

BOEM

Bureau of Ocean Energy
Management

Environmental Studies Program Overview and Opportunity to Participate

December 12, 2019

Mary Boatman, *Science Coordinator* Gulf of Maine Task Force Meeting



Outer Continental Shelf (OCS) Energy

- “The Outer Continental Shelf (OCS) is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to **environmental safeguards**, in a manner which is consistent with the maintenance of competition and other national needs.”
 - [Outer Continental Shelf Lands Act \(OCSLA\)](#) | *Sec 3(3)*
- “... may grant a lease [for] energy from sources other than oil and gas ... in a manner that provides for safety and **protection of the environment.**”
 - [Energy Policy Act of 2005](#) | *Sec. 388*

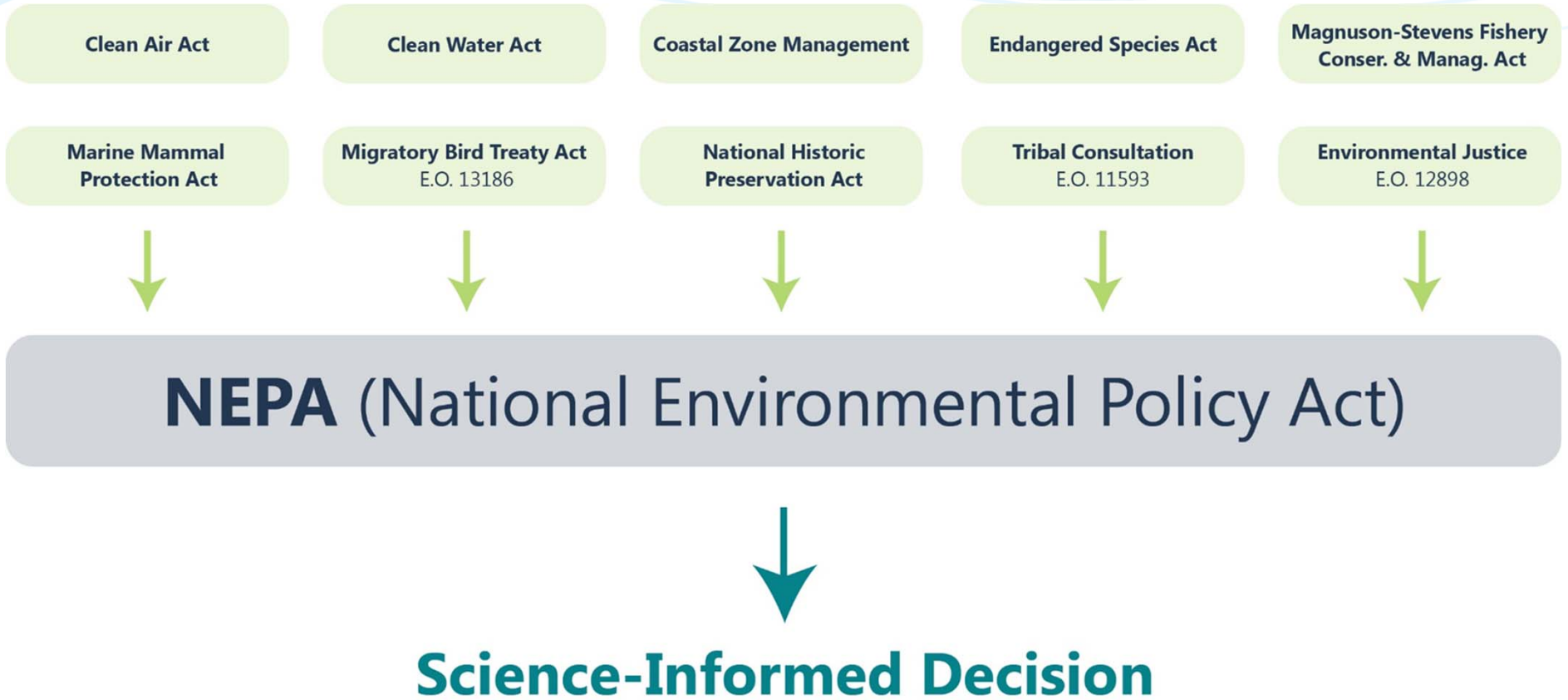


Environmental Studies – Providing Information

- Extensive environmental studies program established in 1974
- Funds and manages scientific research to inform decision-making process
 - Contracts
 - Cooperative Agreements
 - Interagency Agreements
- Partnering with other Federal Agencies – NOAA, FWS, USGS, DOE, DOD
- Over \$60 million invested to date in Atlantic Renewable Energy Studies



