slope-area measurement of peak flow
f Gage height about 13.0 ft, from floodmarks; 9.84 ft in gage well; 12.30 ft at top of needle peak in gage well;at prior datum (WY 1974-91) at sites then in use
g Apr. 6 - 10

15292000 SUSITNA RIVER AT GOLD CREEK

LOCATION.--Lat 62°46'04", long 149°41'28", in NW$^1/_4$ sec. 20, T. 31 N., R. 2 W. (Talkeetna Mts. D-6 quad), Matanuska-Susitna Borough, Hydrologic Unit 19020501, near left bank under Alaska Railroad bridge, 0.1 mi downstream from Gold Creek, 0.9 mi north of Gold Creek railroad station, and 2.0 mi. downstream from Indian River.

DRAINAGE AREA.--6,160 mi^2, approximately.

PERIOD OF RECORD.--August 1949 to 1996 and May 2001 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 676.50 ft above sea level. Prior to June 6, 1957, non-recording gage at same site and datum. June 7, 1957 to June 2, 1964, water-stage recorder at site 0.3 mi upstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. GOES satellite telemetry at station. Rain gage at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18800	7840	e3900	e2000	e1400	e2400	e1000	e5000	24000	21100	31000	24500
2	19600	7530	e3800	e2000	e1400	e2300	e1000	e4500	25100	24000	26900	24000
3	17700	7400	e3700	e2000	e1400	e2200	e1000	e4500	20900	30300	21800	23900
4	14900	7780	e3600	e2000	e1500	e2200	e1000	e4200	17800	32600	19700	25300
5	13100	8940	e3500	e1900	e1800	e2100	e1000	e4100	18200	29100	17400	25400
6	11900	8910	3460	e1900	e2200	e2080	e900	e4000	22900	26300	15800	22400
7	11800	8030	3420	e1800	e2500	e2000	e900	e3800	25400	25600	14900	19300
8	11700	6980	3210	e1800	e2700	e1900	e900	e4500	23300	25200	15000	16800
9	10700	6000	2600	e1800	e3000	e1700	e900	e5000	20400	24500	15900	15300
10	9380	e5000	e2500	e1700	e3300	e1600	e1000	e5500	20700	23900	16700	14500
11	9010	e4400	e2400	e1700	e3500	e1500	e1000	e6000	26100	24400	17500	13800
12	9260	e4500	e2500	e1700	e3700	e1500	e1000	e6200	31800	23400	21100	13200
13	9400	e4700	e2600	e1700	e3500	e1400	e1100	e5500	32100	22100	25900	13700
14	9350	e4700	e2600	e1600	e3300	e1400	e1100	e5000	28800	21700	28100	13900
15	9000	e4600	e2500	e1600	e3000	e1300	e1200	e4500	26300	21900	27500	12200
16	9290	e4500	e2400	e1600	e2600	e1300	e1300	e4200	25200	25700	28100	10800
17	9190	e4400	e2300	e1600	e2400	e1300	e1400	e5000	24600	42900	32700	10000
18	9410	e4400	e2300	e1600	e2100	e1300	e1500	e5000	24300	43700	31500	9420
19	9660	e4400	e2200	e1600	e1800	e1300	e1700	e6000	25100	36200	26900	8860
20	10100	e4300	e2200	e1500	e1700	e1300	e2000	e7500	25500	29500	22300	8370
21	11800	e4300	e2200	e1500	e1600	e1200	e2300	e8500	25300	27500	19600	8240
22	12500	e4500	e2100	e1500	e1500	e1200	e2500	e9500	25900	27900	17900	8000
23	11400	e4500	e2100	e1500	e1500	e1200	e3000	10600	26500	28100	16700	7620
24	10400	e4400	e2100	e1500	e1500	e1200	e3500	10900	26000	26100	15900	7340
25	9790	e4200	e2100	e1500	e1700	e1200	e4000	11300	25800	24500	16000	7400
26	9620	e4100	e2000	e1500	e1900	e1200	e5000	13000	24700	23700	18300	7750
27	8980	e4300	e2000	e1500	e2000	e1100	e5500	15600	24500	30200	19800	7650
28	7960	e4200	e2000	e1500	e2300	e1100	e6000	15200	23700	48400	20400	7600
29	7580	e4000	e2000	e1400	---	e1100	e5500	16200	19300	46600	18000	8470
30	8130	e4000	e2000	e1400	---	e1100	e5000	18100	19700	35200	16600	9670
31	8140	---	e2000	e1400	---	e1100	---	19700	---	32900	18800	---
TOTAL	339550	161810	80290	51300	62800	46780	65200	248600	729900	905200	654700	405390
MEAN	10950	5394	2590	1655	2243	1509	2173	8019	24330	29200	21120	13510
MAX	19600	8940	3900	2000	3700	2400	6000	19700	32100	48400	32700	25400
MIN	7580	4000	2000	1400	1400	1100	900	3800	17800	21100	14900	7340
AC-FT	673500	321000	159300	101800	124600	92790	129300	493100	1448000	1795000	1299000	804100
CFSM	1.78	0.88	0.42	0.27	0.36	0.24	0.35	1.30	3.95	4.74	3.43	2.19
IN.	2.05	0.98	0.48	0.31	0.38	0.28	0.39	1.50	4.41	5.47	3.95	2.45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003, BY WATER YEAR (WY)#

