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

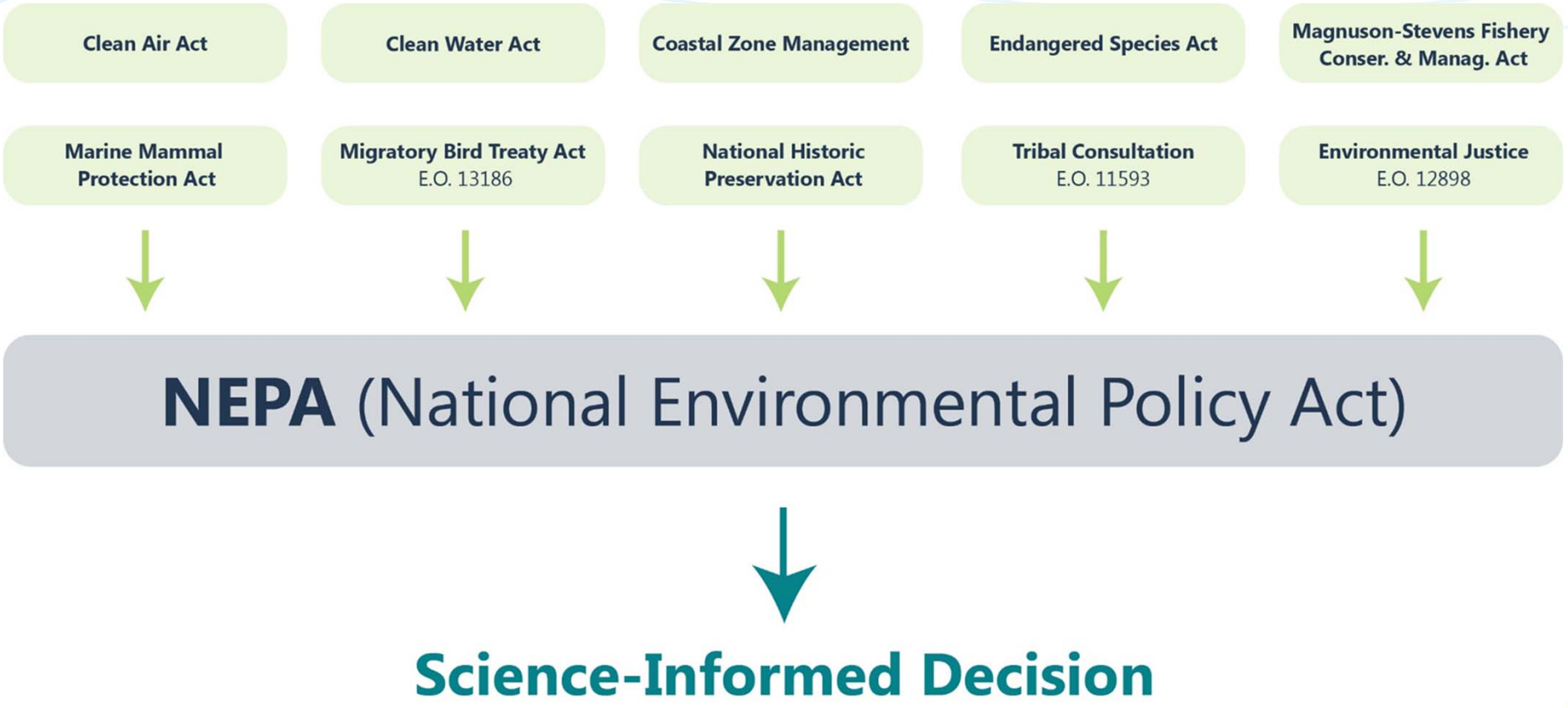
- "The Outer Continental Shelf (OCS) is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to **environmental safeguards**, in a manner which is consistent with the maintenance of competition 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

