2023 Offutt Lake Water Quality Report

Prepared by Thurston County Environmental Health Division

Part of Budd/Deschutes Watershed

- **SHORELINE LENGTH**: 2.9 miles
- **LAKE SIZE:** 0.30 square miles (195 acres)
- **BASIN SIZE**: 2.7 square miles
- **MEAN DEPTH**: 4.6 meters (15 feet)
- **MAXIMUM DEPTH**: 7.6 meters (25 feet)
- **VOLUME**: 3,577,092 cubic meters (2,900 acre-feet)

GENERAL TOPOGRAPHY:
Offutt Lake is a Puget Sound lowland lake at an elevation of 234 feet above mean sea level.

CYANOBACTERIA BLOOMS:
One bloom was sampled by staff in 2023. This bloom did not indicate elevated toxin levels in the sample taken.

PRIMARY LAND USES:
The Offutt (also spelled Offut) Lake watershed is primarily suburban residential with some undeveloped forest cover primarily in wetland areas. The sample site OF1 is near a private swim area on the northern side of the lake (Figure 1).

PRIMARY LAKE USES:
Offutt Lake is used for fishing, swimming, and boating (5mph).

PUBLIC ACCESS:
The Washington Department of Fish and Wildlife operates one public boat launch on the north side of the lake off 116th Ave SE.

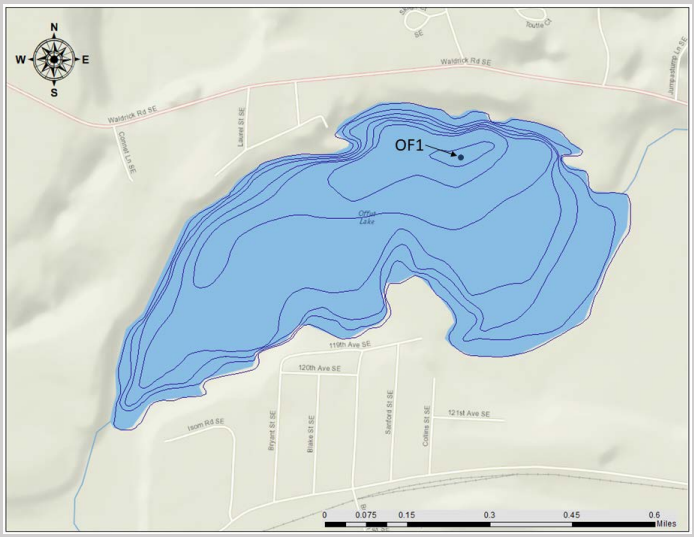

Figure 1. Offutt Lake map sample site OF1.

WATER QUALITY SUMMARY

In 2023, Thurston County Environmental Health (TCEH) conducted monthly monitoring of Offutt Lake from May through October. The 2023 results are similar to previous years, an indication that there has been no notable change in water quality.

All water quality data was collected at the deepest basin of the lake and sampling methods utilized were consistent with previous reported years.

The most popular biomass related method of classifying the trophic state of lakes is Carlson's Trophic State Index (TSI) (Carlson, 1977). Using this method, Offutt Lake has been classified as upper mesotrophic to eutrophic for the past 5 years of available monitoring data, and that classification has continued this year.