MEAN	6277	2713	1893	1592	1416	1294	1652	13340	26780	24000	21400	13710
MAX	12680	5394	3264	2452	2243	1900	4250	25630	50580	34400	37870	26510
(WY)	1987	2003	1958	1961	2003	1968	1990	1990	1964	1963	1981	1990
MIN	3124	1215	866	724	723	713	745	3745	15500	16010	8879	5093
(WY)	1970	1970	1970	1969	1969	1964	1964	1971	1969	1996	1969	1969

15292000 SUSITNA RIVER AT GOLD CREEK—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003#	
ANNUAL TOTAL	3390150		3751520			
ANNUAL MEAN	9288		10280		9710	
HIGHEST ANNUAL MEAN					13020	1990
LOWEST ANNUAL MEAN					5597	1969
HIGHEST DAILY MEAN	34800	Aug 23	48400	Jul 28	85900	Jun 7 1964
LOWEST DAILY MEAN	a1200	Apr 2	b900	Apr 6	c600	Feb 16 1950
ANNUAL SEVEN-DAY MINIMUM	1200	Apr 2	943	Apr 3	614	Feb 16 1950
MAXIMUM PEAK FLOW			51700	Jul 28	90700	Jun 7 1964
MAXIMUM PEAK STAGE			13.39	Jul 28	16.58	Jun 7 1964
MAXIMUM PEAK STAGE					d24.48	May 10 1954
ANNUAL RUNOFF (AC-FT)	6724000		7441000		7035000	
ANNUAL RUNOFF (CFSM)	1.51		1.67		1.58	
ANNUAL RUNOFF (INCHES)	20.47		22.66		21.42	
10 PERCENT EXCEEDS	21000		25600		25400	
50 PERCENT EXCEEDS	4600		5000		3400	
90 PERCENT EXCEEDS	1300		1400		1100	

\# See Period of Record; partial years used in monthly statistics
a Apr. 2-16
b Apr. 6-9
c Feb. 16-20, 1950
d Maximum observed, ice jam
e Estimated

15292700 TALKEETNA RIVER NEAR TALKEETNA
(Hydrologic Bench-Mark Station)

LOCATION.--Lat 62°20'49", long 150°01'01", in NE$^1/_4$ sec. 16, T. 26 N., R. 4 W. (Talkeetna B-1 quad), Matanuska-Susitna Borough, Hydrologic Unit 19020503, on left bank 1.7 mi downstream from Chunilna Creek, 3.5 mi northeast of Talkeetna, and about 5 mi upstream from mouth.

DRAINAGE AREA.--1,996 mi^2.

REVISED RECORDS.-- WRD AK 2000-1: Drainage Area.

PERIOD OF RECORD.--June 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 400 ft above sea level, from topographic map. From October 1, 1992 to September 30, 1994 at site 0.5 mi upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10300	3710	e1800	e600	e400	e520	e360	3150	11800	9020	10600	7690
2	9070	3590	e1700	e550	e400	e550	e360	2970	9480	11900	9200	6950
3	7920	3540	e1650	e550	e400	e550	e360	3250	7710	16500	8120	7870
4	7290	3480	e1650	e550	e400	e530	e350	3100	7310	13400	7920	8150
5	6530	3390	e1650	e550	e450	e500	e350	3040	8470	11500	7180	7190
6	6230	3280	e1600	e500	e550	e470	e350	3100	11600	10300	6990	6500
7	6540	3160	1580	e500	e600	e450	e350	2880	11000	10400	7250	5960
8	7560	2860	1450	e500	e650	e420	e350	3010	8650	10100	7420	5600
9	6150	2640	1240	e500	e700	e420	e360	3330	7800	10100	7670	5290
10	5410	2130	1080	e470	e750	e400	e370	4000	9700	10200	7850	4940
11	5440	e2000	1030	e470	e800	e400	e400	4010	13500	9850	8440	4660
12	5820	e1900	e1000	e470	e700	e420	e500	4060	16000	9570	10800	4430
13	5450	e2100	e950	e470	e650	e420	e550	3840	14300	9040	12500	4480
14	5170	e2200	e900	e450	e600	e400	e600	3510	11600	9150	11000	4080
15	4940	e2200	e800	e450	e550	e400	e650	3580	10700	9680	9610	3710
16	5900	e2100	e800	e450	e500	e400	e650	3780	9840	10600	10500	3550
17	5760	e2100	e850	e450	e470	e400	e700	3660	8870	22900	11500	3400
18	5800	e2100	e850	e450	e450	e390	e800	3660	8690	17200	10700	3200
19	5750	e2000	e800	e450	e450	e390	e900	3640	8630	12600	9260	3040
20	5680	e2000	e750	e450	e420	e390	e1100	3780	8320	11700	8190	2940
21	5510	e2000	e750	e420	e420	e380	1300	3900	8510	12800	7750	2830
22	5050	e2000	e750	e420	e420	e380	1220	4230	9540	11700	6970	2720
23	4810	e2100	e700	e420	e400	e380	1230	4570	9590	11100	6390	2560
24	4750	e2000	e700	e420	e400	e380	1390	5010	9210	10800	6090	2510
25	4620	e1900	e700	e420	e400	e380	1550	5090	9840	10100	6750	2630
26	4540	1950	e650	e420	e450	e380	1900	5510	9730	9790	7730	2750
27	4190	2000	e650	e420	e470	e370	2420	7140	9030	11500	7000	2610
28	3830	1960	e650	e420	e500	e370	2930	6610	8810	21200	6240	2520
29	4040	e1800	e600	e400	---	e370	3120	7840	8320	14700	5740	3700
30	4040	e1800	e600	e400	---	e370	3270	8790	8640	12300	6000	5190
31	3910	---	e600	e400	---	e360	---	9700	---	11800	7050	---
TOTAL	178000	71990	31480	14390	14350	12940	30740	137740	295190	373500	256410	133650
MEAN	5742	2400	1015	464	512	417	1025	4443	9840	12050	8271	4455
MAX	10300	3710	1800	600	800	550	3270	9700	16000	22900	12500	8150
MIN	3830	1800	600	400	400	360	350	2880	7310	9020	5740	2510
AC-FT	353100	142800	62440	28540	28460	25670	60970	273200	585500	740800	508600	265100
CFSM	2.88	1.20	0.51	0.23	0.26	0.21	0.51	2.23	4.93	6.04	4.14	2.23
IN.	3.32	1.34	0.59	0.27	0.27	0.24	0.57	2.57	5.50	6.96	4.78	2.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)#