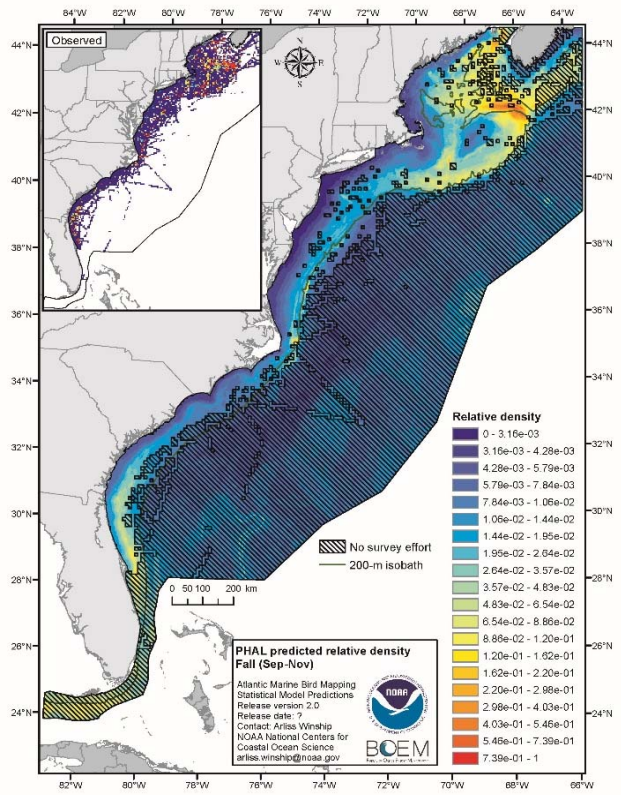
Science/Assessment Incorporation



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

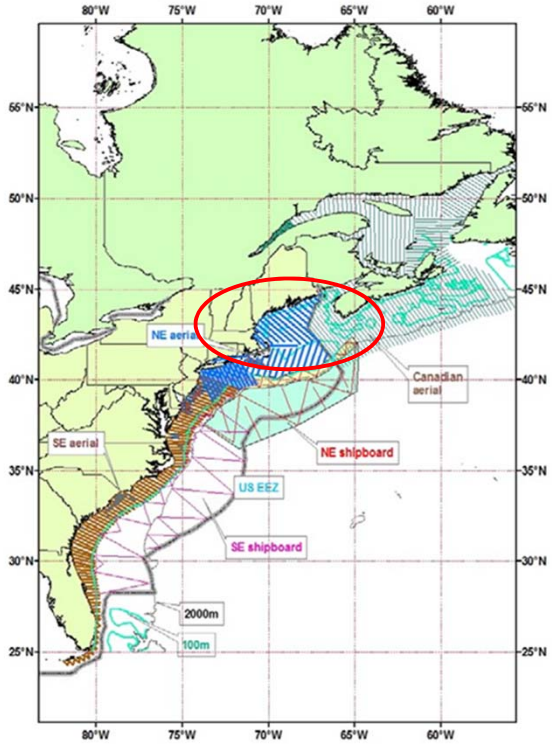


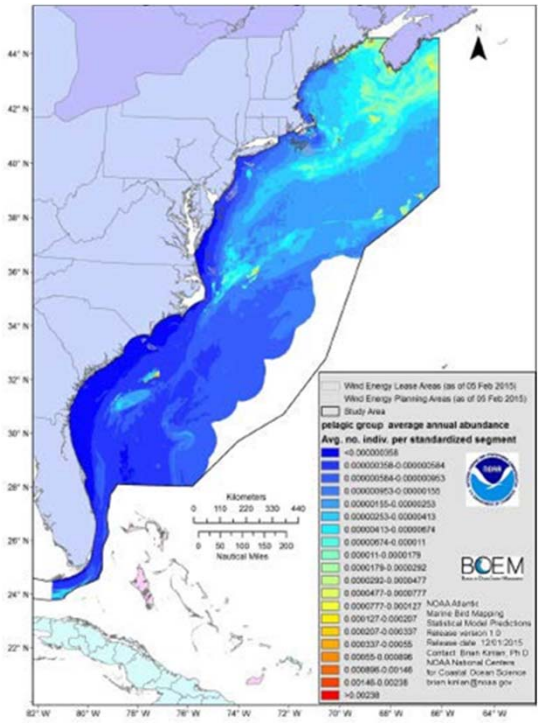
- Integrative Statistical Modeling & Predictive Mapping of Seabird Distribution & Abundance on the Atlantic OCS
- Using data collected by Federal government, states, and industry
- Maps available:

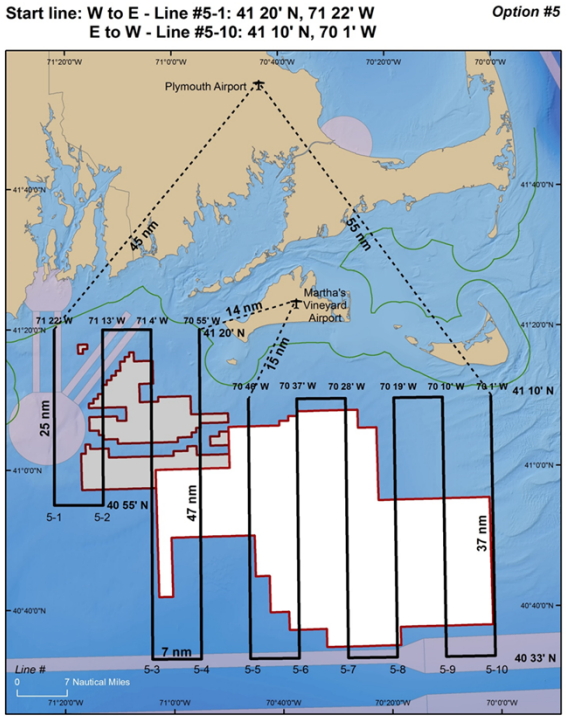
Northeast Ocean Data Portal *northeastoceandata.org*

