

2019 and 2020 Pattison Lake Water Quality Report

Prepared by Thurston County Environmental Health Division

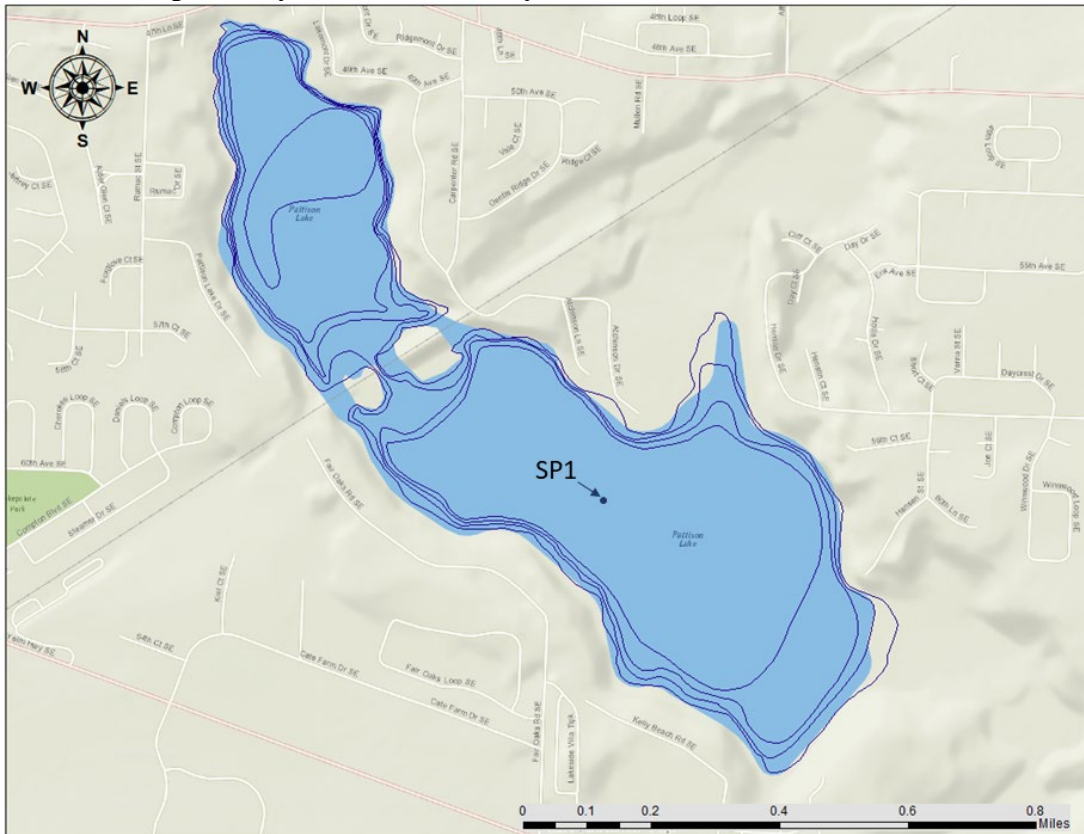


Figure 1. Pattison Lake map showing location of sample site SP1.

PART OF HENDERSON INLET WATERSHED

- **SHORELINE LENGTH:** 6.3 miles
- **LAKE SIZE:** 0.42 square miles (270 acres)
- **BASIN SIZE:** 3.8 square miles
- **MEAN DEPTH:** 4 meters (13 feet)
- **MAXIMUM DEPTH:** 6.7 meters (22 feet)
- **VOLUME:** 3,600 acre-feet

PRIMARY LAND USES:

The watershed is primarily suburban residential with some undeveloped forest cover primarily in wetland areas. The sample site SP1 is in the south basin (Figure 1).

PRIMARY LAKE USE:

Pattison Lake is used for fishing, swimming, and boating (under 5 mph).

PUBLIC ACCESS:

The Washington Department of Fish and Wildlife operates one public boat launch on the east side of the south basin.

GENERAL TOPOGRAPHY:

Pattison Lake is a Puget Sound lowland lake at an elevation of 154 feet above mean sea level. Decades ago, it was divided into two basins, north and south, by placement of fill material for a railroad. Pattison Lake is second in a series of four lakes that begins with Hicks Lake. Hicks Lake drains into Pattison, and Pattison drains to Long Lake. The outlet from Long Lake flows through Lois Lake and ultimately becomes Woodland Creek, a tributary stream to Henderson Inlet.

GENERAL WATER QUALITY:

Fair – In 2019 and 2020 Pattison Lake was classified as eutrophic. Water clarity was below long-term averages in both sampling years. Water quality was further impaired by high levels of nutrients and algal blooms, which interfere with recreation and can produce surface scum and toxins.

Appendix B. Quality Assurance/Quality Control

Tables B-1 and B-2 provides the amount of instrument drift for specific conductivity, dissolved oxygen (collected with optical sensor), and pH. TCEH collected 15% field replicates and blanks for TP, TN, Chlorophyll-a, and Phaeophytin-a.

Table B-1. Instrument drift for Pattison Lake sample days in 2019.

Date	Time	Percent Difference		
		DO	SPC	pH (7)
6/19/2019	7:20	0.10	0.3	0.00
7/26/2019	16:20	0.09	6.62	0.43
8/29/2019	7:30	0.26	0.33	0.29
9/26/2019	13:30	0.57	0.12	0.14
10/24/2019	13:15	0.03	0.91	0.57
Median Percent Difference:		0.25	0.34	0.14
Mean Percent Difference:		0.45	1.15	0.25

Table B-2. Instrument drift for Pattison Lake sample days in 2020.

Date	Time	Percent Difference		
		DO	SPC	pH (7)
5/21/2020	13:00	0.82	0.39	1.43
6/26/2020	9:45	0.52	3.83	0.86
7/23/2020	17:30	0.10	0.11	0.14
8/27/2020	13:10	0.21	0.49	0.29
9/23/2020	15:40	0.54	0.09	0.86
10/22/2020	-	0.17	0.15	0.14
Median Percent Difference:		0.28	0.13	0.43
Mean Percent Difference:		0.63	0.61	0.56