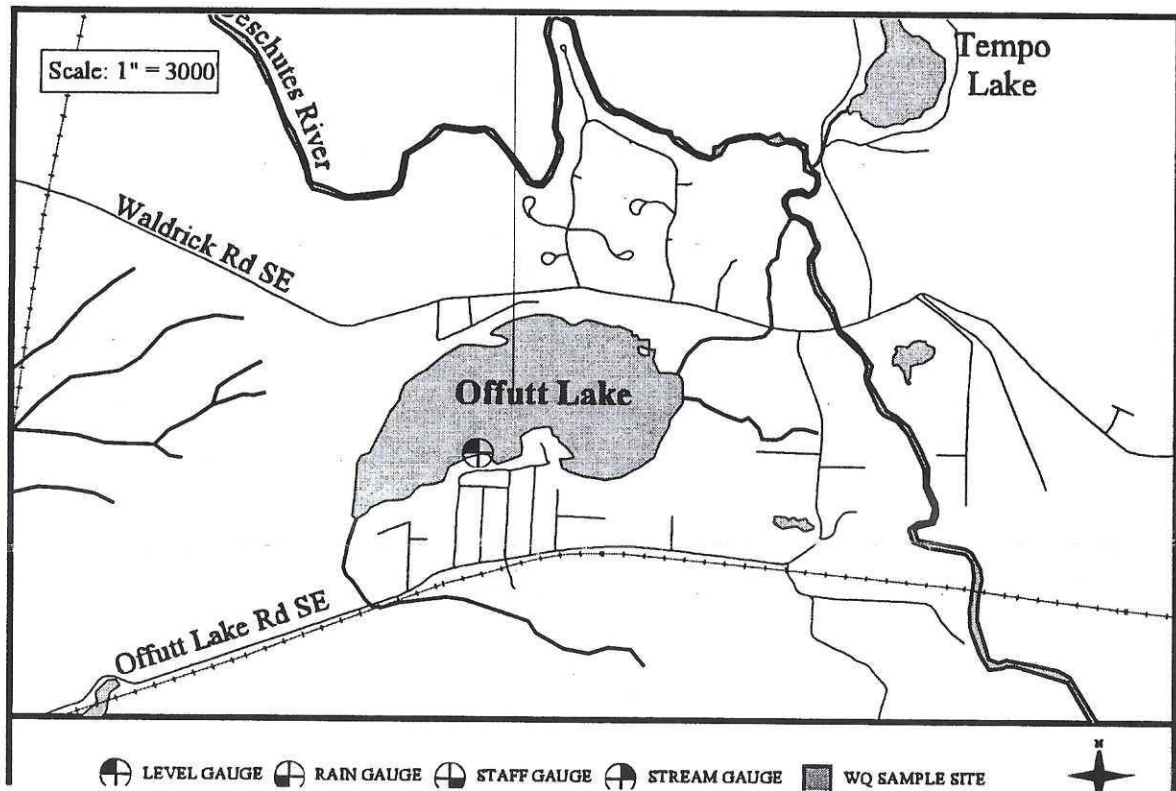


2000
Report

Offutt Lake



PART OF Deschutes River WATERSHED

SHORELINE LENGTH: 2.9 miles

LAKE SIZE: 200 acres

BASIN SIZE: 2.7 square miles

MEAN DEPTH: 15 feet

MAXIMUM DEPTH: 25 feet

VOLUME: 2,900 acre-feet

PRIMARY LAND USES:

There is a mixture of land uses within the Offutt Lake drainage that include dense residential development along the shoreline, rural residential, agricultural activities, forestry, and a large gravel mine.