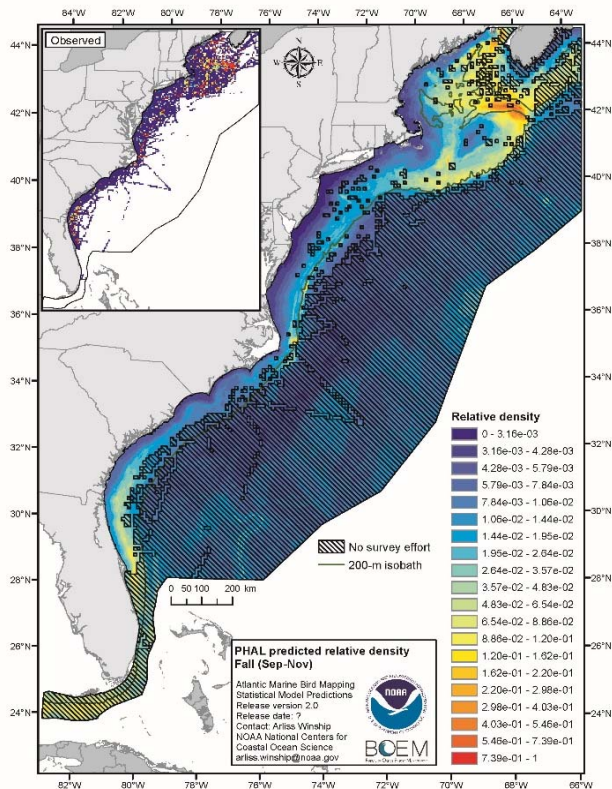
Science/Assessment Incorporation



ESP Research Areas

- chemical and physical oceanography
- marine and coastal ecology
- marine acoustics
- marine archaeology
- data management
- meteorology and air quality
- economics
- sociology and anthropology
- avian biology
- marine mammals
- sea turtles
- fish
- invertebrates
- corals
- benthic ecology

BOEM Studies | Avian Studies



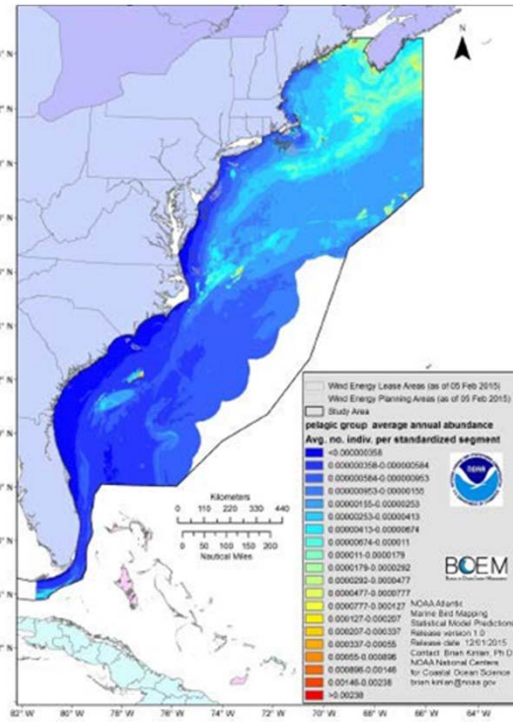
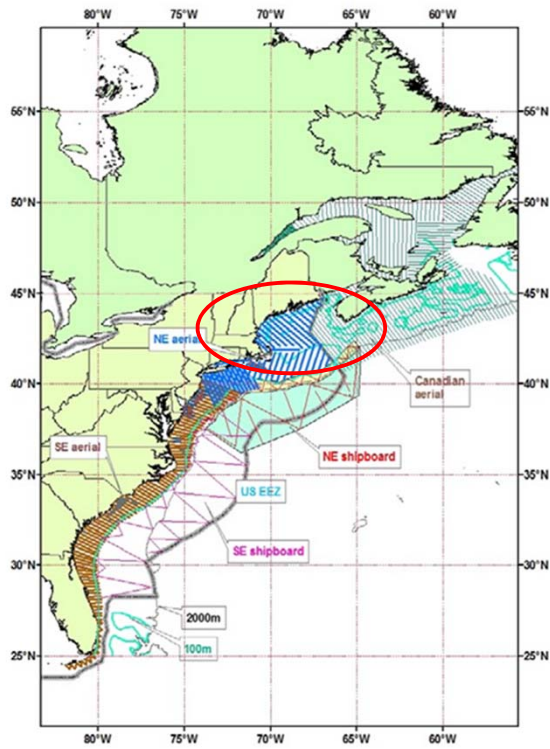
- Integrative Statistical Modeling & Predictive Mapping of Seabird Distribution & Abundance on the Atlantic OCS
- Using data collected by Federal government, states, and industry
- Maps available:

