

# Phytoplankton and nutrient variability in a Mississippi coastal time-series

Matthew Dornback

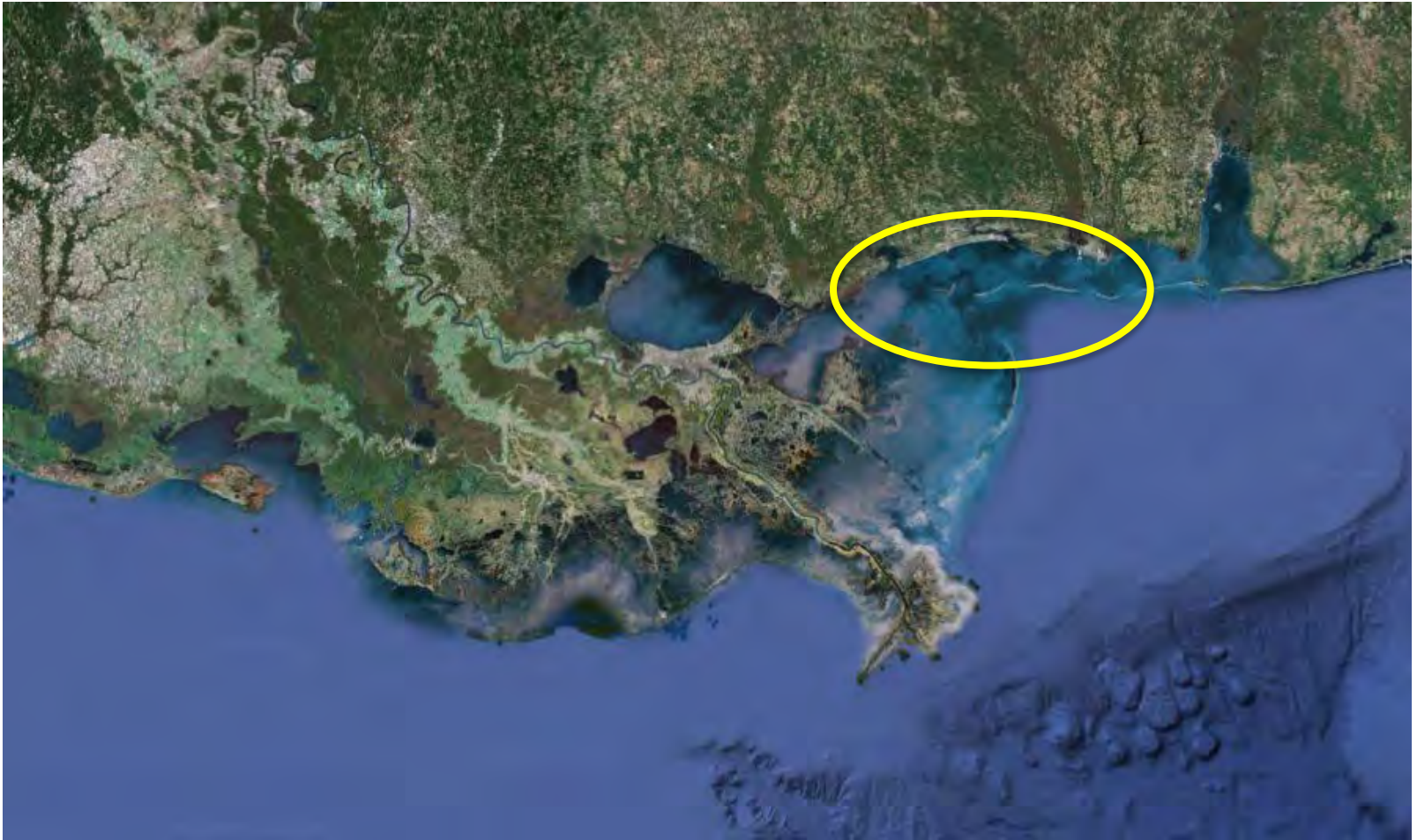
May 17, 2011

# Acknowledgements

- Steve Lohrenz
- Allie Mojzis
- Luz Molina
- Kevin Martin
- Sumit Chakraborty
- Brooke Denton
- Everybody who has been on an NGI cruise



# Northern Gulf of Mexico



# NGI Transect



# Sampling

- R/V Lemoyne
  - Single day trips
  - Weather pending
- *In situ* measurements
  - Fluorometric Chl
  - Conductivity (Salinity)
  - Temperature
  - Depth



# Sampling

- Water samples
  - Surface Samples (Hand Drawn)
  - Depth Samples (Peristaltic Pump)
- Analyzed for nutrients
  - NO<sub>3</sub>, PO<sub>4</sub>, & SiO<sub>4</sub>
- Analyzed for chlorophyll