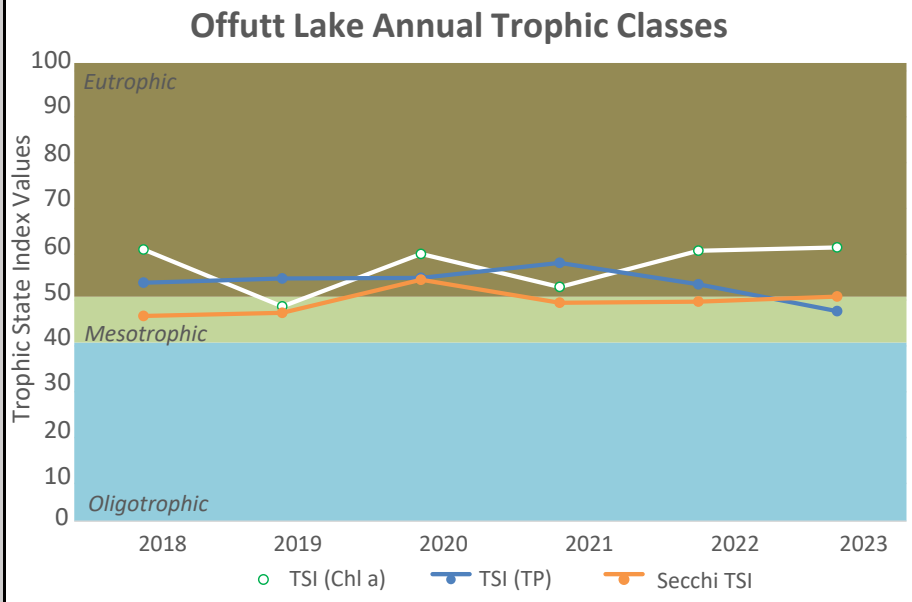

Figure 2. Trophic State Index Values 1995-2023

Vertical Water Profiles

Temperature, pH, Dissolved Oxygen, and Specific Conductivity measurements were collected to determine the stratification of Offutt Lake. Previous Water Years have indicated the onset of the stratification process in May - which was seen again this year. In this time, dissolved oxygen at the surface was relatively high. The vertical profile graph collected in 2023 displayed dissolved oxygen that was relatively high with a positive heterograde in the metalimnion. This differs from the profile graph in May 2022 which displayed a more standard clinograde curve. This could be explained in the difference of clarity at the time of sampling. The Secchi depth in May 2022 was only 1.75 meters while in May 2023 it was 3.33 meters, almost double the previous year. This increased transparency may allow for increased photosynthesis in the metalimnion.