Northeast Ocean Data Portal northeastoceandata.org

Mid-Atlantic Ocean Data Portal portal.midatlanticocean.org

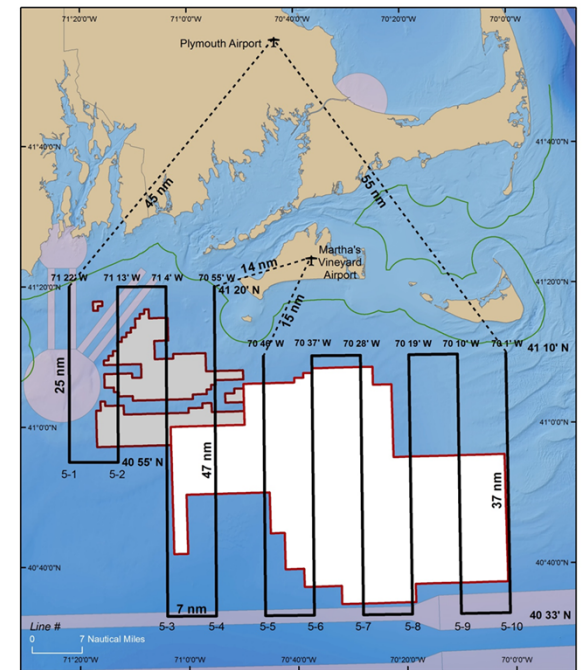


BOEM Studies | Marine Mammal Studies

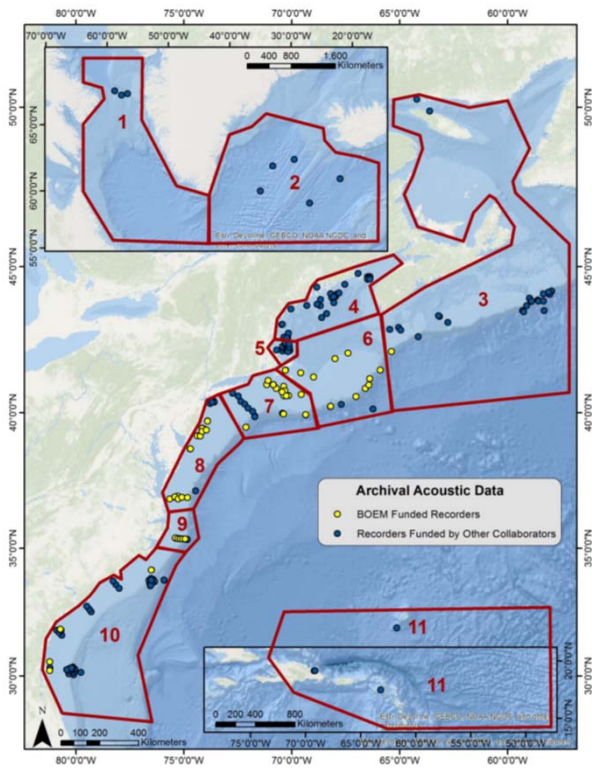


Start line: W to E - Line #5-1: 41 20' N, 71 22' W
E to W - Line #5-10: 41 10' N, 70 1' W

Option #5

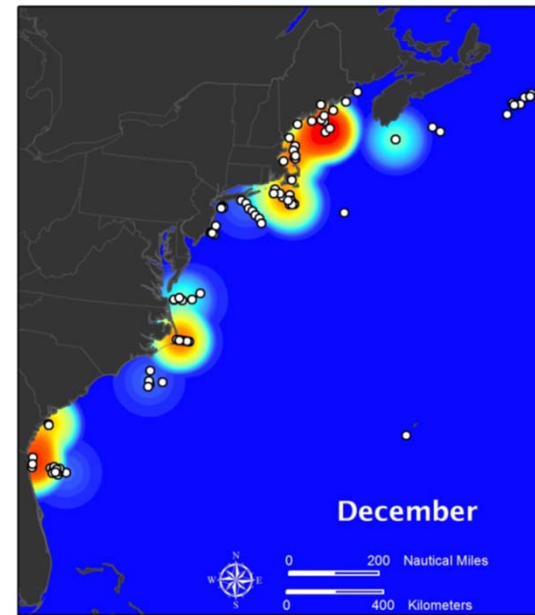


BOEM Studies | Passive Acoustic Monitoring

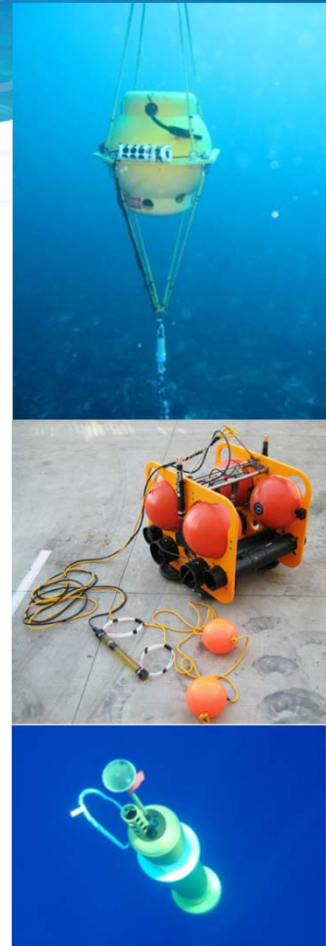


For acoustically active species:

- Movement Patterns
- Timing
- Distance from shore
- Soundscape & ambient noise



Right Whale Monthly Presence 2006 - 2014



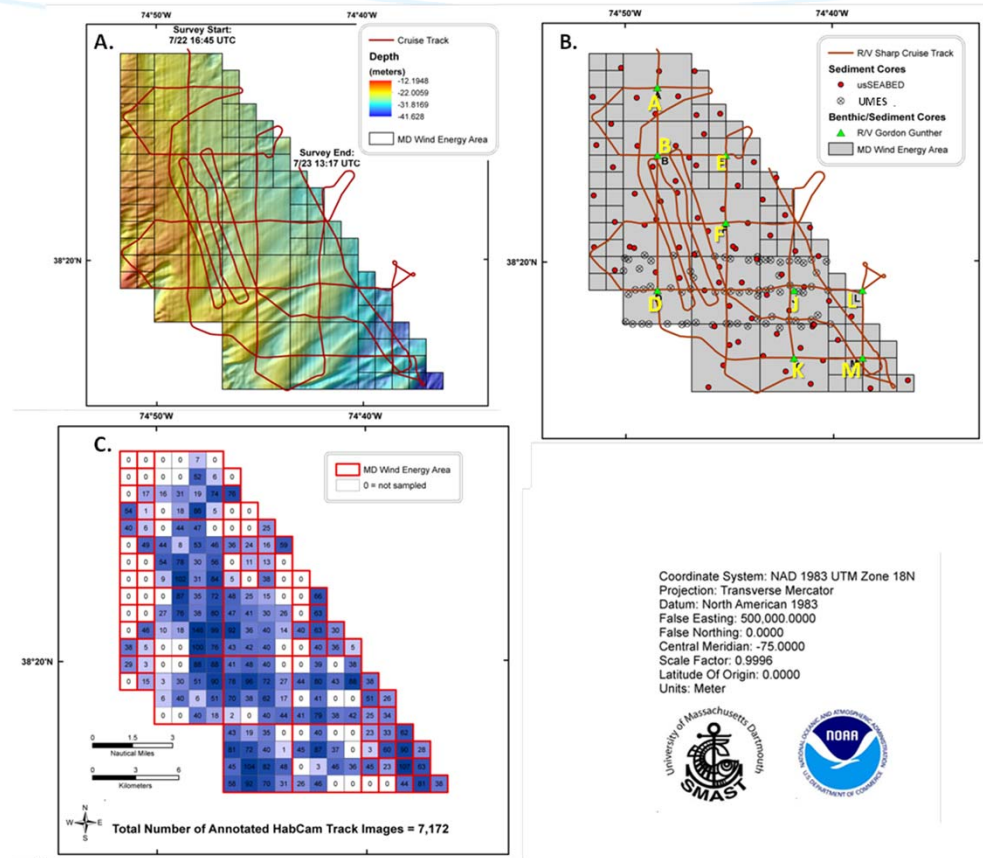
BOEM Studies | Fish and Fisheries

Characterized 8 Wind Energy Areas along Atlantic Coast

Used Historical and Collected Data Sources

- Bathymetry and Terrain
- Sediment Characterization
- Physical/Chemical Hydrography
- Benthic/Demersal Fauna
- Species of Concern
- Habitat Classification

Guida, V., A. Drohan, H. Welch, J. McHenry, D. Johnson, V. Kentner, J. Brink, D. Timmons, E. Estela-Gomez. 2017. Habitat Mapping and Assessment of Northeast Wind Energy Areas. Sterling, VA: US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2017-088. 312 p.



BOEM Studies | Ventless Trap Survey

Purpose:

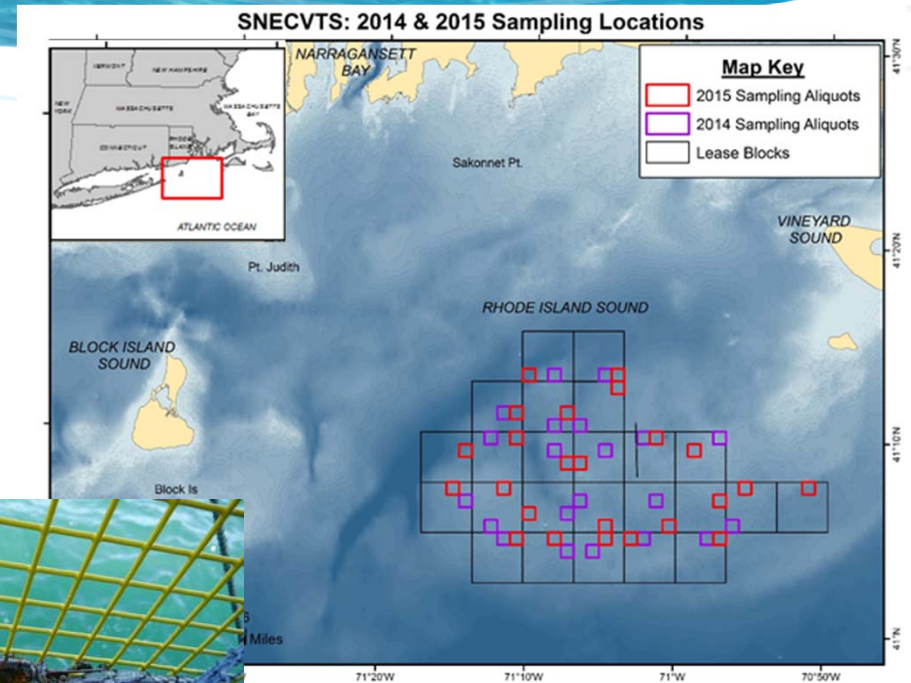
Assess the seasonal distribution, movement, and habitat use of the American lobster (*Homarus americanus*) in the RIMA Wind Energy Area.

