

Water-Data Report 2013

15090000 GREEN LAKE NEAR SITKA, AK

Central Southeast Alaska Basin
Baranof-Chichagof Islands Subbasin

LOCATION.--Lat 56°59'14", long 135°06'37" referenced to North American Datum of 1927, in SW ¼ SW ¼ NE ¼ sec.29, T.56 S., R.65 E., City & Borough of Sitka, AK, Hydrologic Unit 19010203, (Port Alexander D-4 quad), on Baranof Island, in Tongass National Forest, 0.4 mi upstream from mouth at Silver Bay, and 9.4 mi southeast of Sitka.

DRAINAGE AREA.--28.8 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1915 to September 1925 (published as "Green Lake Outlet"); monthly discharges only published in WSP 1372. October 1983 to current year (month end reservoir contents and monthly discharges).

REVISED RECORDS.--WSP 1372: 1916, 1917, 1922 (monthly discharge). WDR AK-84-1: Drainage area. WDR AK-86-1: 1984, 1985 (month-end reservoir contents, change in month-end and yearly contents, adjusted mean monthly discharges, and extremes). WRD AK-00-01: 1998-1999 (M m). WDR AK-2013-1, monthly mean values.

GAGE. (MANU)--Staff gage on upstream face of dam. Datum of gage is at mean low water, which is about 5 ft below sea level. Totalizing MWH meters are on the two turbines in Green Lake powerhouse. September 1915 to September 1925, recording gage at site of present day dam, elevation of gage was 220 ft above sea level, by barometer; prior to December 27, 1916 at datum 1 ft higher. Water years 1983-88, nonrecording remote lake-level indicator at Blue Lake powerhouse (6 mi northwest of gage).

COOPERATION.--Daily reservoir elevations and MWH power generation provided by City and Borough of Sitka.

REMARKS.--Reservoir is formed by concrete arch dam located at the outlet of Green Lake, construction began in 1978 and was completed in 1982. Total and usable capacity below spillway crest elevation of 395 ft is 88,000 and 75,000 acre-ft, respectively. Reservoir is used for power. Discharge released through the turbines is computed from relation between discharge, head, and power generation; release flow empties directly into Silver Bay and is not returned to stream. Spill is computed from a theoretical relation between discharge and stage above the crest of the 100 ft wide spillway. Turbine and spillway ratings and reservoir capacity table furnished by City and Borough of Sitka in 1983. Corrected reservoir capacity table furnished in April 1987.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--39 years (water years, 1916-25, 1985-2013), 314 ft³/s, 148.0 in/yr, 227,500 acre-ft/yr. Mean discharge for water years 1985-2013 adjusted for change in contents of Green Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 93,780 acre-ft, September 22-23, 1994, November 22, 2005, elevation, 400.5 ft; minimum contents observed, 17,600 acre-ft, May 19, 2011, elevation, 296.2 ft. Maximum daily discharge, 5,020 ft³/s, September 22-23, 1994; no flow released, February 5-8, 1987, November 27-29, 1988, June 19, 2004, January 18 and 25, 2009, July 10, 2011.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 91,050 acre-ft, October 13, elevation 397.9 ft; minimum contents observed, 37,600 acre-ft, May 2, elevation 333.5 ft.

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Month end reservoir elevation, in feet above sea level, and contents, in acre feet
Water Year October 2011 to September 2012

DATE	ELEVATION	CONTENTS	CHANGE IN CONTENTS
30-Sep	362	58600	21120
31-Oct	375.5	69950	11350
30-Nov	372.5	67380	-2570
31-Dec	376	70400	3020
31-Jan	369.6	64910	-5490
29-Feb	362.4	58920	-5990
31-Mar	343.7	44160	-14760
30-Apr	330.3	35680	-8480
31-May	329.2	35020	-660
30-Jun	352.3	50840	15820
31-Jul	374.8	69330	18490
31-Aug	391.5	84680	15350
30-Sep	396.8	89890	5210
		CAL YR 2011	-1530
		WAT YR 2012	31,290

Discharge, in cubic feet per second, water year October 2011 to September 2012
Mean Values

Month	Release	Spill	Total	Adjusted
Oct	188	0	188	373
Nov	212	0	212	169
Dec	186	0	186	235
Jan	235	0	235	146
Feb	238	0	238	134
Mar	348	0	348	108
Apr	389	0	389	246
May	353	0	353	342
Jun	312	0	312	578
Jul	228	0	228	529
Aug	201	0	201	451
Sep	162	712	874	962
CAL YR 2011	294	0	294	291
WAT YR 2012	254	59	314	356

Month end reservoir elevation, in feet above sea level, and contents, in acre feet
Water Year October 2012 to September 2013

DATE	ELEVATION	CONTENTS	CHANGE IN CONTENTS
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30-Sep	396.8	89890	5210
31-Oct	392.2	85340	-4550
30-Nov	388.7	82020	-3320
31-Dec	376	70400	-11620
31-Jan	370.2	65420	-4980
28-Feb	365.9	61770	-3650
31-Mar	347.7	47160	-14610
30-Apr	333.9	37840	-9320
31-May	351.3	50040	12200
30-Jun	377.1	71390	21350
31-Jul	387.4	80780	9390
31-Aug	381.7	75530	-5250
30-Sep	387.3	80690	5160
		CAL YR 2012	0
		WTR YR 2013	-9,200

Discharge, in cubic feet per second, water year October 2012 to September 2013

Mean Values

Month	Release	Spill	Total	Adjusted
Oct	252	325	577	503
Nov	216	0	216	160
Dec	269	0	269	80
Jan	236	0	236	155
Feb	252	0	252	186
Mar	330	0	330	92
Apr	336	0	336	179
May	258	0	258	456
Jun	181	0	181	540
Jul	202	0	202	355
Aug	315	0	315	230
Sep	266	0	266	353
CAL YR 2012	267	86	353	353
WAT YR 2013	259	27	287	274