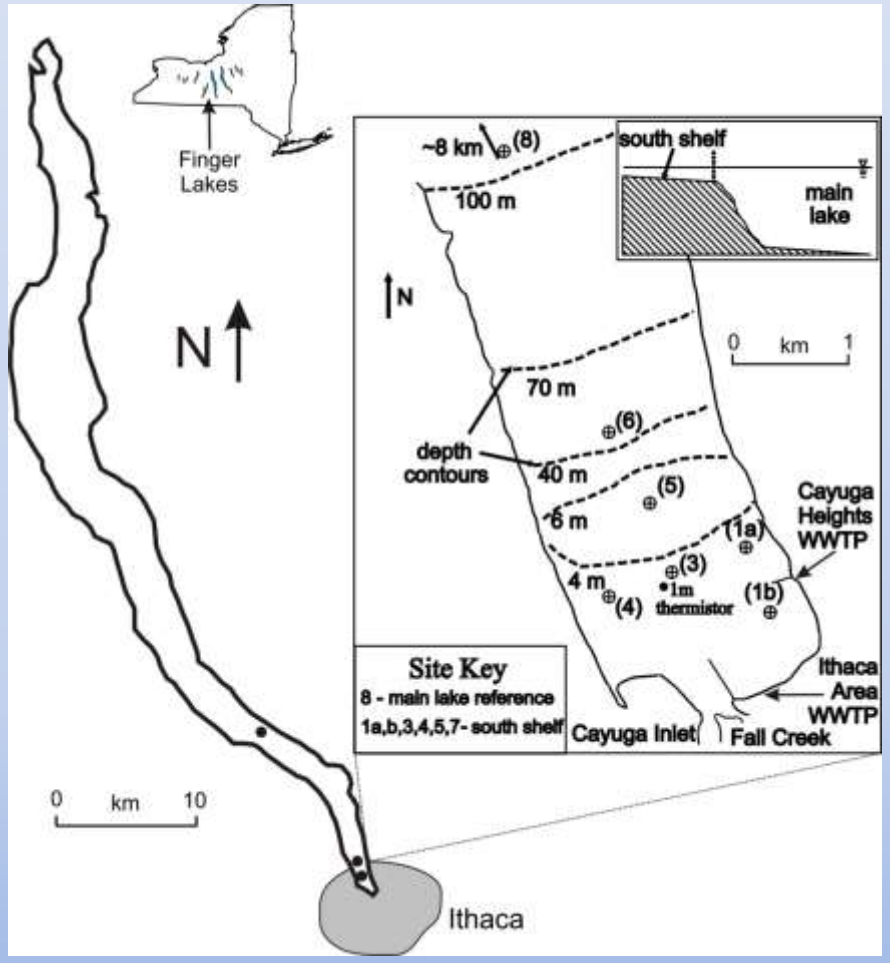
2013 Trophic State

Cayuga Lake, 1998-2012

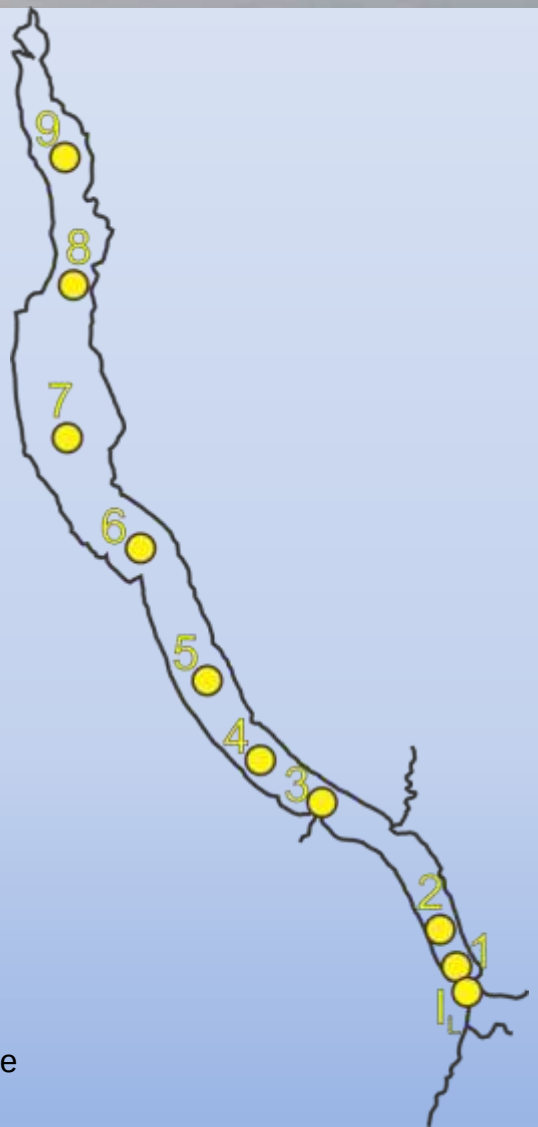


- LSC monitoring program sites
- site 8 pelagic zone
- site 1, 3, 4, 5, 7 shelf sites

Whole Lake Monitoring Sites, 2013

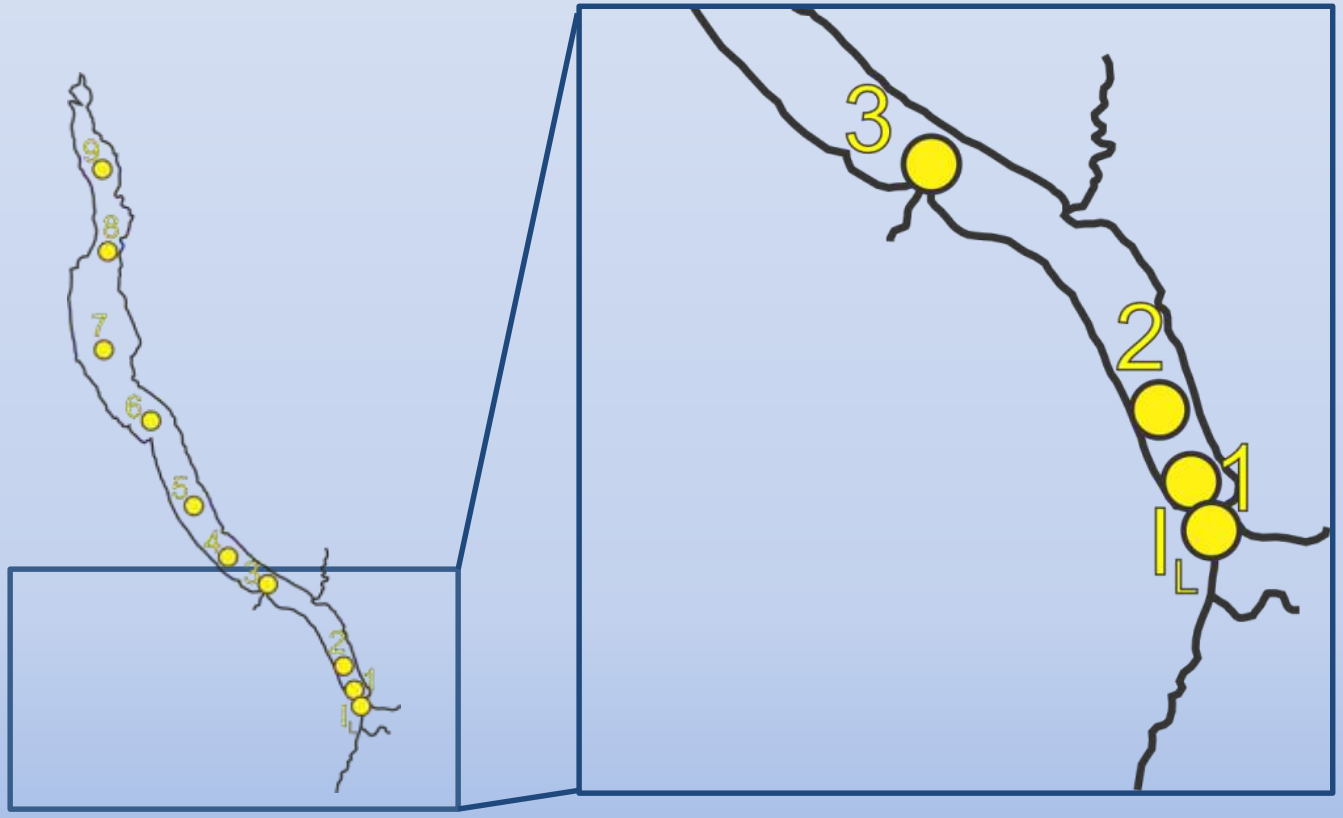
- 9 in-lake sites
- 1 site in inlet near mouth
- 2 times per month, April-October

