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Bureau of Ocean Energy Management

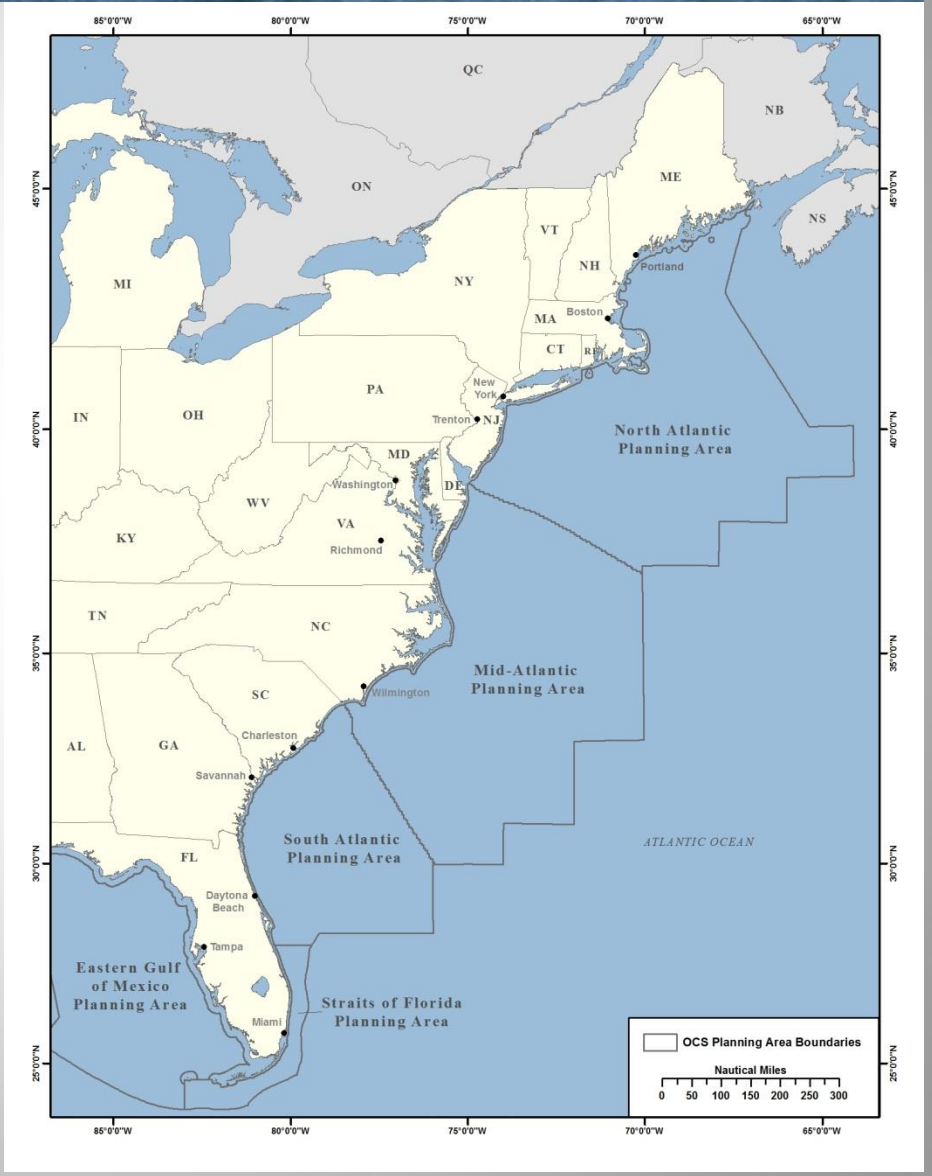
Office of Renewable Energy Programs

Scientific Committee Meeting
May 22, 2012

Mary C. Boatman, Ph.D.
Environmental Studies Chief

Atlantic OCS Region