Mid-Atlantic Ocean Data Portal *portal.midatlanticocean.org*

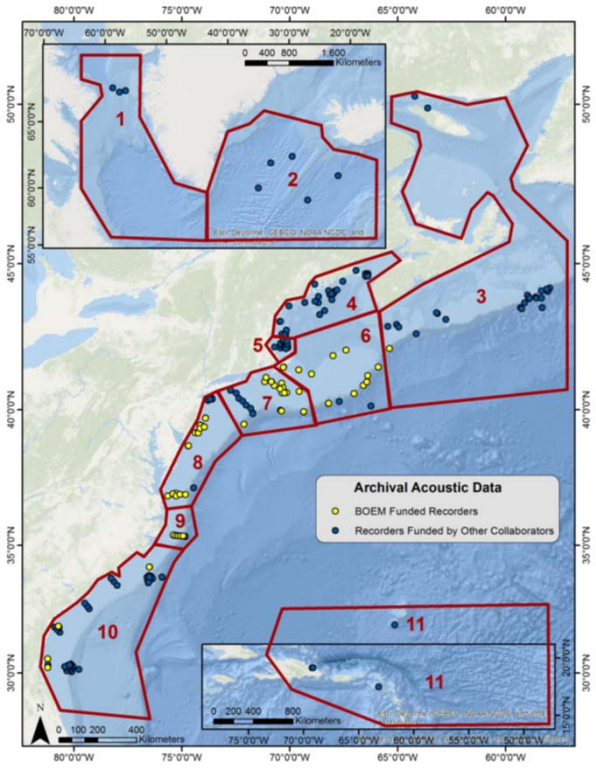
BOEM Studies | Marine Mammal Studies





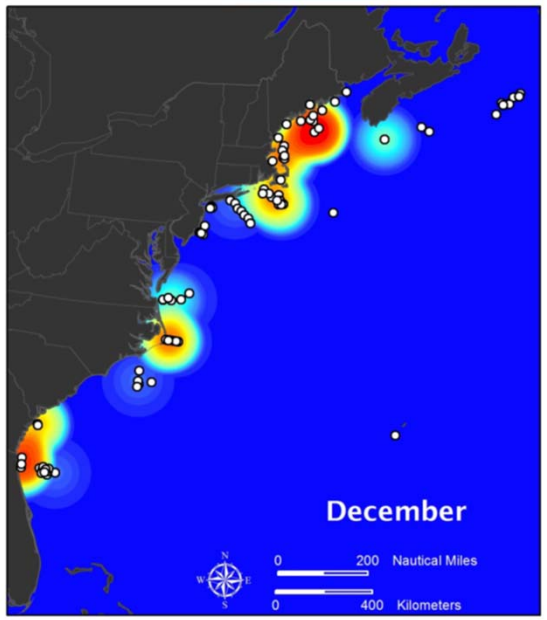


BOEM Studies | Passive Acoustic Monitoring

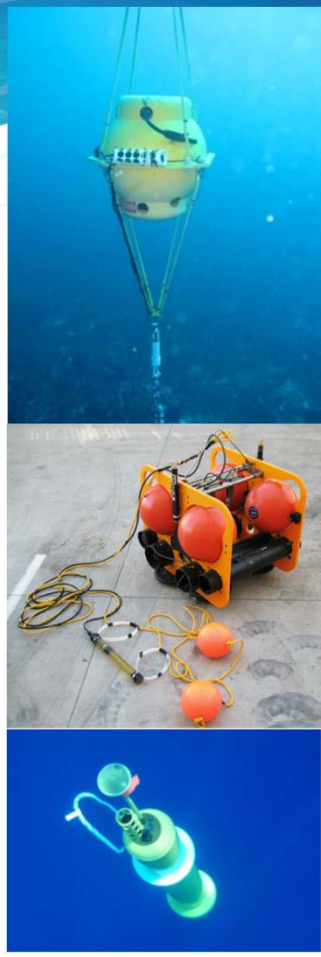


For acoustically active species:

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



Right Whale Monthly Presence 2006 - 2014

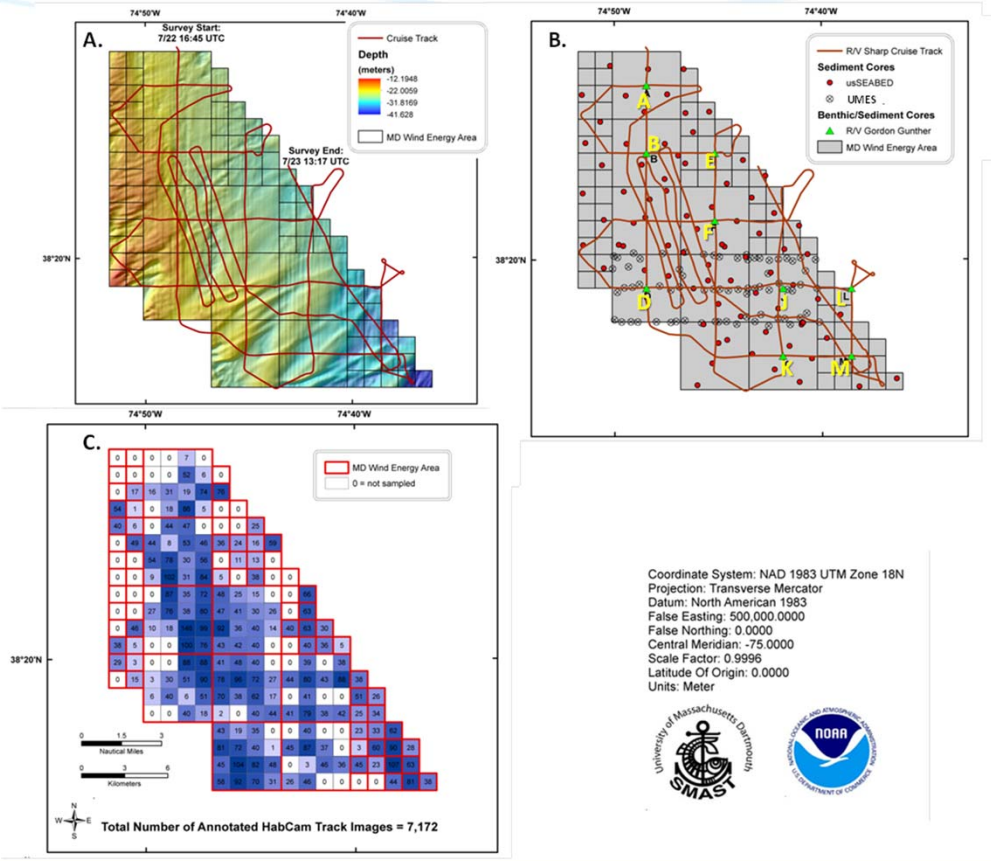


BOEM Studies | Fish and Fisheries

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:

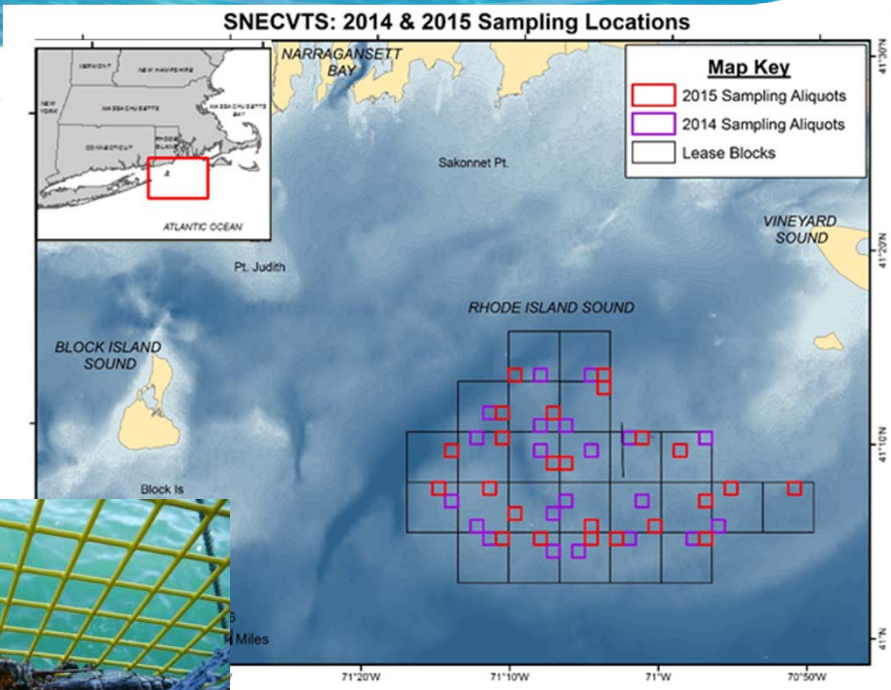
Assess the seasonal distribution, movement, and habitat use of the American lobster (*Homarus americanus*) in the RIMA Wind Energy Area.