PRIMARY LAKE USES:

Swimming and fishing

PUBLIC ACCESS:

Washington Department of Fish and Wildlife boat launch

GENERAL TOPOGRAPHY:

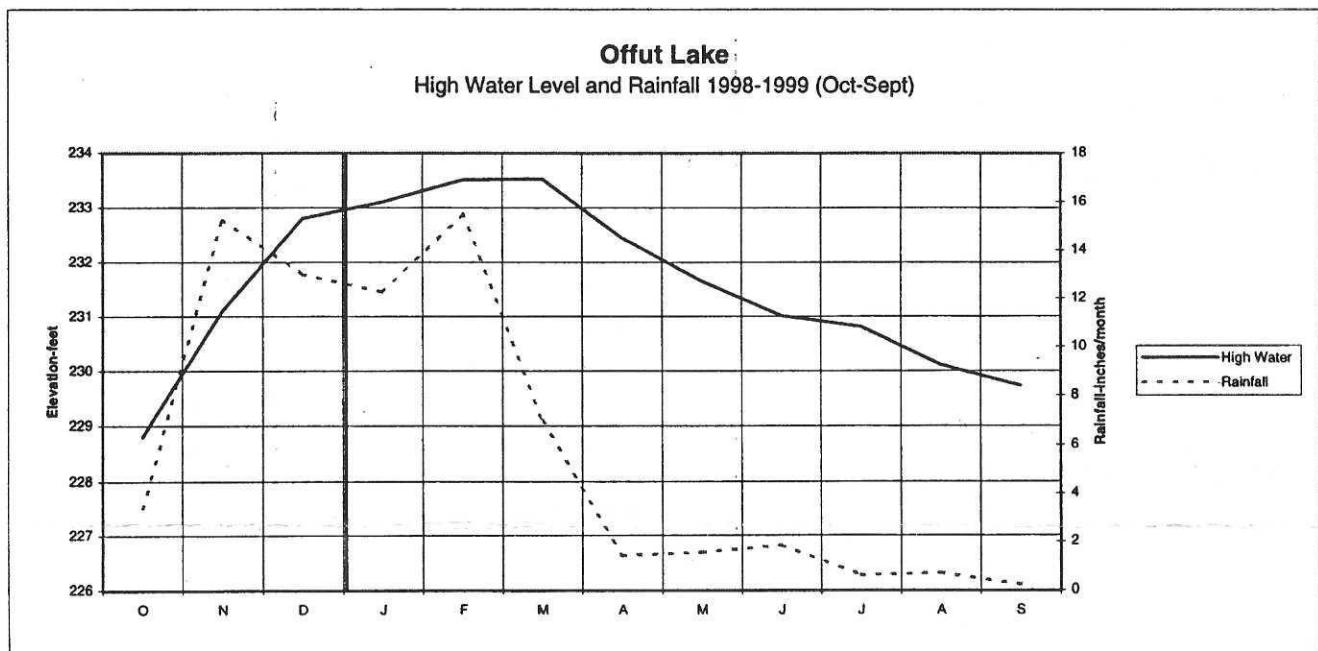
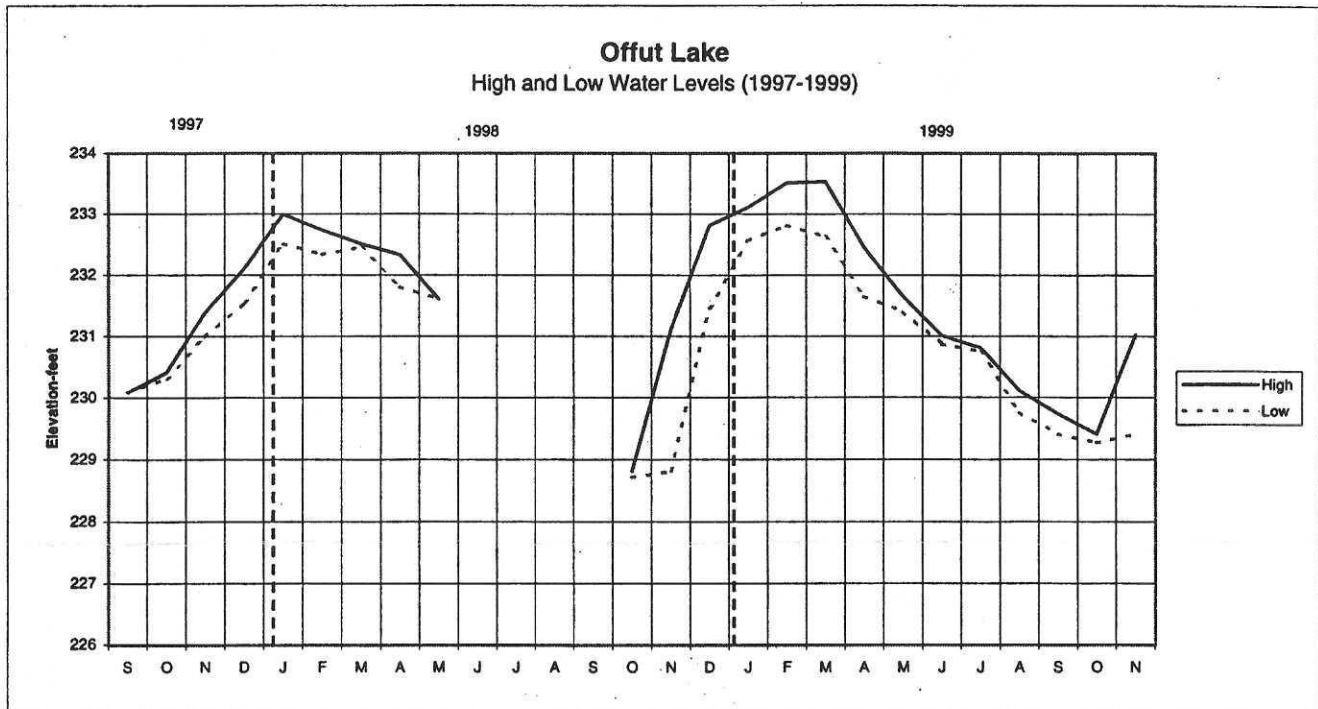
The approximate altitude of the lake is 230 feet. The lake was formed by a huge block of melting ice left by a lobe of the Vashon glacier. The lake is situated east of the Rocky Prairie and south and west of the Deschutes River. It has a small perennial stream flowing in at the west end of the lake, which originates in a wetland complex to the west and south. There is an outlet channel to the Deschutes River from the east end of the lake, which overflows during periods of high lake level.