MEAN	2854	1197	834	675	572	512	669	4782	10930	10330	9137	5839
MAX	10000	2400	1122	996	990	1058	1912	11510	19040	15410	16770	12090
(WY)	1987	2003	1987	1990	1990	1990	1990	1990	1971	1981	1971	1993
MIN	1424	672	538	457	401	285	396	2145	5207	7080	3787	2070
(WY)	1997	1992	1996	1996	1969	1982	1986	1971	1969	1969	1969	1969

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003#	
ANNUAL TOTAL	1557210		1550380			
ANNUAL MEAN	4266		4248		4041	
HIGHEST ANNUAL MEAN					5389	1990
LOWEST ANNUAL MEAN					2249	1969
HIGHEST DAILY MEAN	20100	May 21	22900	Jul 17	63200	Oct 11 1986
LOWEST DAILY MEAN	a360	Apr 13	b350	Apr 4	c260	Feb 27 1982
ANNUAL SEVEN-DAY MINIMUM	374	Apr 8	353	Apr 2	260	Feb 27 1982
MAXIMUM PEAK FLOW			27300	Jul 17	75700	Oct 11 1986
MAXIMUM PEAK STAGE			11.05	Jul 17	17.38	Oct 11 1986
ANNUAL RUNOFF (AC-FT)	3089000		3075000		2927000	
ANNUAL RUNOFF (CFSM)	2.14		2.13		2.02	
ANNUAL RUNOFF (INCHES)	29.02		28.89		27.51	
10 PERCENT EXCEEDS	10000		10200		10600	
50 PERCENT EXCEEDS	2200		2970		1400	
90 PERCENT EXCEEDS	420		400		500	

\# See Period of Record; partial years used in monthly statistics
a Apr. 13-14
b Apr. 4-8
c From Feb. 27 to Mar. 20, 1982

15294005 WILLOW CREEK NEAR WILLOW

LOCATION.--Lat 61°46'51", long 149°53'04", in NW$^1/_4$ SE$^1/_4$ sec. 31, T.20 N., R.3 W. (Anchorage D-8 quad), Matanuska-Susitna Borough, Hydrologic Unit 19020505, on the right bank, 0.9 mi downstream from unnamed tributary, 5.5 mi northeast of Willow, and 6.7 mi upstream from Deception Creek.

DRAINAGE AREA.--166 mi^2.

PERIOD OF RECORD.--June 1978 to September 1993, and May 2001 to current year.

REVISED RECORDS.--WRD-AK-80-1: 1979 (M).

GAGE.--Water-stage recorder. Elevation of gage is 350 ft above sea level from topographic map. Prior to Apr. 2, 1981 at site 0.2 mi upstream at different datum.

REMARKS.--Records good, except for estimated daily discharges, which are poor. Rain gage at station. GOES satellite telemetry at station.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge 2,300 ft^3/s and maximums (*).

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage Height (ft)
Oct. 07	2115	*1960	*4.52	No peaks greater than base discharge			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1460	427	169	e110	e80	e110	e34	244	813	539	546	503
2	1210	412	142	e110	e80	e100	e32	231	680	1090	442	445
3	967	407	176	e110	e80	e100	e32	230	656	1250	391	708
4	865	384	164	e110	e110	e90	e32	203	645	861	367	669
5	790	364	174	e100	e130	e90	e32	195	782	664	338	560
6	741	348	158	e100	e140	e80	e30	177	838	583	305	498
7	1130	329	144	e100	e160	e80	e32	180	887	548	282	457
8	1280	273	128	e100	e180	e80	e34	191	738	494	265	441
9	877	240	105	e100	e200	e70	e36	286	699	459	249	442
10	769	221	e110	e100	e220	e70	e40	286	1030	447	236	397
11	764	e230	e140	e100	e250	e70	e44	273	1160	441	240	368
12	870	e240	e140	e100	e240	e60	e50	302	1230	421	446	345
13	751	e230	e130	e100	e180	e60	e55	261	1290	373	913	452
14	687	e220	e130	e100	e150	e60	e60	236	1190	349	735	373
15	663	e210	e130	e100	e150	e55	e65	226	1010	333	558	335
16	932	e200	e130	e90	e140	e55	e70	243	890	325	640	316
17	780	e200	e130	e90	e130	e50	e75	237	798	424	682	300
18	922	e190	e120	e90	e120	e50	e80	228	916	359	568	284
19	818	e190	e120	e90	e110	e45	80	223	827	294	475	272
20	785	e200	e120	e90	e110	e45	84	248	732	269	435	262
21	785	211	e120	e90	e100	e45	87	267	664	285	519	260
22	713	207	e120	e90	e100	e40	84	316	695	300	482	256
23	674	202	e120	e90	e90	e40	100	384	731	287	451	239
24	664	191	e120	e90	e90	e40	156	441	655	266	402	251
25	630	179	e120	e90	e100	e40	186	435	608	268	448	330
26	600	186	e120	e80	e100	e38	226	500	540	244	690	323
27	540	178	e110	e80	e110	e38	291	520	498	577	547	284
28	502	171	e110	e80	e110	e36	291	540	483	908	478	292
29	509	169	e110	e80	---	e36	257	644	494	539	432	685
30	482	180	e110	e80	---	e34	253	712	513	472	417	677
31	454	---	e110	e80	---	e34	---	723	---	700	571	---
TOTAL	24614	7389	4030	2920	3760	1841	2928	10182	23692	15369	14550	12024
MEAN	794	246	130	94.2	134	59.4	97.6	328	790	496	469	401
MAX	1460	427	176	110	250	110	291	723	1290	1250	913	708
MIN	454	169	105	80	80	34	30	177	483	244	236	239
AC-FT	48820	14660	7990	5790	7460	3650	5810	20200	46990	30480	28860	23850
CFSM	4.78	1.48	0.78	0.57	0.81	0.36	0.59	1.98	4.76	2.99	2.83	2.41
IN.	5.52	1.66	0.90	0.65	0.84	0.41	0.66	2.28	5.31	3.44	3.26	2.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003, BY WATER YEAR (WY)#

