

Wildlife Concerns Related to Offshore Wind Development in the Gulf of Maine



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Potential Effects of Offshore Wind Facilities

Direct

- Collision
 - Hard to document in marine systems
- Displacement from breeding, feeding, or resting areas
 - Dynamic food resources make this difficult to monitor

Indirect

- Energetic costs of avoidance (flight time & energetic cost)
- Displacement of prey base
- Noise / vibration may interfere with communication, foraging, or predator detection



During project evaluation, USFWS must:

- Determine if federally listed T&E species will be adversely affected
- Determine if federal trust resources (migratory birds) will be adversely affected



Roseate Terns & Piping Plovers



Roseate Tern:

- 149 pairs nesting on 4 islands
- Entire NE population is declining
- Migrating birds from Nova Scotia, routes unknown

Piping Plover:

- 33 pairs nesting at 15 locations
- Migrating birds from Nova Scotia, routes unknown



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Bald Eagles



- ~200 pairs of bald eagles nest along the Maine coast
- Hundreds of eagles winter along the coast of Maine
- Forage extensively on seabird islands
- Protected by Bald and Golden Eagle Protection Act



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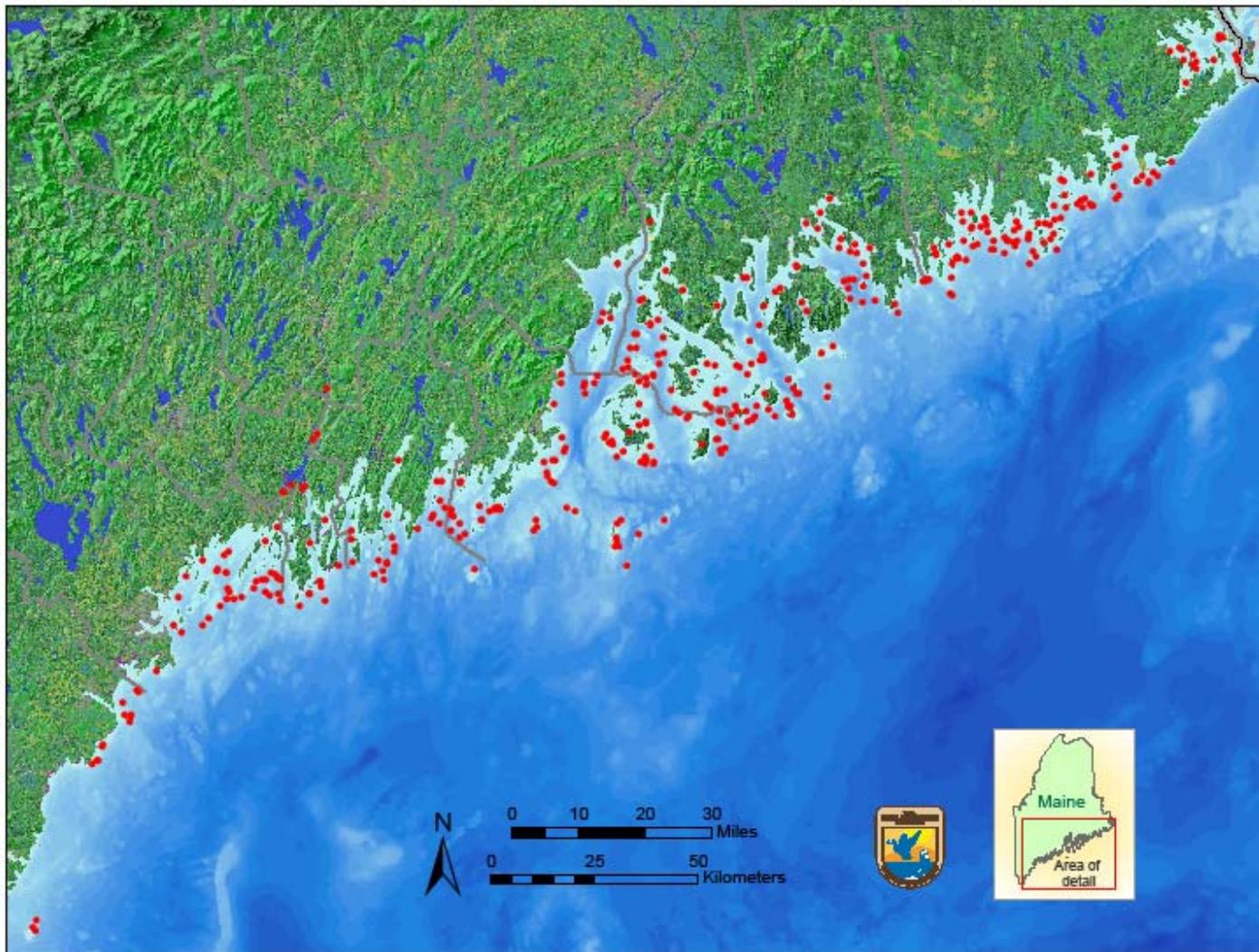
Seabirds and Wading Birds