- Four Planning Areas
- Maine to Florida
- 3 – 200 nm



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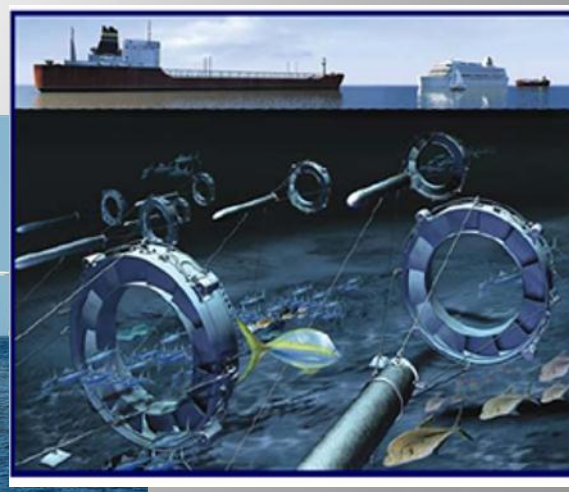
Wind Energy

Marine Hydrokinetic
(Ocean Current)



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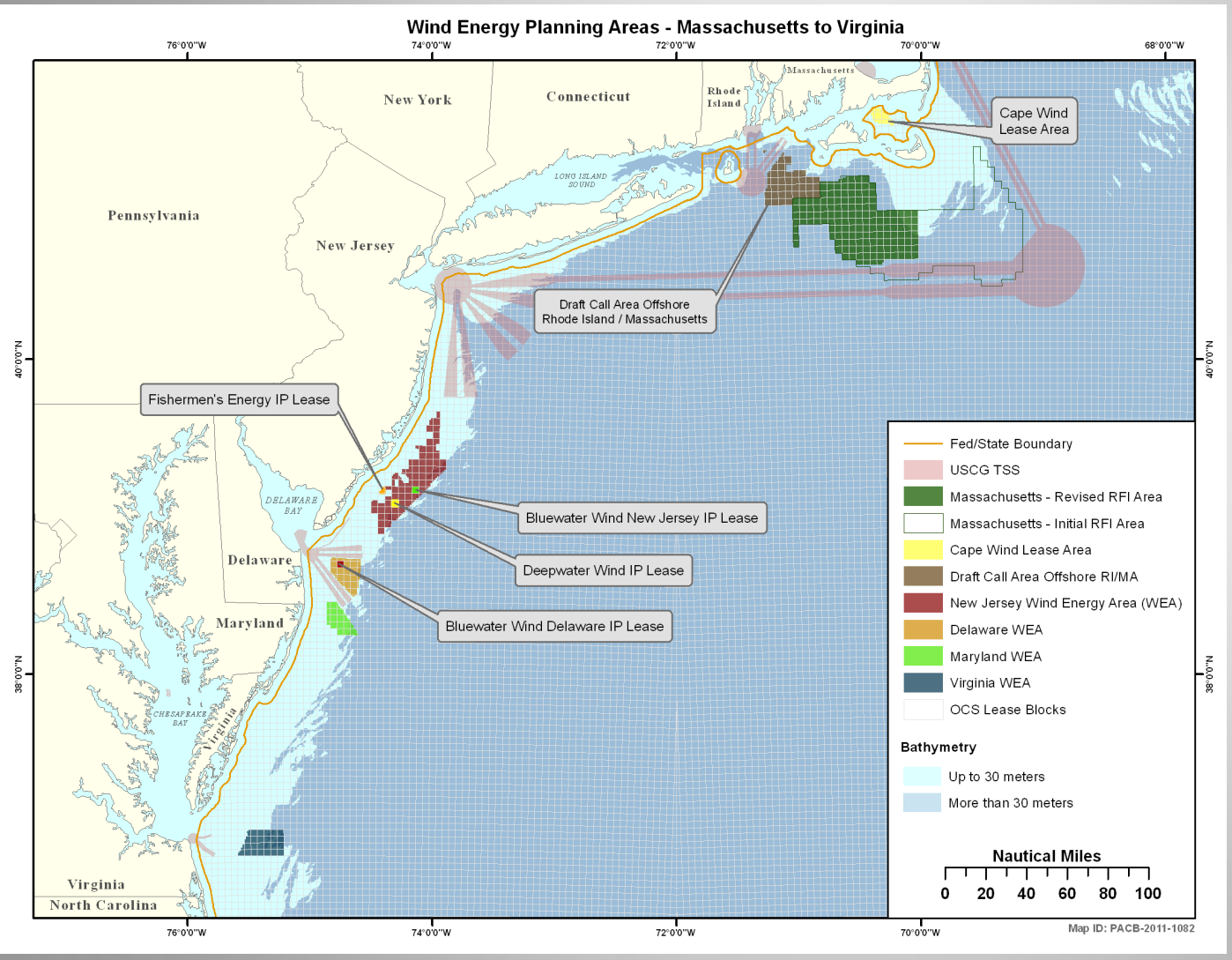

