



SCIENCE NOTES

Applied science for informed decisions

September 28, 2015

Dear Reader:

As our Nation continues to advance development of clean, offshore renewable energy, the Bureau of Ocean Energy Management (BOEM) and its industry and state partners recognize the importance of learning more about environmental impacts and how to manage them. This month's Science Note focuses on a new BOEM study—Real-time Opportunity for Development Environmental Observations, or [RODEO](#)—that will provide real-time data on visual observations, sound produced by various activities, and seafloor disturbances related to cabling or anchoring of offshore wind turbines. The first opportunity to conduct this research is through the [historic Deepwater Wind project](#).

In July, U.S. Secretary of the Interior Sally Jewell and BOEM Director Abigail Ross Hopper joined Rhode Island Governor Gina M. Raimondo, the state's congressional delegation, and representatives of Deepwater Wind—the project developers—in celebrating a historic “steel in the water” milestone for America's first commercial scale offshore wind farm. To learn more, please enjoy reading this month's Science Note, and feel free to send us your feedback at boempublicaffairs@boem.gov.

Sincerely,

William Y. Brown

Chief Environmental Officer, Bureau of Ocean Energy Management

BOEM measuring environmental effects of offshore wind turbine construction

The Bureau of Ocean Energy Management has begun a new study to conduct real-time, independent observations and data collection during construction of offshore wind turbines. Field work took place in August and September of this year through the Real-time Opportunity for Development Environmental Observations study, or [RODEO](#), which is taking direct measurements of visual effects, sound produced by various activities, and seafloor disturbances caused by cabling or anchoring. It is also evaluating different types of monitoring equipment.

Beginning with Rhode Island's [Block Island](#) project, the study will be ongoing during the next five years and will take measurements from projects as they come online. Field work at future projects may include evaluation of air emissions and testing of mitigation measures. These monitoring efforts could take place in state or federal waters.

RODEO offers a new opportunity to learn from data gathered from actual construction instead of best-guess scenarios, and will help BOEM establish realistic mitigation measures that reduce or eliminate impacts. The offshore wind energy industry will benefit by having appropriate mitigation measures based on real data to ensure the marine environment is protected in a cost-effective manner.



A scientist from Subacoustech, a subcontractor for HDR Engineering, deploys an acoustic monitor. In the background is the foundation for wind turbine generator 2. Photo credit: HDR Engineering.

For offshore wind development, there is no previous experience in the United States, so the analyses and subsequent mitigation measures are based on the best available science. Future analyses will benefit from real-time, independent observations during actual construction activities. For example, the extent of disturbance on the seafloor from anchors may be estimated to encompass a larger area than actually occurs. Recovery from the disturbance may occur in less than a year or may take longer. Vessels may use dynamic positioning, resulting in no disturbance from anchoring.



During the summer of 2015, more than a dozen construction and transport barges, tugboats, crew ships and monitoring vessels were active at the Block Island Wind Farm site. Photo by Tracey Moriarty, BOEM. [More photos.](#)

The first component completed for this study was development of a field plan for measurements at the Block Island Wind Farm (BIWF) during the installation of the foundations. The second task involves the testing of scour monitoring equipment on one foundation at BIWF for up to one year. The third task has researchers recording activities as they occur, monitoring sound in air and water during pile driving, and evaluating scour from anchors and other bottom disturbing activities.

For more information about BOEM's Renewable Energy Program and related studies, click [here](#).

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