

## POSTER PRESENTATION

### VARIATIONS IN THE VERTICAL DIATOM DISTRIBUTION IN A DEEP NEAR-OLIGOTROPHIC ALPINE LAKE DURING THE ONSET OF STRATIFICATION, FALLEN LEAF LAKE, CALIFORNIA.

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Monitoring of the Spring diatom bloom and limnology of Fallen Leaf Lake, Lake Tahoe Region, show both a seasonal succession and vertical variation of diatoms at specific depths from 0 to 50 meters that is related to onset of lake stratification. Monitoring is underway to provide modern calibration in an ongoing study of Holocene cores from the lake. Fallen Leaf Lake is characterized as a near-oligotrophic alpine lake that is slightly N limited with low conductivity (21 $\mu$ S/cm). Maximum depth is >100m and surface area is 5.6 km<sup>2</sup>. Diatoms dominate the phytoplankton and chrysophytes are also common. Diatoms from surface and vertical plankton tows were examined to determine relative abundance and begin constructing a species list. In addition, live cells were enumerated from water collected at 12 discrete depths. Surface tows show a seasonal succession. The winter species *Aulacoseira italica* (22%) was still abundant in late April along with *Tabellaria fenestrata* (30%) and *Asterionella Formosa* (26%). In early June, *Urosolenia eriensis* was most dominant, followed by stellate *Fragilaria* colonies, *A. Formosa*, *T. fenestrata* and *P. bodanica*. In late June, *A. Formosa* and *T. fenestrata* were still abundant while *U. eriensis* and *Fragilaria* decreased. Depth samples taken in early and late June show a more complex story. Total concentration of live diatom cells was lowest in the upper 5m and peaked at 17.5m at the base of the metalimnion on June 1. The peak concentration dropped to a depth of 25m on June 26 as the lake progressively stratified and surface temperature rose to 16°C. Not all groups peaked at the same depth, however. *Fragilaria* dominated the 0-10m interval and peaked at shallower depths than the other species (15m on June 1, 5m on June 26). Cyclotelloid, *A. formosa*, and *T. fenestrata* concentrations all peaked ~17.5m on June 1, and 25m on June 26. *A. italica* was absent from counts of the epilimnion on both dates with peak abundance considerably lower at ~40m in the hypolimnion. It appears that some species dominant in the surface in early spring later peak at greater depths in early summer, suggesting a submergence to follow optimal conditions. Si concentrations were low (833-896 ppb) and did not vary significantly between epi- and hypolimnion in late June. Monitoring will continue into winter months, including detailed nutrient analyses, to characterize both seasonal and vertical changes in the diatoms, and identify controlling factors.