GENERAL WATER QUALITY: (Excellent, Good, Fair, Poor)

Fair - High nutrient levels and severe fall algae blooms are characteristics of this lake. Rooted aquatic plants in some near-shore areas interfere with some lake uses by shoreline property owners.

OTHER AVAILABLE DATA:

Thurston County Environmental Health Div., (360) 754-4111, (1997 and historical water quality data).

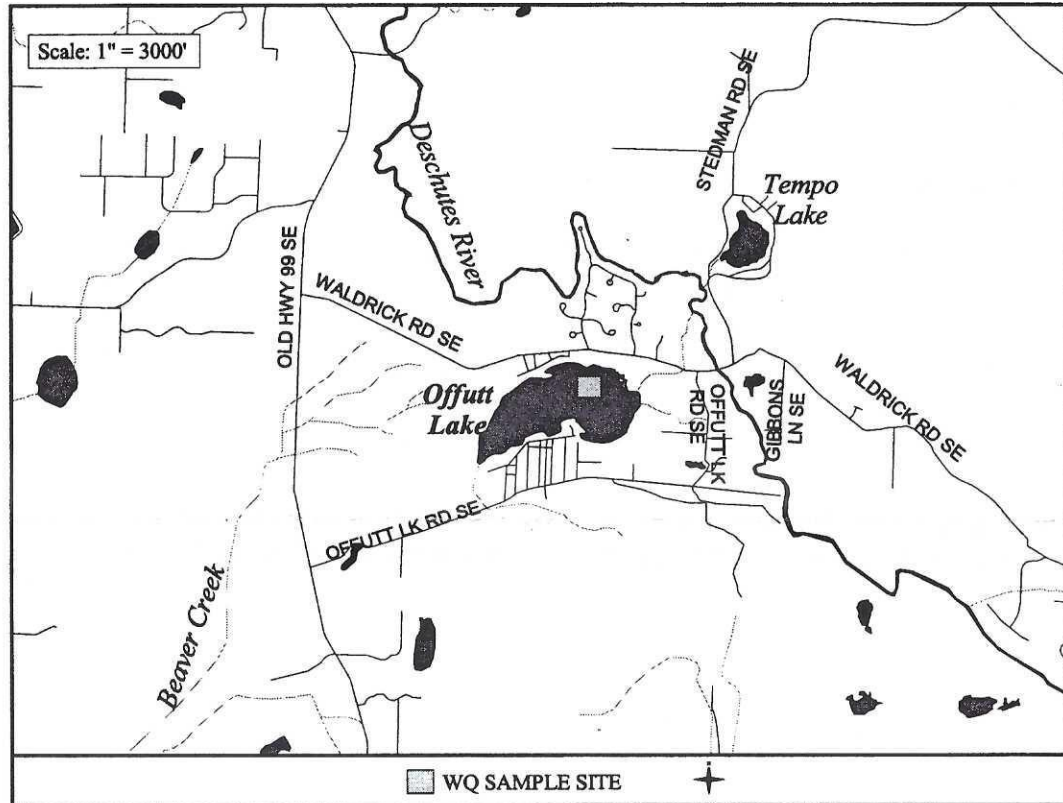


Lake level data is collected by a volunteer.
Rainingage is located at the Olympia Airport (NOAA)

No Additional Data Collected -

1997
Report

Offutt Lake



PART OF Deschutes River WATERSHED

SHORELINE LENGTH: 2.9 miles

LAKE SIZE: 200 acres

BASIN SIZE: 2.7 square miles

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MAXIMUM DEPTH: 25 feet

VOLUME: 2,900 acre-feet

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754-4111, (Historical water quality data).

GENERAL DISCUSSION:

Offutt Lake was sampled once each month, May through October of 1997. Based upon the profile data shown on the following pages, Offutt Lake was thermally stratified from May through August. It was also devoid of dissolved oxygen in the bottom 2 meters of the lake from June through August. During this anoxic (no oxygen) period, phosphorus was released from the sediments into the water. This can be seen by the high phosphorus levels in the data from the bottom samples included on the data sheet in this chapter. The release of nutrients from the bottom sediments stimulated a severe algae bloom during fall, after the surface and bottom water layers in the lake mixed. Evidence of the algae bloom is seen in the chlorophyll *a* levels which rose from less than 5 µg/L in early summer to 54 µg/L in October. In October during the algae bloom, water clarity was reduced to only 1 meter, or 3.3 feet.

The overall water quality in Offutt Lake is fair. The Carlson's trophic state index (TSI) is an index, with a range of 0 to 60, used to compare the productivity of lakes using average chlorophyll *a* and total phosphorus concentrations, and secchi disk measurements of water clarity. The calculated TSI's for chlorophyll *a*, total phosphorus, and secchi disk were 59, 58, and 49 respectively. A lake with a TSI greater than 50 is considered to be a eutrophic lake, or highly productive lake. Offutt Lake clearly falls within the eutrophic range based on chlorophyll and total phosphorus TSI's. The secchi disk TSI, at 49, is within the mesotrophic range of between 40 to 50, however, it is close to the upper boundary of the mesotrophic range.

Major Issues:

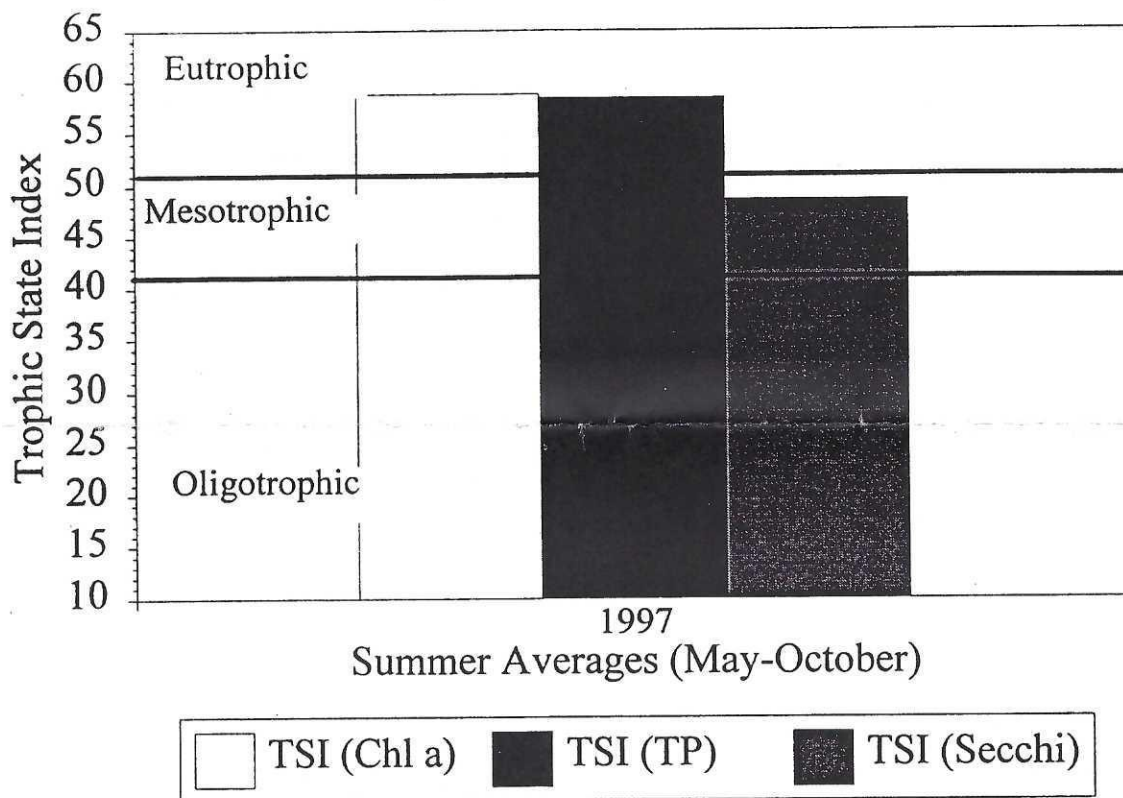
- Severe blue-green algae blooms in late summer and early fall may interfere with recreational uses of the lake.
- Control of non-native water lilies has been done by herbicide applications along shoreline segments.
- A cooperative agreement among lakeshore owners and property owners along the outlet channel is needed to maintain the outlet channel to prevent flooding during extremely high lake levels.

Funding Sources:

- County Real Estate Excise Tax monies funded the 1997 sampling. Sampling will continue in 1998.