MEAN	415	163	109	85.5	76.6	63.4	91.3	619	1038	688	614	645
MAX	1197	364	152	112	134	97.5	205	1578	1500	1287	1286	1177
(WY)	1987	1980	1980	1980	2003	1990	1990	1990	1990	1980	1981	1993
MIN	177	81.5	57.3	57.1	52.9	33.7	45.8	328	484	310	307	259
(WY)	1985	1985	1981	1981	1981	1982	2002	2003	1981	2002	1978	1978

\# See Period of Record; partial years used in monthly statistics
e Estimated

15294005 WILLOW CREEK NEAR WILLOW—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003#	
ANNUAL TOTAL	140257		123299			
ANNUAL MEAN	384		338		393	
HIGHEST ANNUAL MEAN					536	1990
LOWEST ANNUAL MEAN					315	2002
HIGHEST DAILY MEAN	1670	Sep 27	1460	Oct 1	8670	Oct 11 1986
LOWEST DAILY MEAN	a38	Apr 17	30	Apr 6	30	Apr 6 2003
ANNUAL SEVEN-DAY MINIMUM	39	Apr 13	32	Apr 1	32	Apr 1 2003
MAXIMUM PEAK FLOW			1960	Oct 7	b12000	Oct 11 1986
MAXIMUM PEAK STAGE			4.52	Oct 7	9.01	Oct 11 1986
MAXIMUM PEAK STAGE					c9.40	Dec 18 1986
ANNUAL RUNOFF (AC-FT)	278200		244600		284400	
ANNUAL RUNOFF (CFSM)	2.31		2.03		2.36	
ANNUAL RUNOFF (INCHES)	31.43		27.63		32.13	
10 PERCENT EXCEEDS	932		756		984	
50 PERCENT EXCEEDS	224		240		200	
90 PERCENT EXCEEDS	50		70		62	

\# See Period of Record; partial years used in monthly statistics
a Apr. 17-19
b From rating curve extended above 3,900 ft^3/s on basis of slope-area measurement of peak flow
c Backwater from ice

15294700 JOHNSON RIVER ABOVE LATERAL GLACIER NEAR TUXEDNI BAY

LOCATION.--Lat 60°05'41", long 152°54'38", in SW¼ NW¼ NW¼ sec. 16, T. 1 S., R. 21 W. (Kenai A-8 quad), Kenai Peninsula Borough, Hydrologic Unit 19020602, on the right bank about 20 mi upstream from mouth, 10 mi south of Tuxedni Bay, and 60 mi northeast of Iliamna.

DRAINAGE AREA.--24.8 mi^2.

PERIOD OF RECORD.--July 1995 to current year (no winter record).

GAGE.--Water-stage recorder. Elevation of gage is 450 ft above sea level, from topographic map. July 1995 to June 1996, at site 300 ft downstream at same datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 9,980 ft^3/s, September 30, 2003, stage rising, peak occurred October 1, 2003, from rating curve extended above 3,500 ft^3/s on the basis of slope-area measurement, gage height 16.75 ft., minimum not determined, occurs during the winter.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,980 ft^3/s, September 30, stage rising, peak occurred October 1, 2003; maximum peak discharge, 3,630 ft^3/s, November 5, gage height, 13.72. minimum discharge 32 ft^3/s, April 11, gage height 10.06 ft.