- field measurements
- water collection
- phytoplankton sampling
- zooplankton sampling



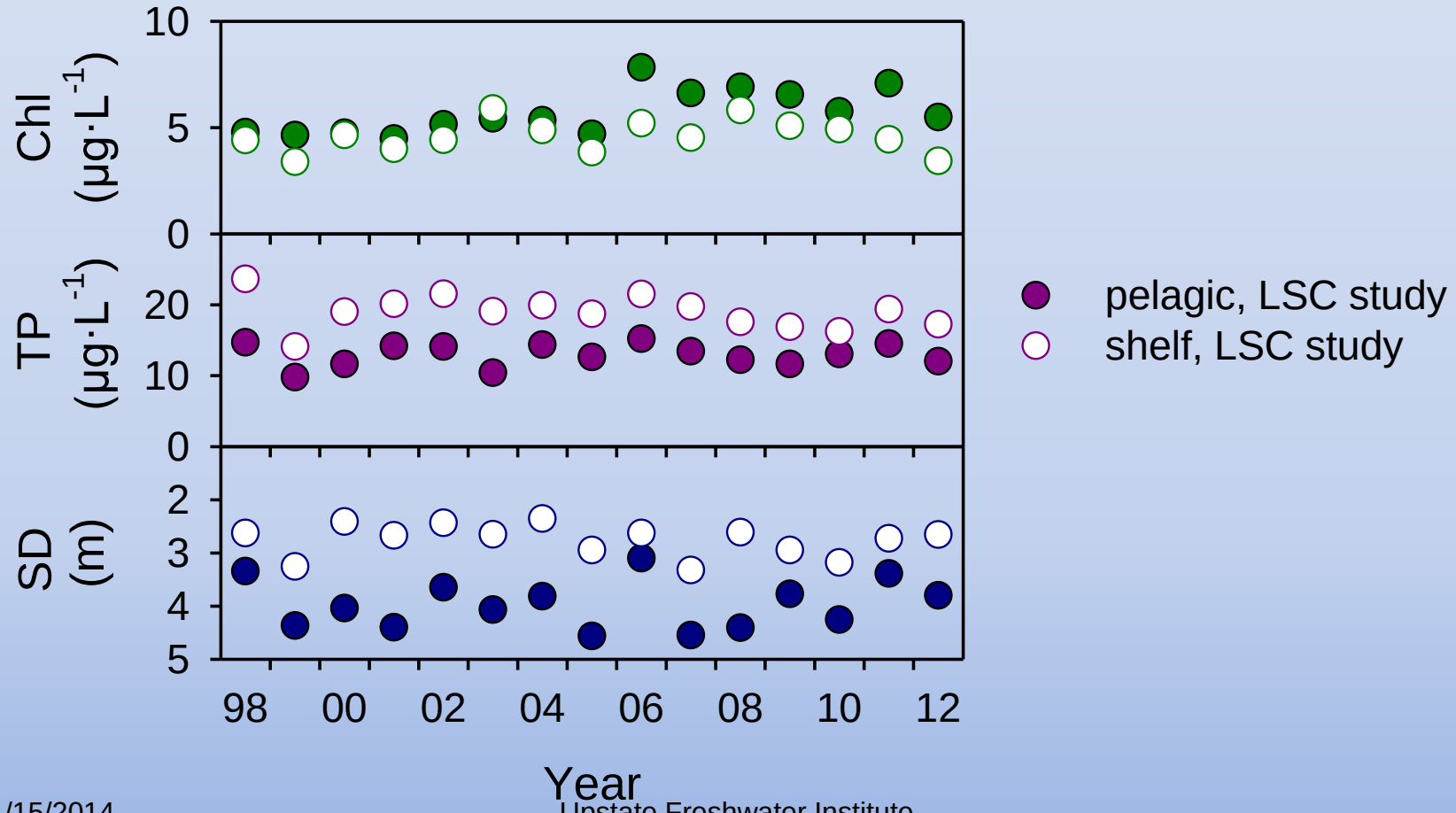
More Frequent South Monitoring Sites, 2013

- field measurements
- water collection (less parameters)



