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2013 Cayuga Lake

Lake-Wide Seabird Profiles

July 25, 2013 Provisional Data Summary

Submitted: for review; for discussion purposes only

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2013 Cayuga Lake Map



Site Numbers and Description

Site 9: 2.3 mi N of Frontenac Island

Site 8: 2.5 mi S of Union Springs

Site 7: 2.1 mi W Aurora

Site 6: 1.1 mi N of Sheldrake Pt.

Site 5: 1.8 mi N of Milliken Power Plant

Site 4: 1.6 mi S of Milliken Power Plant

Site 3: ~ 0.5 mi NE of Taughannock Park Marina

Site 2: 0.9 mi NW of Cornell Sailing Club

Site 1: 0.6 mi N of Allan H. Treman Marina

Site IL: ~ across from Allan H. Treman Launch Area

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Guide to Abbreviations and Units

Sea Bird Profiles of Cayuga Lake collected by Upstate Freshwater Institute

Profiles display variability of the measured parameter with depth (in meters, notice the significant change in scale) and at the sampling locations along Cayuga Lake.

- **Temperature** (units are degrees C)
- **Specific Conductance (SC)** indicates the ability of water to convey an electrical current, which is a measure of the lake water's ionic content and activity (normalized to a temperature of 25°C). Units of specific conductance are micro Siemens per centimeter ($\mu\text{S}/\text{cm}$)
- **Turbidity (Tn)** is a measure of water clarity (the extent to which particles suspended in the water scatter light). Lower turbidity waters appear clear, while higher turbidity waters appear cloudy. Turbidity is reported in units of NTU, which stands for Nephelometric Turbidity Units.
- **Beam Attenuation Coefficient (BAC)** is another measure of water clarity. The unit of measure is per meter (m^{-1}), signifying the extent to which light is absorbed or scattered per meter of water depth. Like turbidity, low values signify more transparency and higher values more opacity.
- **Chlorophyll (Chl)** is a measure of the photosynthetic pigment present in the water column, and indicates the abundance of phytoplankton (algae) suspended in the water. Units are $\mu\text{g}/\text{l}$, which is equivalent to parts per billion.
- **Photosynthetically Active Radiation (PAR)** designates the amount of solar radiation within the spectral band that plants and algae can use in the process of photosynthesis. PAR declines with depth in the water column, as light is scattered and absorbed. The depth of penetration of PAR defined the "photic zone", where light is present to support photosynthesis. The units of PAR are micro Einsteins per square meter per second ($\mu\text{Em}^{-2}\text{s}^{-1}$).
- **Secchi Disk Transparency (SD)** is another measure of water clarity, and one that is standard for lake monitoring programs. The Secchi disk is a 20 cm diameter plastic disk with alternating quadrants of black and white, on a calibrated line. The monitoring team lowers the Secchi disk through the water column and records the depth at which it is no longer visible to the observers on the boat. Secchi disk is reported in meters. Higher Secchi disk readings signify clearer water.

