

U.S. Fish & Wildlife Service Issue Paper for Offshore Wind Turbine Development in the Gulf of Maine

Prepared for: BOEM Maine Renewable Energy Task Force

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The purpose of this issue paper is to present the U.S. Fish & Wildlife Service's (USFWS) typical wildlife concerns and recommended pre/post-development monitoring for offshore wind development projects in the Gulf of Maine. This paper should be considered a draft and does not discuss potential mitigation or enforcement issues.

WILDLIFE ISSUES

During the evaluation of any potential offshore wind development project, the USFWS must: (1) determine whether federally listed endangered and threatened species would be adversely affected by the development of a particular wind power project, and (2) determine whether federal trust wildlife resources (migratory birds) would be adversely affected by the development of wind power turbines. The following is a brief summary of some of the issues we consider when we evaluate a proposal for offshore wind development.

1) Federally listed endangered and threatened species (Roseate Tern, Piping Plover, and Atlantic Salmon)

- a. While the Service has extensive data on nesting locations for roseate terns and piping plovers, we currently do not have good information on their migratory pathways in Maine or Canada. Large numbers of roseate terns from nesting islands in southern New England are known to congregate in late summer along the coast in southern Maine before migrating south for the winter but their exact migratory routes to wintering grounds are uncertain. In addition, we do not know how far offshore or at what elevation plovers fly during migration, so we cannot predict the hazard that wind turbines present to these birds.
- b. National Marine Fisheries Service has the lead for Endangered Species Act responsibilities for Atlantic Salmon in the estuarine and marine environments.

2) Bald eagles

- a. Approximately 200 pairs of bald eagles nest along the Maine coast, and many of these birds remain at their breeding territories year-round. In addition, hundreds of bald eagles winter along the Maine coast.
- b. In general, Maine bald eagles regularly travel up to four miles from nests, but this could be farther in parts of the coast where food resources are less concentrated. Their travel distances and migratory routes into the Gulf of Maine are uncertain.
- c. Bald eagles are protected from take under the Bald and Golden Eagle Protection Act.

3) Nesting islands for seabirds, wading birds, and bald eagles

- a. The Service has reviewed data for all 4,500+ Maine coastal islands and identified 382 that

are Nationally Significant for nesting seabirds, wading birds, and bald eagles.

- b. In addition, the Service and our conservation partners intensively manage 11 seabird colonies. Seasonal technicians are placed on the islands for 12-14 weeks each summer to control predators, monitor seabird diversity and abundance, document diet composition and foraging rates, and determine productivity rates for each of the seabird species nesting on the islands. Many of these projects were initiated over 25 years ago, and now support over 90% of the Atlantic puffins and 86% of the razorbills breeding in the United States. These colonies also support over 94% of common, Arctic, and all roseate terns nesting in Maine.
- c. While we have extensive data on the nesting colonies, we have little if any information on foraging habitat or migration corridors for these species. For piscivorous species, the location, abundance and distribution of forage fish may change drastically between weeks, months, seasons, and years. During the chick rearing phase of the nesting season, adult seabirds must make several foraging trips per day to provide adequate food for their rapidly growing chicks. Displacement from foraging habitat or their travel routes to and from foraging habitat may adversely affect chick growth and productivity at the colony.

4) **Year-round use of the region by raptors, waterfowl, shorebirds, seabirds, and passerines**

- a. Raptors: The Atlantic coast is an exceptional migration corridor for hawks, ospreys, eagles, falcons, vultures, and owls. Hundreds of thousands of raptors that nest in the interior forests of eastern Canada and Maine funnel along the Appalachian Mountain ridges or along the coast to migrate to wintering areas in Central and Southern America. Our observations indicate that species such as peregrine falcons are simply following concentrations of passerines and shorebirds. Migration corridors through the Gulf of Maine for these species are uncertain.
- b. Waterfowl: Many species of waterfowl nest along the coast of Maine, but none as abundant as the common eider. Maine hosts over 90% of the U.S. breeding population of common eiders. In late summer during their molt, tens of thousands of eiders form large concentrations along the coast. Later in the fall, hundreds of thousands of waterfowl migrate from eastern North America to winter along the Maine coast. Maine hosts significant populations of common eiders, black ducks, long-tailed ducks, mergansers, goldeneye, scoters, and bufflehead. Most of the eastern Canadian population of the rare harlequin duck and Barrows goldeneye winter off the Maine coast. Waterfowl migration corridors through the Gulf of Maine are uncertain.
- c. Shorebirds: The Gulf of Maine is of worldwide significance to migrating shorebirds. Hundreds of thousands of shorebirds of over 50 species migrate to the coast of Maine and the Bay of Fundy in late summer from breeding areas in the Canadian arctic. Migration corridors through the Gulf of Maine for these species are uncertain. Phalaropes are pelagic and stage in the hundreds of thousands off the coast of Maine at least during the fall migration.
- d. Seabirds: Numerous species of pelagic seabirds also utilize Maine's offshore waters to forage during the breeding, migration, and winter seasons. Many species (e.g. petrels, shearwaters, fulmars) that nest in the Southern Hemisphere migrate to the Gulf of Maine to spend the summer (their winter) in our productive waters. Areas of abrupt changes in elevation in the sea floor can create upwellings that provide abundant foraging opportunities for marine mammals and seabirds. Nutrient rich water is brought to the surface, providing highly concentrated and consistent foraging opportunities. Exact use and location of these areas in the Gulf of Maine are uncertain. Limited surveys of pelagic seabirds have documented tens of thousands of seabirds foraging in relatively small, localized regions of the coast but their use of most of the Gulf of Maine remains uncertain.