Results: Long-term Lake Trophic State Metrics

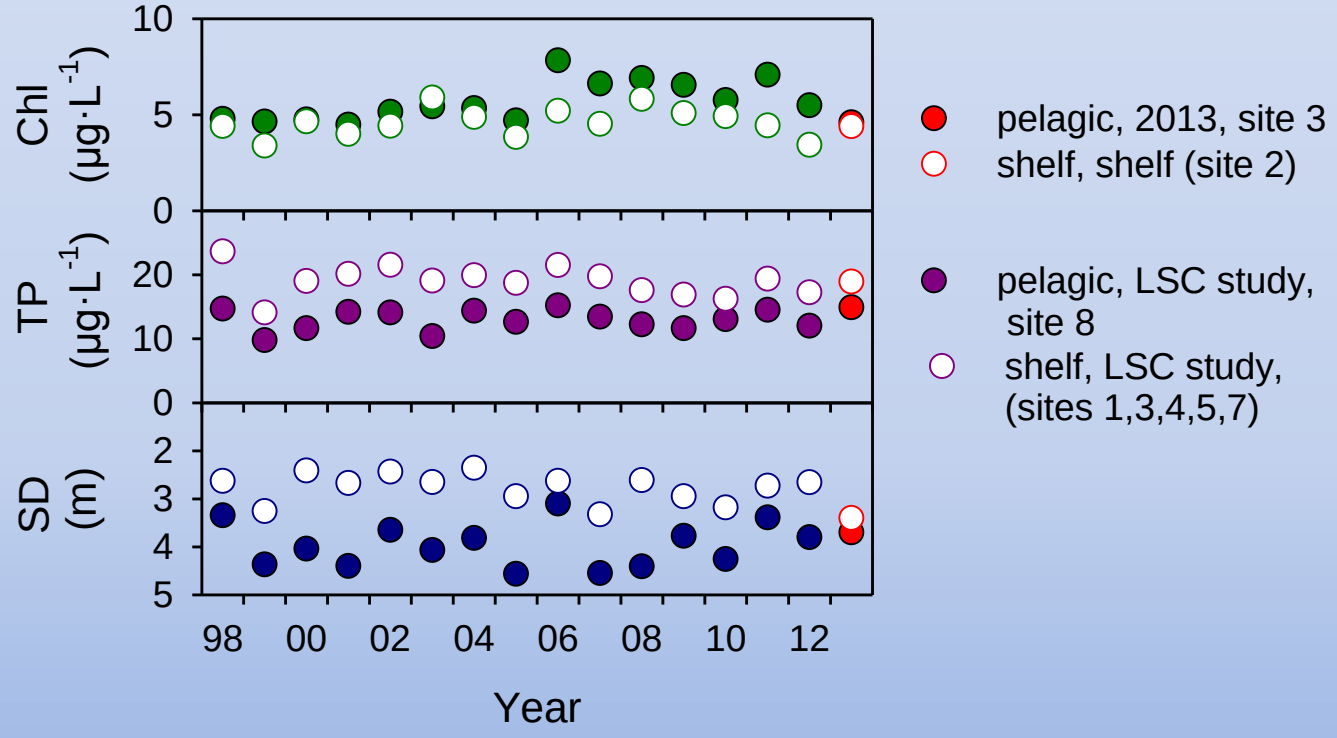
- 1998 – 2012, from LSC monitoring
- Jun-Sept. avg.



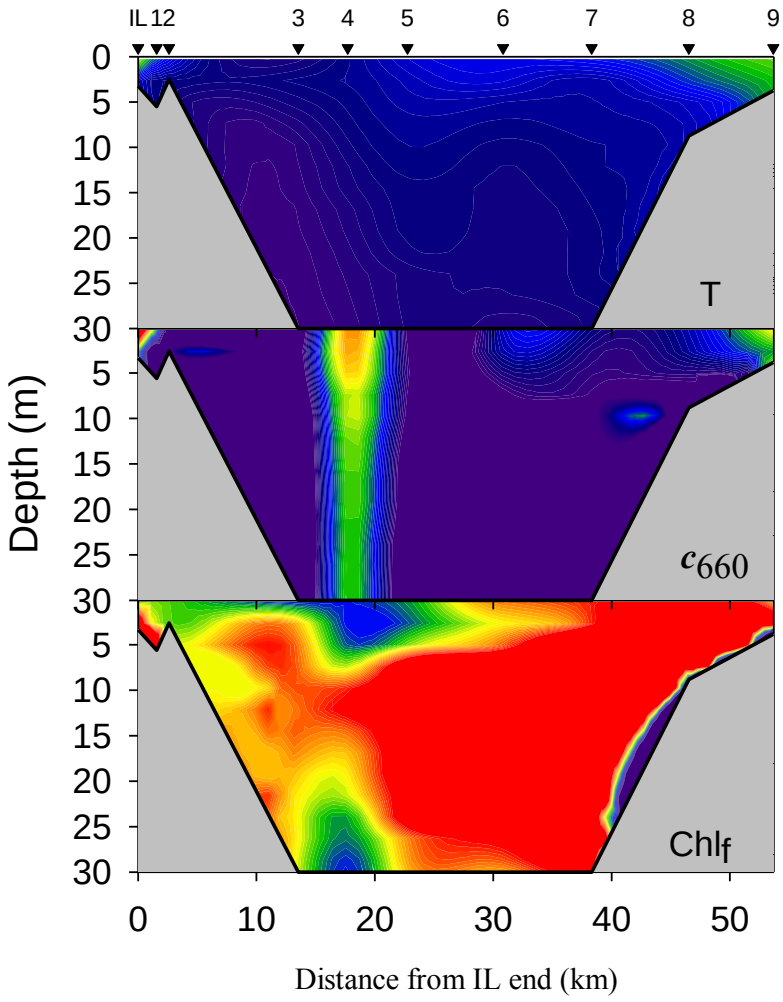
Relationships Between Trophic State Metrics

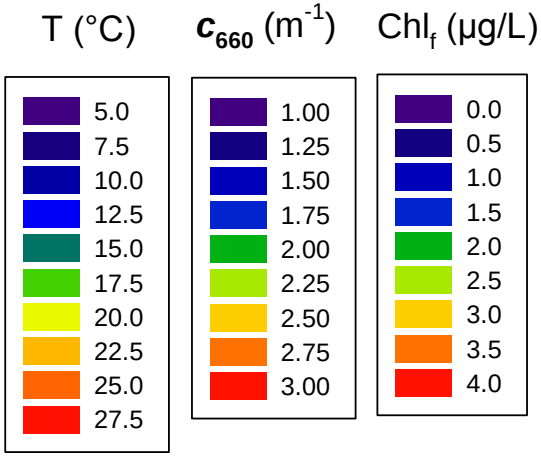
- 1998 – 2012, from LSC monitoring
- Jun-Sept avg.
- added 2013, pelagic = 3, shelf = 2