Assess the local distribution and habitat use of Jonah Crab (*Cancer borealis*), a species of emerging economic importance.

Findings:

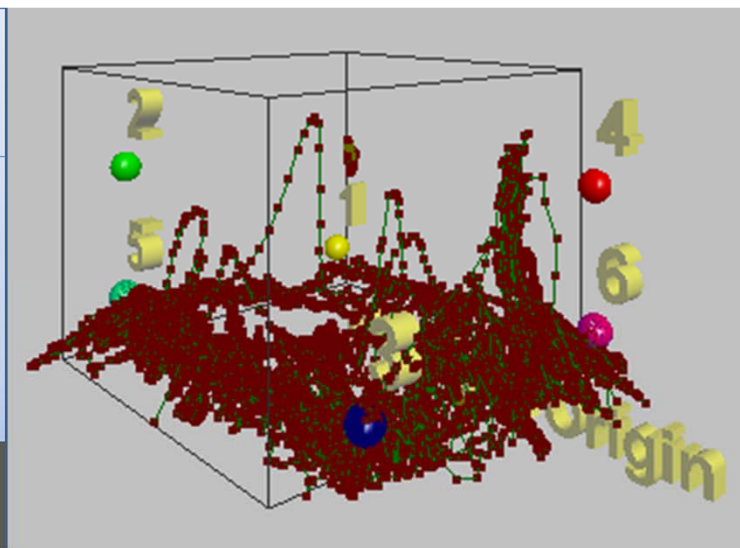
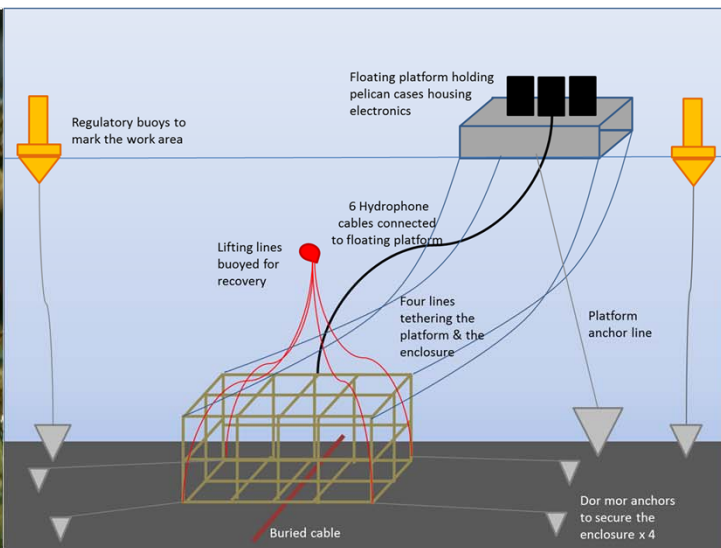
This project documented a healthy population of American lobster on Cox Ledge in the RI/MA wind lease area.

Jonah crab, *Cancer borealis*, was the most numerous species caught in the survey.



Collie, J.S. and King, J.W. 2016. Spatial and Temporal Distributions of Lobsters and Crabs in the Rhode Island Massachusetts Wind Energy Area. US Dept. of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region, Sterling, Virginia. OCS Study BOEM BOEM 2016-073. 48 pp.

BOEM Studies | Electromagnetic Fields



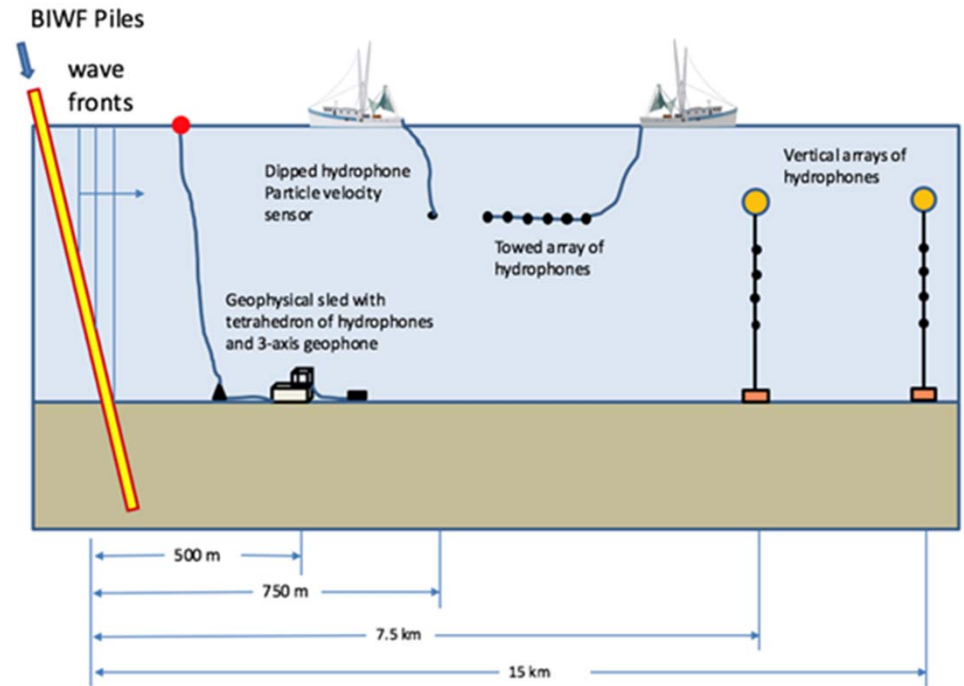
“Homarus americanus (the American lobster) exhibited a statistically significant but subtle change in behavioral activity when exposed to the EMF of the HVDC cable, which operated at a constant power of 330 MW (1175 Amps).”