REMARKS.--Records are fair except for estimated discharges, which are poor. Rain gage at station. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	213	436	237	e58	e45	50	e48	139	e380	804	648	577
2	161	510	194	e60	e48	53	47	164	e360	856	613	535
3	136	448	540	e70	e60	50	e47	203	e320	862	539	465
4	122	686	343	e80	e150	e50	e47	179	369	864	525	370
5	124	1980	348	e90	e300	e47	e46	165	655	754	520	315
6	126	1450	314	111	e250	e45	e45	141	852	732	529	294
7	185	794	244	117	e220	e45	e44	132	645	853	602	280
8	139	480	180	118	e270	e44	e43	127	491	983	770	251
9	111	331	157	121	e230	e43	e43	249	546	989	867	266
10	105	248	142	134	e210	e42	e42	307	862	1000	819	272
11	192	214	113	206	e200	e42	e41	215	1070	921	878	292
12	139	185	107	134	e180	e41	37	171	1000	868	1170	269
13	560	151	e100	114	e150	e40	40	147	1020	965	1720	239
14	676	130	e95	102	e100	e50	e40	138	948	1160	1730	177
15	725	118	e90	93	e90	70	39	145	831	1260	1330	143
16	364	111	e85	91	e85	64	38	164	664	1020	984	127
17	244	108	e80	100	e80	58	37	164	613	798	727	118
18	318	103	e75	72	80	56	37	150	605	692	566	109
19	554	101	e70	53	80	54	38	159	607	719	794	98
20	998	135	70	52	e78	e53	39	183	577	776	997	89
21	1270	150	68	e52	77	e53	44	212	642	789	659	83
22	1490	296	e68	e51	75	e53	57	e285	599	769	551	78
23	2020	995	e66	e50	e72	e52	55	e330	575	700	479	75
24	1250	511	e65	e50	e70	e52	58	e350	627	977	461	74
25	1010	397	e64	49	e65	51	63	e360	886	1120	576	74
26	795	664	e63	47	e60	50	73	e365	674	918	966	79
27	434	298	e62	e47	e55	50	88	e400	677	713	986	90
28	464	187	e61	e46	e53	e50	107	e420	618	767	1350	626
29	715	366	e60	e46	---	e50	129	e400	624	897	1290	1000
30	498	512	e60	e45	---	e50	134	e390	713	674	1100	3410
31	708	---	e59	e45	---	e49	---	e380	---	681	750	---
TOTAL	16846	13095	4280	2504	3433	1557	1646	7334	20050	26881	26496	10875
MEAN	543	436	138	80.8	123	50.2	54.9	237	668	867	855	362
MAX	2020	1980	540	206	300	70	134	420	1070	1260	1730	3410
MIN	105	101	59	45	45	40	37	127	320	674	461	74
AC-FT	33410	25970	8490	4970	6810	3090	3260	14550	39770	53320	52550	21570
CFSM	21.9	17.6	5.57	3.26	4.94	2.03	2.21	9.54	26.9	35.0	34.5	14.6
IN.	25.27	19.64	6.42	3.76	5.15	2.34	2.47	11.00	30.07	40.32	39.74	16.31

e Estimated

15295700 TERROR RIVER AT MOUTH NEAR KODIAK

LOCATION.--Lat 57°41'41", long 153°09'42", in SW¼ NE¼ sec. 5, T. 29 S., R. 24 W. (Kodiak C-4 quad), Kodiak Island Borough, Hydrologic Unit 19020701, on Kodiak Island, in Kodiak National Wildlife Refuge, on right bank, 0.9 mi upstream from mouth, 7.5 mi downstream from Terror Lake Dam, and 29 mi southwest of Kodiak.

DRAINAGE AREA.--30.7 mi^2, 45.7 mi^2 prior to partial diversion of Terror Lake to hydropower plant in February 1985.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1964 to October 1968, October 1981 to current year.

REVISED RECORDS.--WDR AK-84-1: 1982-83. WDR AK-96-1: 1995(M).

GAGE.--Water-stage recorder. Elevation of gage is 30 ft above sea level, from topographic map. Prior to October 1, 1981 at site 0.2 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records fair. Flow from 15 mi^2 at headwaters regulated by Terror Lake Dam and some flow diverted from Terror Lake to Kizhuyak River. Regulation for construction began in November 1982. Began filling reservoir April 29, 1984. Diversion to hydropower plant began February 12, 1985. GOES satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	181	251	441	87	91	90	113	248	395	381	202	169
2	188	215	591	107	89	105	123	358	300	605	200	184
3	179	541	2060	109	126	112	123	375	266	679	197	206
4	198	965	967	92	694	103	123	313	344	601	201	205
5	243	2280	534	85	522	93	122	225	373	590	213	207
6	216	2080	483	80	334	109	123	171	361	555	219	195
7	221	874	394	89	438	122	116	168	307	479	218	187
8	205	474	361	200	554	122	121	189	419	513	217	182
9	185	311	422	491	421	117	122	207	530	573	210	191
10	239	232	274	554	382	114	138	208	458	504	211	195
11	314	205	146	395	287	108	165	176	391	493	215	181
12	227	170	98	381	205	108	221	149	482	603	208	179
13	450	165	91	378	153	106	233	121	476	535	200	173
14	271	168	109	446	122	109	164	124	449	501	212	176
15	362	159	115	963	105	117	175	155	392	473	200	177
16	246	157	134	538	132	125	155	182	356	403	182	175
17	227	127	115	543	142	120	141	170	349	364	174	196
18	227	175	99	311	100	112	197	199	319	419	170	181
19	262	158	99	260	92	109	162	238	309	361	215	175
20	330	171	86	177	85	105	152	198	286	335	367	186
21	261	202	86	135	80	103	135	192	271	439	250	176
22	1340	867	89	113	79	102	128	187	248	348	201	172
23	510	2740	80	101	100	100	154	194	292	312	180	298
24	323	810	82	108	90	95	173	225	425	255	175	544
25	755	809	92	351	82	133	223	233	396	197	180	284
26	380	1110	85	193	81	106	203	233	304	200	179	209
27	261	493	76	148	83	121	208	257	272	213	173	179
28	822	370	85	368	83	92	215	272	247	200	178	207
29	806	905	87	205	---	86	218	236	258	210	539	191
30	501	732	84	146	---	94	238	559	281	195	253	888
31	309	---	75	110	---	102	---	413	---	205	187	---
TOTAL	11239	18916	8540	8264	5752	3340	4884	7175	10556	12741	6726	6868
MEAN	363	631	275	267	205	108	163	231	352	411	217	229
MAX	1340	2740	2060	963	694	133	238	559	530	679	539	888
MIN	179	127	75	80	79	86	113	121	247	195	170	169
AC-FT	22290	37520	16940	16390	11410	6620	9690	14230	20940	25270	13340	13620