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

Findings:

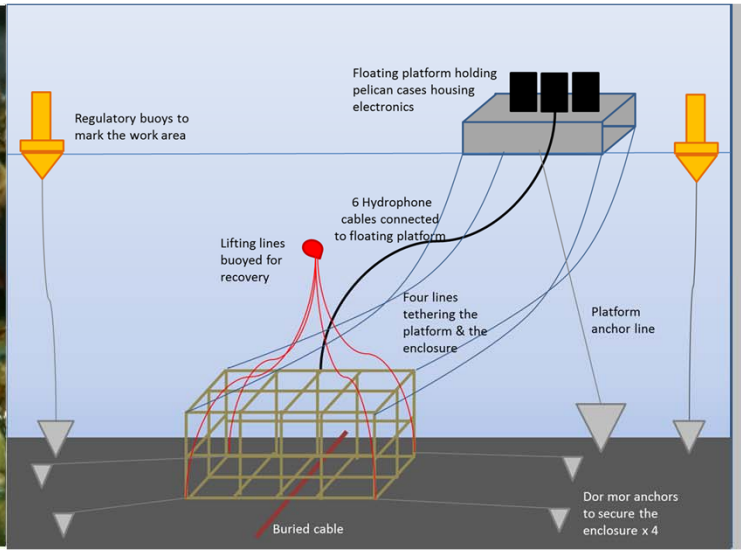
This project documented a healthy population of American lobster on Cox Ledge in the RI/MA wind lease area.

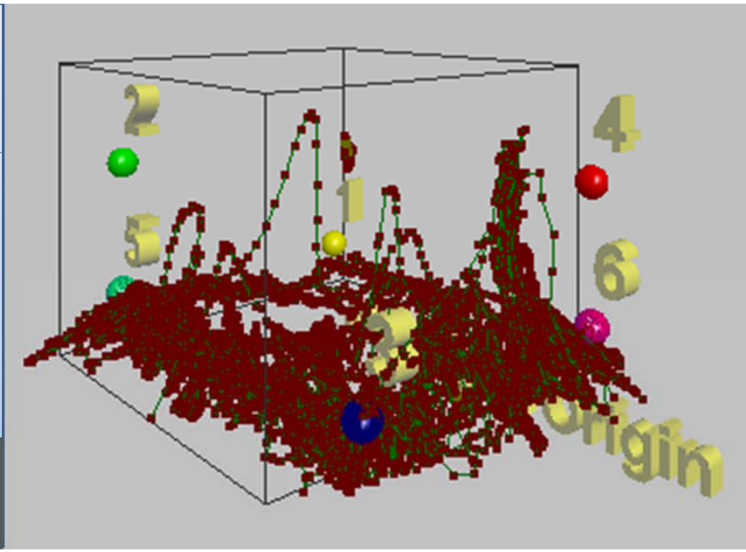
Jonah crab, Cancer borealis, was the most numerous species caught in the survey.



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

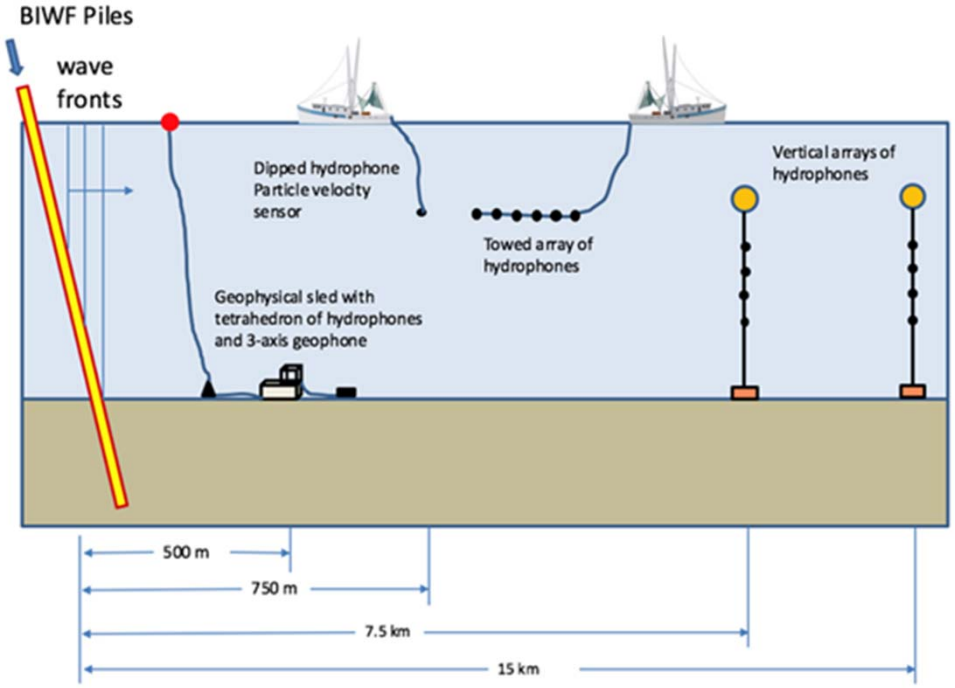




"Homarus americanus (the American lobster) exhibited a statistically significant but subtle change in behavioral activity when exposed to the EMF of the HVDC cable, which operated at a constant power of 330 MW (1175 Amps)."

