Real-time Opportunity for Development Environmental Observations (RODEO)

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BOEM
Bureau of Ocean Energy Management

RODEO | Real-time Opportunity for Development Environmental Observations

- Collect real-time measurements of the construction and operation activities from the first facilities to be built to allow for more accurate assessments of the actual environmental effects and inform development of appropriate mitigation measures.
- Includes recording of direct observations during testing of monitoring equipment that may be used during future offshore development to measure or monitor activities and their impact producing factors.
- Does not duplicate or replace requirements of developer

Topical areas being addressed:

- Air Quality
- Sound
- Seafloor Disturbance
- Visual
- Testing of Monitoring Equipment
- Evaluating Mitigation Equipment

HDR – Prime Contactor

Fugro- Seafloor Monitoring

Subacoustech –Airborne/Underwater Acoustics

University of Rhode Island – Underwater Acoustics/Modeling

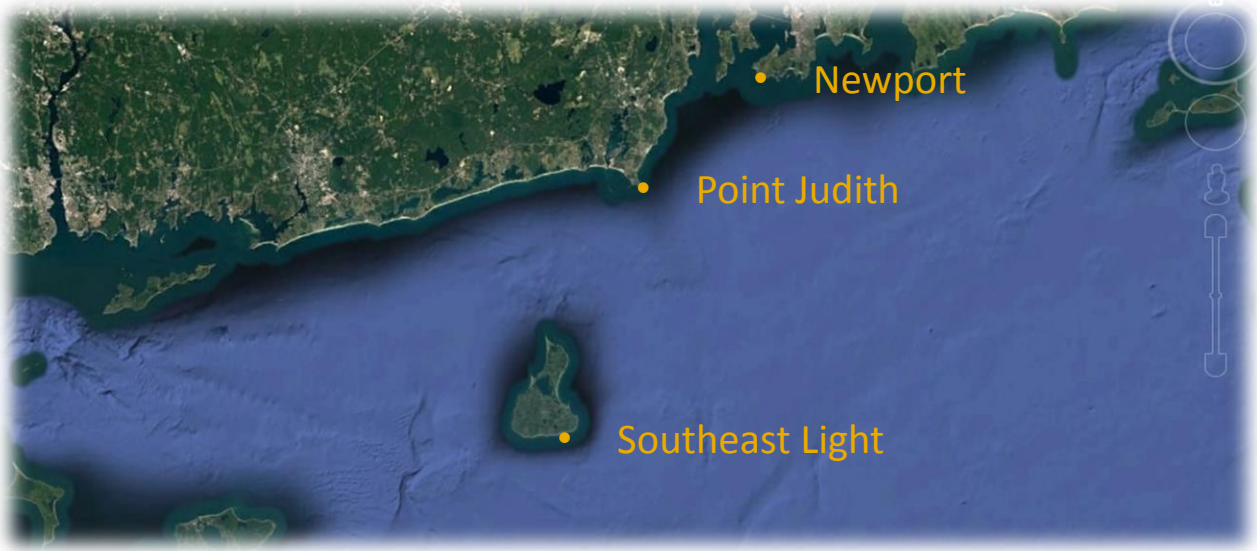
Marine Acoustics, Inc. – Underwater Acoustics