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2003, BY WATER YEAR (WY)#

MEAN	278	209	153	131	115	101	172	323	491	366	282	286
MAX	427	631	313	267	205	152	247	454	872	1070	662	707
(WY)	1995	2003	1986	2003	2003	1998	1993	1993	1987	1987	1988	1995
MIN	192	93.8	78.4	81.8	72.6	60.9	115	231	305	228	183	175
(WY)	1998	1995	1988	1989	1989	1986	1986	2003	1990	1989	1994	2000

See Period of Record and Remarks

15295700 TERROR RIVER AT MOUTH NEAR KODIAK—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 2003#	
ANNUAL TOTAL	103085		105001			
ANNUAL MEAN	282		288		243	
HIGHEST ANNUAL MEAN					369	1987
LOWEST ANNUAL MEAN					193	2000
HIGHEST DAILY MEAN	2740	Nov 23	2740	Nov 23	4610	Sep 20 1995
LOWEST DAILY MEAN	70	Jan 25	75	Dec 31	a26	Dec 11 1996
ANNUAL SEVEN-DAY MINIMUM	82	Mar 24	83	Dec 26	39	Nov 19 1985
MAXIMUM PEAK FLOW			4410	Nov 23	b10000	Sep 19 1995
MAXIMUM PEAK STAGE			5.57	Nov 23	7.67	Sep 19 1995
INSTANTANEOUS LOW FLOW			c67	Dec 31	a9.8	Dec 11 1996
ANNUAL RUNOFF (AC-FT)	204500		208300		175800	
10 PERCENT EXCEEDS	530		536		464	
50 PERCENT EXCEEDS	202		203		186	
90 PERCENT EXCEEDS	90		99		86	

PRIOR TO CONSTRUCTION OF TERROR LAKE DAM

SUMMARY STATISTICS, WATER YEARS 1965 - 1983 #

ANNUAL MEAN	293		
HIGHEST ANNUAL MEAN	421		1983
LOWEST ANNUAL MEAN	230		1967
HIGHEST DAILY MEAN	2600	Oct 2	1965
LOWEST DAILY MEAN	d19	Feb 23	1967
ANNUAL SEVEN-DAY MINIMUM	20	Feb 23	1967
INSTANTANEOUS PEAK FLOW	3820	Sep 26	1966
INSTANTANEOUS PEAK STAGE	f6.48	Sep 26	1966
INSTANTANEOUS PEAK STAGE	g7.54	Mar 28	1964
ANNUAL RUNOFF (AC-FT)	212200		
ANNUAL RUNOFF (CFSM)	9.54		
ANNUAL RUNOFF (IN)	129.66		
10 PERCENT EXCEEDS	774		
50 PERCENT EXCEEDS	157		
90 PERCENT EXCEEDS	39		

\# See Period of Record and Remarks
a Occurred while dam release valve was closed for repair
b From rating curve extended above 960 ft^3/s on basis of slope-area measurement of peak flow
c Dec. 31, Feb. 28, and Mar. 26
d Feb. 23 and Mar. 1, 1967
f Site and datum then in use
g Site and datum then in use; from tidal wave

15295700 TERROR RIVER AT MOUTH NEAR KODIAK—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1982 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: December 1981 to current year.

INSTRUMENTATION.--Water-temperature recorder since December 10, 1981. Electronic water temperature recorder set for 1-hour recording interval.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the river by cross section on May 21. No variation was found within the cross sections. No variation was found between mean stream temperature and sensor temperature.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 15.0°C, July 15, 2003; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 15.0°C, July 15, 2003; minimum, 0.0°C on many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	STREAM WIDTH (FT) (00004)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)
MAY							
21...	1409	22.0	1.00	2.07	163	6.5	17.0
21...	1410	22.0	5.00	2.07	163	6.5	17.0
21...	1411	22.0	10.0	2.07	163	6.5	17.0
21...	1412	22.0	15.0	2.07	163	6.5	17.0
21...	1413	22.0	20.0	2.07	163	6.5	17.0
21...	1414	22.0	21.0	2.07	163	6.5	17.0