# Tides

- NOAA tide gauge at Bay/Waveland Yacht Club



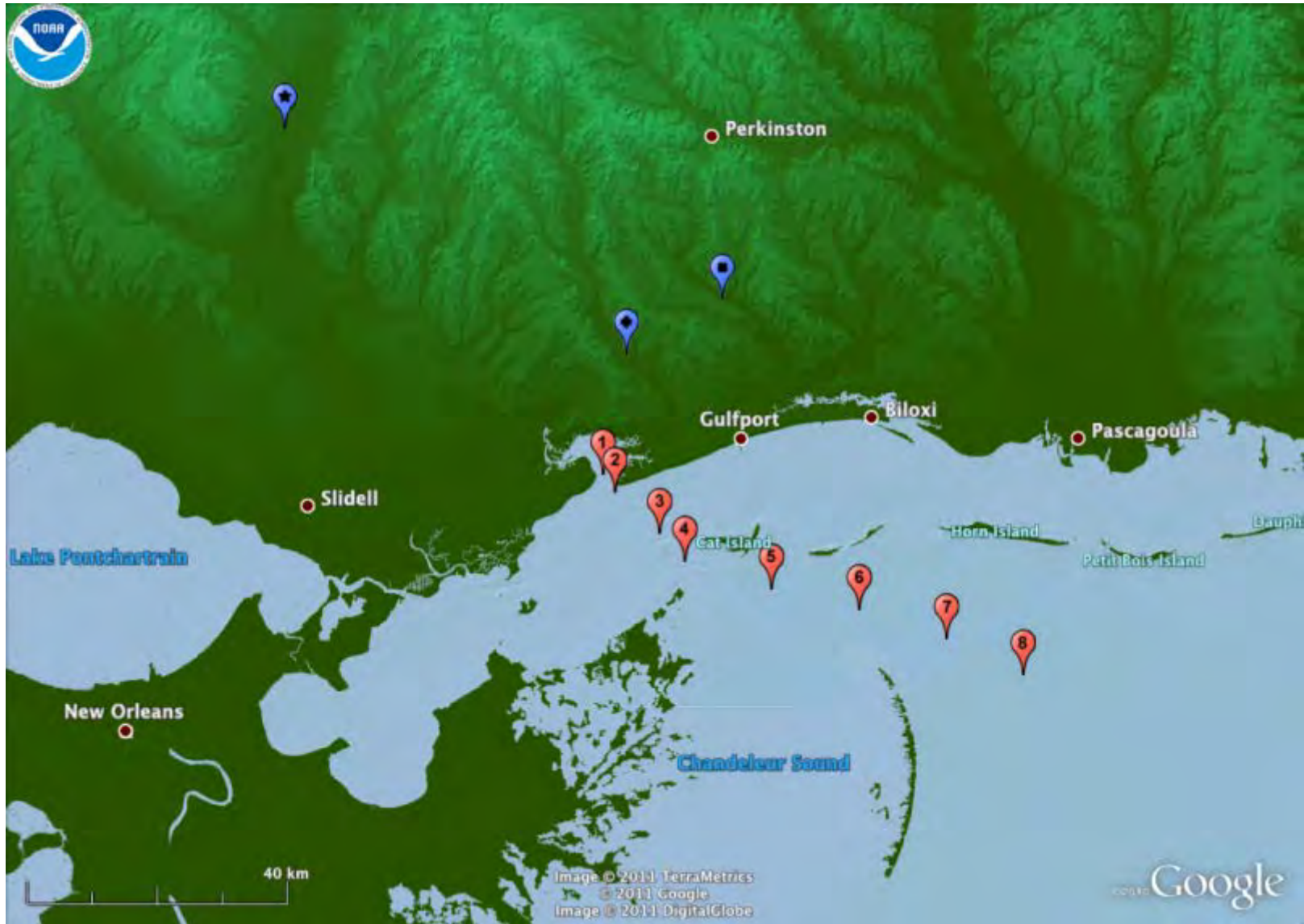
# Freshwater Input

- Biloxi
- Jourdan
- Pearl
- Wolf
- Lake Pontchartrain
- Mississippi

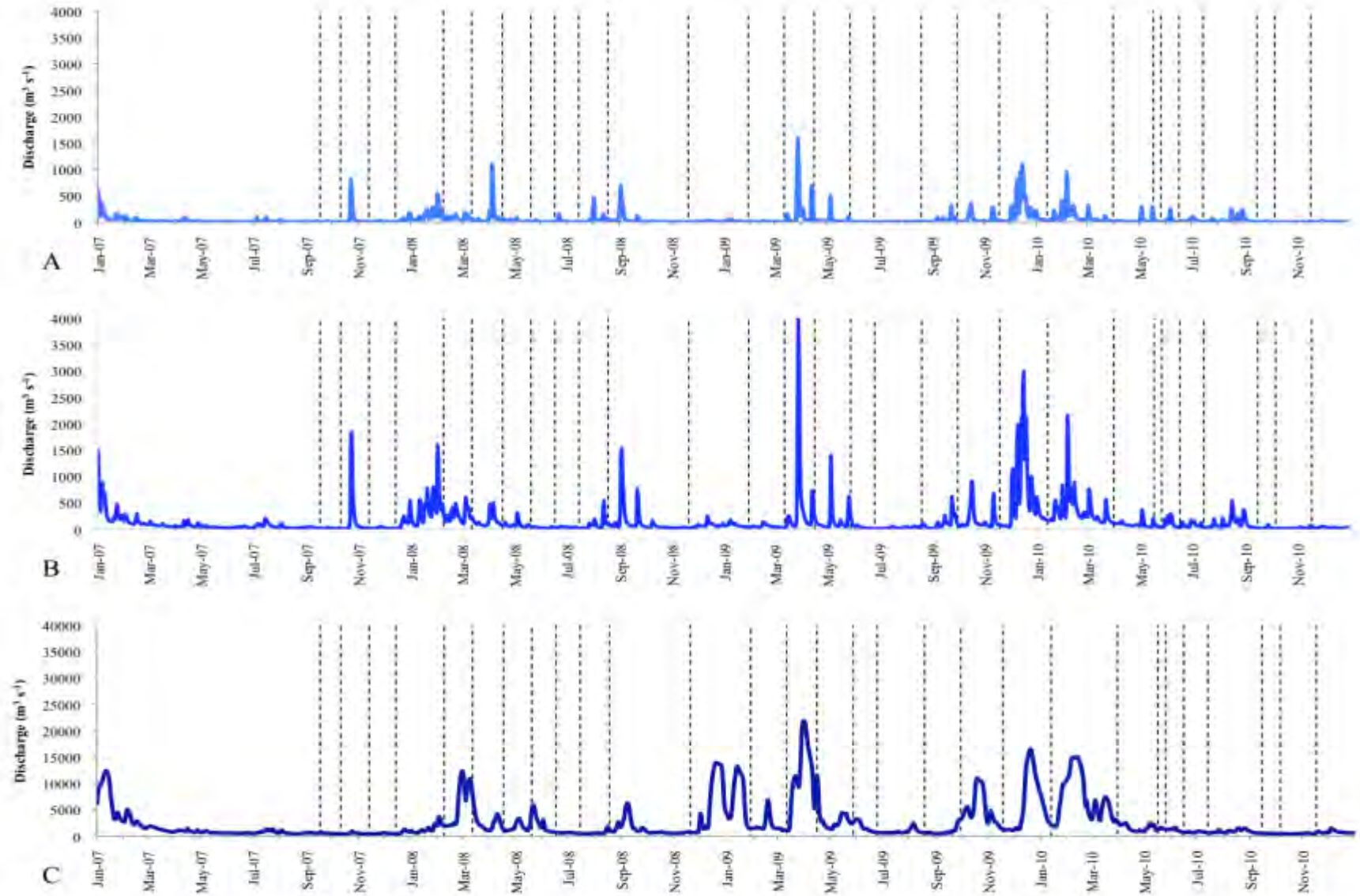




# Freshwater Inputs

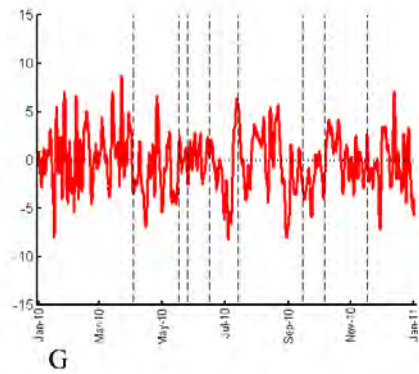
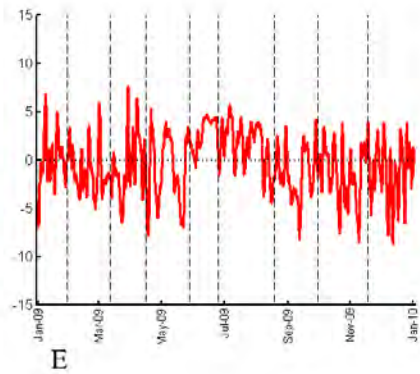
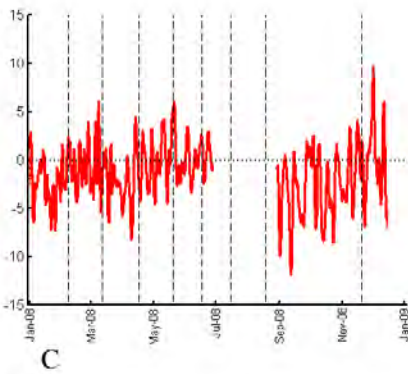
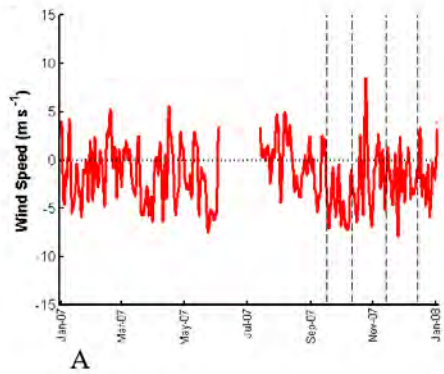


# River Discharge

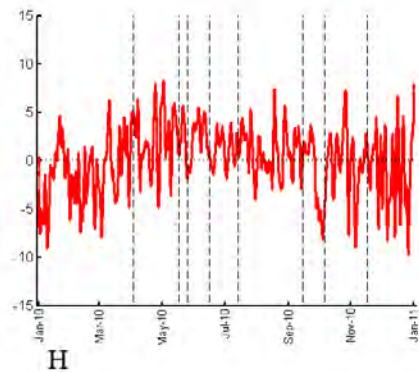
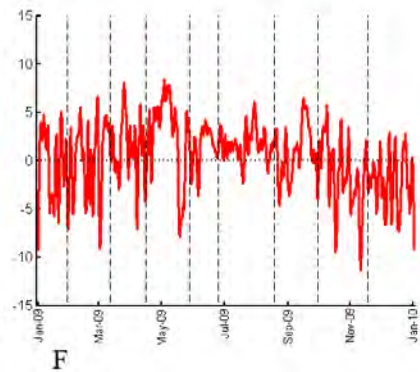
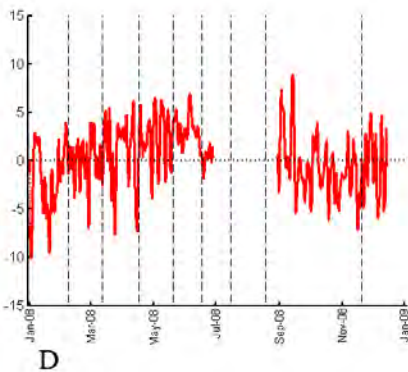
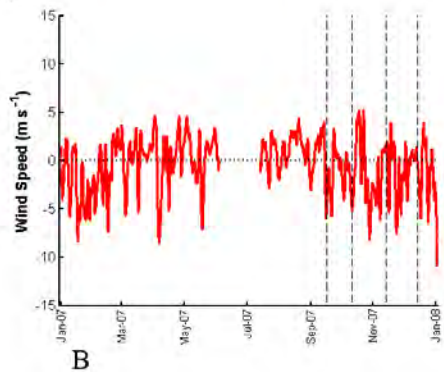