Wind Energy Areas

Research Leases

Cape Wind Project

Renewable Energy Program

- **Examine all phases of activity:**

  - ✓ **Site Characterization**
  - ✓ **Technology Testing**
  - ✓ **Construction**
  - ✓ **Operation**
  - ✓ **Decommissioning**
  - ✓ **Mitigation Measures**

Resources Evaluated

- Ocean Surface and Sediments
- Air Quality
- Ocean Currents and Movement
- Water Quality
- Acoustic Environment
- Hazardous Materials and Waste Management
- Electromagnetic Fields
- Marine Mammals
- Marine and Coastal Birds
- Terrestrial Biota
- Fish Resources and Essential Fish Habitat
- Sea Turtles
- Coastal Habitats
- Seafloor Habitats
- Areas of Special Concern, i.e. Marine Sanctuaries
- Military Use Areas
- Transportation
- Socioeconomic – Economics, Sociocultural Systems, and Environmental Justice
- Archaeological Resources
- Land Use and Existing Infrastructure
- Visual Resources
- Tourism and Recreation
- Fisheries – Commercial and Recreational
- Non-routine Conditions

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Biology - Birds

- Strategy of reducing overall risk
- Identify areas where there is high usage
- Understand migratory patterns

Birds

Compendium of Avian Information and Comprehensive GIS Geodatabase

Determining Distributions and Movements of Long-tailed Ducks Using Satellite Telemetry

Surveying for Marine Birds in the Northwest Atlantic

New Insights and New Tools Regarding Risk to Roseate Terns, Piping Plovers, and Red Knots from Wind Facility Operations on the Atlantic Outer Continental Shelf

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Biology - Habitats

- Understand the environment for siting of renewable energy development
- Determine areas of biological significance
- Use for evaluation of siting and plans

Birds, Marine Mammals, and Bats

(and sea turtles)

Atlantic Marine Assessment Program for Protected Species

Information Synthesis on the Potential for Bat Interactions with Offshore Wind Facilities

Pilot Study of Aerial High-Definition Video Surveys for Seabirds, Marine Mammals, and Sea Turtles on the Atlantic OCS

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Socioeconomic – Use Patterns

- Ocean is a busy place – shipping, fishing, military, recreation, energy extraction
- Information about the use of areas
- Resolve conflicts through accurate assessments

Space Use Conflicts

OCS Renewable Energy and Space-Use Conflicts and Related Mitigation

Renewable Energy Visual Evaluations

Inventory and Analysis of Archaeological Site Occurrence on the Atlantic OCS

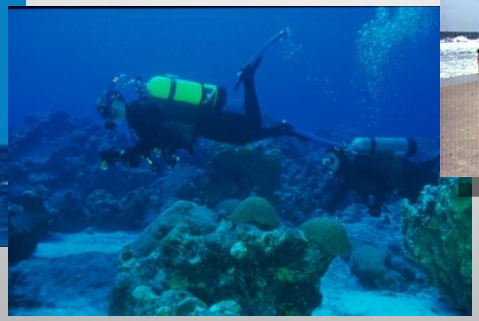
Socioeconomic

Recreation and Tourism Economic Assessment

Public Attitudes, Values, and Implications for Tourism and Recreation

The Socioeconomic Impact of OCS Wind Development on Fishing

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



Physical Environment – Air and Water

- Air emissions and discharges
- Alteration of the microclimate
- Change in wave energy