Woods Hole Oceanographic Institute – Underwater Acoustics

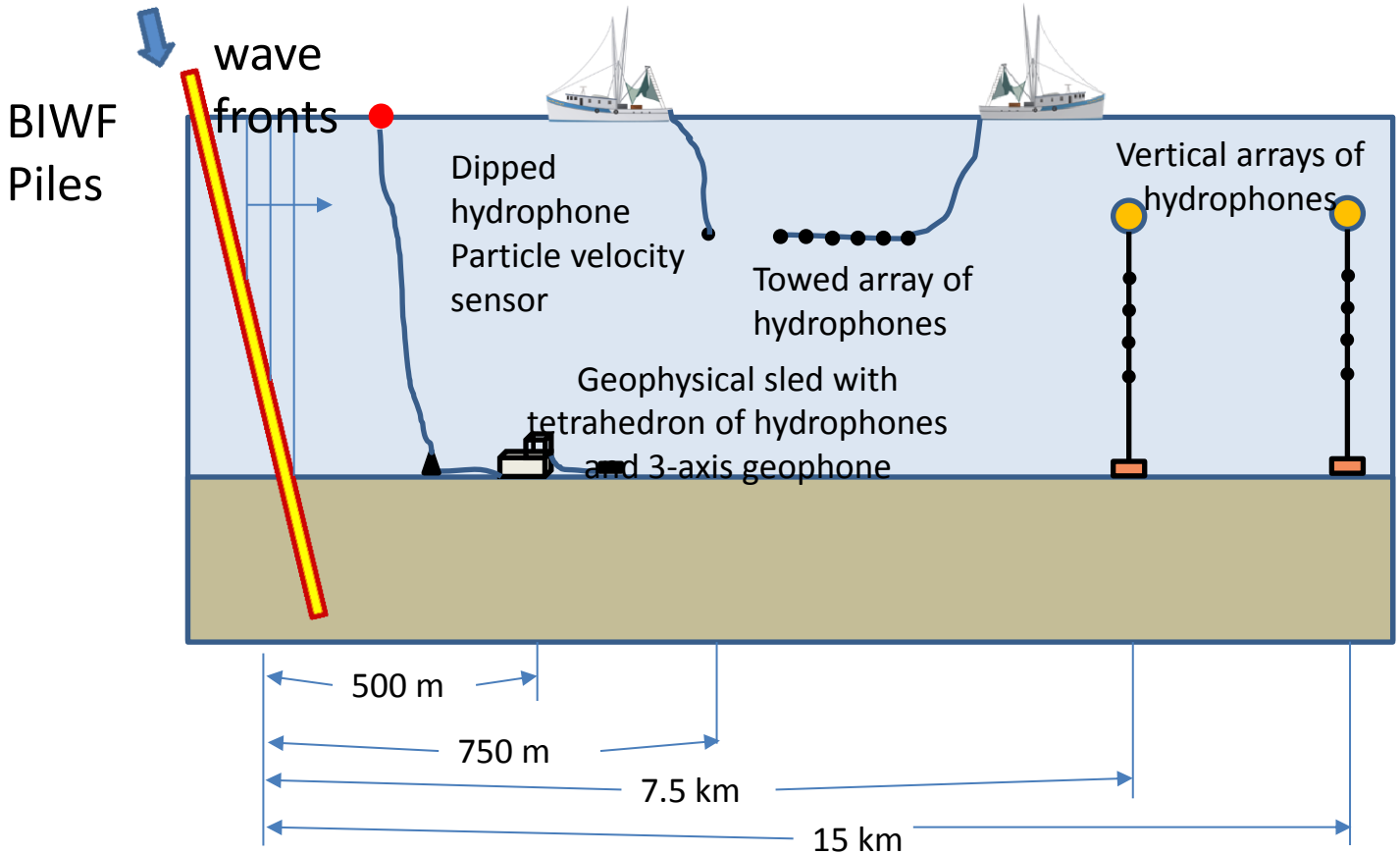
RODEO | Block Island Wind Farm

- Record of activities as they occur
- Sound – airborne and under water
- Seafloor disturbance and recovery
- Benthic Monitoring
- Scour Monitor Testing
- Submarine Cable Laying

