

Roll, S.K., Marine Science Institute, University of California, Santa Barbara, USA, roll@lifesci.ucsb.edu

Jellison, R., Marine Science Institute, University of California, Santa Barbara, USA, jellison@lifesci.ucsb.edu

SEASONAL VARIABILITY IN THE DEEP CHLOROPHYLL
MAXIMUM IN HYPERSALINE MONO LAKE, CALIFORNIA AND
THE CONTRIBUTION OF NEWLY DESCRIBED PICOCYSTIS
SALINARUM.

A narrow deep chlorophyll maximum in hypersaline, meromictic Mono Lake, CA is indicative of an actively growing phytoplankton community. This community develops at the lower limit of light availability where upward fluxes of ammonium from the chemocline relieve nitrogen limitation. A 3-fold increase in fluorescence occurred at 16.5 - 18.5m from June to September in 2000 and 2001. Chlorophyll *a* concentrations at the peak ranged from 35 to 63 $\mu\text{g l}^{-1}$ in 2000 and from 19 to 86 $\mu\text{g l}^{-1}$ in 2001. This chlorophyll maximum is numerically dominated by a newly described small (2-3 μm) chlorophyte, Picocystis salinarum, which appears adapted to low light and temperature, and high salinity and pH. However, its relative contribution to overall biovolume is low (<5%) owing to its small size. The deep phytoplankton community consisting of Picocystis, small flagellates, and pennate diatoms effectively utilizes the upward flux of nitrogen, and because it is below the region grazed by the brine shrimp, Artemia monica, reduces energy transfer to higher trophic levels in the upper water column.

CS29, CS21

Oral

Roll, S.K.