# Wind

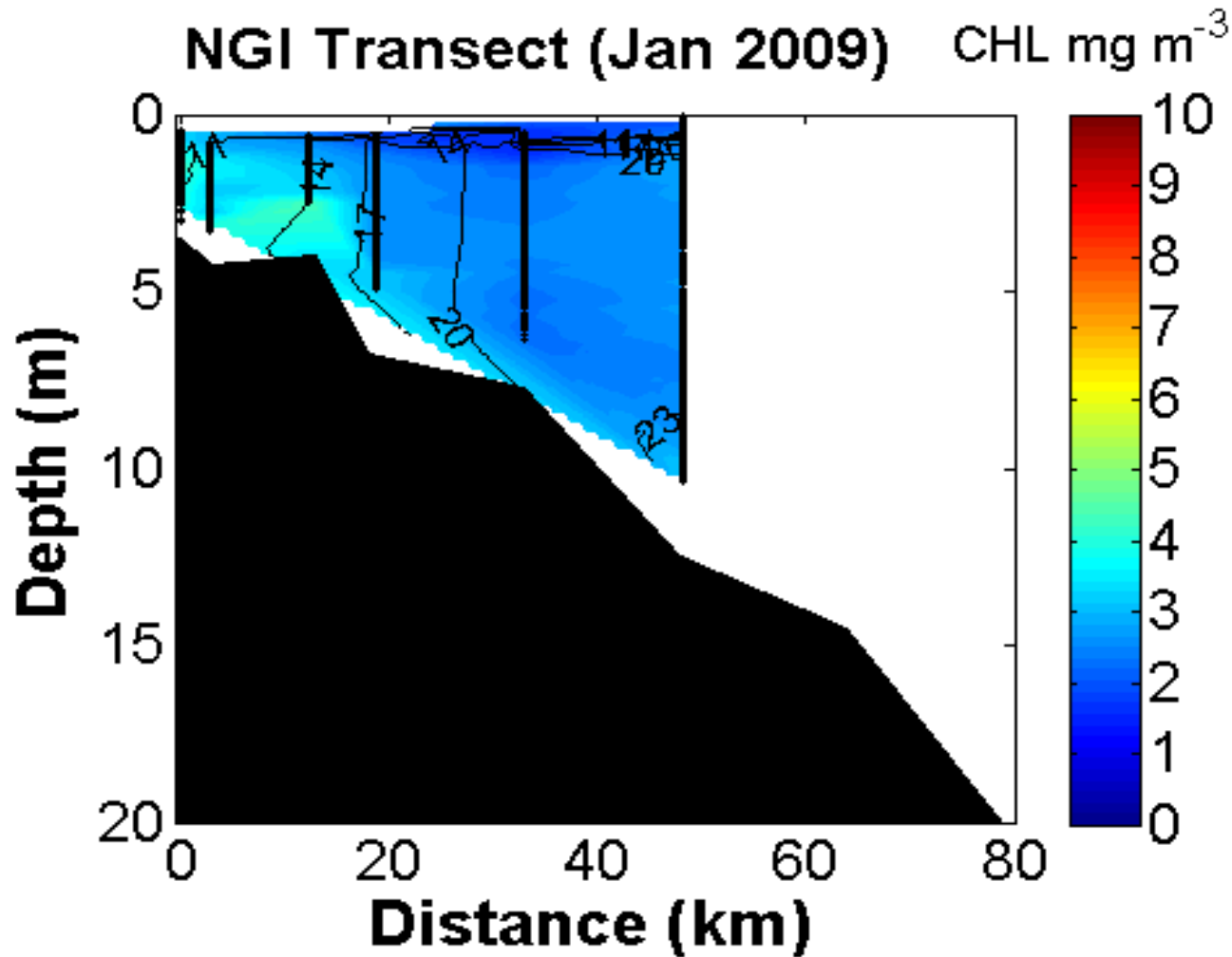
*U*



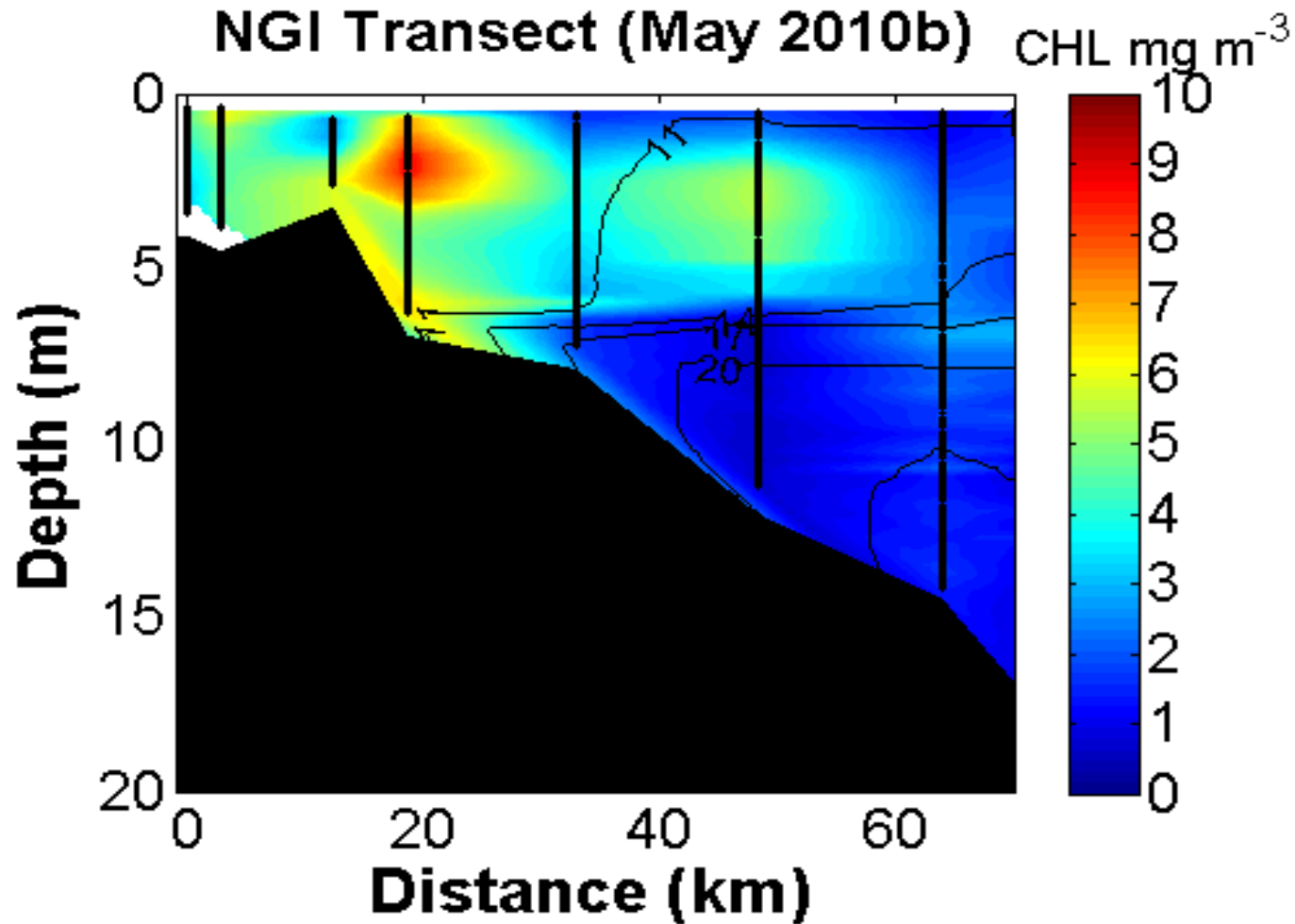
*V*



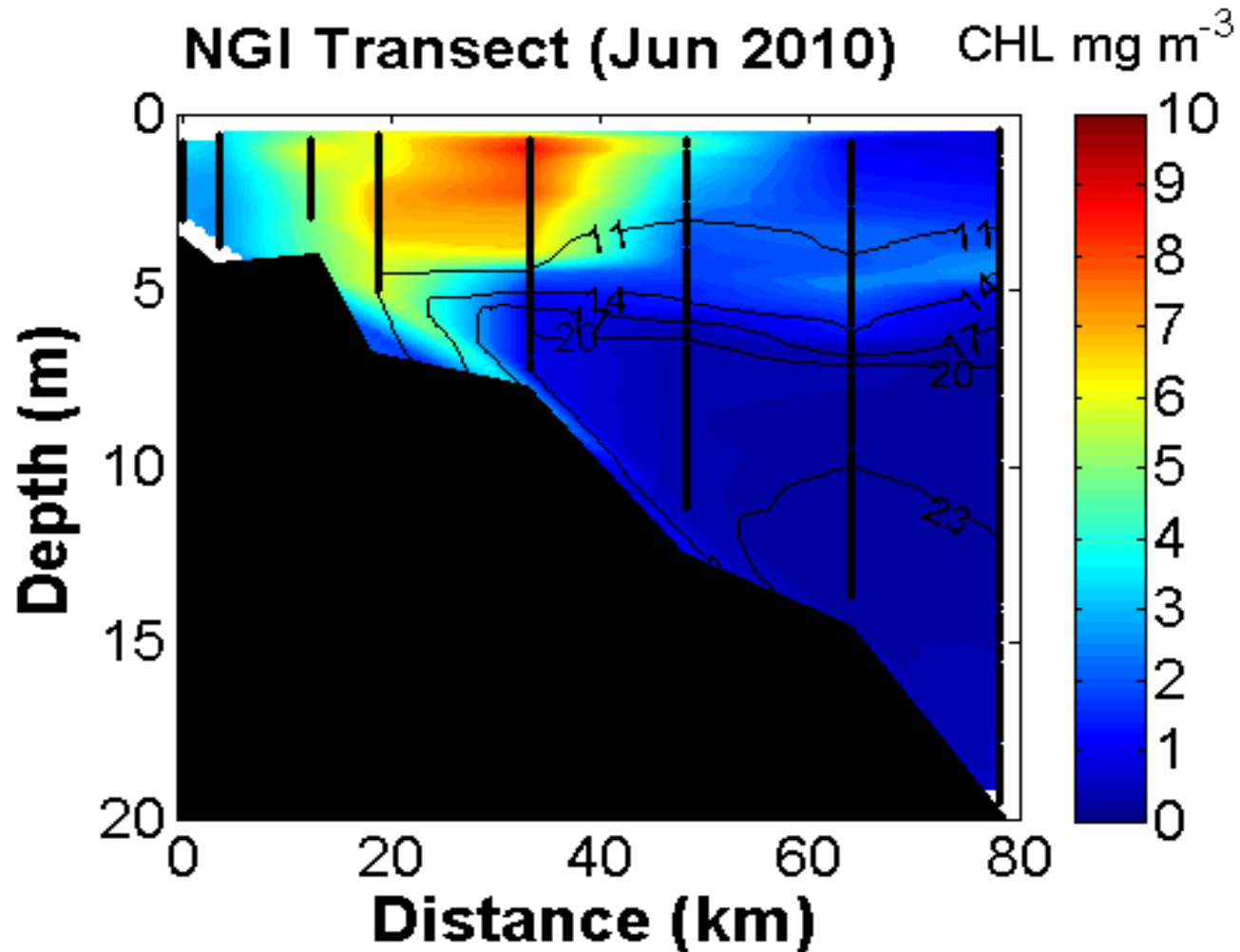
# Seasonal Transects



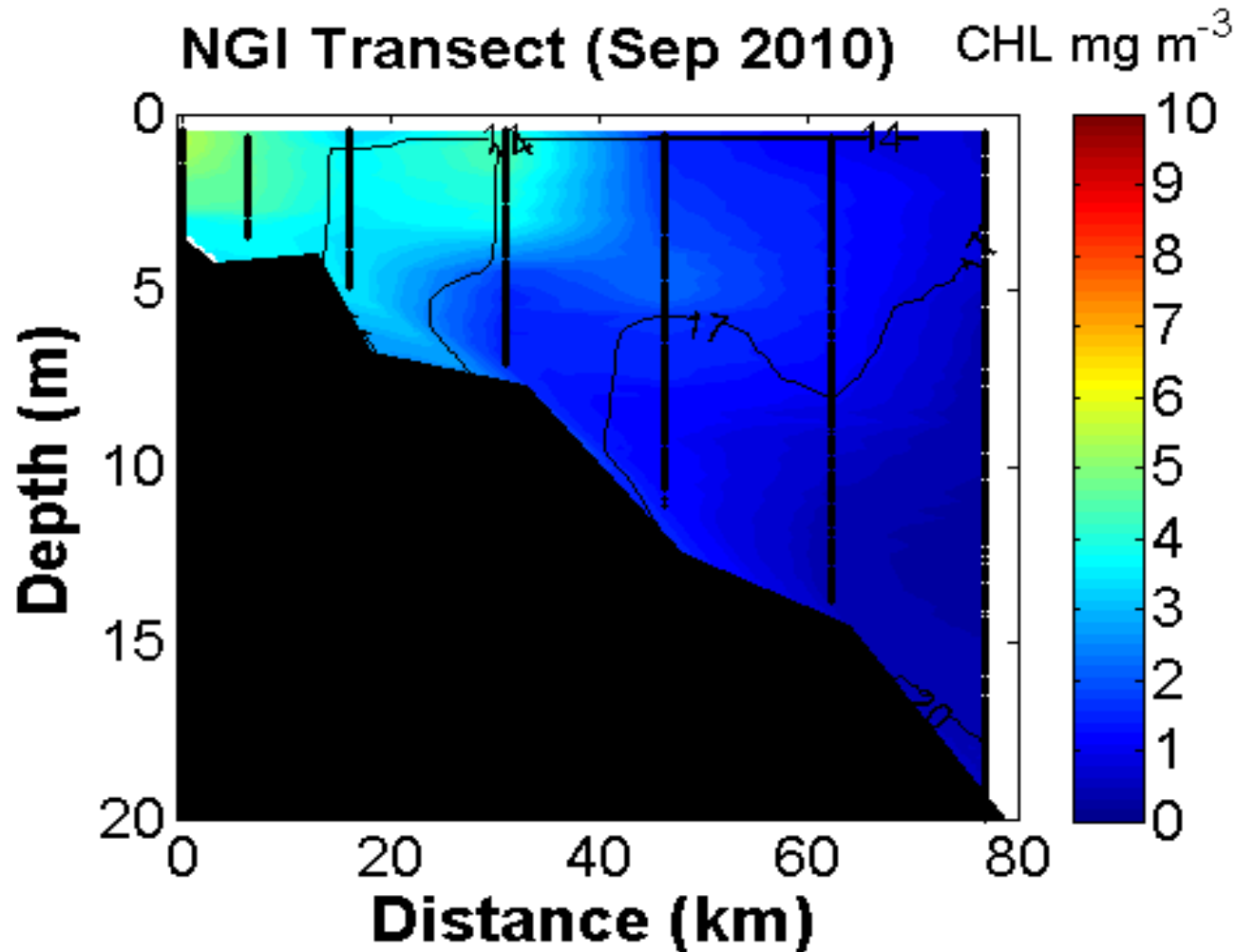