RODEO | Airborne Acoustic Monitoring

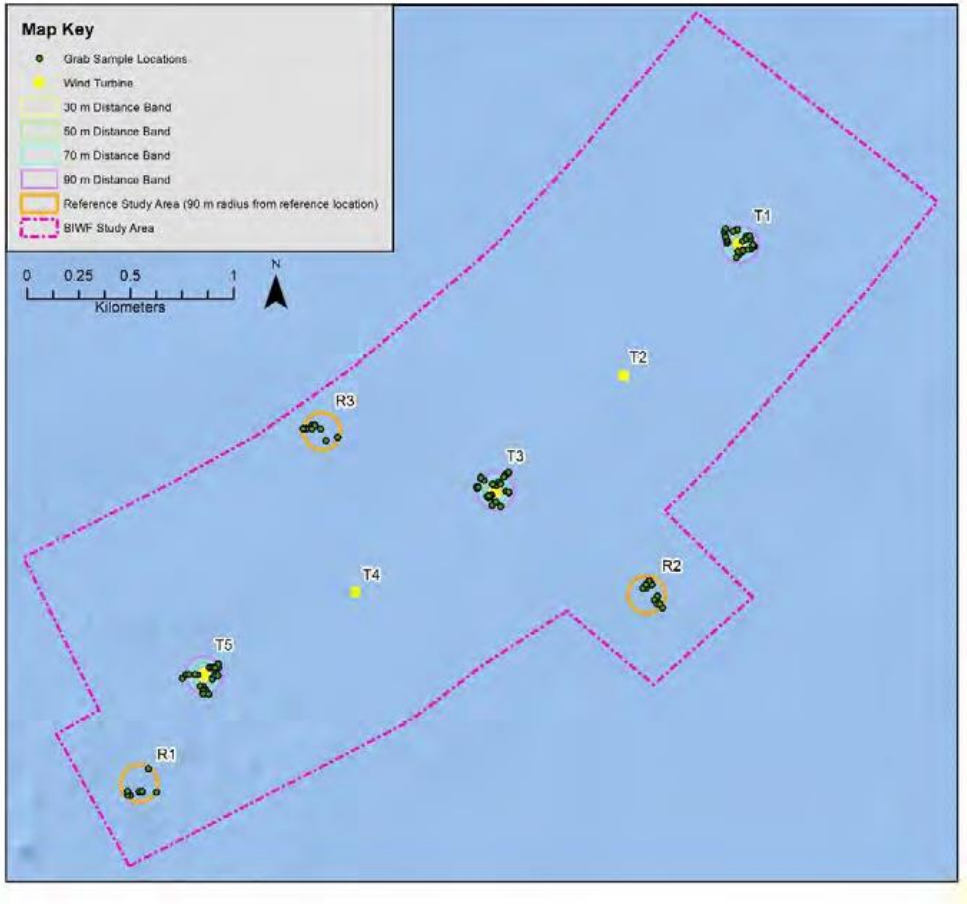


RODEO | Underwater Acoustic Monitoring

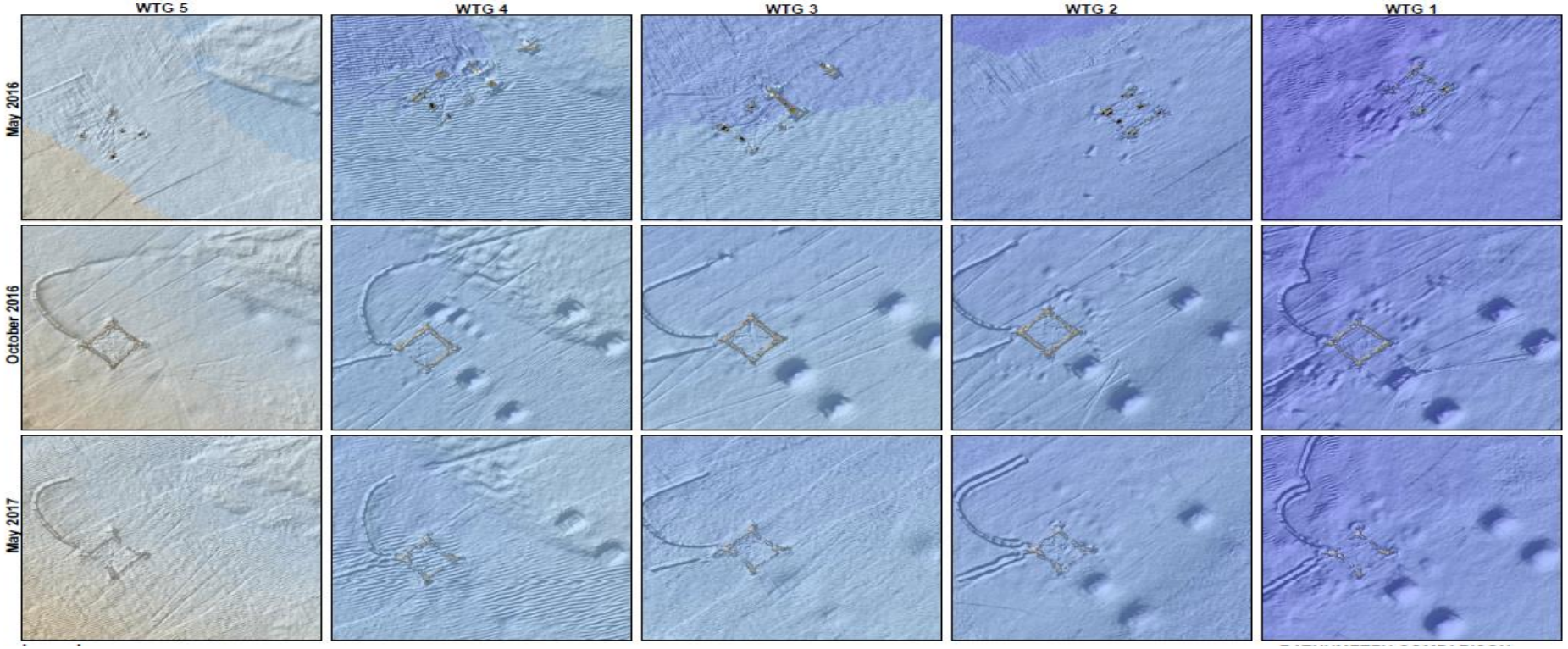


RODEO | Benthic Monitoring

- Benthic grab samples at 3 wind turbines and 3 reference sites