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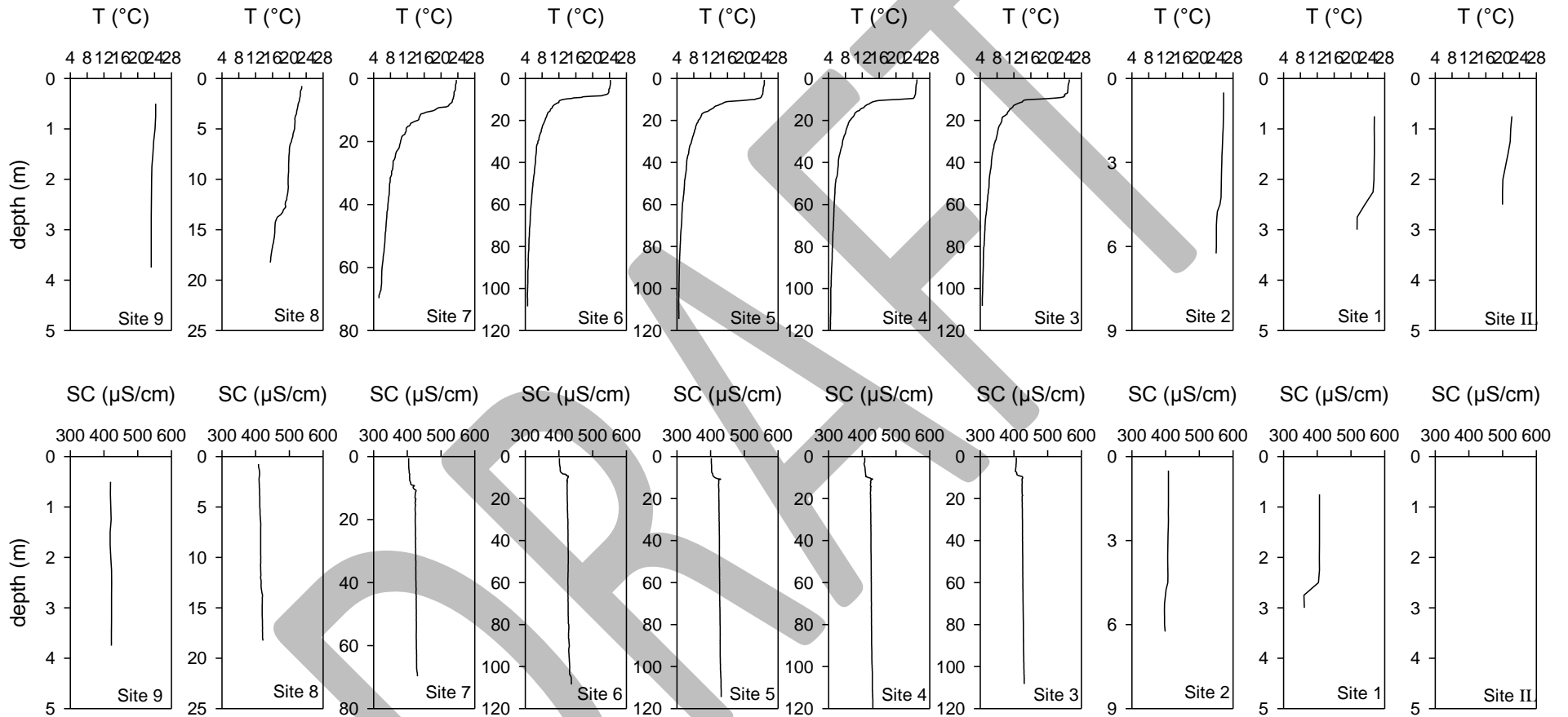
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Temperature and Specific Conductance Profiles

North to South →



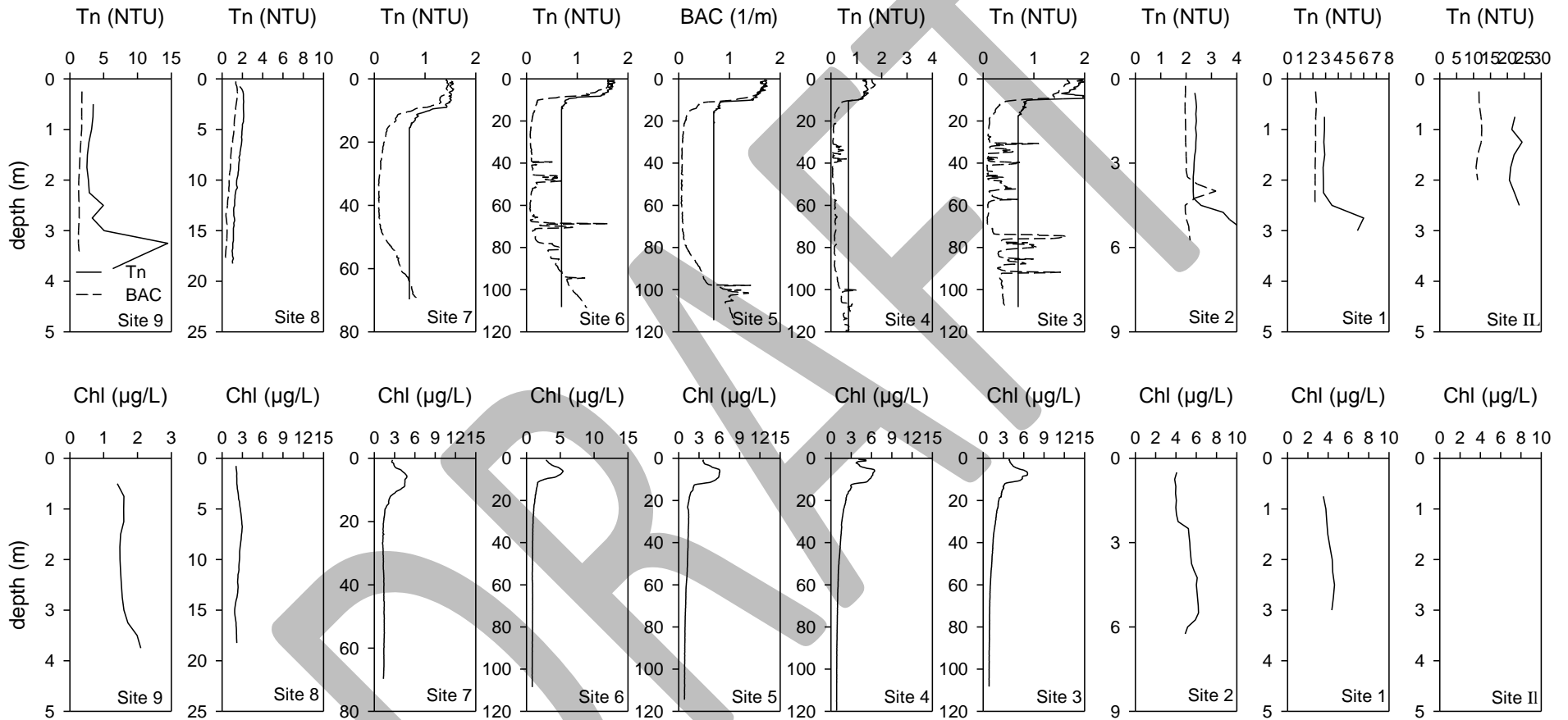
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Turbidity, Beam Attenuation, and Chlorophyll Profiles