- Maine has 4,600 islands, and 382 are Nationally Significant Nesting Islands
- USFWS and conservation partners intensively manage 11 islands
- 96% of Arctic Terns in lower 48 states breed on 4 islands
- 90% of Atlantic Puffins in the US breed on 3 islands
- 85% of Razorbills in the US breed on 4 islands
- We have extensive data on breeding ecology, but almost no data on foraging habitat or migratory corridors
- Distribution of forage fish is very dynamic
 - SST, topography of sea floor, salinity, primary productivity, currents, weather patterns, and water depth



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Seabirds and Common Eiders are breeding on over 320 islands



BHouston 14 JAN 2011 Map #441



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Gulf of Maine Pelagic Seabird Community is Dominated by Migrants



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Raptors, Sea Ducks, Shorebirds & Passerines....

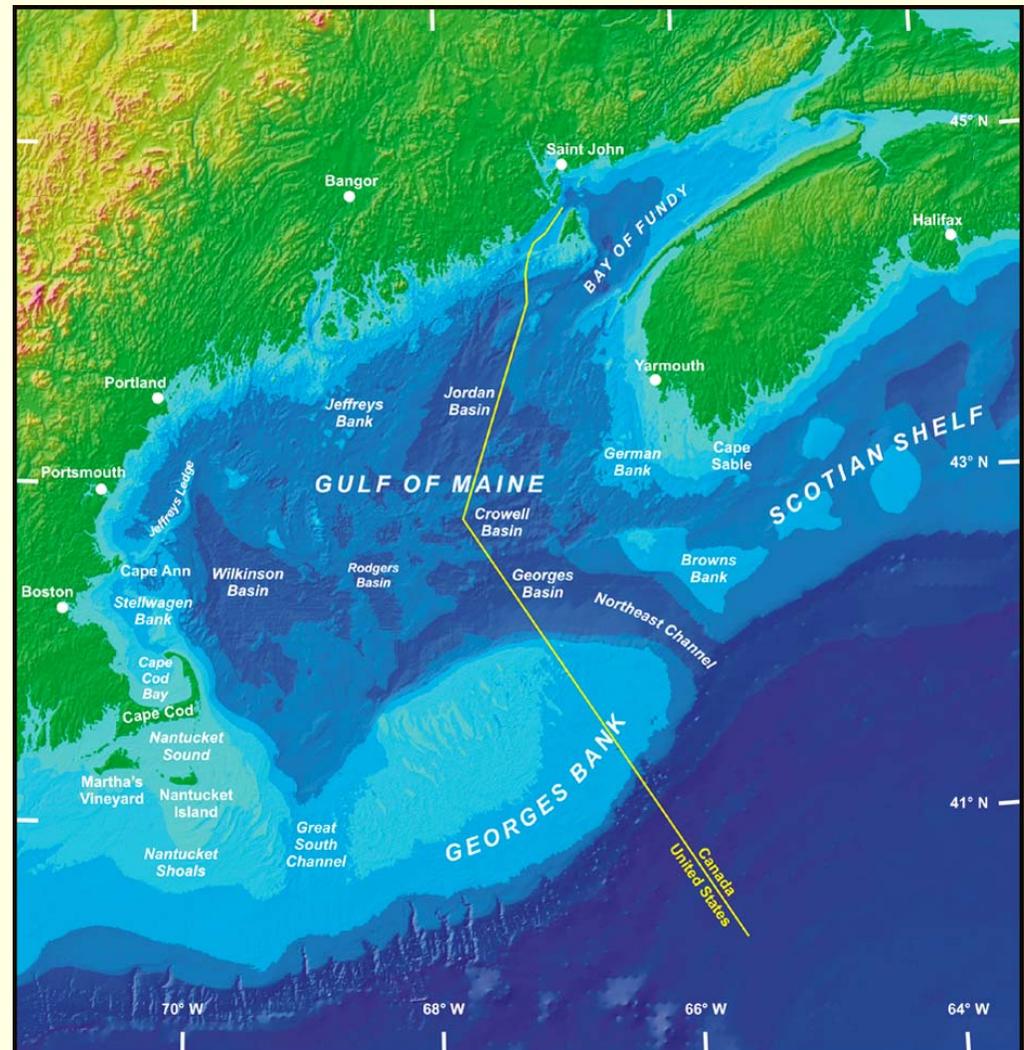


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= Year-round use of the Gulf of Maine