TEMPERATURE, WATER (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.5	5.5	6.0	5.5	4.0	5.0	4.5	3.5	4.0	1.5	0.0	0.5
2	6.5	4.5	5.5	5.5	4.5	5.0	5.0	4.0	4.5	2.5	1.5	2.0
3	6.5	4.5	5.5	7.0	5.0	6.0	5.0	4.5	4.5	2.0	1.5	1.5
4	6.0	5.5	6.0	6.0	5.5	5.5	4.5	4.5	4.5	1.5	0.5	1.0
5	7.5	6.0	6.5	7.0	6.0	6.5	5.0	4.5	4.5	0.5	0.0	0.5
6	7.5	6.5	7.0	6.5	5.5	6.0	4.5	4.5	4.5	0.0	0.0	0.0
7	7.0	5.5	6.5	6.0	5.5	6.0	4.5	4.5	4.5	0.0	0.0	0.0
8	6.0	4.5	5.5	5.5	4.0	5.0	4.5	4.0	4.5	2.0	0.0	1.5
9	5.0	3.5	4.5	4.5	3.5	4.0	4.5	3.5	4.0	1.5	1.0	1.0
10	7.0	4.0	5.5	3.5	3.0	3.5	3.5	1.5	2.5	1.5	1.0	1.0
11	7.0	5.5	6.5	4.5	3.5	4.0	1.5	1.0	1.5	2.0	1.0	2.0
12	6.5	4.5	5.5	4.5	4.0	4.0	1.5	0.5	1.0	2.0	1.5	2.0
13	7.0	5.5	6.5	4.5	4.0	4.5	0.5	0.5	0.5	2.0	1.5	2.0
14	6.5	5.0	6.0	4.5	4.0	4.5	1.0	0.5	0.5	2.5	1.5	2.0
15	7.5	5.5	6.5	4.0	3.0	3.5	1.0	0.5	0.5	2.5	2.0	2.0
16	6.0	4.0	5.0	4.0	2.5	3.0	1.5	0.5	1.0	2.0	1.5	1.5
17	7.0	5.5	6.5	3.5	2.5	3.0	1.5	0.5	1.0	2.5	2.0	2.0
18	7.5	7.0	7.0	3.5	2.5	3.0	0.5	0.0	0.5	2.0	1.5	1.5
19	7.5	7.0	7.0	3.5	2.5	3.0	2.0	0.5	1.0	3.0	2.0	2.5
20	7.5	6.5	7.0	3.5	3.0	3.0	2.0	1.5	2.0	2.0	1.5	2.0
21	7.5	6.5	7.0	3.5	2.5	3.0	2.0	1.5	2.0	2.5	1.5	2.0
22	7.5	5.0	6.5	4.5	3.0	3.5	2.0	2.0	2.0	2.0	1.5	2.0
23	6.5	5.0	5.5	5.0	4.0	4.5	2.5	2.0	2.0	2.5	2.0	2.0
24	5.0	4.0	4.5	5.0	4.0	4.5	2.0	1.0	1.5	2.5	2.0	2.0
25	5.5	4.5	5.0	5.0	4.0	4.5	1.0	0.5	1.0	2.5	2.0	2.5
26	5.5	3.5	4.5	5.0	4.0	4.5	1.5	0.5	1.0	2.5	2.0	2.5
27	4.5	3.0	3.5	4.0	3.5	4.0	0.5	0.0	0.5	2.5	1.5	2.0
28	6.5	4.5	5.5	4.0	3.0	3.5	1.5	0.0	0.5	2.5	2.0	2.5
29	6.0	5.0	5.5	4.5	3.5	4.5	2.0	1.5	1.5	2.0	1.5	2.0
30	5.5	5.0	5.5	4.5	3.5	4.0	2.5	1.0	2.0	2.0	1.5	1.5
31	5.5	4.0	5.0	---	---	---	1.0	0.0	0.5	2.0	1.0	1.5
MONTH	7.5	3.0	5.8	7.0	2.5	4.3	5.0	0.0	2.1	3.0	0.0	1.6