North to South →



The BAC profiles at Sites 6, 5, 4, 3 are strange given the spikey nature of the profile. The instrument has been evaluated and seems to be functioning properly. Evaluation of the profile is ongoing.

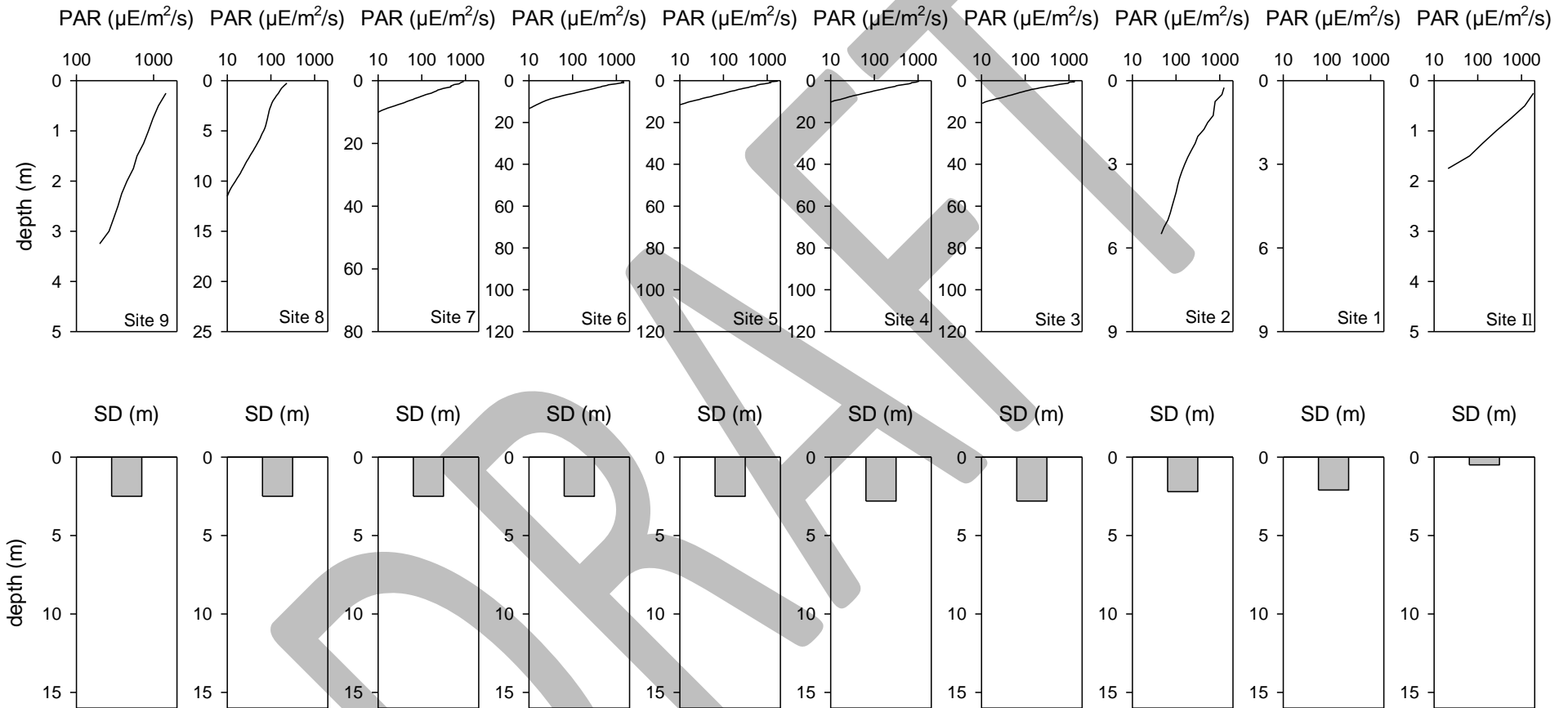
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PAR with Secchi Disc Profiles

North to South →



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