**2020 Deployment of NJDEP’s Slocum Glider by Rutgers University**

Funding agency: NJDEP

 Period of Performance: 4/1/20-3/31/21

 Total Budget: $84,464

Project Summary

One of NJ’s greatest natural resources is its ocean waters. These waters are a significant asset to the state for recreation, tourism, and as a food supply. Preserving this resource in its most naturally occurring condition is of great importance. At the same time, steps need to be taken if the health of the ocean can scientifically be proven to be impaired. Since 2002, the New Jersey Department of Environmental Protection’s (NJDEP) Integrated Report has listed NJ’s Ocean waters as impaired for Dissolved Oxygen (DO).

The 2020 glider deployments will supplement previous years of glider data to better understand the reason for low bottom DO conditions. It’s hypothesized that some of the lower DO values represent a natural, predictable condition of water off the NJ coast. To more effectively comprehend these ocean dynamics and to explore if low DO levels are natural or from anthropogenic inputs, the uses of new data acquisition technologies are needed. Using both glider deployment data and identifying the health of our Ocean’s benthic community is crucial to accurately assess our Ocean’s ecological health.

To address this need, a Slocum Glider purchased by the NJDEP Division of Water Monitoring and Standards (WM&S) with EPA funding will be used. Slocum Gliders are autonomous underwater vehicles that navigate ocean waters collecting data at various depth levels approximately every second for multiple parameters. Data is collected from surface to bottom, east to west, and north to south providing a detailed three-dimensional view of ocean conditions.

The items below represent planned uses for the continuous glider data:

1. (1) A larger more comprehensive data set that can be used to either support or contradict NJDEP’s Integrated Report listing of NJ ocean waters as impaired.
2. (2) A complementary DO data component for ecological analysis and evaluation when using the Ocean Benthic Index.
3. (3) Better understanding of monthly stratification of ocean waters and its effect on DO.
4. (4) Chlorophyll data will be used to monitor for algal blooms so that targeted phytoplankton species identification can be performed. This ensures that there are no toxin producing species that impact human health through shellfish ingestion or recreational activities.
5. (5) Temperature data will be shared with Rutgers University and National Oceanic and Atmospheric Administration (NOAA) hurricane forecasters for Tropical Storm intensity forecasts.

**Number of Deployments:** There will be three separate deployments of one coastal glider through the Spring, Summer, and Fall of 2020. A single 2-3-week long deployment will occur on three separate occasions. Exact timing of the deployment will be determined jointly by the NJDEP and Rutgers University based on weather, environmental, and other logistical variables. In general, the targeted deployment dates will be:

**Deployment 1:** May

**Deployment 2:** Mid-September

**Deployment 3:** Mid-October