Hutchison, Z. L., P. Sigray, 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.

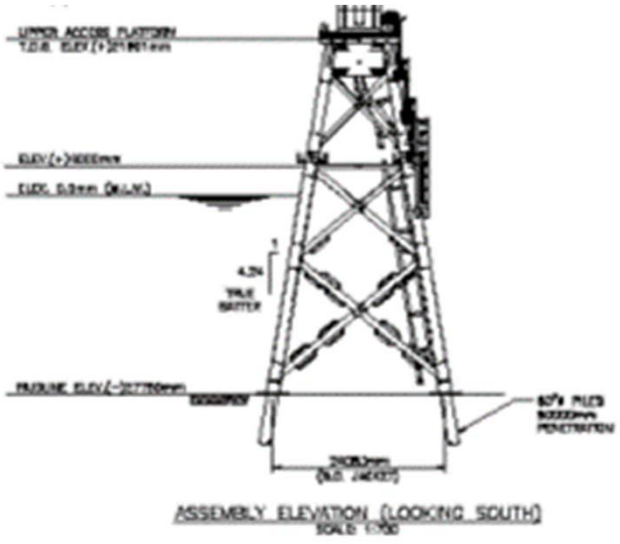
BOEM Studies | Sound Measurements



"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.

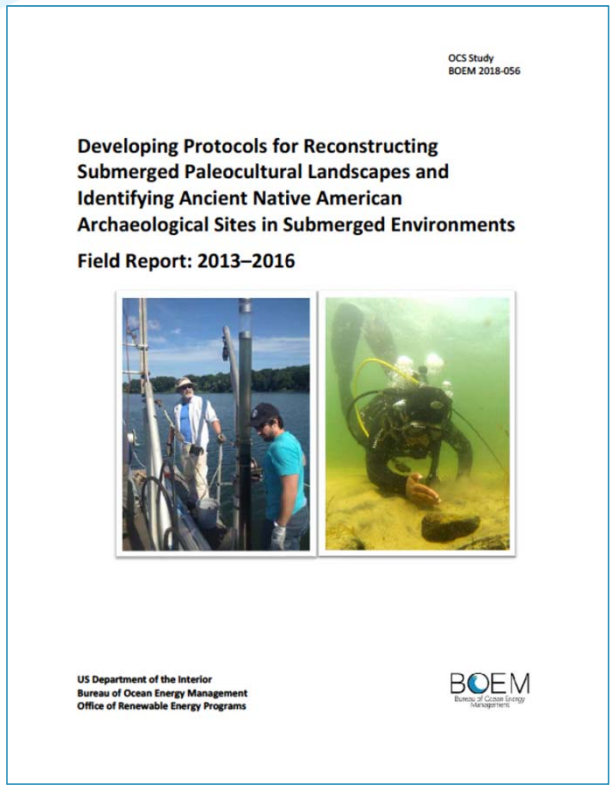
The visual fit and character of the BIWF was of particular importance to the recreation and tourism community, but responses to the wind farm varied from person to person.

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

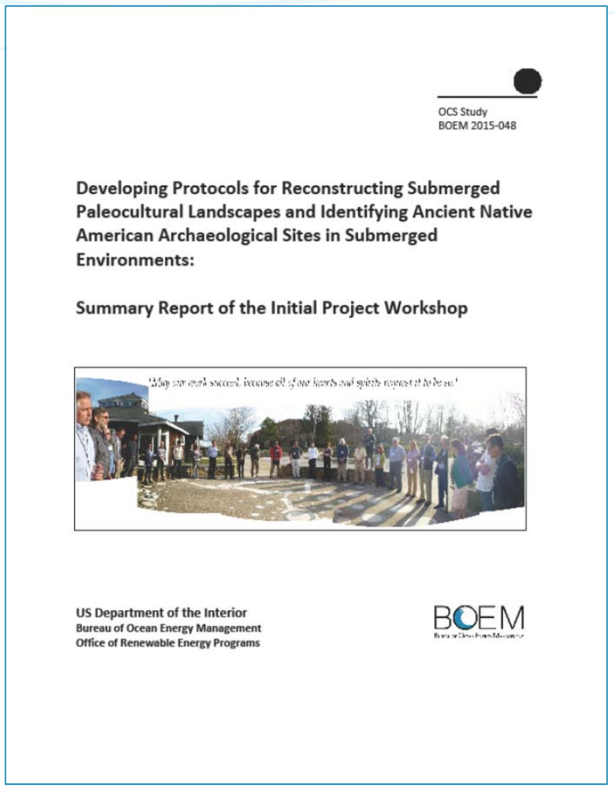
Photo: Dina Elias

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



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



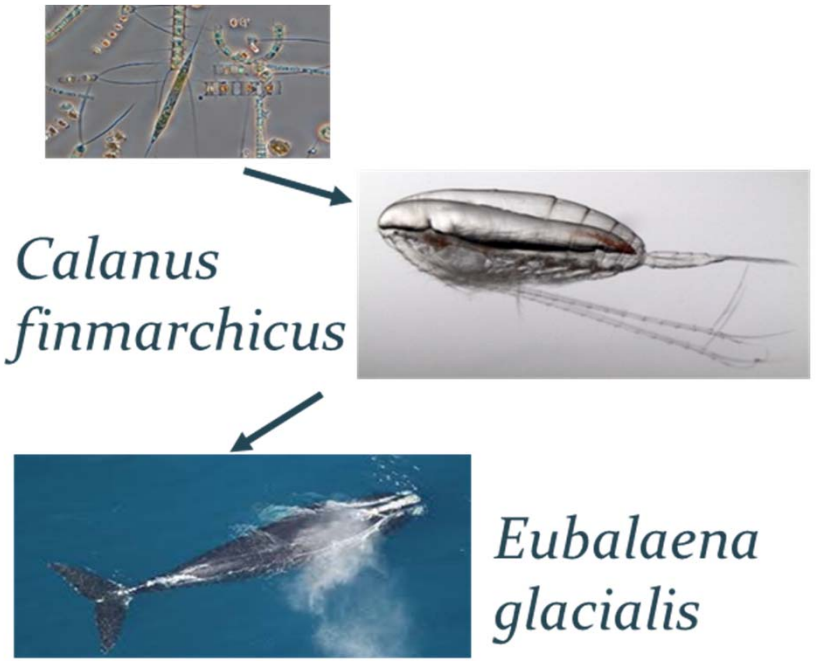
Robinson DS, Gibson CL, King JW. 2018. Developing protocols for reconstructing submerged paleocultural landscapes and identifying Native American archaeological sites in submerged environments: best practices. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of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