update



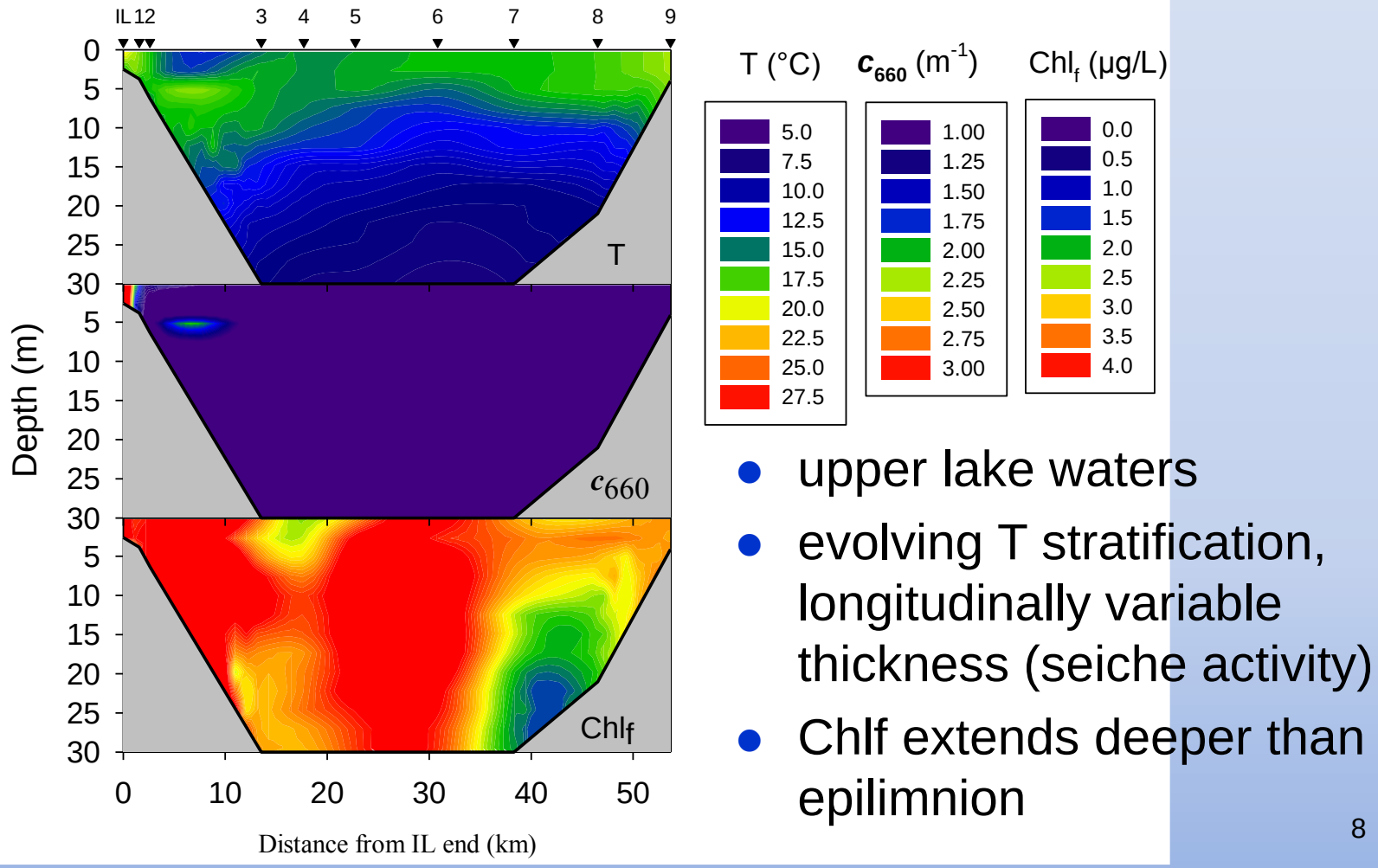
Color Contour for Cayuga Lake: May 21, 2013





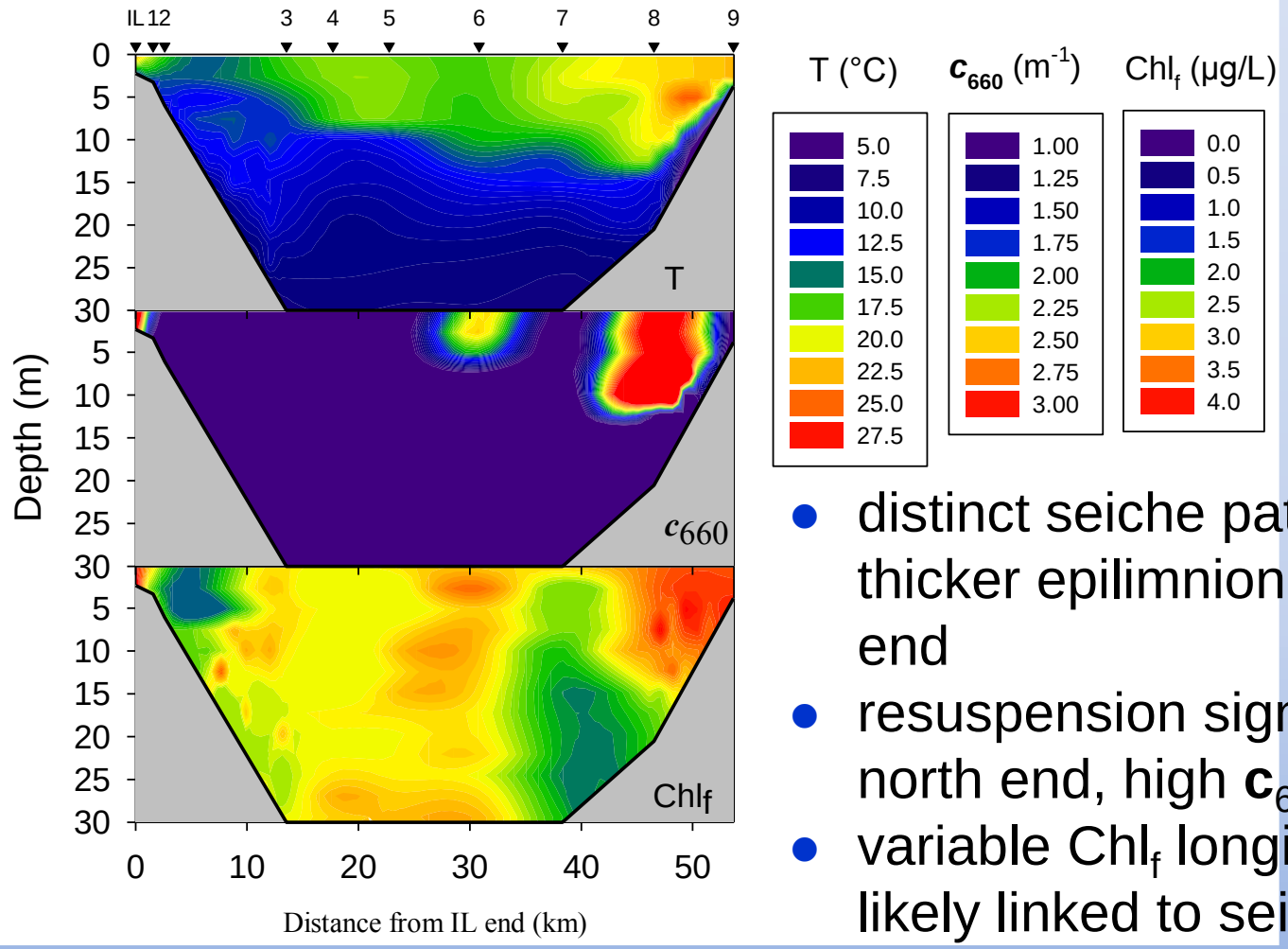
- upper lake waters
- turbidity inputs to site 4 area
- lower Chl_f
- before noteworthy stratification