- e. Passerines: Little is known about the abundance of neotropical migrants (songbirds) migrating along the Maine coast and across the Gulf of Maine, however, their abundance could be orders of magnitude above what has been documented at inland wind power sites. An emerging view of bird migration from inland sites in Maine and eastern Canada suggests that fall-migrating songbirds fly south in broad fronts, concentrating along some ridgelines and river valleys until they encounter the coast. However, research suggests that many birds are flying over the open ocean as they fly south. The USFWS, the National Park Service, and the University of Maine have been operating passerine banding stations for several years on coastal islands. Biological samples collected from the birds have shown that passerines breeding across the boreal forest region of Canada are using islands in the Gulf of Maine during migration. Banding data and observations of passerines collected on Metinic Island in the fall of 2009 have led researchers to conclude that over 500,000 birds flew over or landed on Metinic Island during a 12 week period. Migration and travel corridors through the Gulf of Maine for these species are uncertain.

5) Position in the landscape / travel corridors

- a. The location of an island may significantly affect use by wildlife. For example, we believe that an isolated island along a stretch of coast may receive higher use than any one particular island in an archipelago. Distance from the mainland and habitat conditions on the island may also affect bird and bat use. Research has demonstrated that some birds are making direct flights from Nova Scotia to the coast of Maine by crossing the open water of the Gulf of Maine. Some of these birds continue their southward migration by moving from one coastal island to the next as they move down the Atlantic seaboard. This means that passerines are routinely found at much greater distances from the mainland than you might expect in states along the mid-Atlantic region. At this point in time, little data is available on landscape level use of coastal islands and their relation to migratory corridors, but the Service is working with our partners to begin collecting some of this data.

6) Bats

- a. The USFWS and our conservation partners have been working over the past three years to gather information regarding bat movements along the coast of Maine. Acoustic recording units have been placed on 15 islands and coastal headlands. The data indicates that bats were detected at all sampling locations; including islands located more than 20 miles offshore. Given the recent dramatic decline in many bat species the USFWS is now considering listing several species under the ESA. The extent of use of the Gulf of Maine by bats is uncertain.

SURVEY/MONITORING

These survey and monitoring recommendations are designed to address the wildlife issues outlined above.

1) We recommend at least two years of baseline data collection to determine spatial and temporal distribution of offshore avian species. Once the project is operational, we recommend at least three additional years of monitoring surveys. Surveys include:

Boat-based surveys: Surveys should be conducted monthly to determine spatial and annual distribution of birds. Minimal survey area is the project area or 1 OCS block (3 mile x 3 mile) plus 1 nm buffer, whichever is larger.

Aerial surveys: Surveys should be conducted monthly to capture peak abundance. Transects should be no more than 3 km apart.

These boat-based and aerial survey recommendations are similar to those in BOEM's draft Guidelines for Avian Surveys in the Atlantic for Offshore Wind Energy Development (Feb 2011).

Ship-based and aerial surveys should take advantage of the best available survey methodologies at the time, including newer technologies such as high definition imaging/videography. We encourage BOEM and project proponents to work with USFWS and others to develop new technologies for surveying various bird groups and bats in the offshore environment.

2) Aerial and boat-based surveys will not address USFWS concerns related to passerines and bat movement within a project area. In addition, aerial and boat-based surveys would not be conducted at night or during inclement weather events, when collision risk (between birds and turbines) may be elevated. The best available technology should be used to address this potential risk. Potential survey methods include Acoustic/Thermographic Offshore Monitoring System (ATOM) and radar.

3) Specific concerns for listed species (i.e. roseate tern or piping plover) may need to be addressed by targeted research on each species and may include telemetry or other suitable tracking equipment. We recommend that BOEM and the applicant utilize the best available technology to determine use of the project area by listed species.