

SPRING LAKE WATER QUALITY UPDATE

LAKE DESCRIPTION

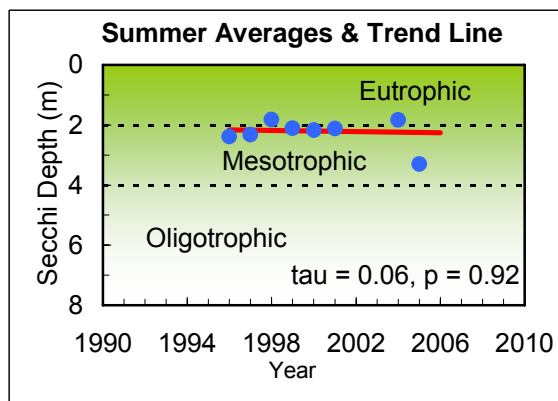
Spring Lake is a private lake located three miles northwest of Granite Falls. It is fed primarily by groundwater and drains to an unnamed tributary of the South Fork Stillaguamish River. The lake covers 26 acres and is very shallow, with a maximum depth of a little over 3 meters. The surrounding watershed is mostly undeveloped, and is very large compared to the size of the lake. There are about a dozen homes around the lake shore.

LAKE CONDITIONS

The following graphs illustrate the summer averages and trend lines (in red) for water clarity and total phosphorus for Spring Lake. Please refer to the table on the third page for long-term averages and for averages and ranges for individual years.

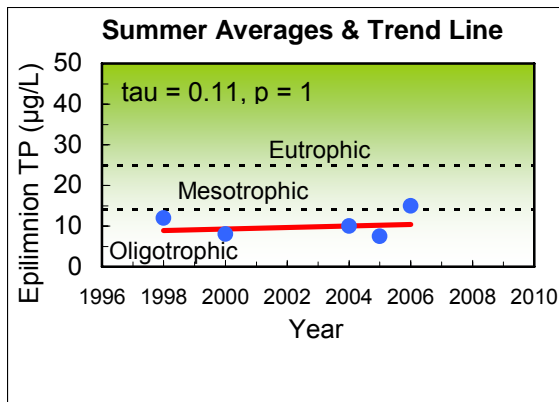
Water Clarity

Water clarity in Spring Lake is low to moderate, with a long-term average of 2.3 meters. In 2005, the average increased to 3.3 meters, the highest ever recorded. However, because of the shallow lake depth, in prior years the Secchi disk has often hit the bottom of the lake during water clarity measurements. It is possible that the true water clarity in prior years was somewhat greater than the field measurements and that the volunteer found a deeper location for readings in 2005. There are no statistical trends in long-term water clarity.



Total Phosphorus (key nutrient for algae)

Total phosphorus concentrations in the epilimnion (upper waters) of Spring Lake are relatively low. The 1998 to 2006 long-term average is 11 µg/l, although this is based on a limited number of samples in most years. There is no evidence of any trend up or down in phosphorus concentrations.



Because of the shallow depths, Spring Lake does not usually stratify, and no hypolimnion samples are taken. In the summer of 2006, two measurements were taken near the bottom of the lake. The results showed similar values to the epilimnion samples.

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Chlorophyll a (Algae)

No chlorophyll a data are available for Spring Lake, so the levels of algae are unknown. However, the volunteer monitors have reported dense algae in some years.

SUMMARY

Trophic State

Based on low water clarity and phosphorus concentrations and abundant aquatic plants, the lake may be classified as mesotrophic.

Condition and Trends

Spring Lake appears to be in satisfactory condition. Water quality conditions are stable, and there are no evident trends in water clarity or total phosphorus averages. The lake is meeting the water quality targets set forth in the 2003 State of the Lakes Report of maintaining stable water clarity and low phosphorus levels.

The biggest threat to Spring Lake would be substantial development in the watershed or large-scale timber harvest. Unless undertaken carefully, either of these changes could produce more nutrients flowing to the lake that would result in increased algae and aquatic plant growth.

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DATA SUMMARY FOR SPRING LAKE				
Source	Date	Water Clarity (Secchi depth in meters)	Total Phosphorus ($\mu\text{g/l}$)	
			Surface	Bottom
Volunteer	1996	2.1 - 2.7 (2.4) $n = 10$	-	-
Volunteer	1997	2.0 - 2.6 (2.3) $n = 4$	-	-
SWM Staff or Volunteer	1998	1.2 - 2.6 (1.8) $n = 6$	12	-
Volunteer	1999	1.8 - 2.4 (2.1) $n = 9$	-	-
SWM Staff or Volunteer	2000	2.0 - 2.3 (2.2) $n = 6$	8	-
SWM Staff or Volunteer	2001	2.0 - 2.3 (2.1) $n = 3$	-	-
SWM Staff or Volunteer	2004	1.5 - 2.0 (1.8) $n = 3$	10	-
SWM Staff or Volunteer	2005	3.3 - 3.3 (3.3) $n = 2$	6 - 9 (8) $n = 2$	-
Volunteer	2006	2.5 - 2.9 (2.6) $n = 3$	13 - 18 (15) $n = 3$	13 - 14 (14) $n = 2$
Long Term Avg		2.3 (1996-2006)	11 (1998-2006)	-
TRENDS		None	None	

NOTES

- Table includes summer (May-Oct) data only.
- Each box shows the range on top, followed by summer average in () and number of samples (n).
- Total phosphorus data are from samples taken at discrete depths only.
- "Surface" samples are from 1 meter depth and "bottom" samples are from 1-2 meters above the bottom.