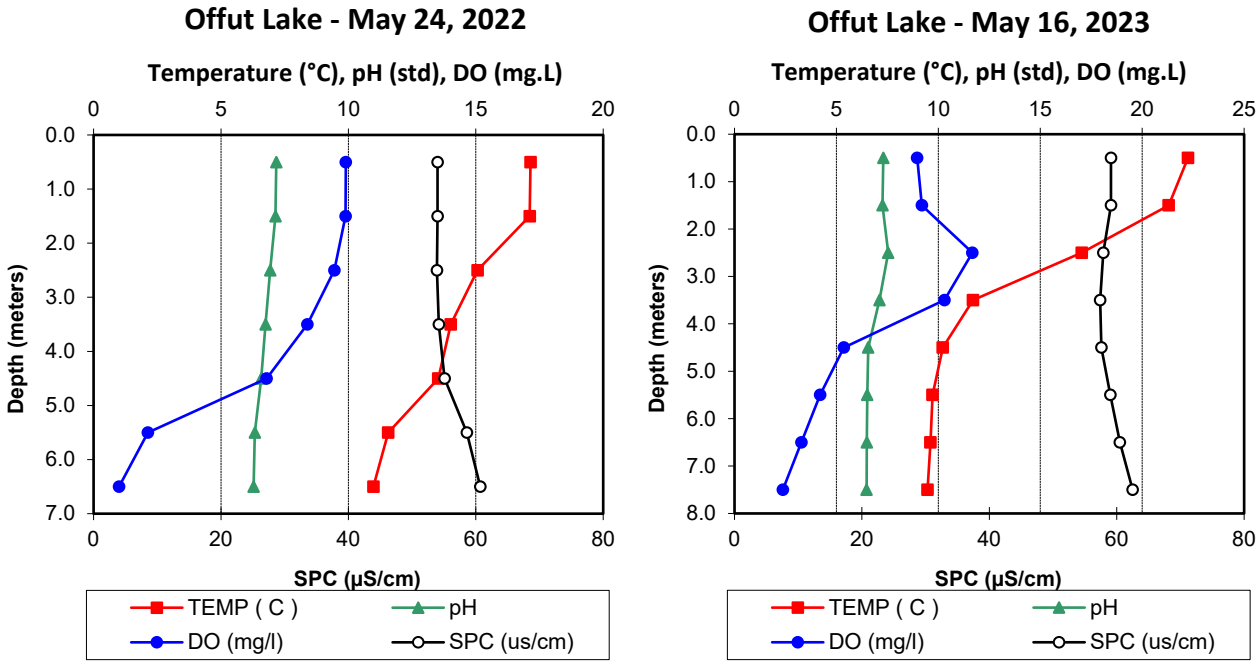

Figure 3. Vertical water quality profiles collected at OF1 for May 2022 and 2023

Offutt Lake then remained stratified in the summer months with the three layers of the lake being easily discernible through the clear clinograde curve in the dissolved oxygen profile.

During the October sampling event, Offutt Lake remained stratified in 2022 and in 2023. This demonstrates that the process of lake mixing takes place around late October to November time-frame.

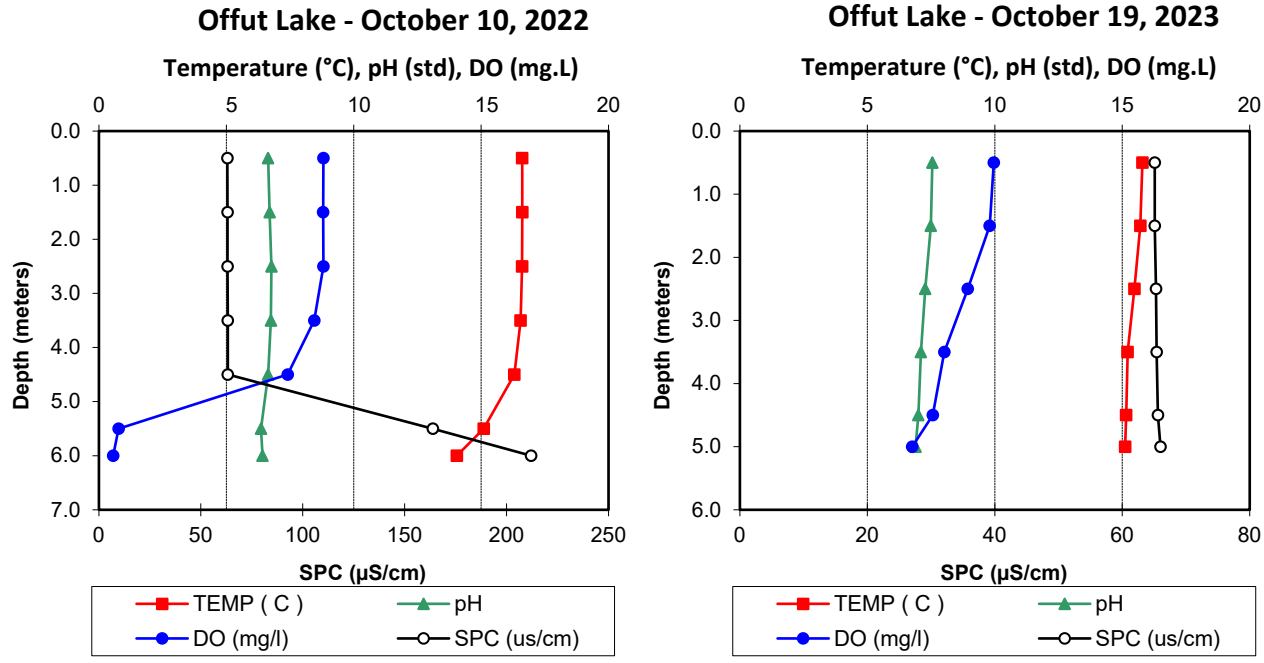

Figure 4. Vertical water quality profiles collected at OF1 for October 2022 and 2023