15295700 TERROR RIVER AT MOUTH NEAR KODIAK—Continued

TEMPERATURE, WATER (DEGREES CELSIUS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.0	1.5	1.5	4.0	3.0	3.5	4.5	2.0	3.0	6.5	3.0	4.5
2	2.0	1.0	1.5	5.5	3.5	4.0	4.0	3.0	3.5	6.0	3.5	4.5
3	3.0	2.0	2.5	4.0	3.0	3.5	4.5	2.0	3.0	7.5	2.5	4.5
4	3.0	2.0	2.5	4.0	2.0	3.0	4.5	2.5	3.0	5.5	3.0	4.0
5	2.5	2.0	2.5	3.0	1.0	2.0	4.5	2.5	3.5	5.5	2.5	4.0
6	2.5	2.0	2.5	2.5	0.5	1.5	3.0	2.0	2.5	6.0	3.0	4.0
7	3.5	2.5	3.0	2.5	1.0	1.5	3.5	2.0	2.5	6.5	3.0	4.5
8	3.0	2.0	3.0	3.0	1.5	2.5	4.0	2.0	3.0	7.0	4.0	5.0
9	3.5	2.0	3.0	3.0	1.5	2.0	5.0	2.0	3.5	5.5	3.5	4.5
10	3.5	2.5	3.0	1.5	0.0	1.0	4.0	2.5	3.5	6.0	3.0	4.5
11	3.0	2.5	3.0	3.0	1.5	2.0	6.0	3.0	4.0	6.0	3.5	4.5
12	3.0	2.0	2.5	2.0	0.5	1.0	5.0	2.5	3.5	5.5	3.0	4.0
13	3.0	2.0	2.5	0.5	0.0	0.5	4.0	1.5	3.0	5.5	3.0	4.0
14	3.0	2.0	2.5	0.0	0.0	0.0	5.0	2.0	3.0	5.5	2.5	4.0
15	3.0	2.0	2.5	1.5	0.0	0.5	5.5	3.0	3.5	7.5	3.0	5.0
16	2.5	1.0	1.5	3.0	1.5	2.0	4.5	1.5	3.0	7.5	2.5	5.0
17	2.0	1.0	1.5	3.5	1.5	2.5	3.5	1.0	2.5	7.0	3.0	5.0
18	3.0	2.0	2.5	3.5	1.0	2.0	3.5	2.0	2.5	6.5	4.0	5.0
19	2.5	1.0	1.5	3.0	1.0	2.0	6.0	1.5	3.5	6.5	4.0	5.0
20	2.5	1.5	2.0	2.5	0.0	1.0	6.5	3.0	4.5	8.0	3.0	5.0
21	3.0	1.5	2.0	1.5	0.0	1.0	5.0	3.0	4.0	8.0	2.5	5.0
22	2.5	2.0	2.0	2.0	0.5	1.0	4.0	2.5	3.5	6.5	2.5	4.5
23	4.0	2.5	3.0	2.5	0.0	1.0	7.0	3.0	5.0	7.0	4.0	5.5
24	3.5	2.5	3.0	3.0	1.0	2.0	5.5	3.0	4.0	8.5	3.0	5.5
25	3.5	2.5	3.0	2.5	2.0	2.5	5.5	3.5	4.0	7.0	4.0	5.5
26	3.5	2.5	3.0	3.0	1.5	2.5	7.0	2.5	4.5	7.5	3.5	5.5
27	3.0	2.0	2.5	3.5	2.0	2.5	7.5	2.5	5.0	6.5	4.0	5.0
28	4.0	2.5	3.0	3.5	1.5	2.5	7.0	2.5	4.5	6.0	4.0	5.0
29	---	---	---	4.0	1.5	2.5	7.5	3.0	5.0	5.0	3.5	4.5
30	---	---	---	3.5	1.0	2.0	8.0	2.5	5.0	5.5	4.0	4.5
31	---	---	---	3.5	1.0	2.0	---	---	---	5.5	3.5	4.5
MONTH	4.0	1.0	2.4	5.5	0.0	1.9	8.0	1.0	3.6	8.5	2.5	4.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.5	3.5	4.5	8.5	7.0	7.5	10.0	6.5	8.0	8.5	7.0	7.5
2	8.0	3.5	5.5	9.5	6.5	8.0	9.5	6.5	7.5	8.5	6.5	7.5
3	6.5	4.0	5.0	9.5	6.0	7.5	10.0	5.5	7.5	8.0	6.0	7.0
4	6.0	4.5	5.0	10.5	6.5	8.5	10.0	6.0	7.5	8.0	6.5	7.0
5	7.5	4.0	5.5	9.0	8.0	8.5	10.0	6.0	7.5	7.0	6.5	6.5
6	7.5	4.0	5.5	11.0	7.0	8.5	9.5	6.5	7.5	8.0	6.0	7.0
7	8.5	4.0	6.0	11.0	7.0	8.5	10.5	7.0	8.5	8.0	5.5	6.5
8	6.5	5.0	5.5	12.0	8.0	10.0	10.5	7.0	8.5	7.5	5.5	6.5
9	6.0	4.5	5.0	13.0	9.0	11.0	10.5	6.5	8.5	8.0	6.5	7.0
10	6.5	4.5	5.5	13.0	10.5	11.5	9.5	7.0	8.0	8.5	6.5	7.0
11	6.5	4.5	5.5	11.0	9.5	10.0	9.5	7.5	8.5	8.5	5.5	7.0
12	8.0	5.0	6.0	11.5	9.5	10.5	10.0	7.0	8.0	7.5	5.5	6.5
13	9.5	5.0	7.0	13.5	9.0	11.0	8.5	7.0	8.0	8.0	6.0	7.0
14	9.5	5.0	7.0	14.5	10.0	12.0	8.5	7.0	7.5	7.5	5.0	6.5
15	7.5	5.5	6.0	15.0	10.5	12.5	8.5	7.0	7.5	7.0	4.5	5.5
16	7.0	5.0	6.0	13.0	10.5	11.5	9.0	6.5	7.5	6.5	4.5	5.5
17	6.0	5.0	5.5	11.5	10.0	10.5	8.0	6.0	7.0	6.5	5.5	6.0
18	7.5	5.0	6.0	11.0	10.0	10.5	8.0	6.0	6.5	6.5	4.5	5.5
19	7.5	5.5	6.5	11.0	10.0	10.5	7.0	6.5	6.5	6.0	4.0	5.0
20	7.5	5.0	6.5	11.0	9.5	10.0	8.0	6.5	7.0	6.5	4.5	5.5
21	6.5	5.0	6.0	12.0	9.5	10.5	8.5	6.5	7.5	6.0	4.0	5.0
22	9.0	5.0	6.5	13.5	10.0	11.5	9.0	6.0	7.0	6.0	3.5	4.5
23	6.5	5.5	6.0	14.5	10.5	12.0	9.0	5.5	7.0	5.5	5.0	5.5
24	6.5	5.0	5.5	13.5	11.0	12.0	8.0	6.5	7.0	6.0	4.5	5.5
25	7.0	5.0	5.5	12.0	10.0	11.0	7.5	6.5	7.0	6.0	4.5	5.5
26	6.5	5.0	5.5	11.5	9.5	10.5	9.0	6.5	7.5	7.0	5.0	6.0
27	7.5	5.0	6.0	12.0	9.0	10.5	7.5	6.5	7.0	7.0	6.0	6.5
28	10.0	4.0	7.0	10.5	8.5	9.5	8.0	6.5	7.0	8.0	6.5	7.0
29	10.0	6.0	7.5	8.5	7.5	8.0	10.0	7.5	9.0	6.5	5.0	6.0
30	10.5	6.5	8.0	9.0	6.5	7.5	8.5	6.5	7.5	9.5	6.5	7.5
31	---	---	---	10.0	6.5	8.0	9.0	5.5	7.0	---	---	---
MONTH	10.5	3.5	6.0	15.0	6.0	10.0	10.5	5.5	7.5	9.5	3.5	6.3