Color Contour for Cayuga Lake: June 18, 2013



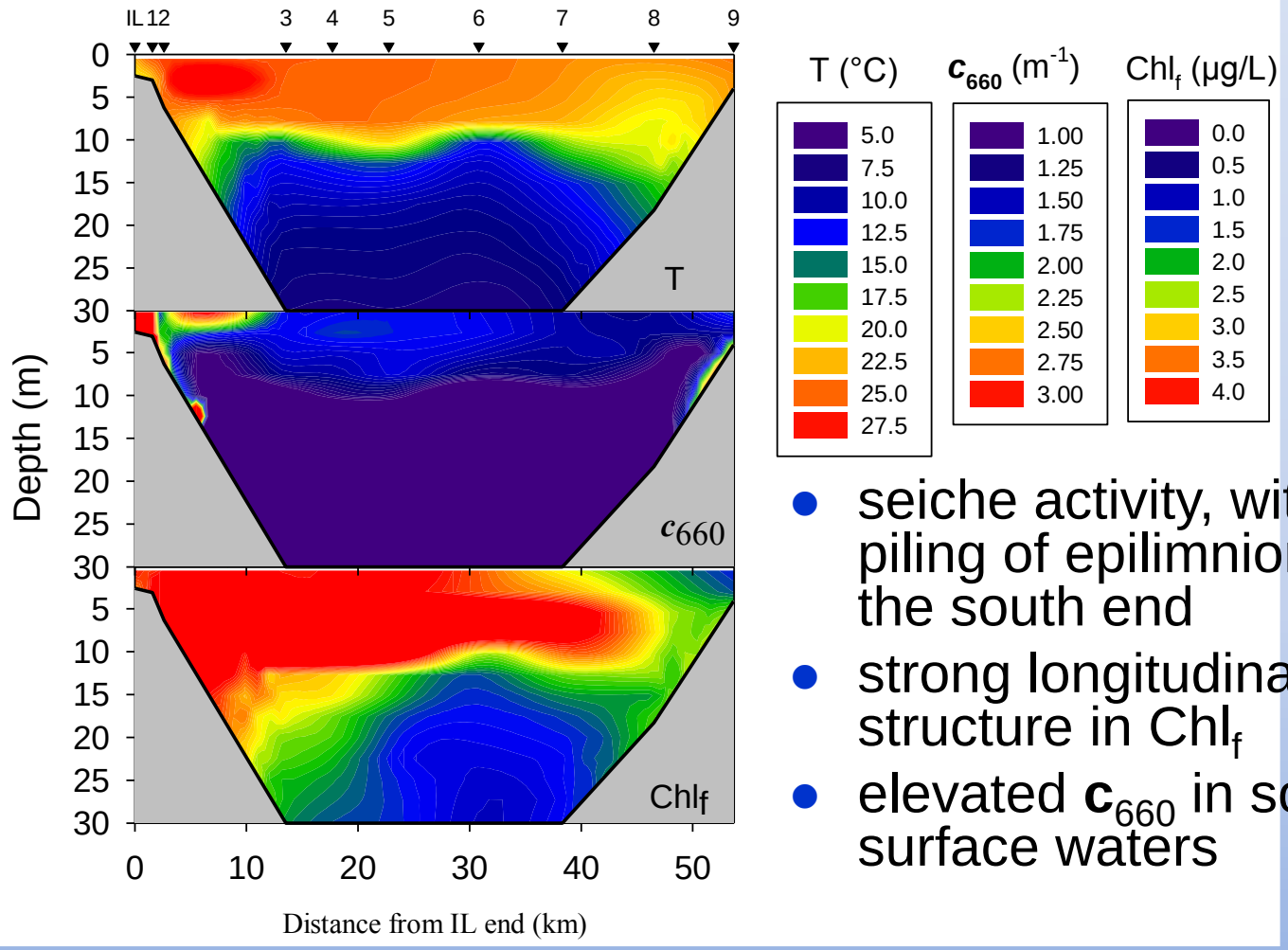
- upper lake waters
- evolving T stratification, longitudinally variable thickness (seiche activity)
- Chlf extends deeper than epilimnion

Color Contour for Cayuga Lake: June 25, 2013



- distinct seiche patter for T, thicker epilimnion at north end
- resuspension signal at north end, high $\mathbf{c}_{660}$
- variable Chl$_f$ longitudinally, likely linked to seiche

Color Contour for Cayuga Lake: July 25, 2013

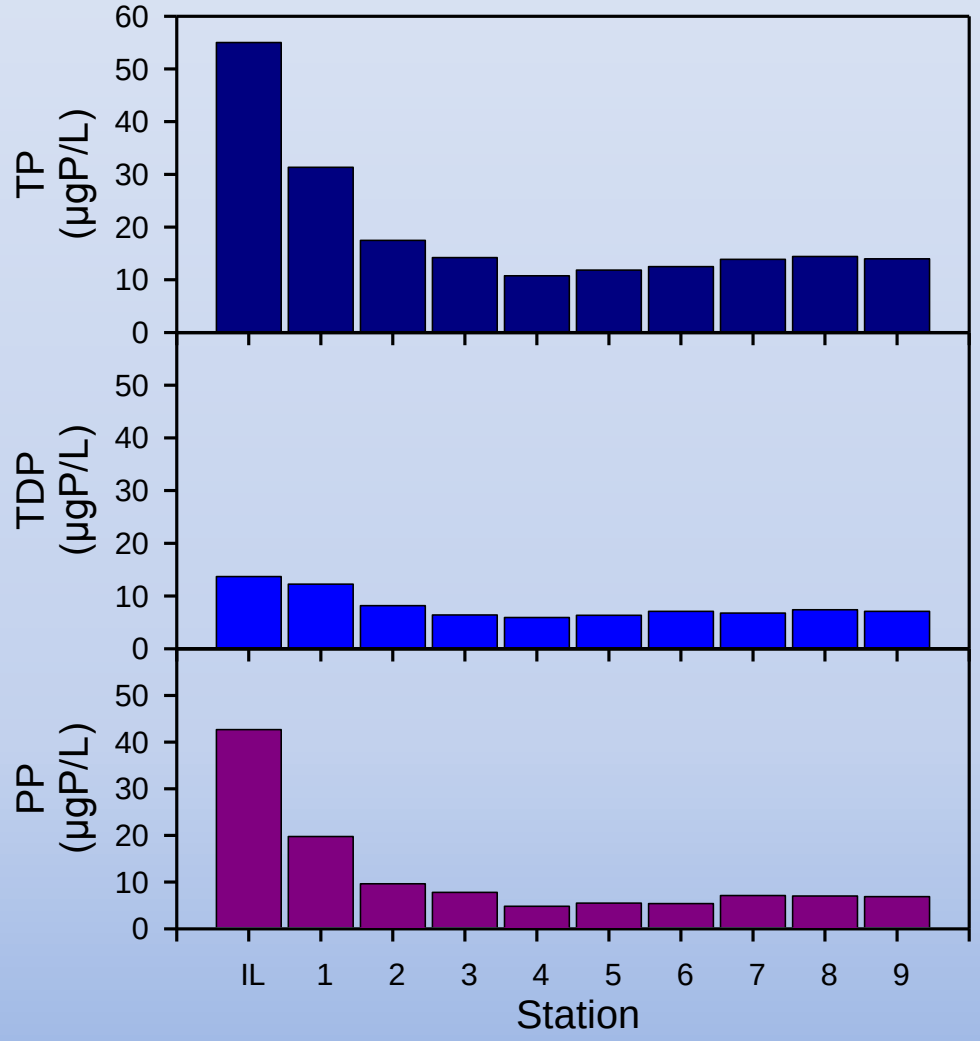


- seiche activity, with piling of epilimnion at the south end
- strong longitudinal structure in Chl_f
- elevated $\mathbf{c}_{660}$ in south surface waters

