

15070000 SWAN LAKE NEAR KETCHIKAN, AK

Southern Southeast Alaska Basin
Ketchikan Subbasin

LOCATION.--Lat 55°36'54", long 131°20'14" referenced to North American Datum of 1927, in SW ¼ NE ¼ sec.20, T.72 S., R.92 E., Ketchikan Gateway Borough, AK, Hydrologic Unit 19010102, (Ketchikan C-4 quad), on Revillagigedo Island, in Tongass National Forest, 0.7 mi upstream from mouth at Carroll Inlet, and 22 mi northeast of Ketchikan.

DRAINAGE AREA.--36.5 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1916 to January 1926, September 1927 to December 1933 and October 1946 to September 1959 (discharge). Published as "Swan Lake Outlet at Carroll Inlet" prior to 1946 and as "Falls Creek near Ketchikan" October 1946 to September 1959. Monthly discharges only for some periods, published in WSP 1372. October 1984 to September 2007 (month end reservoir contents and monthly discharges). Discontinued.

REVISED RECORDS.--WSP 1372: Drainage area, 1918.

GAGE.--Non-recording lake-level staff gage. Datum of lake-level staff gage is at sea level. Totalizing MWH meters on the two turbines in Swan Lake Powerhouse. September 1916 to January 1926 and September 1927 to December 1933 at site 1,500 ft downstream at different datum. October 1946 to September 1959, recording gage at site 2,500 ft downstream, elevation of gage was 130 ft above sea level, from topographic map.

COOPERATION.--Reservoir elevations and release flow provided by the City of Ketchikan.

REMARKS.--Reservoir is formed by a concrete arch dam located at the outlet Swan Lake; construction began in August 1980 and was completed in March 1983. Total and usable capacities below spillway crest of 330 ft are 126,200 and 82,800 acre-ft, respectively. Reservoir is used for power. Discharge released through turbines is computed from relation between discharge, head, and power generation; release flow enters directly into Carroll Inlet and is not returned to stream. Spill is computed from a theoretical relation between discharge and stage above crest of the spillway. Turbine and spillway ratings and reservoir capacity table furnished by the City of Ketchikan in 1985.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--51 years (water years 1917-25, 1928-33, 1947-59, 1985-2007), 445 ft³/s, 165.56 in/yr, 322,400 acre-ft/yr. Mean discharge for water years 1985-2007 adjusted for change in contents Swan Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 134,920 acre-ft, October 26, 2003, elevation, 336.10 ft; minimum contents observed, 51,770 acre-ft, September 22, 1993, elevation, 278.4 ft. Maximum discharge, about 5,500 ft³/s, November 1, 1917; minimum daily discharge, 19 ft³/s, February 21 to 25, 1925. Maximum daily discharge since construction of dam, 3,680 ft³/s, November 30, 1988; no flow released several days most years.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 125,450 acre-ft, September 30, elevation, 329.50 ft; minimum contents observed, 58,026 acre-ft, April 05-06, elevation, 282.90 ft. Maximum release from reservoir (mean daily, not adjusted for changes in storage), 870 ft³/s, November 15; minimum release, 0 ft³/s, May 15 - 18.

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Date	elevation	contents	Change in contents
30-Sep	316.2	106198	17504
31-Oct	317.1	107504	1306
30-Nov	298.2	80158	-27346
31-Dec	301.4	84786	4628
31-Jan	299.6	82184	-2602
28-Feb	292	71190	-10994
31-Mar	285.8	62222	-8968
30-Apr	293.9	73936	11714
31-May	306.2	91738	17802
30-Jun	316.9	107216	15478
31-Jul	329.3	125152	17936
31-Aug	323.2	116328	-8824
30-Sep	329.5	125450	9122
		WTR2007	19252
		CAL 2006	-42104

Date	release	spill	total	adj
oct	419	0	419	440
nov	622	0	622	162
dec	538	0	538	613
jan	522	0	522	480
feb	514	0	514	316
mar	508	0	508	362
apr	423	0	423	620
may	334	0	334	624
jun	392	0	392	652
jul	382	0	382	674
aug	401	0	401	257
sep	356	0	356	509
WTR2007	451	0	451	476
CAL 2006	435	4	439	380