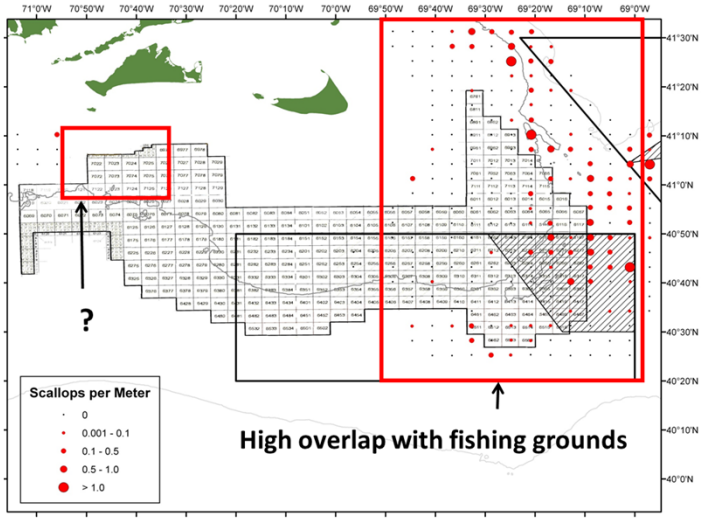
Support for measurement of *C. finmarchicus* and zooplankton biodiversity at two fixed stations in the western Gulf of Maine.