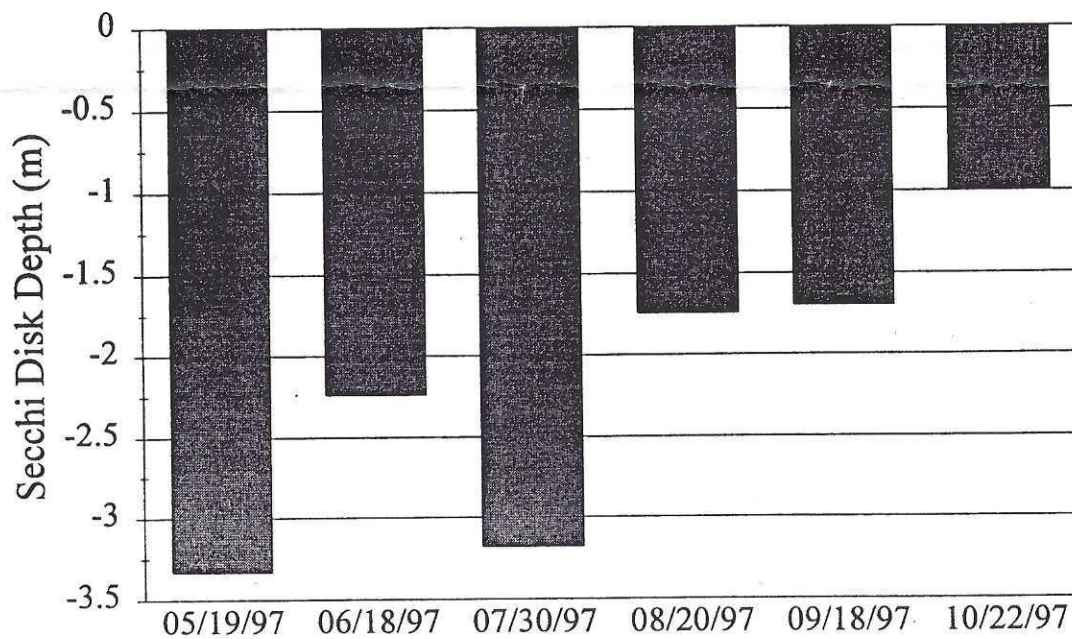
Offutt Lake

Trophic State Indices



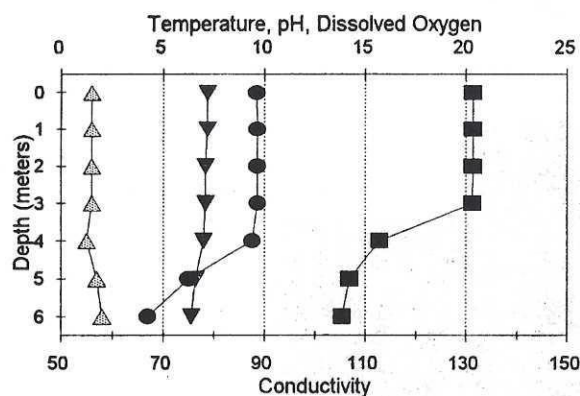
Offutt Lake

Secchi Disk Readings

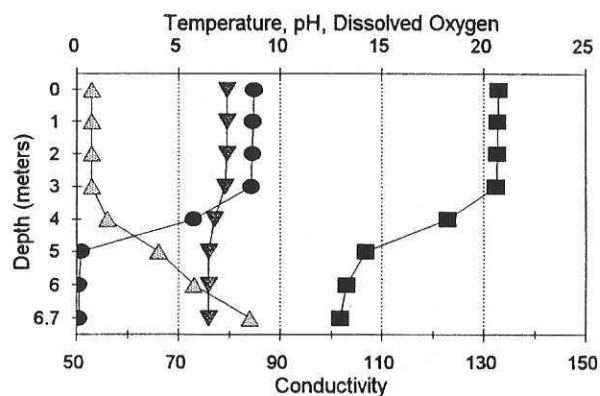


Offutt Lake

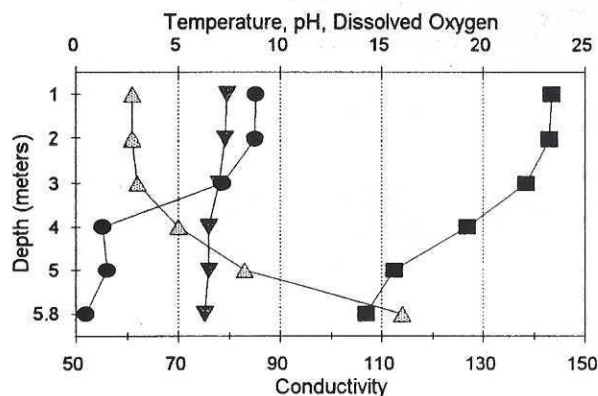
May 19, 1997



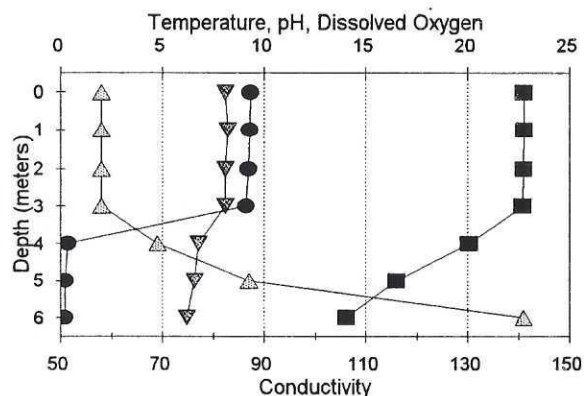
June 18, 1997



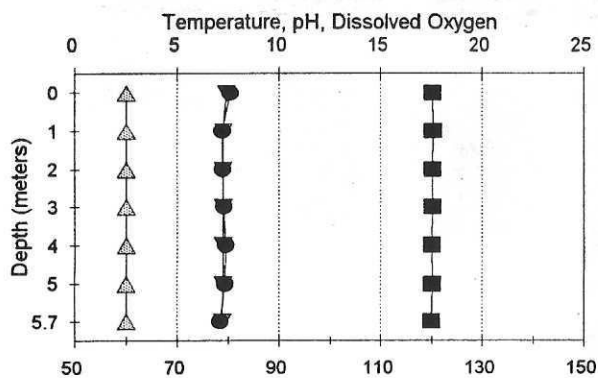
July 30, 1997



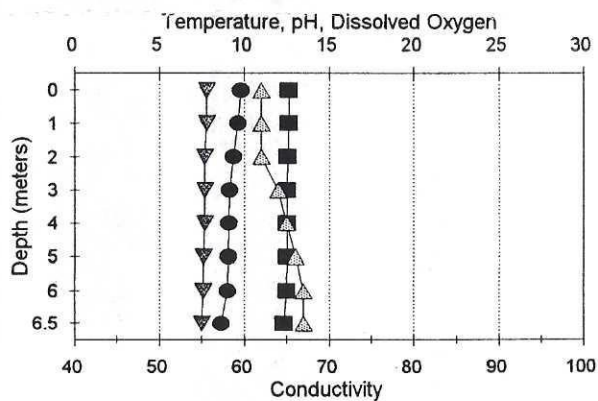
August 20, 1997



September 18, 1997



October 22, 1997



Thurston County Water Resources Monitoring Report Offutt Lake

Date	Time	Bott Depth (m)	Bott Sample Depth (m)	Sur TP (mg/L)	Bott TP (mg/L)	Sur TN (mg/L)	Bott TN (mg/L)	Secchi (m)	Chl a (ug/L)	Phae a (ug/L)	Water Color	Algae	Lake Notes
5/19/97		6.00	5.50	0.012	0.025	0.255	0.280	3.33	2.30	0.60	lt. yellow	Present: Anabaena flos-aquae, Sphaerocystis, Asterionella, Cryptomonas. Present: Anabaena, Gomphosphaeria, Chroococcoid, Staurastrum, Sphaerocystis, Elakatothrix, Asterionella, Cyclotella, Ceratium. Present: Dinobryon, Chroomonas, Cryptomonas.	Composite @ 1, 2, & 3M. Smelled fishy.
6/18/97		6.70	6.00	0.011	0.140	0.214	0.366	2.24	3.10	1.50	brown	Present: Anabaena, Gomphosphaeria, Chroococcoid, Staurastrum, Sphaerocystis, Elakatothrix, Asterionella, Cyclotella, Ceratium. Present: Dinobryon, Chroomonas, Cryptomonas.	Composite @ 1, 2, & 3M.