- Video transects
- 120 grab samples analyzed for grain size, organic carbon, infauna

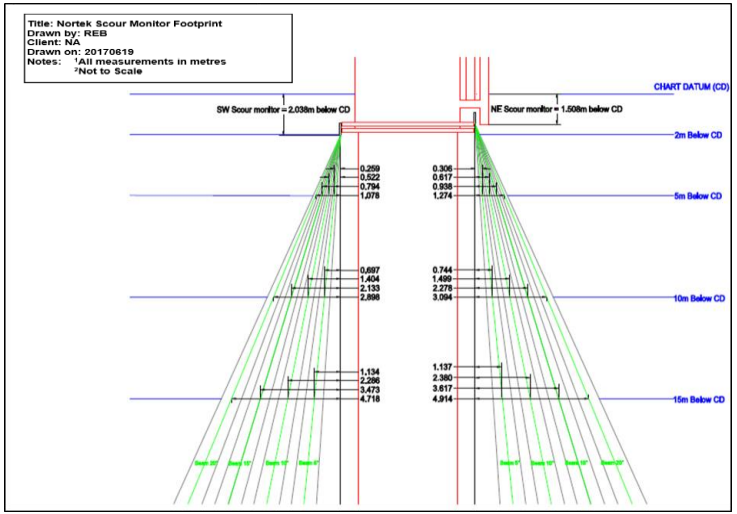


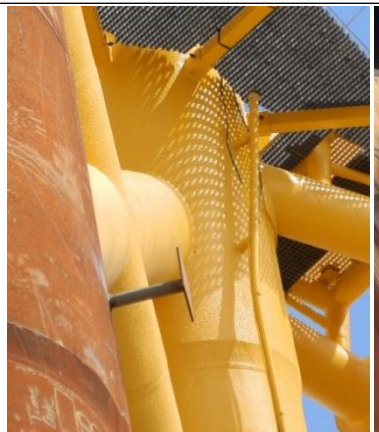
RODEO | Seafloor Disturbance and Recovery