Profiles for Cayuga Lake: Sep. 17, 2013

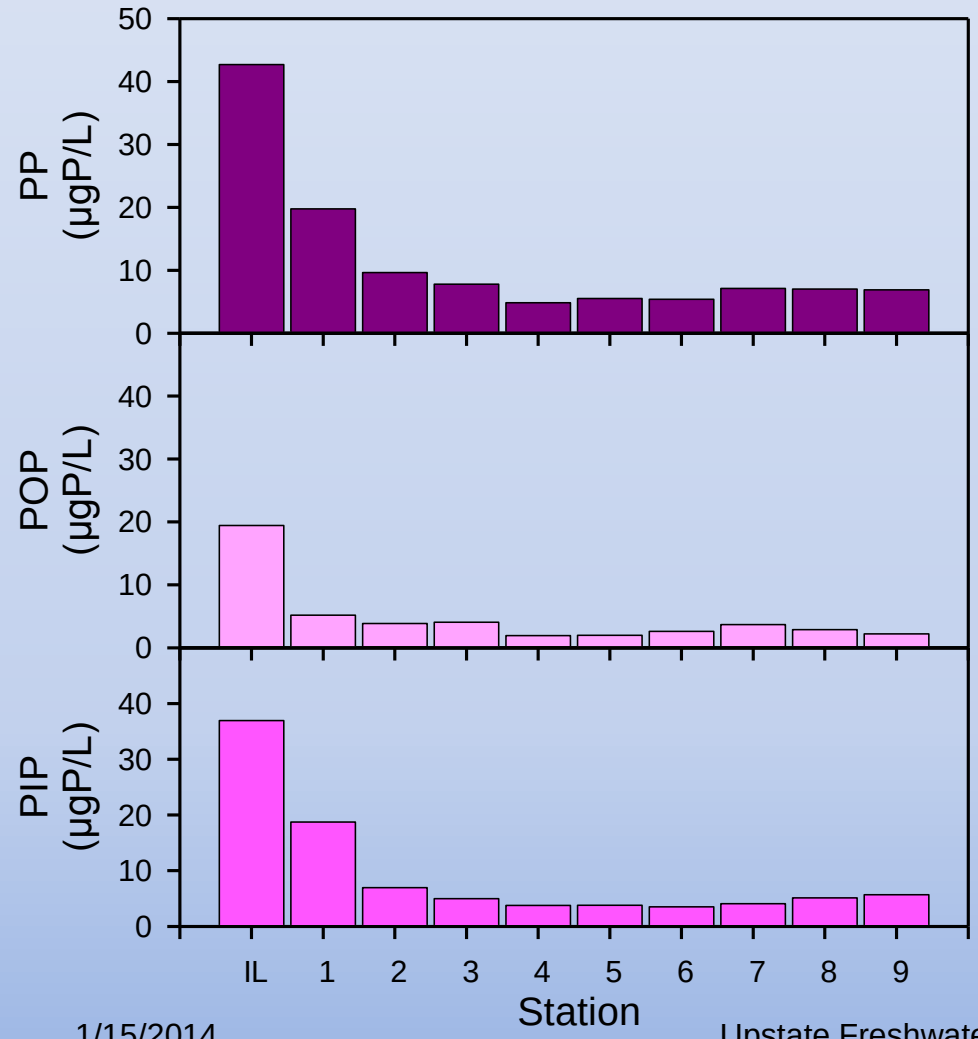
- whole water column

Longitudinal Patterns of Phosphorus Species



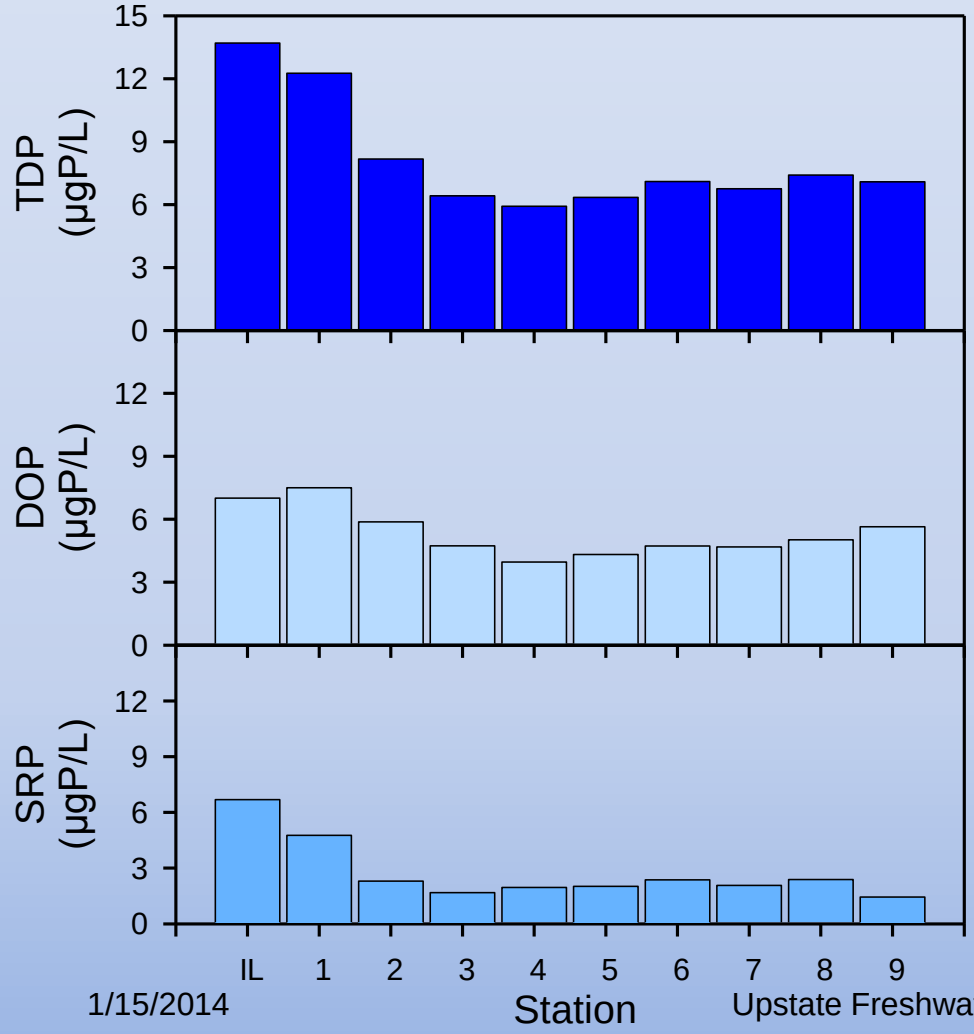
- study averages for surface waters
- highest at southern end
- mostly associated with PP
- greatest variability at southern end
- mid-lake minima