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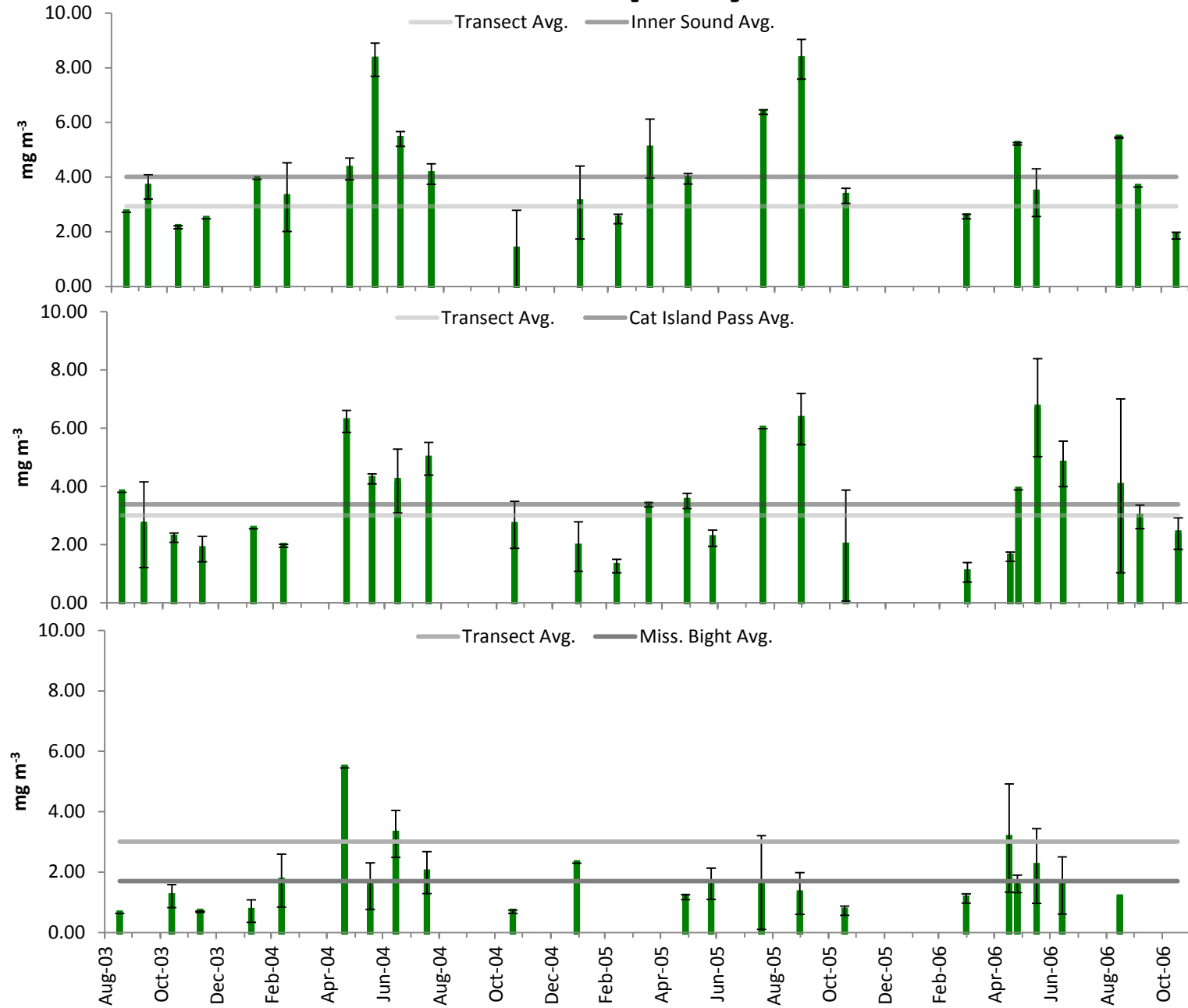
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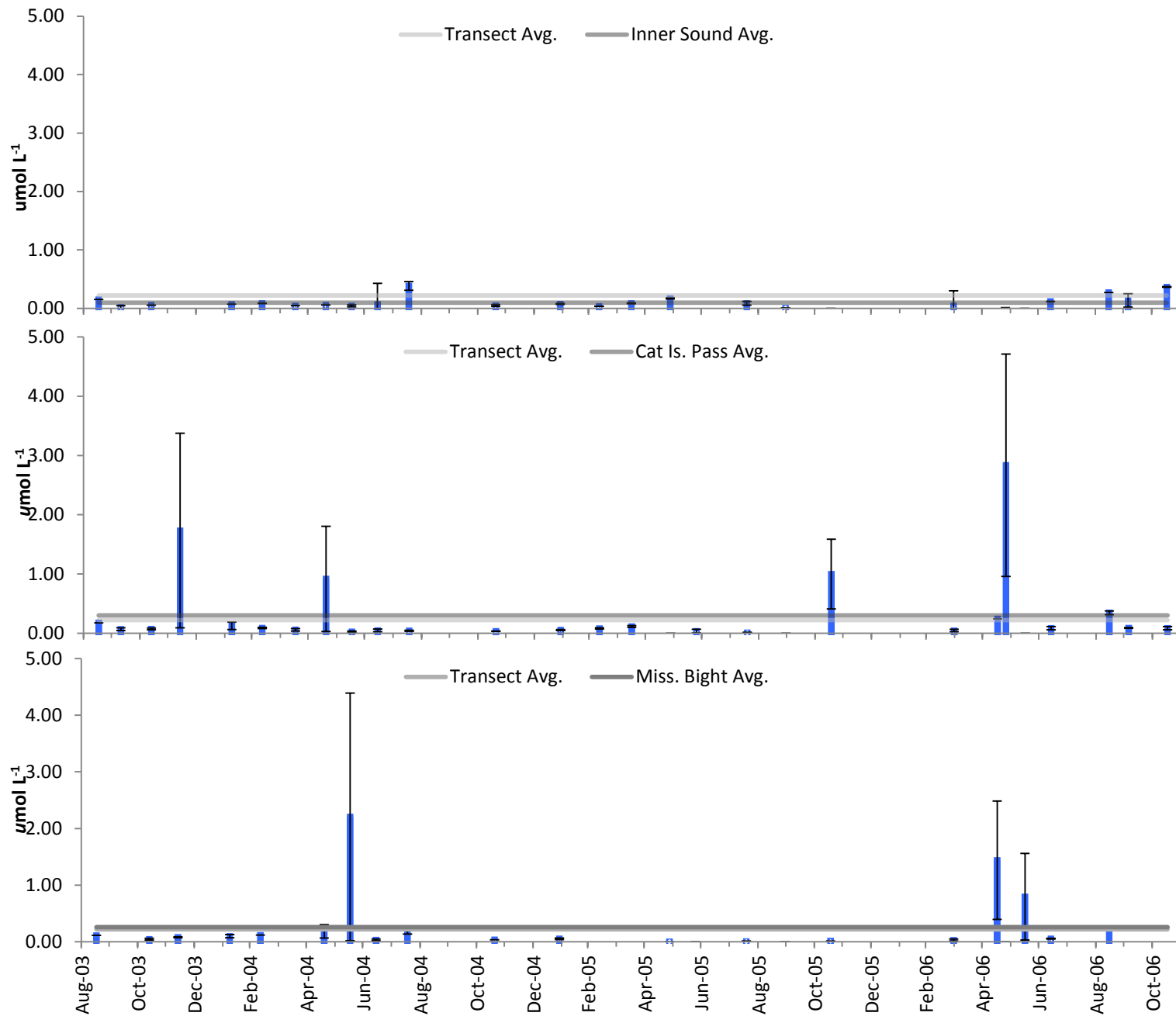


