

# Oceanographic & Marine Mammal Monitoring System & Services for Garden State Offshore Energy

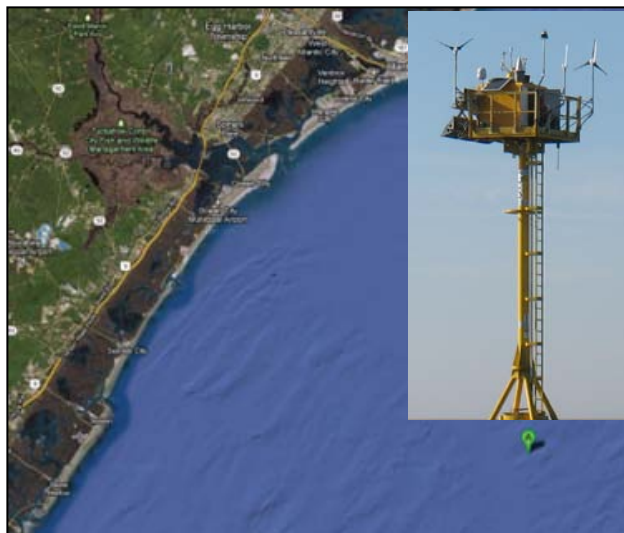
## Project Characteristics:

- *Offshore wind energy project support*
- *Measuring waves and currents*
- *Monitoring marine mammal*
- *Trawl-resistant instrument frame*

Garden State Offshore Energy plans to build a wind farm offshore New Jersey and is currently involved in an exploratory and permitting process. They are investigating the wind resource using LIDAR measurements from the NJORD spar buoy, and assessing the oceanographic conditions, which will have bearing on the design and anchoring of the towers supporting the wind turbines. Measurements also document avian, bat, and marine mammal activity so these species can be protected.

The instrument package provided by Woods Hole Group is composed of a TRBM (Trawl-Resistant Bottom Mount) equipped with autonomous, internally recording instruments. The suite of sensors includes a Nortek AWAC/AST profiling current and wave sensor, an RBR CTD (Conductivity, Temperature, and Depth), and two SM2M Song Meters.

Nortek AWAC measurements of current velocity profiles and wave height are used to calculate wave spectra and statistical characteristics including significant wave height, frequency, and direction. Waves and currents are dominant contributors to the forces acting on structures and on the sea floor, so these measurements are critical inputs to the design of offshore towers.



RBR CTD measurements of conductivity, temperature, and depth are used to tag the movement of water masses and, combined with information from other sources, provide information about local and regional circulation, mixing, upwelling, and biological activity.

The Song Meters record the vocalizations of marine mammals. These may include the songs of large baleen whales, such as Blue, Fin, and North Atlantic Right Whales, and the whistles and clicks of toothed whales and delphinids. The analysis will identify particular species when possible. Recordings will also be used to monitor ambient noise levels from naturally occurring and anthropogenic sources.