Impacts from Noise

Characterization and Potential Impacts of Noise Producing Construction and Operation Activities on the OCS

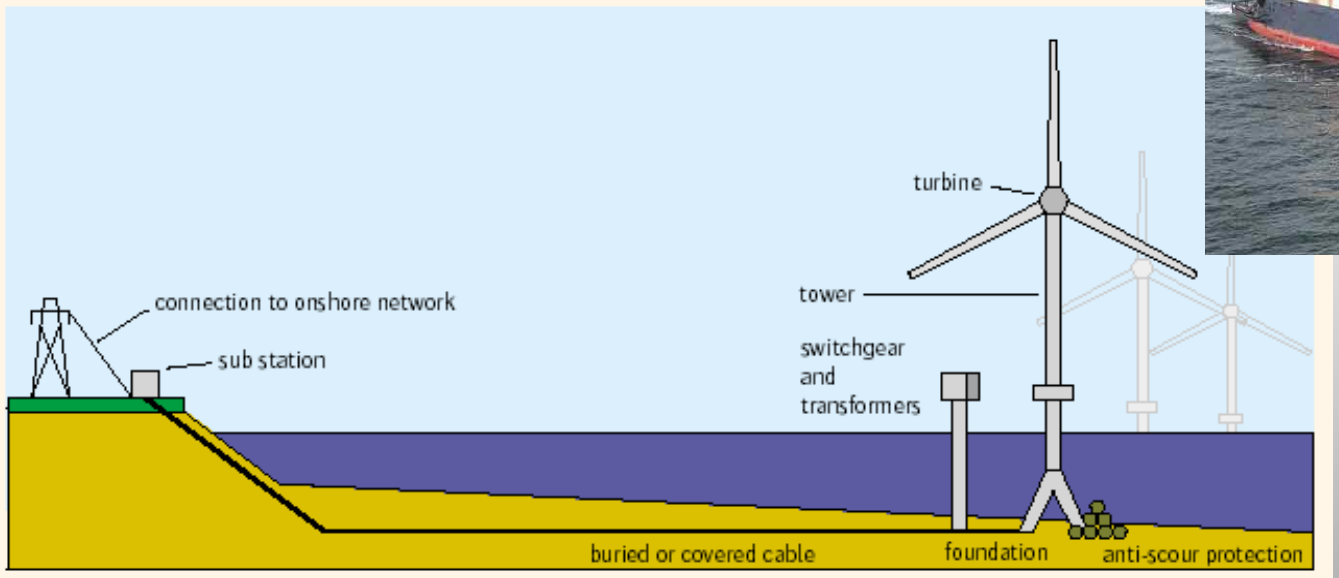
Underwater Hearing Sensitivity in the Leatherback Sea Turtle (*Dermochelys coriacea*): Assessing the Potential Effect of Anthropogenic Noise

Effects of Pile Driving Sounds on Auditory and Non-auditory Tissues of Fish

Effects of Electromagnetic Fields (EMF)

Effects Of EMF From Transmission Lines On Elasmobranchs And Other Marine Species

Renewable Energy in situ Power Cable Observation



Evaluation of Effects

Protocols for Baseline Studies and Monitoring for Ocean Renewable Energy

Roadmap: Technologies for Cost Effective, Spatial Resource Assessments for Offshore Renewable Energy

Developing Environmental Protocols and Modeling Tools to Support Ocean Renewable Energy and Stewardship

Bayesian Integration for Marine Spatial Planning and Renewable Energy Siting

Partnering

- BSEE Technology Assessment and Research Program
- Department of Energy, National Renewable Energy Laboraty (NREL)
- National Oceanographic Partnership Program
- State Initiatives

What's Next

Continue to address issues of concern as they arise

Work with Federal Partners and others to make observations during construction and operations on DOE funded projects

Build on the foundation of these initial efforts to provide sound science for informed decisions

www.boem.gov/Renewable-Energy-Program