# Chlorophyll

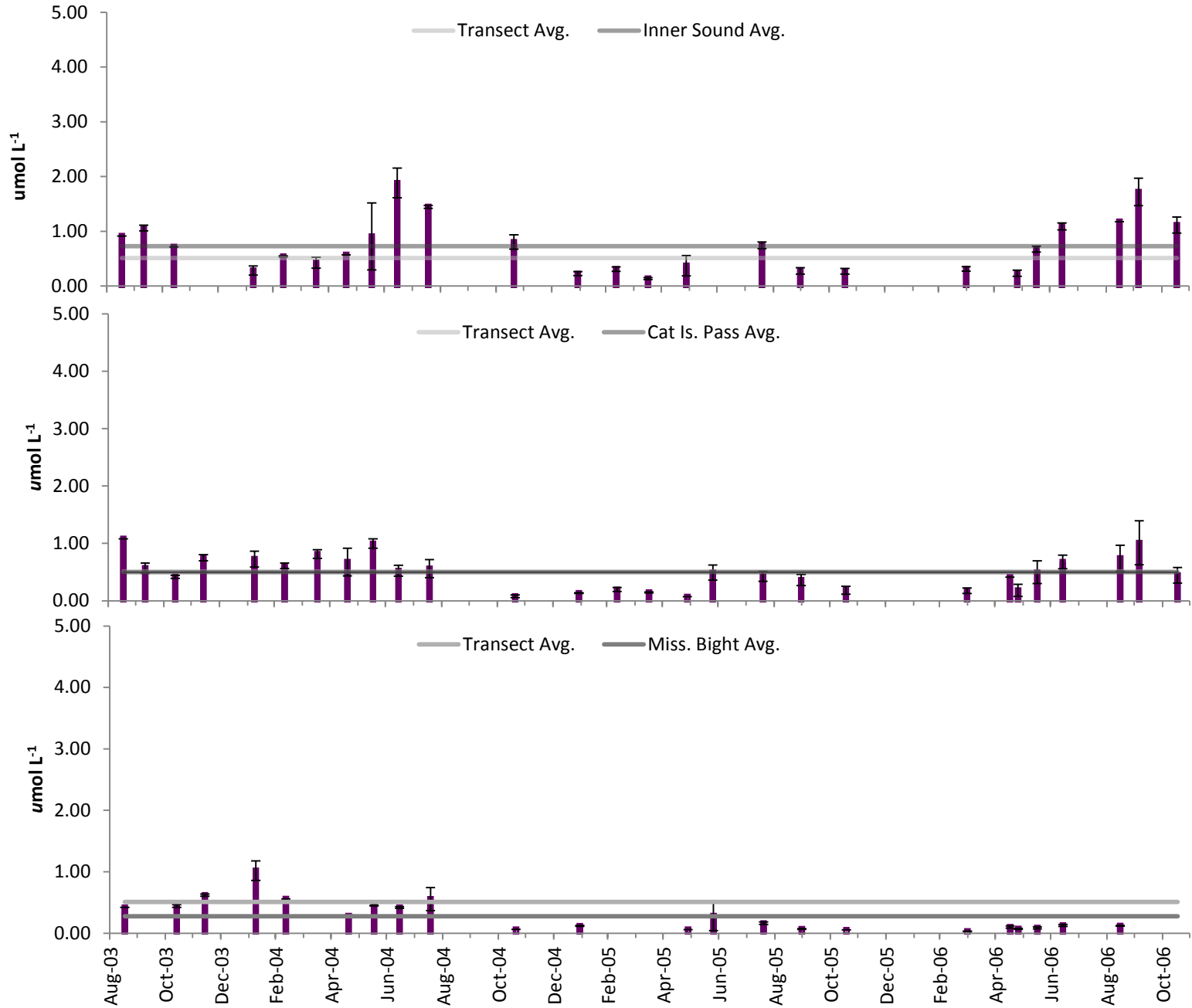




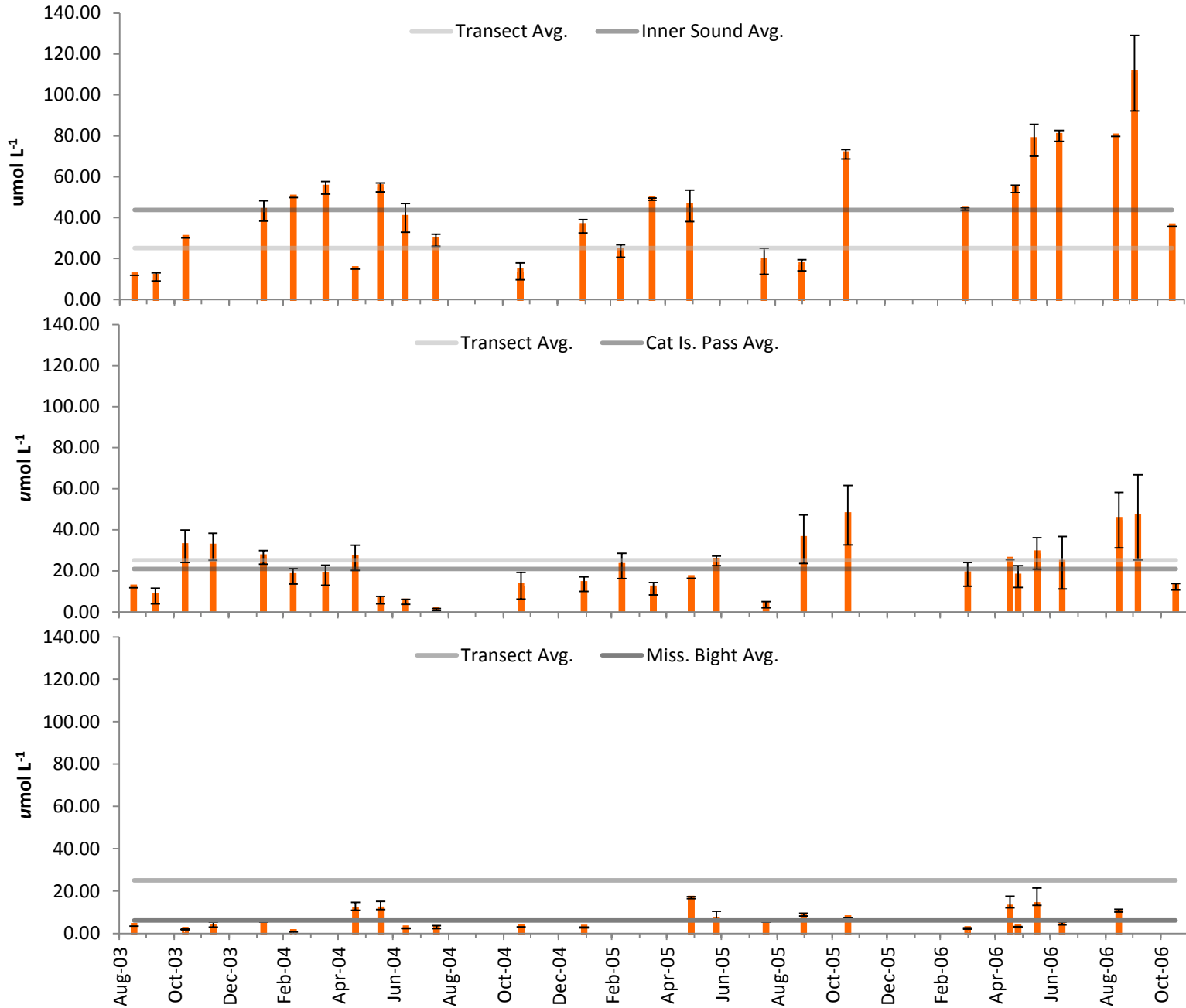
# Nitrate



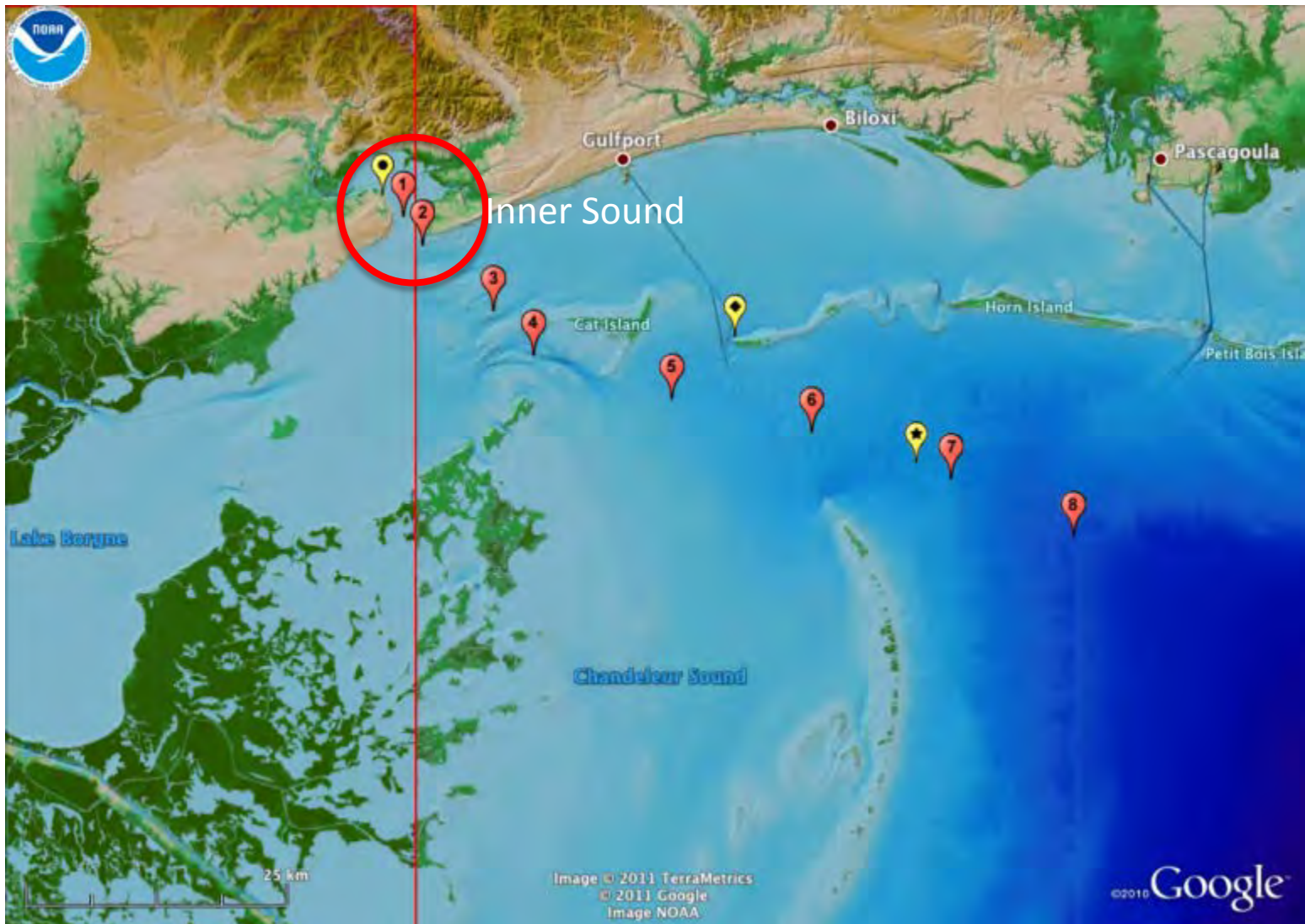
# Phosphate



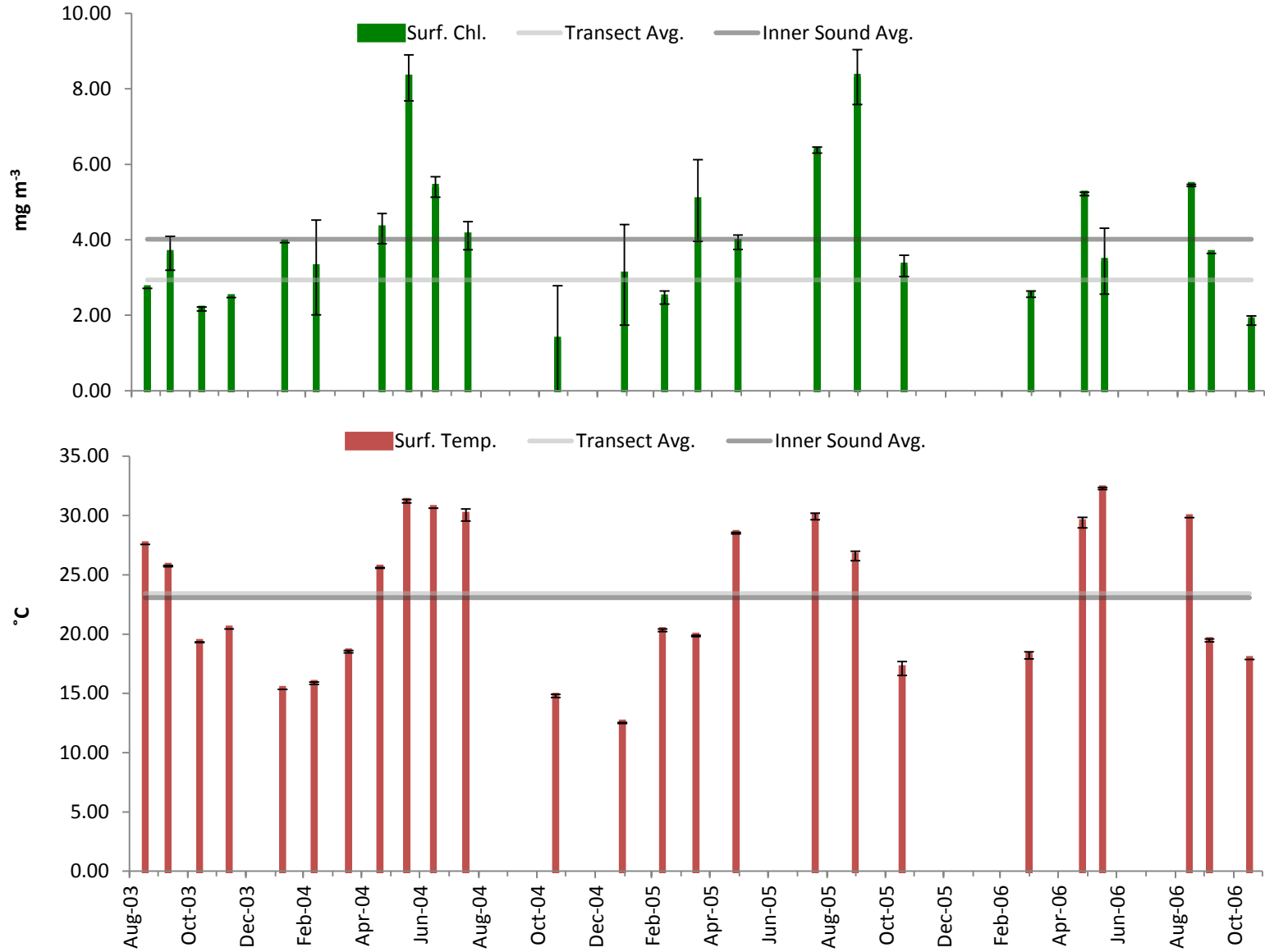