Hutchison, Z. L., P. Sigra, H. He, A. B. Gill, J. King, and C. Gibson, 2018. Electromagnetic Field (EMF) Impacts on Elasmobranch (shark, rays, and skates) and American Lobster Movement and Migration from Direct Current Cables. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2018-003.

BOEM Studies | Sound Measurements



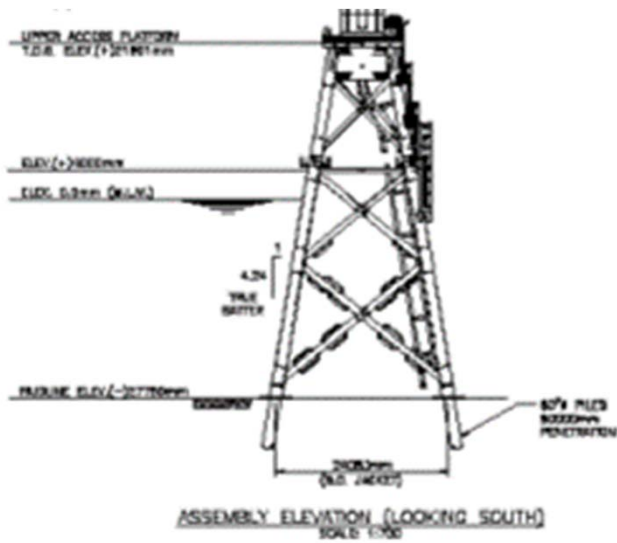
“Results from preliminary data analyses showed that pile driving sound was above background sound levels at ranges in excess of 20 km (12.4 mi).”



HDR. 2018. Field Observations during Wind Turbine Foundation Installation at the Block Island Wind Farm, Rhode Island. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2018-029. 175 pp.



BOEM Studies | Artificial Reef Effects



BOEM Studies | Recreation and Tourism

Findings:

Stakeholder perceptions of the wind farm are shaped by their experience with the public process through which the wind farm was planned, managed, sited, permitted, and constructed.

URI's research team identified a lack of Rhode Island tourism and recreation data that would be appropriate as a baseline for monitoring indicators.

The visual fit and character of the BIWF was of particular importance to the recreation and tourism community, but responses to the wind farm varied from person to person.

The BIWF acts as an 'attractant' for some tourists.



Photo: Dina Elias

T. Smythe, H. Smith, A. Moore, D. Bidwell, J. McCann (2018). Methodology for Analyzing the Effects of Block Island Wind Farm (BIWF) on Rhode Island Recreation and Tourism Activities. U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, VA. OCS Study BOEM 2018-068. 84 pp.

BOEM Studies | Paleocultural Landscapes

OCS Study
BOEM 2018-056

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

Field Report: 2013–2016



US Department of the Interior
Bureau of Ocean Energy Management
Office of Renewable Energy Programs



A clearly defined strategy about conducting submerged cultural resources sensitivity assessments and site identification research.

OCS Study
BOEM 2015-048

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

Summary Report of the Initial Project Workshop



US Department of the Interior
Bureau of Ocean Energy Management
Office of Renewable Energy Programs



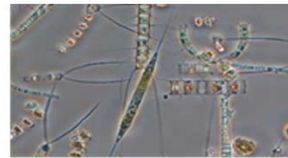
Robinson DS, Gibson CL, King JW. 2018. Developing protocols for reconstructing submerged paleocultural landscapes and identifying Native American archaeological sites in submerged environments: best practices. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2018-055. 55 p.

BOEM Studies | Zooplankton Ecology of the Gulf of Maine

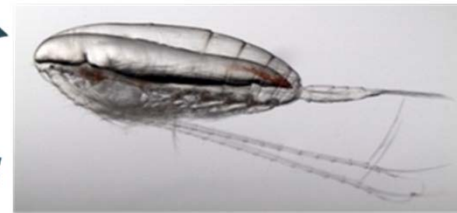
P.I. : Dr. Jeffrey Runge,
University of Maine

Support for measurement of
C. finmarchicus and
zooplankton biodiversity at
two fixed stations in the
western Gulf of Maine.