Longitudinal Patterns of Phosphorus Species



- study averages for surface waters
- veracity of this partitioning yet to be established
- highest at southern end
- greatest variability at southern end for PP and PIP
- less spatial differnences for POP
- mid-lake minima

Longitudinal Patterns of Phosphorus Species



- study averages for surface waters
- highest at southern end
- greatest variablility at southern end
- mid-lake minima

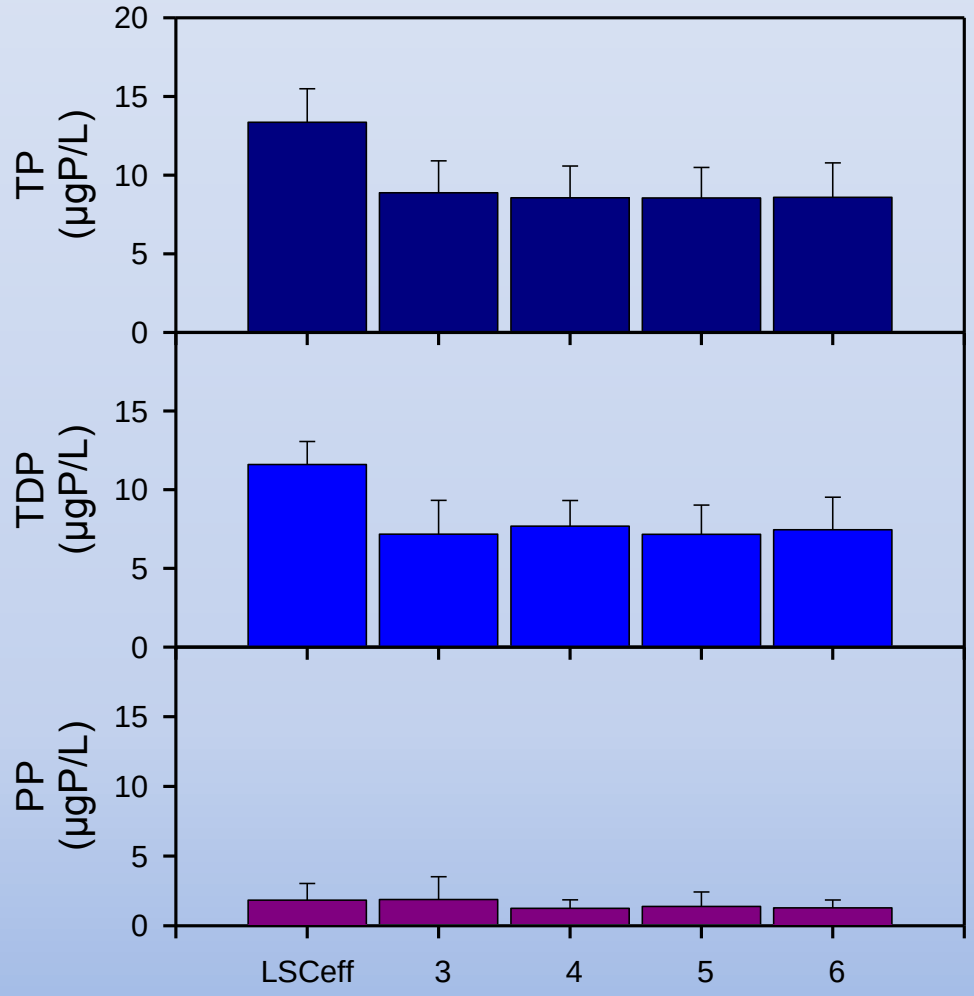
Longitudinal Patterns of SD

- study averages for surface waters
- highest at southern end
- greatest variablility at southern end
- mid-lake minima

Longitudinal Patterns of Chl_f

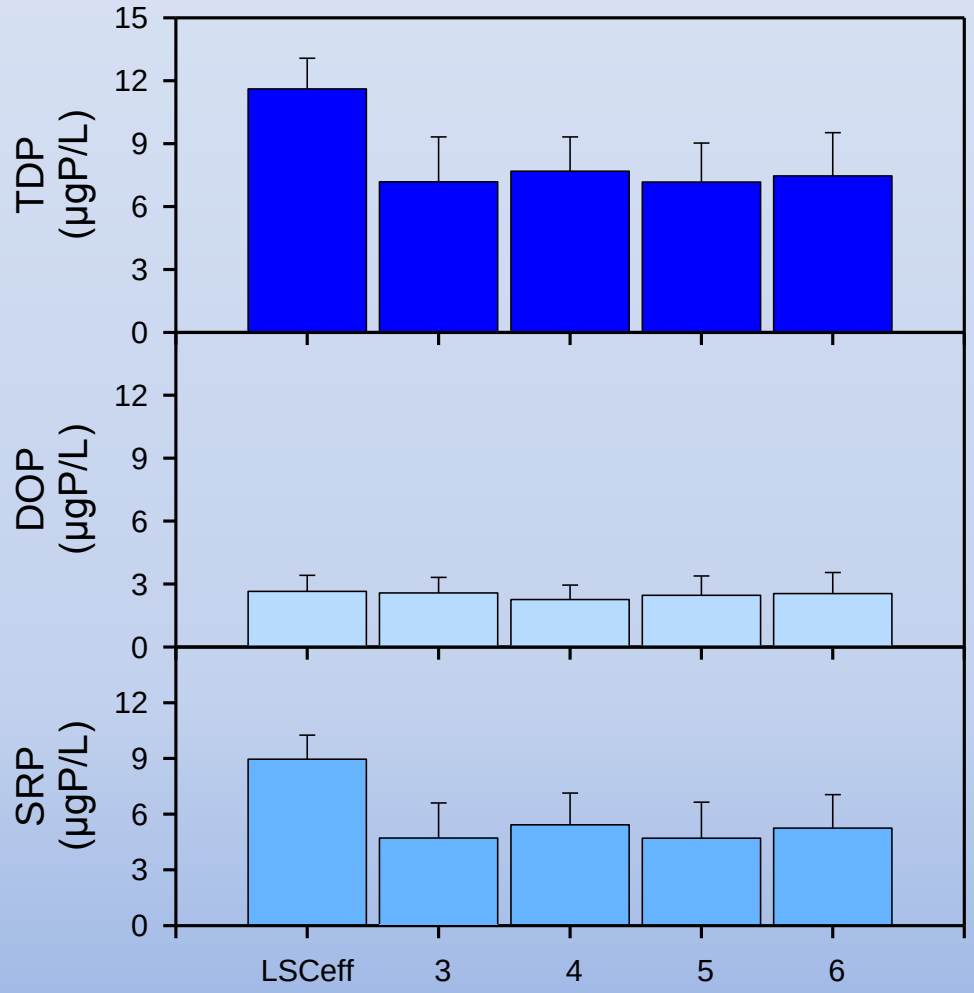
- study averages for surface waters
- highest at southern end
- greatest variablility at southern end
- mid-lake minima

