

ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Atlantic

Planning Area(s): North Atlantic

Title: Developing Protocols for Reconstructing Submerged Paleocultural Landscapes and Identifying Ancient Native American Archaeological Sites in Submerged Environments

BOEM Cost: \$2,000,000

Period of Performance: FY 2012-2018

Conducting Organization(s): University of Rhode Island

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Description:

Background: States within the New England Region (particularly southern New England) are increasingly becoming the focus of proposed offshore wind energy development to supplement or fulfill BOEM's alternative energy objectives. The development of a science-based, standardized "best practices" methodology for identifying submerged ancient Native American archaeological resources will assist BOEM, individual States, and Tribal communities in evaluating proposed offshore wind-energy projects and with developing the appropriate information gathering protocols and survey measures to avoid or mitigate adverse effects to National Register-eligible or -listed ancient Native American archaeological sites during OCS development.

The study has five phases and two types of fieldwork will be conducted: high-resolution marine geophysical survey and geotechnical sampling, which may include the use of SCUBA divers.

The first phase will develop best-practice protocols, which will assist in identifying data needs for field survey and data analysis, developing modeling approaches for reconstructing submerged paleocultural landscapes, and identifying ancient Native American archaeological sites in submerged environments. These best practices will be developed based on the synthesis of interdisciplinary research and will be refined throughout the life of the project. A literature synthesis will be compiled of current scientific theory, terrestrial and underwater field studies, and other relevant ethnographic studies to inform this phase of the research and the subsequent workshops. Workshops with Tribal representatives, remote sensing experts, archaeologists, geologists, and regulators will be held at the beginning of the project to develop a consensus on the project objectives and methodologies. Follow-up workshops with targeted groups will be held at 18 months and during the final year of the project.

The second phase will consist of developing a methodology to incorporate Tribal knowledge into these best-practice protocols which will be accomplished through multiple simultaneous phases of consultation, existing data review and aggregation (geological, archeological and tribal), hypothesis development and testing protocols. This information will be used to develop a

Paleocultural landscape model, which will serve as a predictive model for the identification of environments with varying archaeological sensitivity for containing ancient Native American archaeological resources representative of the variability likely to be encountered in the southern New England offshore area.

The third phase will develop training materials and opportunities for field research so that Tribal representatives become familiar with the method, theory, and application of high-resolution marine archaeological surveys, geotechnical sampling, and analysis and interpretation of the collected data. The training material should be available in multiple formats and media to ensure the ability of tribal communities to assimilate this information regardless of technological limitation.

The fourth phase is field investigation, data acquisition, post-processing, analysis and interpretation, and the development of baseline data that will form the foundation of management recommendations. These field investigations will take place on four distinctly different study locations, encompassing a range of offshore environments identified from the predictive model developed in phase two. Each of these four areas will be subjected to a variety of geoarchaeological survey and subsurface sampling, analysis, and interpretation techniques. Surveys will include a suite of state-of-the-art remote sensing technology, including: bathymetric echo sounders, side-scan and high-resolution (CHIRP) sub-bottom sonar, high penetration subbottom sonar, and magnetometers (for targeted application). Cores will be taken and analyzed to identify, date and characterize archaeological sites and to assist in reconstructing the region's paleoenvironment. The geological, geotechnical, and archaeological survey data will be combined with Tribal knowledge to create a more complete understanding of the paleocultural landscape of the region, as well as to test and refine the proposed survey methodology and protocols. Federal, State, and Tribal regulatory entities will be coordinated with to ensure the regulatory community ground truths the protocols from a regulatory perspective. This phase will culminate in a final report that incorporates all the material from this phase and the previous phases.

The final phase is the development of a documentary film to assist in outreach efforts on the science and traditional knowledge utilized during the course of the study to reconstruct submerged paleolandscapes and the attempt to identify ancient submerged Native American archaeological sites in the southern New England area.