# Silicate



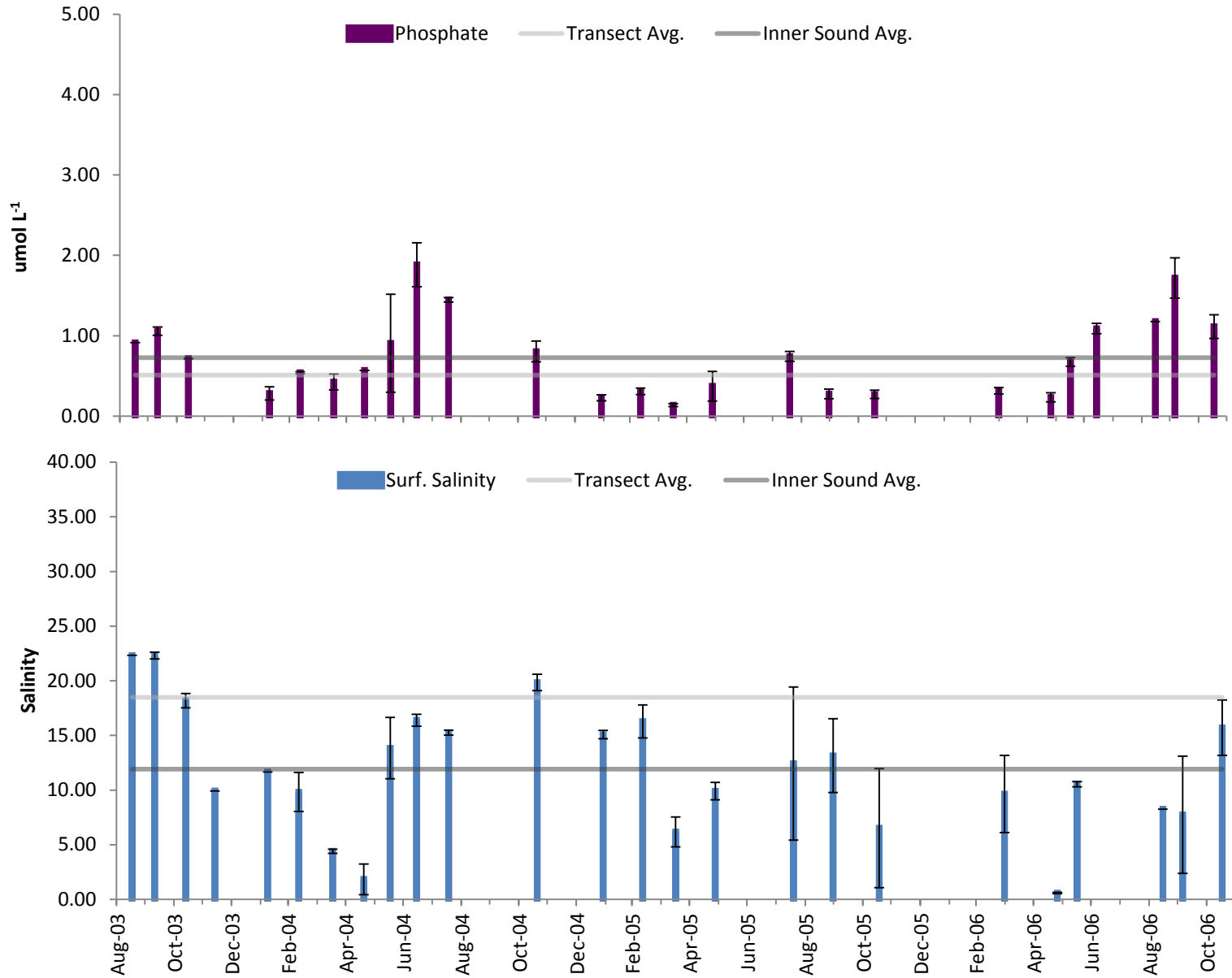
# Inner Sound



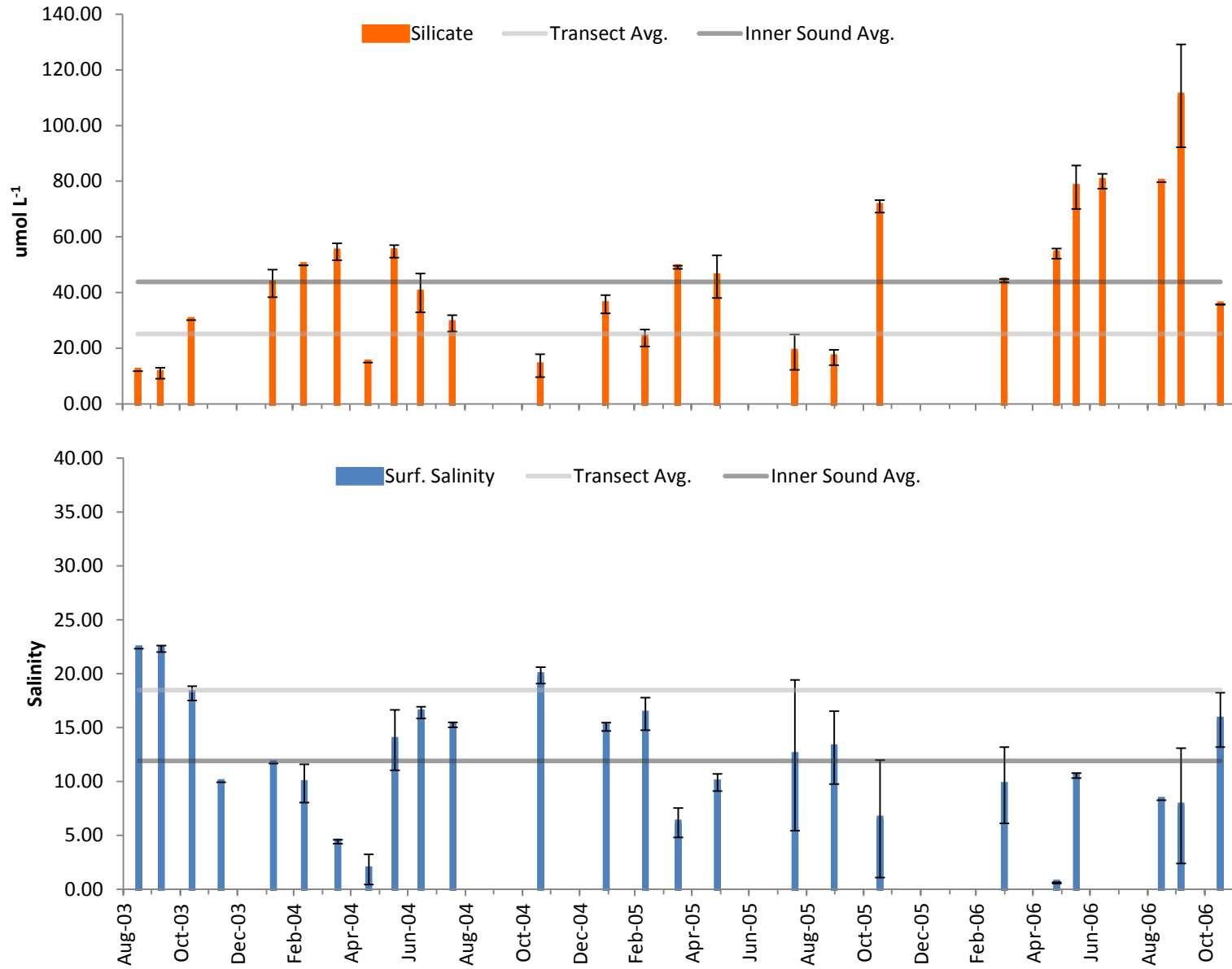
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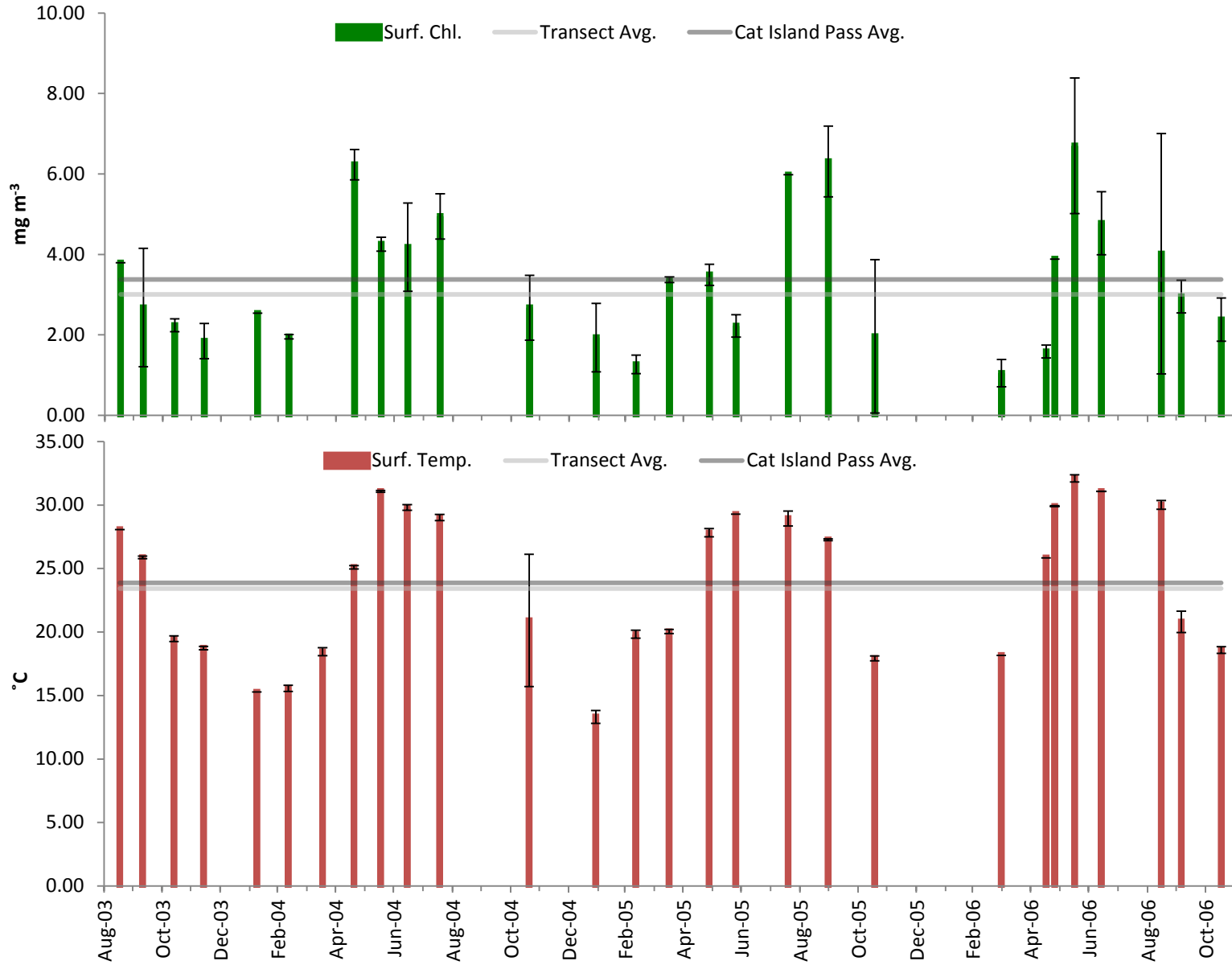