60m Lake P data vs. LSCeff



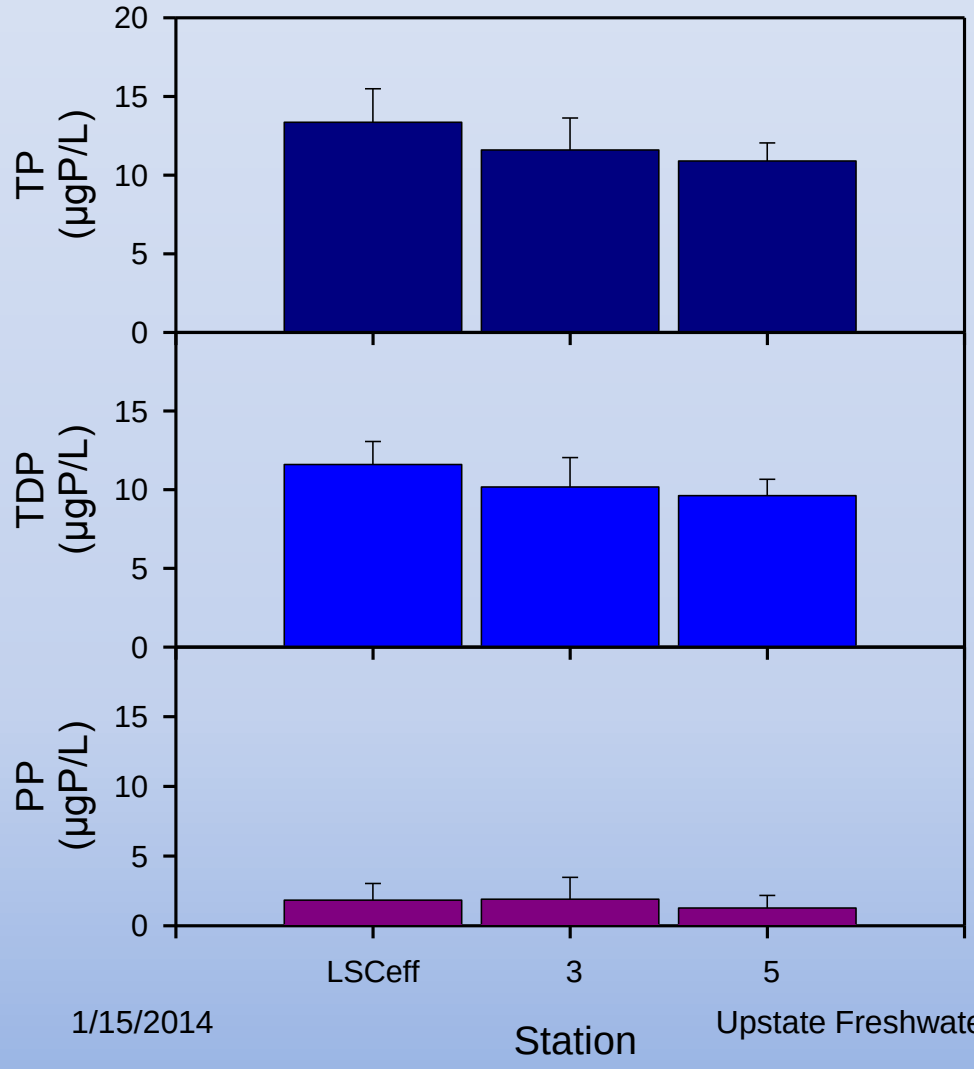
- season average

60m Lake P data vs. LSCeff



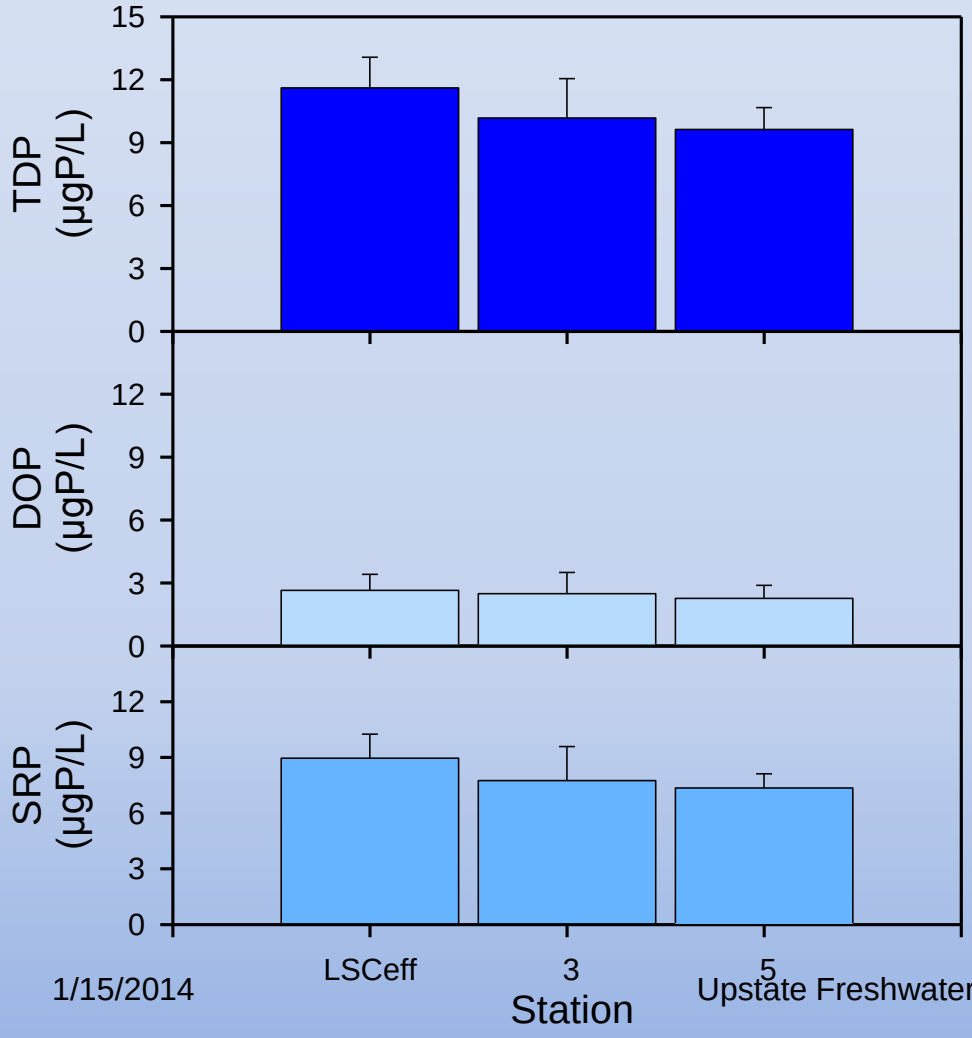
- season average

80m Lake P data vs. LSCeff



- season average

80m Lake P data vs. LSCeff



- season average

Frequent South

- summer avg. (Jun-Sep.)