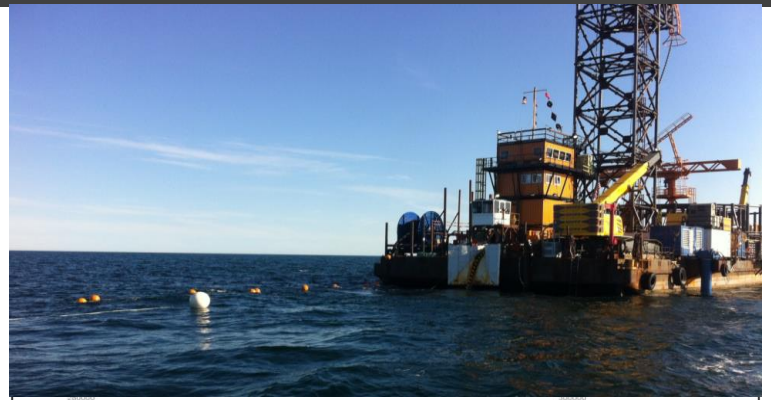
RODEO | Scour Monitor Testing

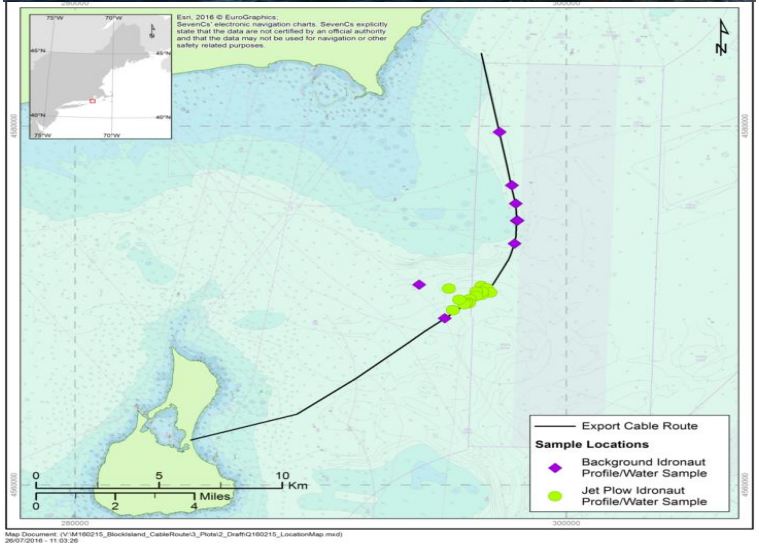
- Two scour monitors installed in line with the prevailing tidal current axis.
- The measurement beams conceptually recording at increasing distance from the foundation.
- Instruments installed 9 m below MLLW, easily accessed by divers but out of surface turbulence. Water depth at installation site 26 m, thus the instruments were at 17 m above the seabed.
- Brackets welded to foundations during construction, allowing straightforward diver deployment, servicing and recovery.
- Nortek AWAC installed at site to monitor wave, sea level and current activity concurrently with scour data.





