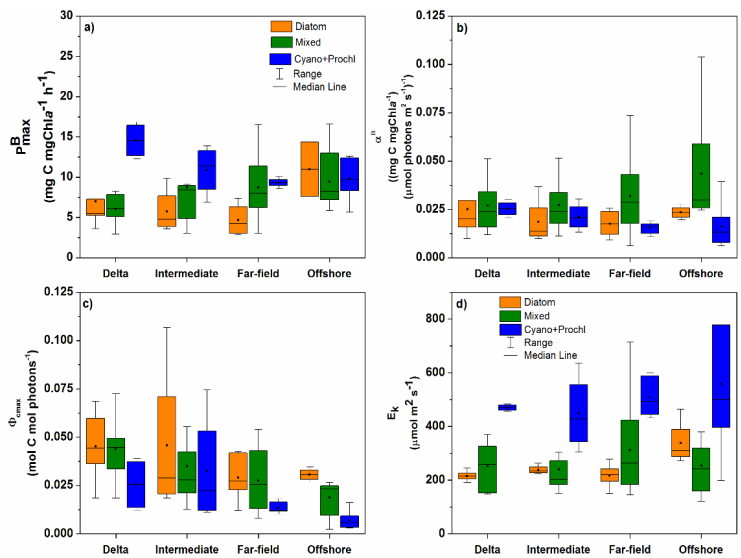
Chakraborty, S. et al. (2017). Photophysiological and light absorption properties of phytoplankton communities in the river-dominated margin of the northern Gulf of Mexico. *J. Geophys. Res. Oceans (Accepted)*

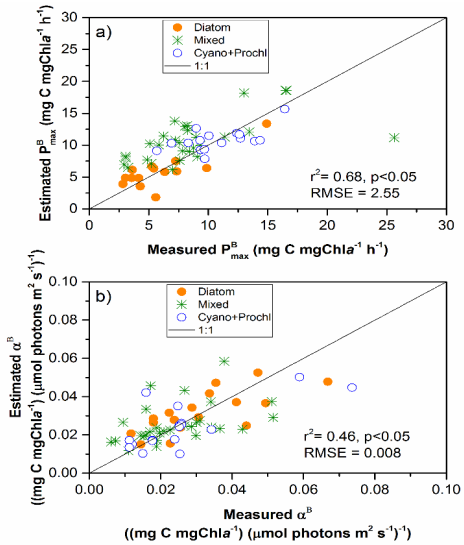
Objectives: **1)** Improve understanding of the relationship of phytoplankton community composition to variability in bio-optical and photosynthetic properties in continental shelf waters of the northern Gulf of Mexico (NGOM); **2)** Use this information to develop a predictive empirical model to estimate community-specific P-E parameters in the NGOM.

Key Results:

1. Strong gradients in phytoplankton light absorption properties and photosynthetic parameters were associated with major phytoplankton groups in bio-optically distinct geographical zones of NGOM continental margin waters.



2. Our findings were unprecedented in revealing significant differences in photosynthetic parameters between the major phytoplankton groups in northern Gulf of Mexico waters. An empirical model was developed for the major phytoplankton groups across the entire study area.



3. An empirical model was derived for estimation of photosynthetic parameters $P\downarrow max\uparrow B$ and $\alpha\uparrow B$ based on bio-optical indices of phytoplankton size class and pigment composition. This provides a basis for future work for estimation of primary production from satellite ocean color.

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Lohrenz-04 : Development of Observational Products and Coupled Models of Land-Ocean-Atmospheric Fluxes in the Mississippi River Watershed and Gulf of Mexico in Support of Carbon Monitoring