Awarded: September 2019



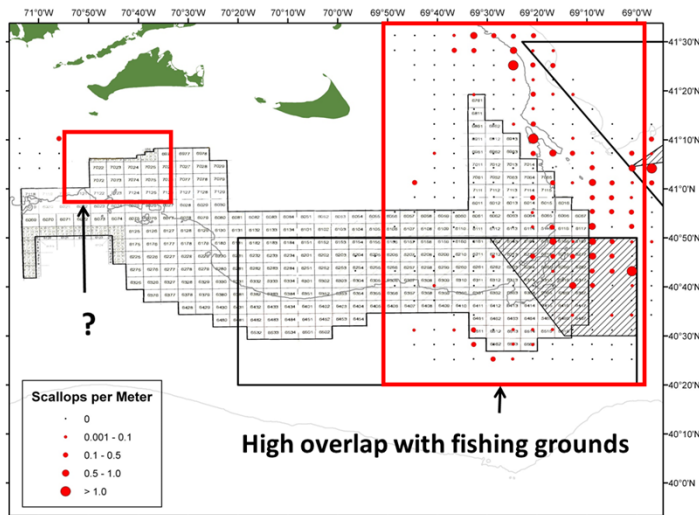
*Calanus
finmarchicus*



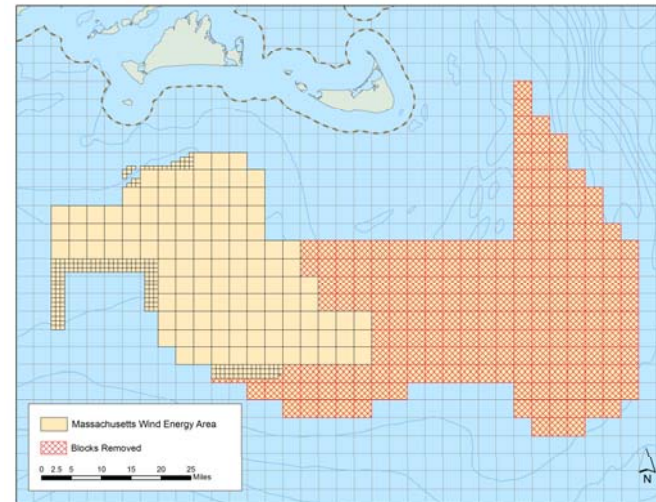
*Eubalaena
glacialis*

Massachusetts | Using Science in Decision-making

- Data show portions of WEA that overlap fishing grounds
- Provides input to BOEM Mass. Task Force with Federal Agencies, Native American Tribes, State Agencies, and Local Officials
- Engagement with state-sponsored Fisheries Working Group and Habitat Working Group
- Original wind energy area concept reduced by 60%



Courtesy of Kevin Stokesbury, UMass Dartmouth School for Marine Science and Technology



Resulting Mass. Wind Energy Area - 2015

Workshops

OCS Study
BOEM 2018-015

Summary Report: Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species



US Department of the Interior
Bureau of Ocean Energy Management
Atlantic OCS Region



OCS Study
BOEM 2013-0010

Offshore Wind Energy Development Site Assessment and Characterization: Evaluation of the Current Status and European Experience



U.S. Department of the Interior
Bureau of Ocean Energy Management
Office of Renewable Energy Programs
www.boem.gov



OCS Study
BOEM 2017-016

ATLANTIC OCEAN ENERGY AND MINERAL SCIENCE FORUM

NOVEMBER 16-17, 2016



US Department of the Interior
Bureau of Ocean Energy Management
Atlantic OCS Region



Information Resources | Regional Data Portals

Natural and Cultural Resources

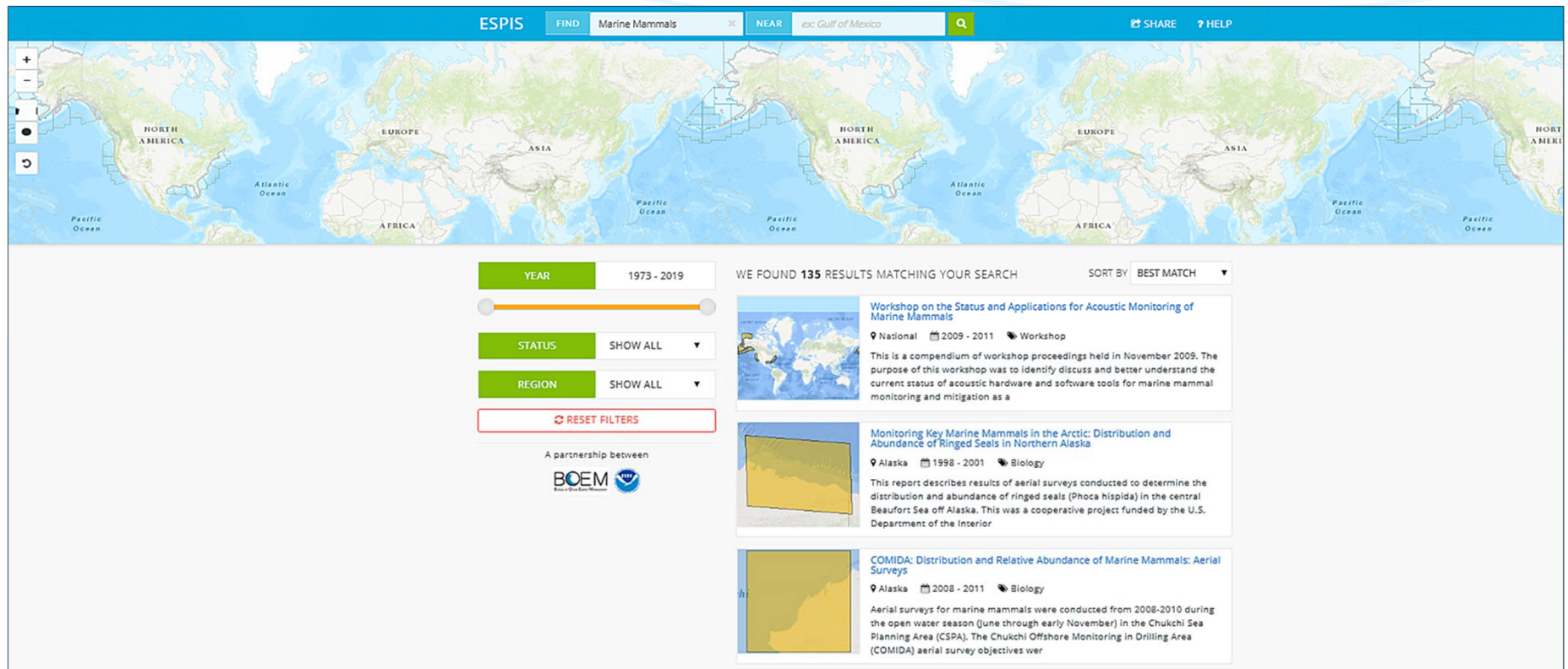
- Marine Mammals and Sea Turtles
- Birds
- Fish
- Habitat
- Restoration
- Historic and Cultural Resources

