

## COWLITZ RIVER BASIN

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14240304 SPIRIT LAKE AT TUNNEL, AT SPIRIT LAKE, WA

LOCATION.--Lat 46°16'35", long 122°09'41", in NE 1/4 NE 1/4 sec.10, T.9 N., R.5 E., Skamania County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, at entrance of Spirit Lake Outlet Tunnel, 5.6 mi north-northeast of the Mount St. Helens volcanic edifice.

DRAINAGE AREA.--18.0 mi<sup>2</sup>, at entrance to Spirit Lake Outlet Tunnel. Prior to the volcanic eruption on May 18, 1980, 14.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year. Records of contents published in WDR-WA-94-1 are unreliable and should not be used.

GAGE.--Water-stage recorder. Elevation of gage is 3,470 ft above NGVD of 1929, from topographic map.

REMARKS.--As a result of the May 18, 1980, eruption, a gravitational landslide ensued, transporting an estimated 0.6 mi<sup>3</sup> of debris into the upper North Toutle River drainage basin. A massive debris avalanche completely filled the lake, blocking the natural outlet to the North Fork Toutle River with a deposit several hundred feet thick. This filling caused the lake to rise 200 ft to elevation 3,400 ft. Refer to report by Schuster, R. L., ed., 1986, Landslide Dams: Processes, Risk and Mitigation: Geotechnical Special Publication no. 3, American Society of Civil Engineers, 164 p., for history of Spirit Lake as it was impacted by the eruption and actions taken to reduce the resulting flood threat.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded elevation, 3,460.13 ft Feb. 5, 1997; minimum recorded elevation, 3,437.00 ft Oct. 28, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 3,443.47 ft Jan 12; minimum recorded elevation, 3,437.92 ft Oct. 10.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3438.09	3438.82	3443.23	3441.79	3442.21	3440.99	3440.32	3441.58	3442.28	3441.68	3439.73	3438.52
2	3438.06	3438.87	3443.18	3441.71	3442.12	3440.93	3440.29	3441.64	3442.32	3441.61	3439.67	3438.50
3	3438.04	3438.96	3443.07	3441.64	3442.05	3440.86	3440.27	3441.66	3442.33	3441.53	3439.61	3438.47
4	3438.00	3439.06	3443.05	3441.55	3441.95	3440.81	3440.26	3441.65	3442.34	3441.46	3439.57	3438.44
5	3437.98	3439.13	3442.95	3441.55	3441.86	3440.76	3440.27	3441.68	3442.37	3441.39	3439.51	3438.41
6	3437.95	3439.18	3442.92	3441.79	3441.83	3440.75	3440.31	3441.71	3442.37	3441.32	3439.46	3438.38
7	3437.95	3439.23	3442.80	3442.75	3441.89	3440.72	3440.34	3441.68	3442.36	3441.32	3439.41	3438.35
8	3437.97	3439.28	3442.73	3443.27	3441.86	3440.64	3440.34	3441.64	3442.32	3441.23	3439.36	3438.34
9	3437.95	3439.33	3442.62	3443.37	3441.74	3440.62	3440.44	3441.58	3442.27	3441.17	3439.33	3438.31
10	3438.02	3439.36	3442.57	3443.39	3441.67	3440.64	3440.57	3441.53	3442.24	3441.11	3439.29	3438.30
11	3438.03	3439.41	3442.52	3443.34	3441.58	3440.87	3440.68	3441.49	3442.22	3441.05	3439.25	3438.28
12	3438.13	3439.51	3442.41	3443.45	3441.48	3440.93	3440.77	3441.47	3442.22	3441.00	3439.20	3438.26
13	3438.14	3439.72	3442.61	3443.36	3441.38	3440.94	3441.08	3441.52	3442.23	3440.92	3439.16	3438.24
14	3438.21	3440.15	3442.63	3443.29	3441.29	3440.93	3441.64	3441.52	3442.25	3440.86	3439.12	3438.23
15	3438.19	3440.39	3442.60	3443.20	3441.20	3440.91	3441.80	3441.53	3442.25	3440.79	3439.08	3438.20
16	3438.18	3440.53	3442.82	3443.13	3441.13	3440.88	3441.87	3441.53	3442.21	3440.72	3439.05	3438.20
17	3438.17	3440.63	3442.85	3443.03	3441.05	3440.81	3441.87	3441.56	3442.20	3440.66	3439.01	3438.17
18	3438.15	3440.74	3442.93	3442.93	3441.00	3440.79	3441.84	3441.61	3442.21	3440.59	3438.97	3438.15
19	3438.16	3441.16	3442.87	3442.94	3441.00	3440.85	3441.81	3441.63	3442.16	3440.52	3438.93	3438.14
20	3438.13	3441.57	3442.78	3442.95	3440.91	3440.78	3441.80	3441.67	3442.11	3440.46	3438.88	3438.11
21	3438.18	3441.87	3442.69	3442.89	3441.06	3440.72	3441.77	3441.73	3442.07	3440.40	3438.86	3438.09
22	3438.22	3442.42	3442.59	3442.86	3441.15	3440.65	3441.74	3441.78	3442.04	3440.34	3438.82	3438.07
23	3438.42	3442.64	3442.50	3442.77	3441.26	3440.60	3441.70	3441.79	3442.00	3440.27	3438.79	3438.05
24	3438.45	3442.80	3442.38	3442.73	3441.26	3440.57	3441.67	3441.80	3441.94	3440.22	3438.76	3438.04
25	3438.45	3442.93	3442.29	3442.77	3441.21	3440.52	3441.63	3441.83	3441.91	3440.15	3438.73	3438.02
26	3438.46	3443.03	3442.18	3442.71	3441.17	3440.50	3441.63	3441.87	3441.86	3440.09	3438.71	---
27	3438.49	3443.05	3442.13	3442.66	3441.12	3440.46	3441.60	3441.91	3441.80	3440.03	3438.68	---
28	3438.48	3443.14	3442.03	3442.55	3441.06	3440.45	3441.56	3442.04	3441.87	3439.97	3438.65	3437.98
29	3438.48	3443.12	3441.94	3442.46	---	3440.41	3441.54	3442.17	3441.83	3439.91	3438.62	3438.13
30	3438.61	3443.17	3441.82	3442.37	---	3440.37	3441.55	3442.24	3441.76	3439.85	3438.59	3438.12
31	3438.75	---	3441.77	3442.32	---	3440.33	---	3442.28	---	3439.79	3438.55	---
MEAN	3438.21	3440.77	3442.59	3442.69	3441.45	3440.71	3441.16	3441.72	3442.14	3440.72	3439.08	3438.23
MAX	3438.75	3443.17	3443.23	3443.45	3442.21	3440.99	3441.87	3442.28	3442.37	3441.68	3439.73	3438.52
MIN	3437.95	3438.82	3441.77	3441.55	3440.91	3440.33	3440.26	3441.47	3441.76	3439.79	3438.55	3437.98