# NGI Transect

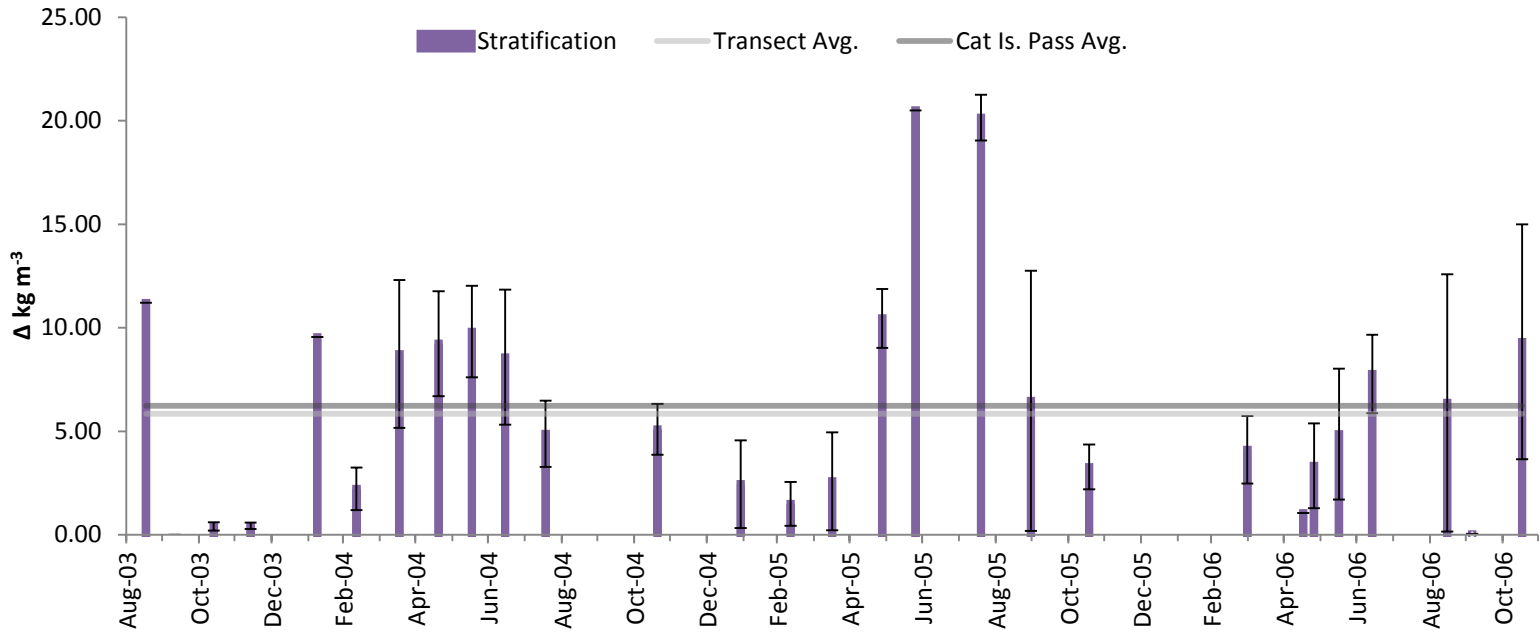
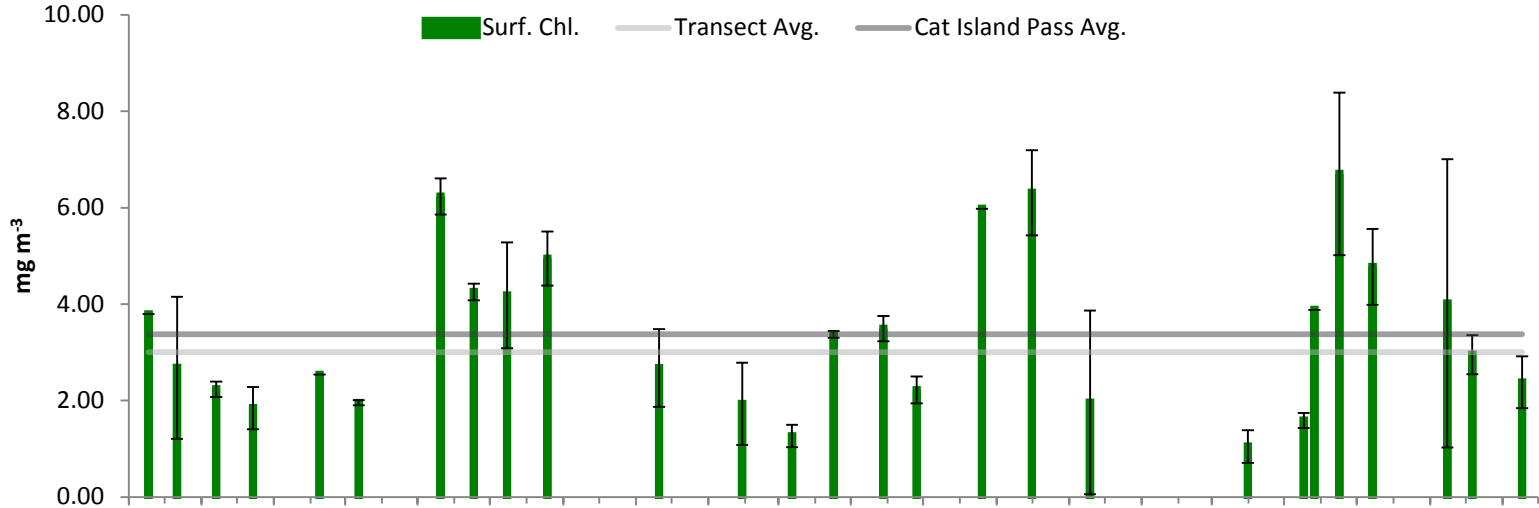