Awarded: September 2019

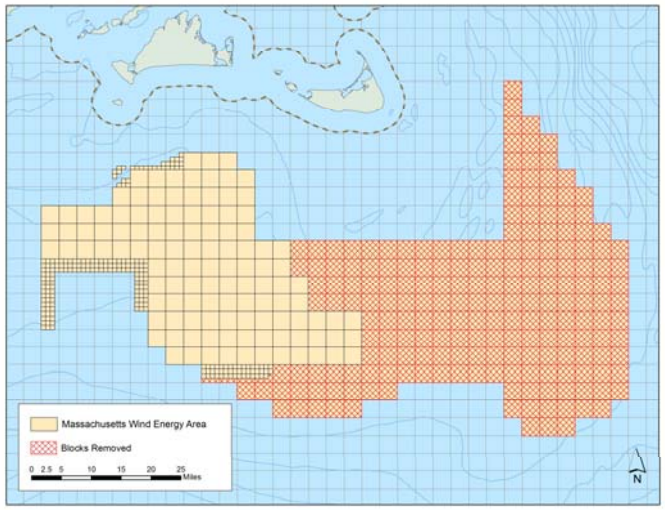


Massachusetts | Using Science in Decision-making

- 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%

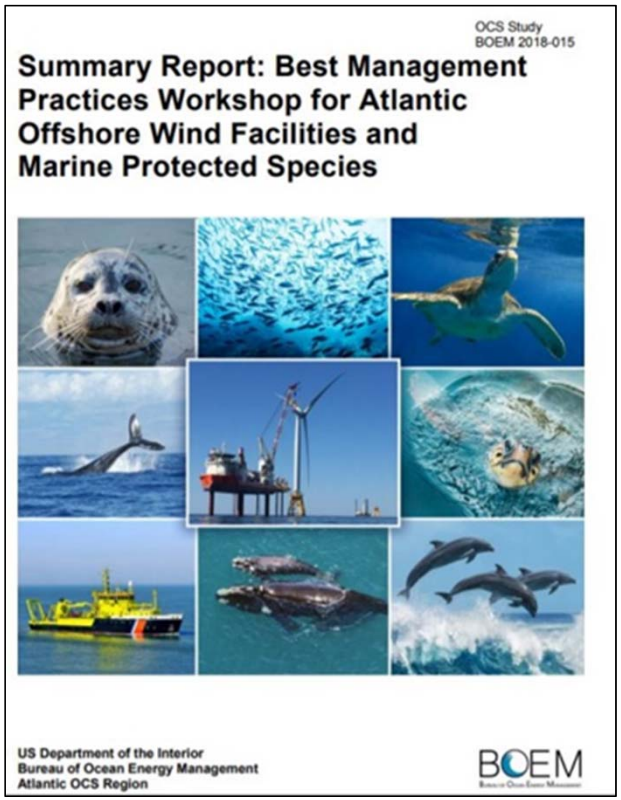


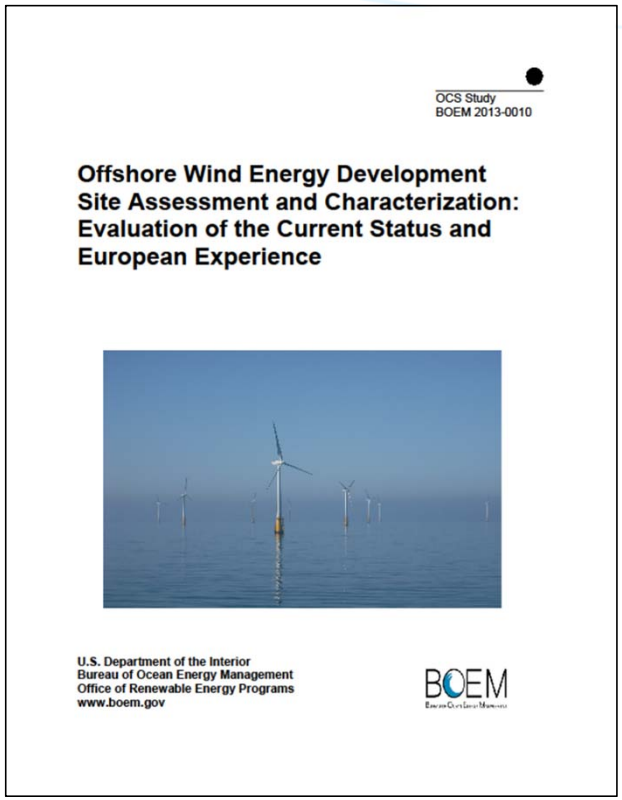
Courtesy of Kevin Stokesbury, UMass Dartmouth School for Marine Science and Technology



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
BOEM


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
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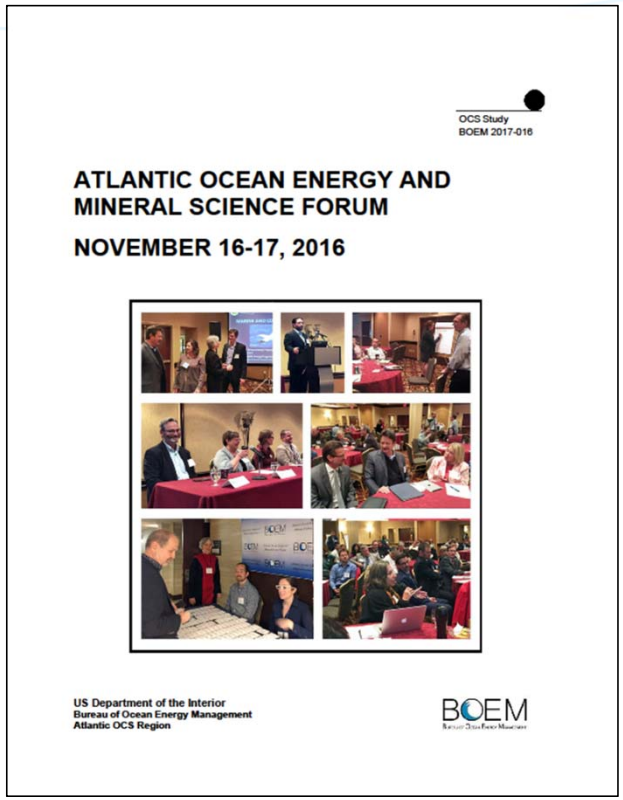

OCS Study
BOEM 2017-016
ATLANTIC OCEAN ENERGY AND MINERAL SCIENCE FORUM
NOVEMBER 16-17, 2016
US Department of the Interior
Bureau of Ocean Energy Management
Atlantic OCS Region
BOEM

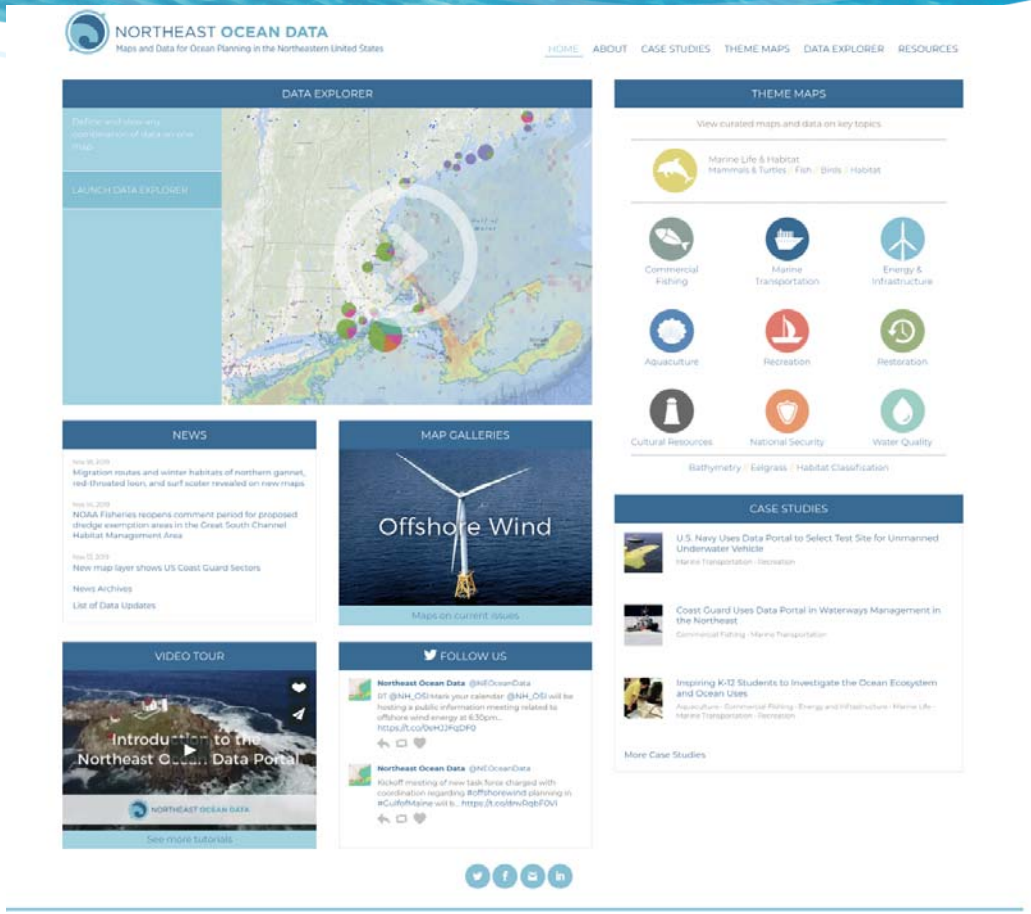
Information Resources | Regional Data Portals

