



The BOEM 'RODEO' Program

Lessons Learned from Environmental
Monitoring at Multiple U.S. Offshore Wind
Farms

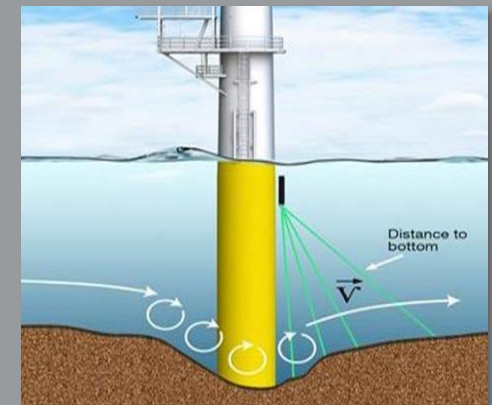
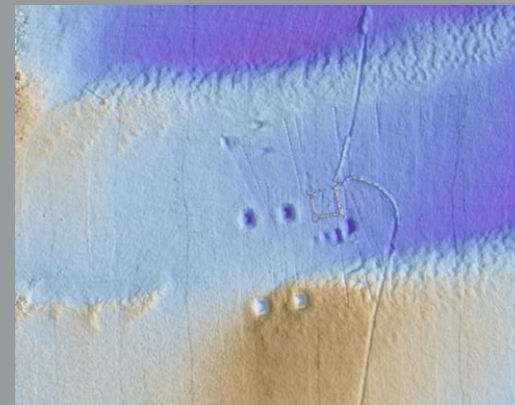
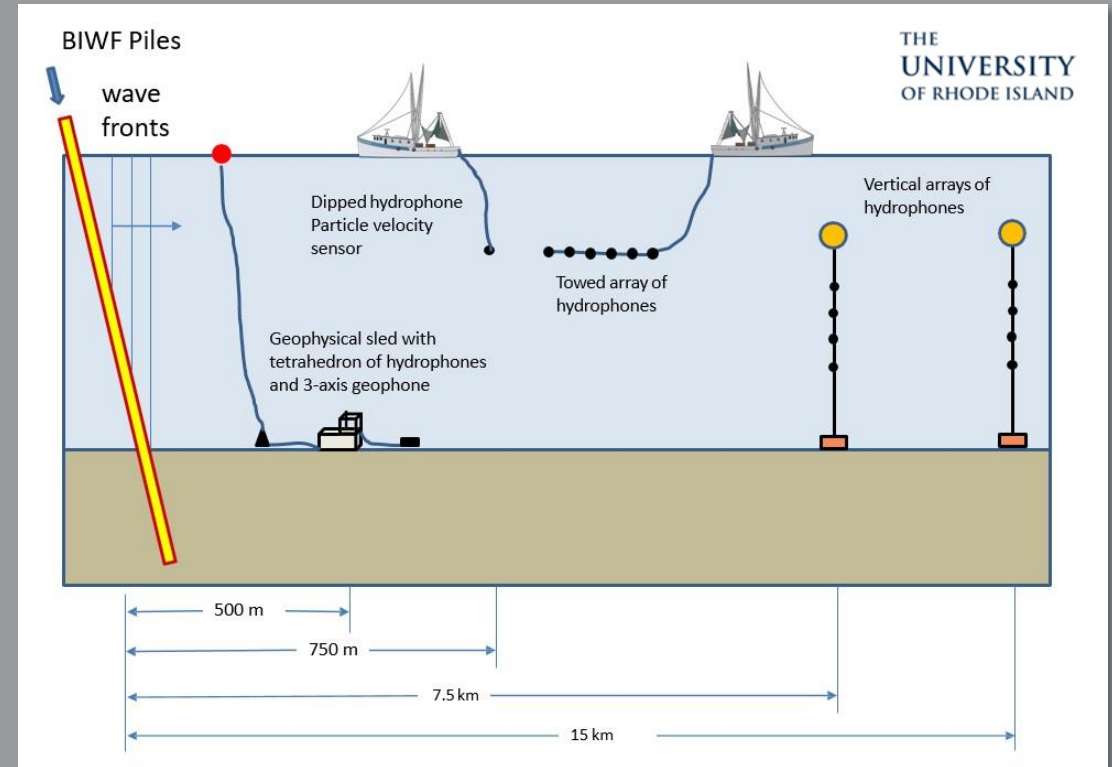
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RODEO = Real-time Opportunity for Development Environmental Observations

Environmental Monitoring at the Block Island Wind Farm (BIWF) 2015-2019

- Underwater noise (pressure and particle motion) measurements using fixed and mobile sensors, during construction *and* operations
- Airborne noise measurements
- Turbine scour
- Seafloor disturbance and recovery rates
- Benthic community abundance and diversity
- Epifouling of turbine foundations



Key Results and Lessons Learned from BIWF (and applied at CVOW in 2020)

- **BIWF:** UW construction noise was loud: estimated peak-to-peak source levels between 233 and 245 dB re 1 μ Pa at 1 m
 - **CVOW:** Increased emphasis on UW noise monitoring during construction to better understand propagation characteristics
- **BIWF:** UW operational noise at BIWF was barely detectable at 50 m, and airborne noise was minimal
 - **CVOW:** Reduced UW operational noise monitoring and eliminated airborne monitoring; allocated resources to higher-priority studies
- *Other*
- Results from BIWF dictated sensor placement at CVOW
- Added metocean data collection at CVOW to better understand impact of the turbines on turbidity changes
- Added corrosion monitoring at CVOW
- Switched to using ROVs at CVOW (vs. divers) for biofouling surveys



Monitoring at the Coastal Virginia Offshore Wind (CVOW)
Pilot Project

Thank you!



Colonization of BIWF Turbine 3 foundation by *Mytilus edulis* (2018)