Orientation and Complexity of Coastline

- Research has shown some birds fly from NS directly over the Gulf of Maine
- Distance from the mainland and habitat conditions on an island will affect bird and bat use
- Birds and bats are routinely found much farther from mainland than observed in other regions



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Bat Migration

- Many species of bats have declined >90% due to disease (WNS)
- USFWS is working with partners to document bat movements along the coast (acoustic units)
- Bats have been detected at all 15 islands and coastal headlands monitored



Challenges Unique to the Gulf of Maine

- Maine supports Nationally Significant Populations of seabirds, with >90% of terns, puffins and razorbills nesting on 11 islands
- Maine has 4,600 coastal islands and ledges, birds may “island hop” among islands
- Breeding seabirds must return to colonies to feed chicks. Thousands of birds are making multiple foraging flights per day
- Gulf of Maine is one of the most productive ecosystems in the world, but it is very dynamic – location of foraging habitat changes frequently
- Little information exists on the habitat characteristics of seabird foraging habitat or migration pathways
- Gulf of Maine is used by tremendous number of birds – year-round
- Environmental conditions in the GOM may increase risk of collision (FOG) and challenges associated with research and monitoring



Survey and Monitoring Recommendations

- At least 2 years of pre-construction and 3 years post construction data collection to determine spatial and temporal distribution of avian species
- Boat-based Surveys: conducted monthly
- Aerial Surveys: conducted monthly, no more than 3km apart
- Surveys should use the best available technologies, such as high definition imaging / videography

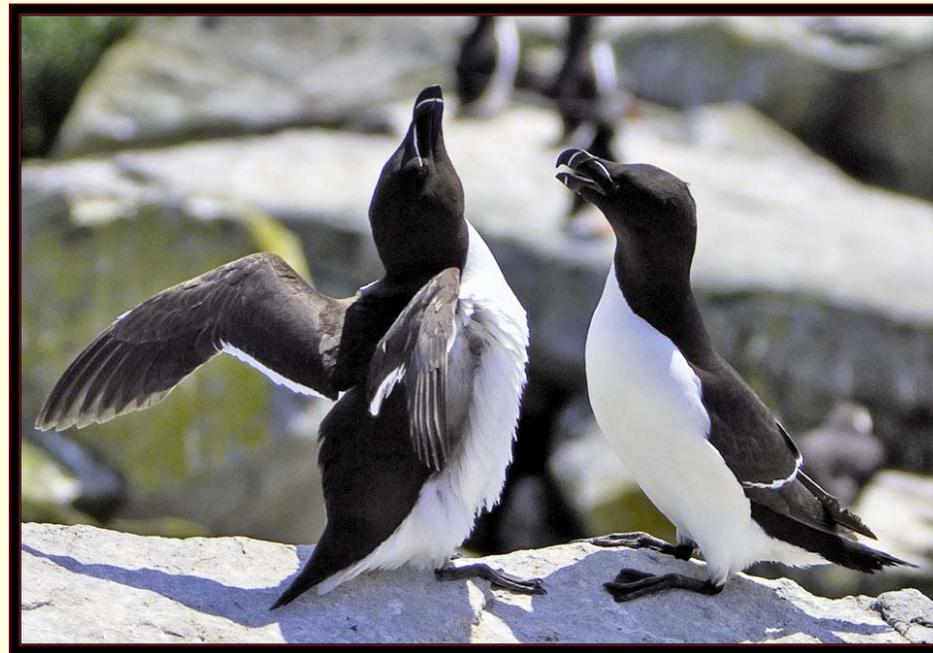


Survey and Monitoring Concerns

- Boat and aerial surveys are not conducted during inclement weather or at night, when collision risk may be elevated
- Passerines and bats will require specific surveys
 - Acoustic / Thermographic Offshore Monitoring System
 - Radar
- Concerns for listed species may require targeted research efforts
 - Telemetry



Project review and permitting will be expedited when projects Avoid, Minimize, and Mitigate adverse effects to Federal Trust Resources



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