Human Activities

- Marine Transportation
- National Security
- Commercial Fishing
- Recreational Fishing
- Recreation
- **Energy and Infrastructure**
- Aquaculture
- Sand and Gravel

The screenshot displays the Northeast Ocean Data website. At the top, the logo and name 'NORTHEAST OCEAN DATA' are visible, along with the tagline 'Maps and Data for Ocean Planning in the Northeastern United States'. A navigation menu includes 'HOME', 'ABOUT', 'CASE STUDIES', 'THEME MAPS', 'DATA EXPLORER', and 'RESOURCES'. The main content area is divided into several sections: 'DATA EXPLORER' featuring a map of the Northeast coast with various data points; 'THEME MAPS' with a grid of icons for categories like Marine Life & Habitat, Commercial Fishing, and Energy & Infrastructure; 'NEWS' with a list of recent articles; 'MAP GALLERIES' with a featured 'Offshore Wind' map; 'VIDEO TOUR' with a video player; and 'FOLLOW US' with social media links for Twitter, Facebook, YouTube, and LinkedIn. A 'CASE STUDIES' section is also present at the bottom right.

Environmental Studies Program Information System (ESPIS)





ESPIS

YEAR: 1973 - 2019

STATUS: SHOW ALL

REGION: SHOW ALL

A partnership between
 

WE FOUND 135 RESULTS MATCHING YOUR SEARCH SORT BY: BEST MATCH

- Workshop on the Status and Applications for Acoustic Monitoring of Marine Mammals**
National | 2009 - 2011 | Workshop
This is a compendium of workshop proceedings held in November 2009. The purpose of this workshop was to identify discuss and better understand the current status of acoustic hardware and software tools for marine mammal monitoring and mitigation as a
- Monitoring Key Marine Mammals in the Arctic: Distribution and Abundance of Ringed Seals in Northern Alaska**
Alaska | 1998 - 2001 | Biology
This report describes results of aerial surveys conducted to determine the distribution and abundance of ringed seals (*Phoca hispida*) in the central Beaufort Sea off Alaska. This was a cooperative project funded by the U.S. Department of the Interior
- COMIDA: Distribution and Relative Abundance of Marine Mammals: Aerial Surveys**
Alaska | 2008 - 2011 | Biology
Aerial surveys for marine mammals were conducted from 2008-2010 during the open water season (June through early November) in the Chukchi Sea Planning Area (CSPA), The Chukchi Offshore Monitoring in Drilling Area (COMIDA) aerial survey objectives wer



<https://marinecadastre.gov/espis>

Environmental Studies Program

BOEM solicits study ideas from public every fall/winter.

Study ideas are reviewed by the Standing Committee on Offshore Science and Assessment (COSA) convened under the National Academy of Sciences.

Results of studies are incorporated into BOEM environmental assessments and decision-making process.

Accepting Stakeholder input NOW through Jan. 3. See www.boem.gov for how to participate.



More Information

- **Bureau of Ocean Energy Management**

www.boem.gov

- **Renewable Energy Program**

www.boem.gov/Renewable-Energy

- **Regulatory Information**

www.boem.gov/Regulatory-Development-Policy-and-Guidelines

A satellite night view of the United States, showing the outlines of the continents and the dense network of city lights in yellow and white. The Great Lakes region is visible in the upper right, and the Gulf of Mexico is in the lower right. The text "Thank you" is centered over the map.

Thank you

Mary Boatman | mary.boatman@boem.gov | 703-787-1662