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**Title:** A Study of Nutrient Impacts on HAB Biotoxin Concentrations in Apalachicola Bay and Grand Bay National Estuarine Research Reserves

Harmful algal blooms (HABs) are the overgrowths of algae that cause harm by toxin production or by biomass accumulation. HABs are influenced by sunlight, carbon-dioxide, and nutrients. Other sources include temperature, salinity, wind, water-depth, and grazing predators. The goal is to determine HAB biotoxin concentration in ANERR and GNERR and to determine the correlations to water column nutrient concentrations. Solid Phase Adsorption Tracking (SPATT) bags will assess the amount of dissolved biotoxin levels of domoic acid, saxitoxin, and brevetoxin in seawater. Nutrient and other data will be obtained from the NERR’s System-Wide Monitoring Program (SWMP). Dissolved biotoxin extracts will be measured using LC-MS/ bioassays.

A spiking protocol will measure the efficiency of the porous resin, where salinity, humic acid, and domoic acid concentrations will be tested in deionized water, artificial salt water, and estuarine collected water. Using 1L Erlenmeyer flask, SPATT bags will be exposed to the various treatments for 2 weeks and LC-MS will measure toxin uptake, while spectrophotometry will measure humic acid levels.

Changes in Earth’s climate will impact the production of HABs. Conducting surveys that tests the knowledge of the local neighboring communities’ understanding of HABs will add value to the greater scheme of maintaining healthy oceans.

[key words: HABs, SPATT bags, nutrients]