Objectives:

1. Enhance and refine our understanding of submerged paleocultural landscape distribution on the Atlantic OCS, especially landscapes of tribal significance.
2. Understand and identify paleocultural landscapes of importance to regional Tribes through collaborative research.

Importance to BOEM: The absence of a scientifically proven, standardized, “best practices” methodology for identifying submerged relict landscapes on the Atlantic OCS, and the ancient Tribal archaeological resources these landscapes may potentially contain, has long been a

concern among Federal, State and Tribal historic preservation officers and has made environmental decision-making problematic for the BOEM. In the last three decades, only three desktop studies have been completed for BOEM to evaluate the potential for the presence of submerged ancient Native American archaeological resources on the Atlantic OCS: ICA's 1979 study covering Cape Hatteras, NC northward; SAI's 1981 study covering Cape Hatteras, NC, southward; and TRC's 2012 update of these studies covering the entire Atlantic OCS. Each of these studies has been broad in scope; none have included field investigations to test the hypotheses they advance; and these studies have not integrated tribal historic preservation concerns or tribal research partners as part of their research designs.

Current Status: The cooperative agreement was awarded on July 30, 2012. Submerged Paleocultural Landscapes Workshop held at University of Rhode Island from April 8 – 10, 2013. Literature Synthesis and Reference Database completed on July 31, 2013. Narragansett Indian Tribal Historic Preservation Office staff trained in scientific diving through University of Rhode Island, 2013. Geological and archaeological fieldwork conducted in 2013-2016, including remote-sensing surveys, near shore gradiometer surveys, coring, and test excavations of potential intact paleosols in Rhode Island waters. Introductory film and second year summary film for the project have been finalized.

Final Report Due: February 28, 2018

Publications:

Newspaper article:

Miller, Rhonda. 2013. Next frontier in tribal research is underwater. *Providence Business News*. July 13, 2013. http://www.pbn.com/Next-frontier-in-tribal-research-is-underwater,90099?category_id=87&sub_type=stories,packages (Accessed: December 01, 2015).

McDermott, Jennifer. 2015. Researchers help guard sunken tribe artifacts from turbines. Associated Press. February 9, 2015. <http://www.dailymail.co.uk/wires/ap/article-2946291/Researchers-help-guard-sunken-tribe-artifacts-turbines.html> (Accessed: December 01, 2015).

Workshop Report:

The Coastal Mapping Laboratory, Graduate School of Oceanography/University of Rhode Island. 2015. *Developing Protocols for Reconstructing Submerged Paleocultural Landscapes and Identifying Ancient Native American Archaeological Sites in Submerged Environments: Summary Report of the Initial Project Workshop*. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Herndon, VA. OCS Study BOEM 2015-048. [44] pp. with Appendices.

Thesis:

Morissette, Cameron E. 2014. Paleoenvironmental and Paleolandscape Reconstructions of Greenwich Bay Region, RI. Unpublished Master's of Science in Oceanography Thesis, University of Rhode Island.

Caccioppoli, Brian J. 2015. Reconstructing Submerged Paleoenvironments: Mud Hole, RI Sound and Greenwich Bay, RI. Unpublished Master's of Science in Oceanography Thesis, University of Rhode Island.

Journal:

Bureau of Ocean Energy Management. 2015. Atlantic Region: Embracing Technology, Preserving History. *BOEM Ocean Science: the Science and Technology Journal of the Bureau of Ocean Energy Management*. 12(2): 10-11. <http://www.boem.gov/Ocean-Science-2015-Jul-Aug-Sep/> (Accessed: December 01, 2015).

Director's Corner:

Bureau of Ocean Energy Management. 2016. Tribal Engagement is Essential to the Future of Energy Development and Use of Marine Minerals. *Director's Corner* (June 14, 2016). <http://www.boem.gov/Directors-Corner-06142016/> (Accessed: July 22, 2016).

Affiliated Web Sites: None.

Revised Date: July 22, 2016