7/30/97	12:45	5.80	5.00	0.013	0.047	0.211	0.200	3.18	4.50	2.60	olive green	Present: Anabaena, Gomphosphaeria, Chroococcoid, Staurastrum, Sphaerocystis, Elakatothrix, Asterionella, Cyclotella, Ceratium. Present: Dinobryon, Chroomonas, Cryptomonas.	Composite @ 1, 2, & 2.5M.
8/20/97	11:30	6.30	5.50	0.019	0.108	0.450	0.339	1.75	19.00	2.10	pea green	Present: Anabaena, Gomphosphaeria, Chroococcoid, Staurastrum, Sphaerocystis, Elakatothrix, Asterionella, Cyclotella, Ceratium. Present: Dinobryon, Chroomonas, Cryptomonas.	Composite @ 1, 2, & 3M. Bloom occurring.
9/18/97	11:15	5.70		0.133	0.132	0.586	0.581	1.70	23.00	4.20	pea/olive green	Dominant: Anabaena, Gomphosphaeria, Chroococcoid, Staurastrum, Sphaerocystis, Elakatothrix, Asterionella, Cyclotella, Ceratium. Present: Dinobryon, Chroomonas, Cryptomonas.	Composite @ .75, 1.5, & 2.25. Bloom occurring.
10/22/97	13:00	6.50	6.00	0.070	0.070	0.834	0.822	1.00	54.00	18.00	pea green	Dominant: Anabaena, Gomphosphaeria, Chroococcoid, Staurastrum, Sphaerocystis, Elakatothrix, Asterionella, Cyclotella, Ceratium. Present: Dinobryon, Chroomonas, Cryptomonas.	Algae sample collected 1M depth.

"Sur" refers to measurements or samples taken at 0.5 meters below the lake surface.
 "Bott" refers to measurements or samples taken at approximately 0.5 meters above the lake bottom. The actual depth was reported under "Bott Sample Depth".

