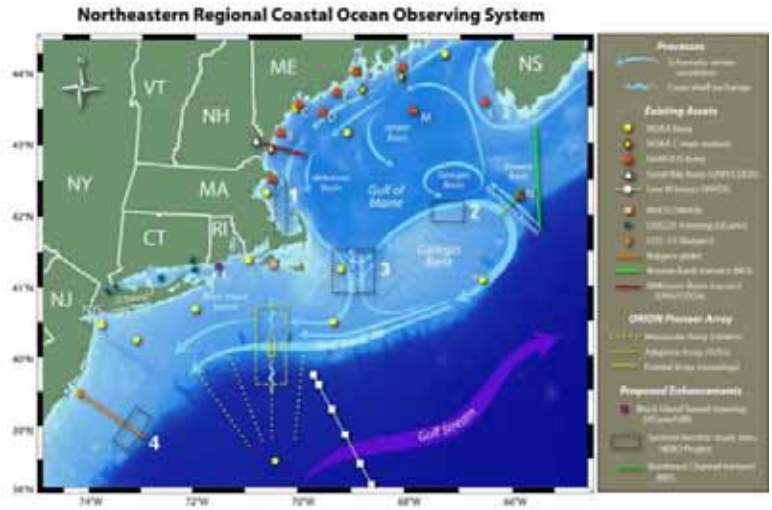
A Mobile Bentho-Pelagic Observatory to Support Fisheries and Ecosystem Management

The objective of the Northeast Bentho-Pelagic Observatory (NEBO) is to produce unique data products for fisheries and marine protected area managers to foster development of ecosystem approaches to management (EAM). A unique approach allows the NEBO Team to collect and rapidly analyze data that are both spatially comprehensive (i.e., continuous coverage of large areas) and have high resolution (mm resolution of seafloor imagery). In conjunction with the Northeast Regional Association for Coastal Ocean Observing Systems (NERACOOS), the project will observe and quantify key taxa, benthic community structure, species diversity, seafloor habitat characteristics, and coincident water column properties with repeated measurements on time scales of weeks to years. The project is lead by PI Scott Gallager at the Woods Hole Oceanographic Institute.

At test sites that have both high fisheries and conservation value, NEBO will quantify how these communities respond to system change (climate events, fishing activity, position of oceanographic features [fronts], etc). This will require the fusion of disparate, synoptically acquired data sets, including high-resolution acoustic bathymetry and backscatter (on scales of meters to kilometers), stereo optical imagery (on scales of millimeters to meters), water column plankton distributions (microns to millimeters), and the development of image bioinformatic tools for classifying targets and substrates. Integrated data products will be developed and presented using advanced visualization tools so key fishery target species and non-target community responses to regulatory practices can be observed and quantified at multiple, relevant space and time scales in relation to variations in seafloor habitat and boundary layer conditions. The MFP will provide outreach services to the industry to solicit timely feedback on project findings. Data products will be incorporated into predictive community dynamics models for use in fisheries and sanctuary management, and evaluated for their impact on management practices through socio-economic modeling. Data products will be of direct utility to fishery and conservation scientists, fishery and sanctuary managers, and environmental policy makers.



Summary and map courtesy of Woods Hole Oceanographic Institute