RODEO | Submarine Cable Installation

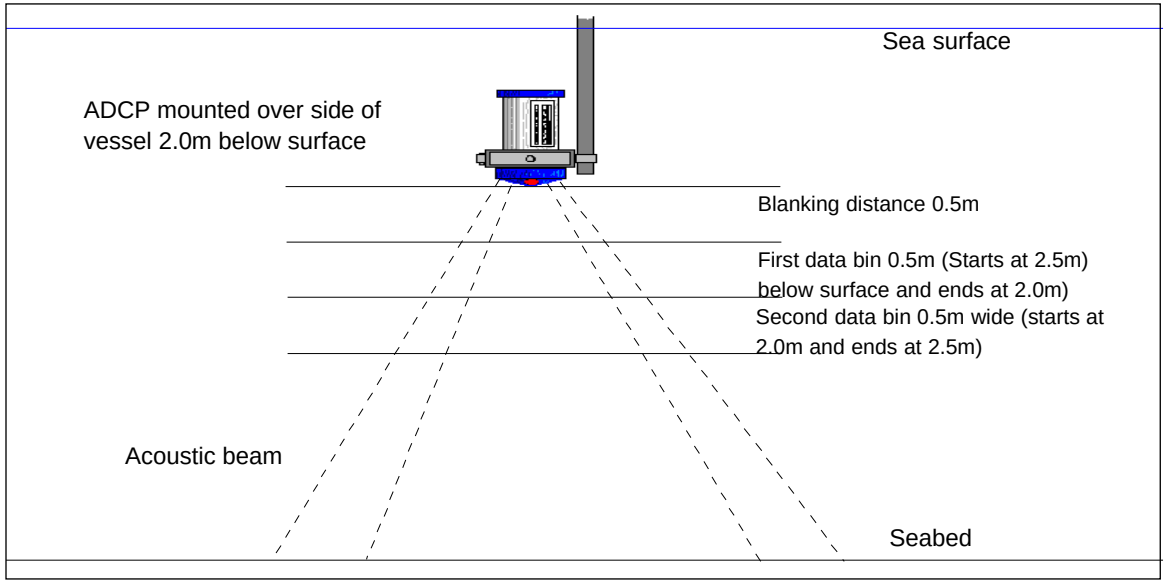


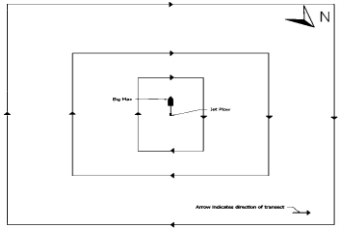


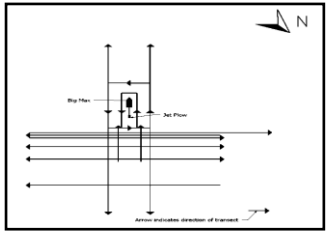
- Installation lasted 24 days in June 2016 and covered distance of approximately 20 miles.
- Multibeam to search for water column anomalies
- ADCP
- OBS and water column samples for sediment content

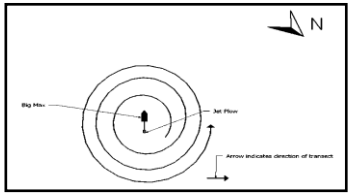
- ADCP Transects patterns

- Due to required safety offset from jet-plow, closet beam ping was ~5m from plow









- Regional **Geophysical Survey** and Interpretive Report for the Virginia Wind Energy Area offshore Southeastern Virginia (2013)
- Virginia Ocean **Geophysical Survey** Phase II Analyses: Offshore Virginia Wind Energy Area (2016)
- Collaborative **Fisheries Planning** for Virginia's Offshore Wind Energy Area (2016)
- Virginia Collaborative **Archaeological Survey** (2015)

- **Fishing, Diving, and Ecotourism** Stakeholder Uses and Habitat Information for North Carolina Wind Energy Call Areas (2013)
- Baseline **Bioacoustic Characterization** for Offshore Renewable Energy Development in the North Carolina and Georgia Wind Planning Areas (2015)
- **Benthic Habitat Mapping** and Assessment in the Wilmington-East Wind Energy Call Area (2016)
- Determining Offshore Use by **Diving Marine Birds** Using Satellite Telemetry (2017)

Questions?

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