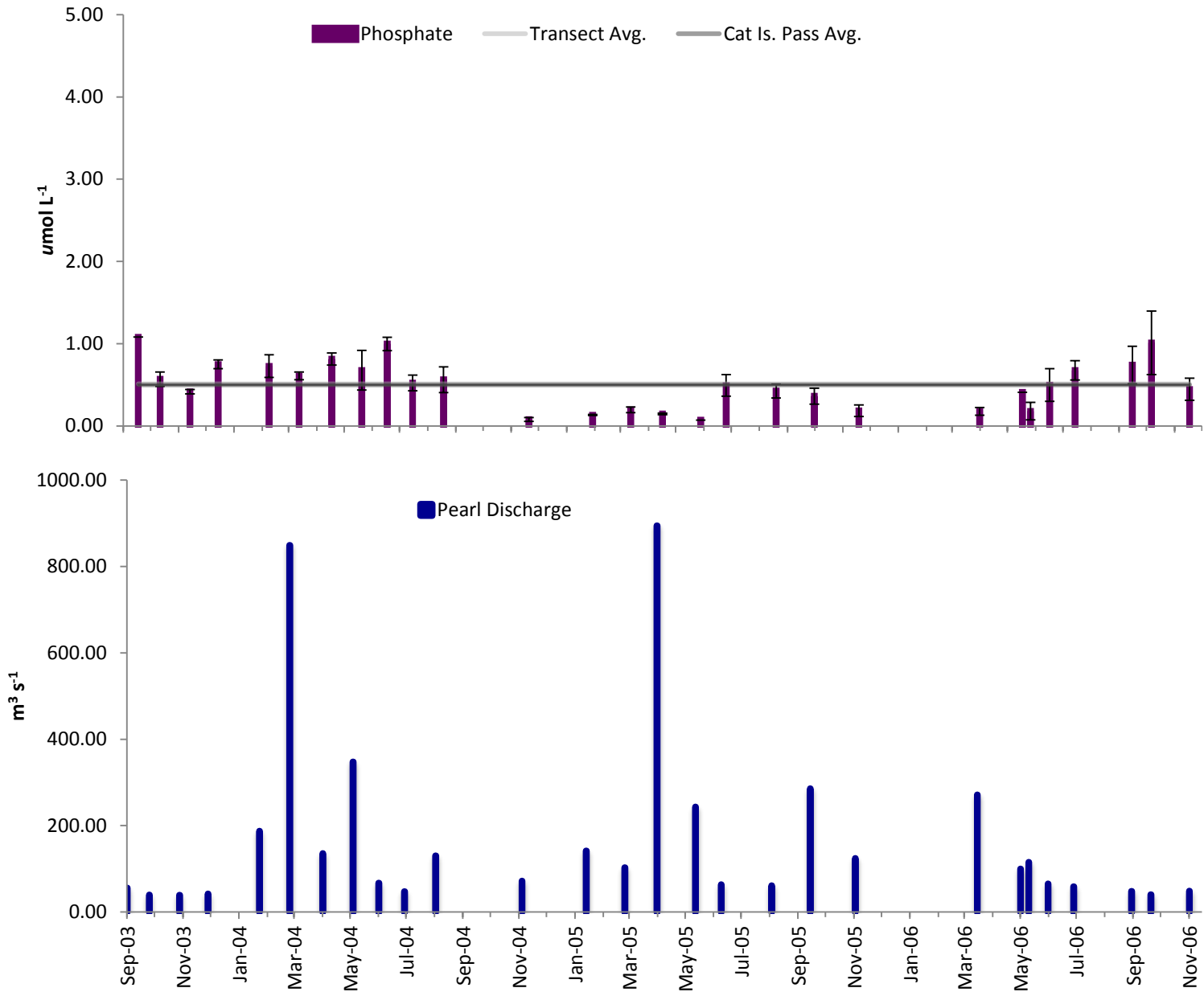
# Cat Island Pass



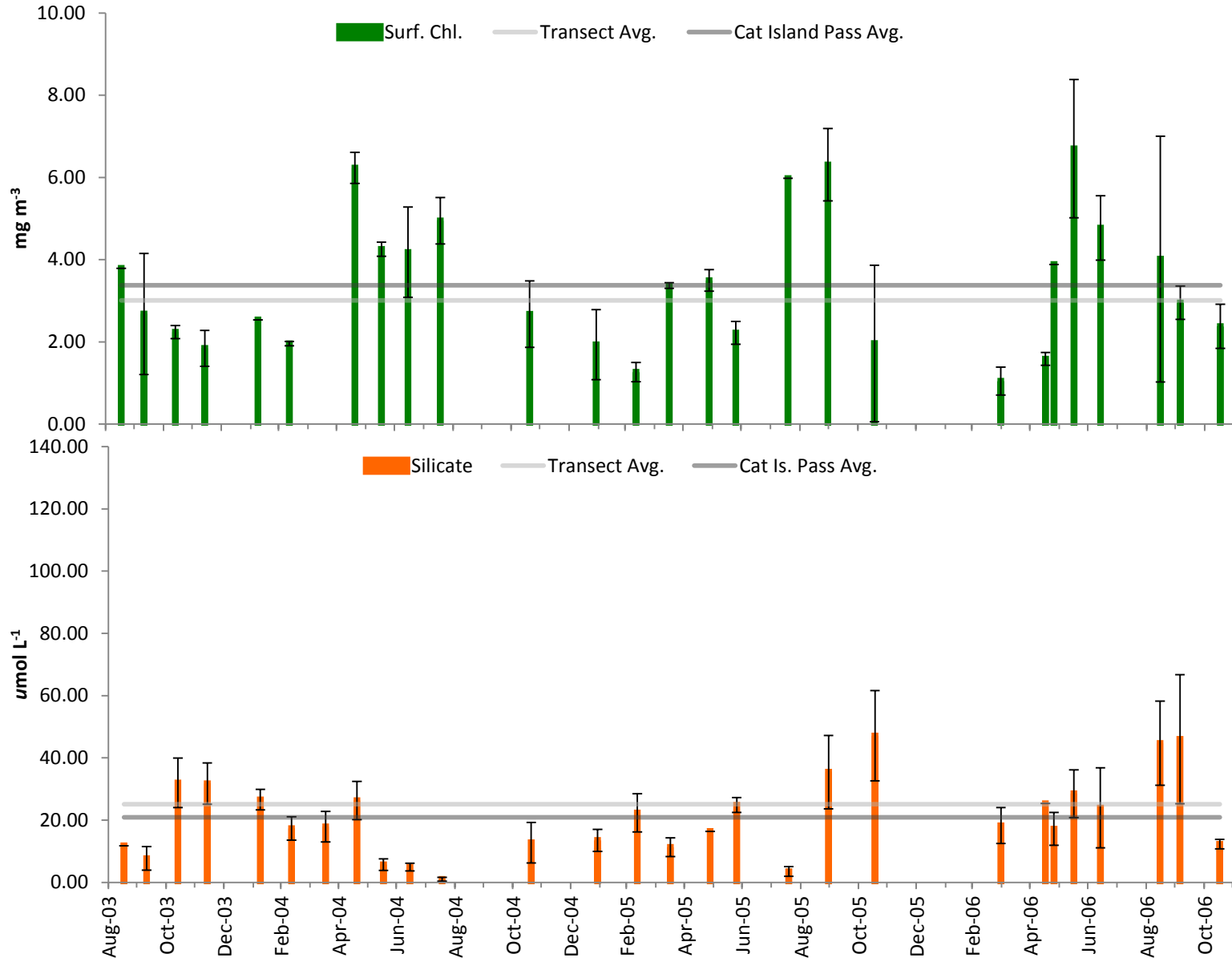
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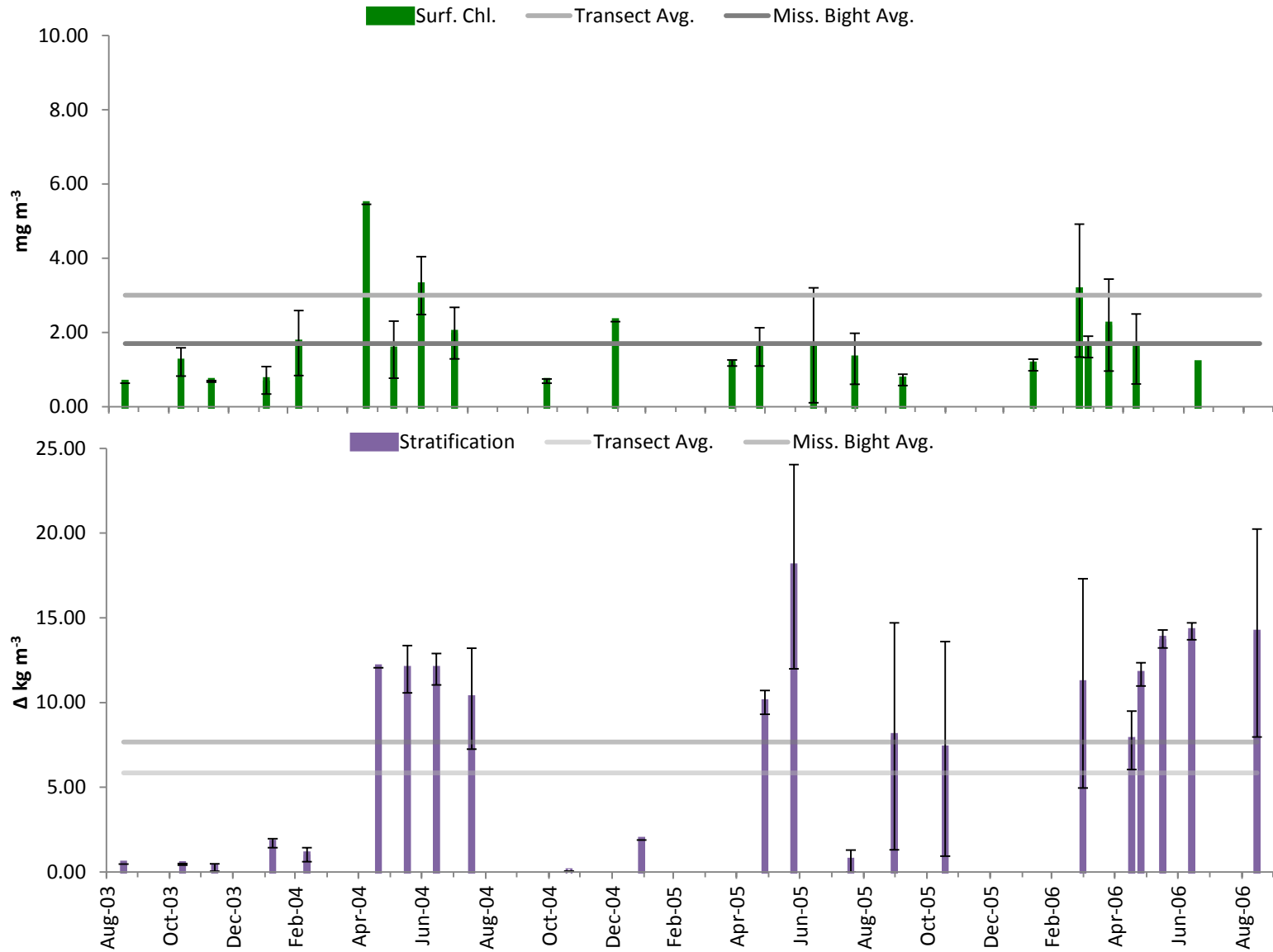
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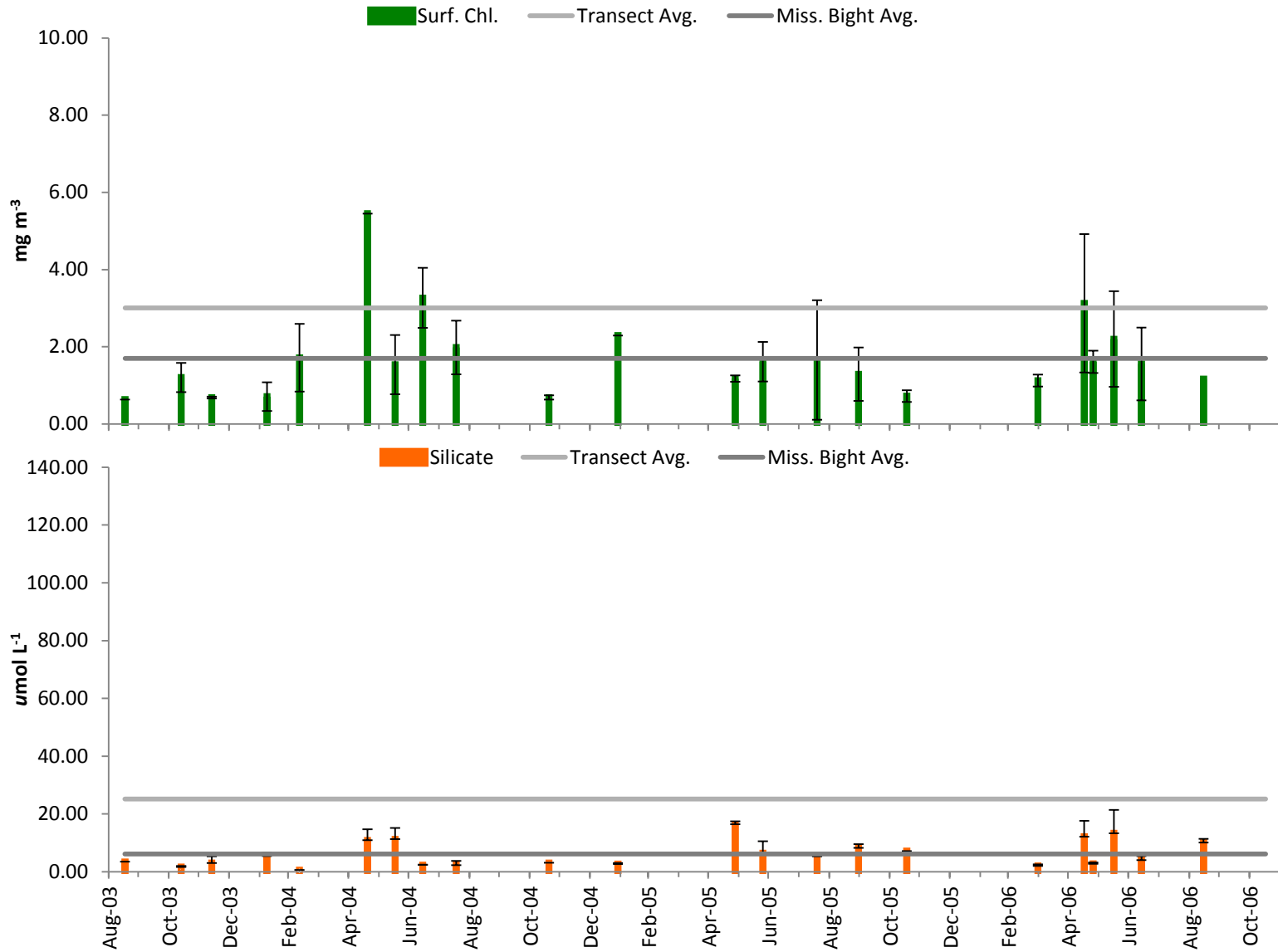
# NGI Transect



# Mississippi Bight



# Mississippi Bight



# Chlorophyll Conclusions

- Chlorophyll decrease seaward
  - Spring and fall blooms
- Chlorophyll seasonality
  - Temperature and stratification
- Tidal forcing



# Nutrient Conclusions

- Nitrate increased seaward
  - No seasonality
- Phosphate decreased seaward
  - Seasonality due to riverine seasonality
- Silicate decreased seaward
  - Seasonality due to riverine outflow and biological uptake.

Questions?

