

## Research Projects 2012-2014

### Evaluating Ecological and Social Impacts of New Jersey Legislation Regulating Fertilizer Nitrogen Loads to Barnegat Bay - Little Egg Harbor Estuary by Using Isotopic Signatures, Seagrass Demographics, Social Response, and Communications

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When excess nutrients like nitrogen and phosphorus enter a water body from an external source, the overabundance of nutrients stimulates biological activity that ultimately depletes the oxygen supply in the water, compromising the ecosystem and making it less hospitable to plants and animals. In the case

of New Jersey's Barnegat Bay-Little Egg Harbor the source of many of these excess nutrients has been attributed to stormwater runoff from fertilized lawns within the Barnegat Bay-Little Egg Harbor Watershed. To help understand how these nutrient-rich fertilizers affect the bay, a research project led by Drs. Michael Kennish and Benjamin Fertig of Rutgers University Institute of Marine and Coastal Sciences is studying the impact of fertilizers in this important New Jersey estuary.



YSI probe measuring temperature, salinity, dissolved oxygen and pH in the seagrass bed

The study will attempt to discern how human action through fertilizer application is linked to the condition of seagrass in the estuary. Since seagrasses assimilate nutrients, chemical analysis of these seagrasses has the potential to identify the presence of nitrogen derived from synthetic fertilizers. This means that seagrass can serve as an indicator of how the ecosystem

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responds to human activity. The timing of this project enables an assessment of the impact of recent legislation limiting fertilizer application (New Jersey Legislative Bills S-1411 and A-2290) in improving the condition of the bay.



Dr. Fertig prepares a filter for a collected water sample.



Undergraduate intern Lela Novak collects a water sample with a syringe. Sea grass is visible.