Natural and Cultural Resources

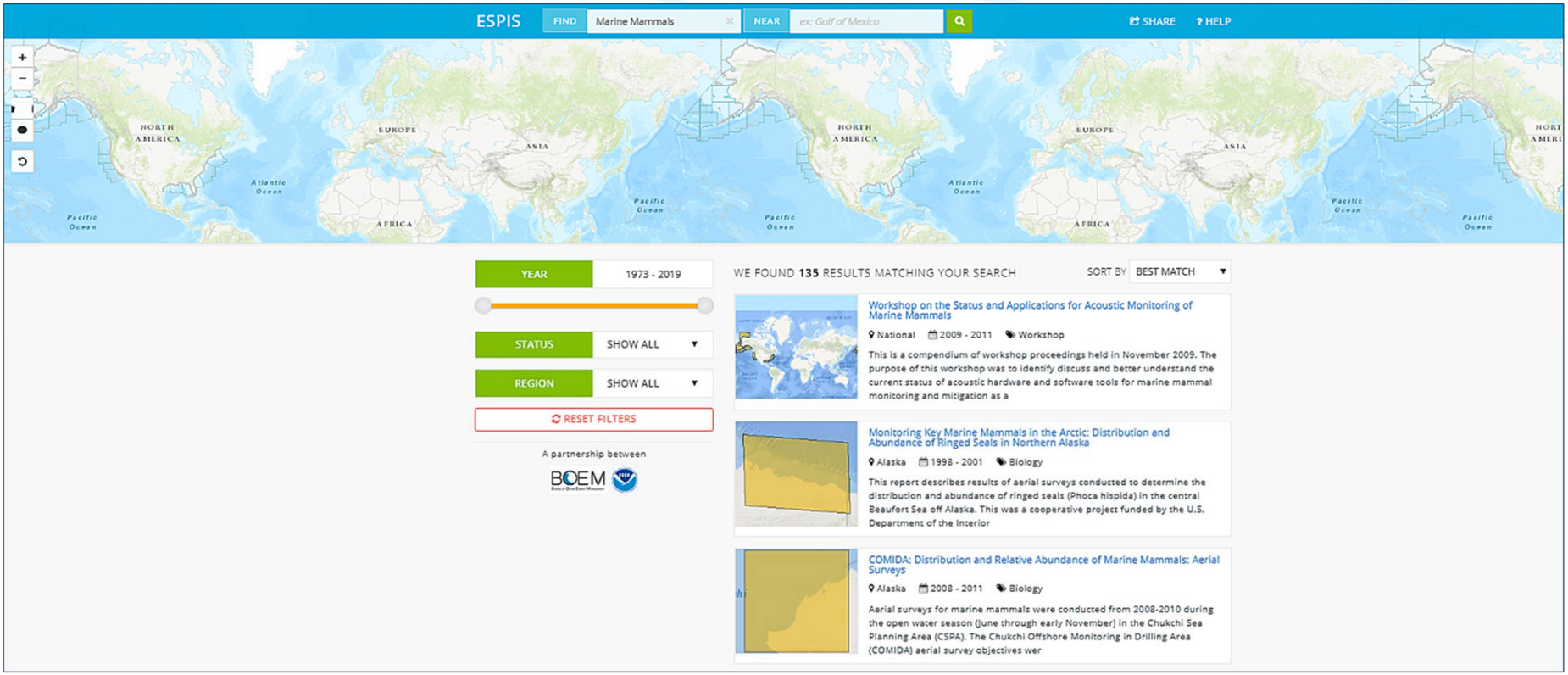
- Marine Mammals and Sea Turtles
- Birds
- Fish
- Habitat
- Restoration
- Historic and Cultural Resources

Human Activities

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



Environmental Studies Program Information System (ESPIS)



https://marinecadastre.gov/espis

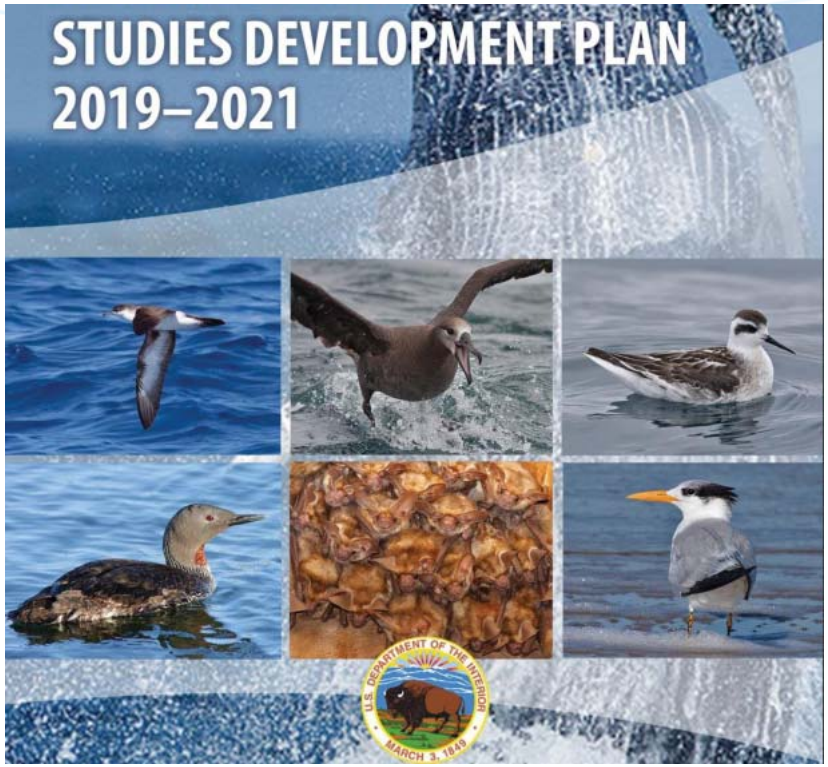
Environmental Studies Program

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

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