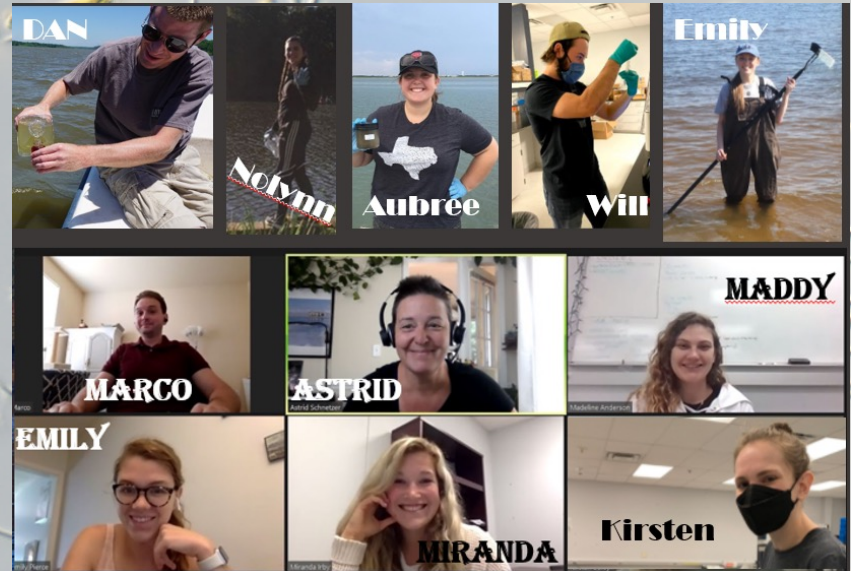


Toxic Algal Blooms in North Carolina Waters

Plankton Ecology Lab
Marine, Earth and Atmospheric Sciences

Schnetzer Astrid: aschnet@ncsu.edu

SECOORA meeting, Dec 2 2021



- Water Treatment Reservoirs (yellow) including Jordan Lake and Falls Lake (green) – 1.5 to 3 year-long studies (*in-situ* tracking)
- Add-hoc studies (blue) – typically over a single summer
- Water monitoring with trophic component (white) – varying temporal scales



Some takeaways

- Mixture of toxins detectable year-round in most environments - chronic exposure risks?
- Toxin release from cells exponential within first 2-3 weeks based on degradation experiments – window for food web uptake?
- Record levels of microcystin during summer of 2019 in the Chowan River region and downstream contamination of fishes, blue crab and clams
- Congener study targeting MCY-LR, -YR, -RR and LA shows major contributions from LR and RR – accurate risk assessments based on –LR?
- Freshwater and marine toxins merge and detected in oysters



Sustained Observations wish-list:

- 1) land-sea interface – export of freshwater toxins into marine systems
 - + toxin mixtures, congeners and toxin fractionation
 - + fate of toxins - link to exposure pathways – oysters as sentinels
- 2) connection to offshore dynamics (Onslow Bay and southward)
- 3) continued bidirectional communication with stakeholders, refuge managers, monitoring agencies and citizen scientists

