Ocean/ Wind Power
Ecological Baseline Studies

Draft Final Report

Interested Party Group Meeting
June 18, 2010

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Project Manager
Manager, Office of Science
NJ DEP
Project Significance and Issues

• DATA, DATA, DATA, DATA, DATA!!!!
• 1 project in state waters; 4 in federal waters
• $3-4+ Billion investment
• Data will help support the development of renewable energy projects
• Help assess potential impacts
• Inform NEPA & Federal Consultation process (e.g., ESA)
Project Objectives

• Address Natural Resource portion of Blue Ribbon Panel Recommendation No. 4:
  - “Baseline data should be collected regarding the distribution, abundance, and migratory patterns of avian species, fish, marine mammals and turtles in the offshore area where development may be feasible.”
Specific Objectives – Fill Data Gaps

- In the Study Area, what are the abundance, distribution, and utilization of:
  - Bird Species (flight behavior)
  - Marine Mammals
  - Sea Turtles
Specific Objectives

- Using predictive modeling, mapping, and environmental assessment methodologies, what portions of the study area are more or less suitable for wind/alternative energy power facilities based on potential ecological/environmental impacts?
STUDY AREA

New Jersey
Field Studies

• **Three Primary Surveys:**
  - Avian
  - Marine Mammal
  - Sea Turtle

• **Supporting Studies:**
  - Oceanographic
Activity conducted pursuant to NOAA Permit No. 10014-02

Photo by Tony Leukering, GMI
Other Tasks

- Literature Review
- Data Compilation-digital and historical
- Model Development
- Impact Assessment
- GIS
- Reporting
Schedule

• 24-month study
• Field Work: Jan 2008 – Dec 2009
• Interim Report – March 2009
• Draft Final Report – April 2010
• Final Report – Expected early July
Overall Process

• Technical Review Committee – State & Federal Agencies

• Peer Review Group – Independent Review

• Interested Party Group (stakeholders)
  – Periodic informational meetings
Draft Final Report Summary

- Four Volumes
  - Birds
  - Marine Mammals & Sea Turtles
  - Fisheries
- Modeling
- Sensitivity Index Map
- Data fulfilled Project Objectives!
Geo-Marine, Inc.

Dan Wilkinson, Ph.D.
SUMMARY
Sensitivity Map – DRAFT

- Simple weighting of GIS layers by natural & physical resources
- More heavily shaded areas indicate greater potential
- Does not mean can not develop area, but may indicate greater mitigation &/or other costs (e.g., monitoring, construction $ due to avoidance).
Sensitivity Map (cont)

• Tabular listing of all GIS layers by grid block
• Easy ID of sensitive ‘layers’
• Additional site-specific information and risk assessment will be needed to better define risks and potential mitigation
Figure C-1. Map showing the “no build areas” designated in the environmental sensitivity index.
Figure C-2. Map showing the physical features used in the environmental sensitivity index.
Figure C-5. Map showing the threatened and endangered marine mammal species data used in the environmental sensitivity index.
Table C-1. Physical and biological features found within each grid cell in the environmental sensitivity index.

<table>
<thead>
<tr>
<th>Column</th>
<th>Row</th>
<th>Avian Kernel Dens Rank 1</th>
<th>Avian Kernel Dens Rank 2</th>
<th>Avian Kernel Dens Rank 3</th>
<th>Mammal (All Species) Dens Rank 1</th>
<th>Mammal (All Species) Dens Rank 2</th>
<th>Mammal (All Species) Dens Rank 3</th>
<th>Sea Turtles - Rank 1</th>
<th>Sea Turtles - Rank 2</th>
<th>Sea Turtles - Rank 3</th>
<th>Essential Fish Habitat - Rank 1</th>
<th>Essential Fish Habitat - Rank 2</th>
<th>Essential Fish Habitat - Rank 3</th>
<th>Marine Protected Areas (MPA)</th>
<th>Sheds</th>
<th>Commercial Docks</th>
<th>Recreational Docks</th>
<th>Hotels/Hotels</th>
<th>Shipping Lanes</th>
<th>Observations</th>
<th>Pipelines</th>
<th>Shipwrecks</th>
<th>Traffic Separation Zone</th>
<th>Vessel Transit Route</th>
<th>Utility Cables</th>
</tr>
</thead>
</table>
Final Report

• Information and data can be used for:
  - Baseline data for projects in study area (NEPA)
  - Design of future monitoring
  - Screening of potential sites
  - ID Areas for MMS ‘Request for Interest’
  - Planning for Phase II Wind Facilities
Final Report (cont)

• Estimate of potential impacts on natural resources
• Listing of species that may be impacted including T&E species
• Estimate of relative scale of potential mitigation
Indication of areas that have limited potential for impacts

Areas that have greater potential for impacts

Site-specific information

Data, data, data, data, data!!!!
Acknowledgments –

Technical Review Committee - NJ DEP

- Coastal Management – Kevin Hassel
- Fish & Wildlife – ENSP
  - Dave Golden
  - Sharon Petzinger
  - Jeanette Bowers
- Marine Fisheries - Don Byrne
- Wildlife Management - Ted Nichols
- NJ GS – Jane Uptegrove
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  - Debra Palka, Ph.D.
  - Karen Greene
- **Minerals Management Service** - Will Waskes
- **Project Team: Geo-Marine, Inc.**
  - Rutgers University
  - Aqua Survey Inc.
Dedication to
Gail Carter

In Memoriam
QUESTIONS?

Office of Science website:
http://www.state.nj.us/dep/dsr/

Activity conducted pursuant to NOAA Permit No. 10014-02
Photo by Tony Leukering, GMI