Uncertain impacts of NJ offshore wind farms on migratory birds

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Introduction

This study aims to collect information from a variety of sources in order to understand what risks NJ offshore wind farms (OWFs) pose to migratory birds. It is important to take extra care in the decisions made with offshore wind development because birds are already under many pressures including habitat loss, climate change, and coastal disturbance.

Methods

Data from Audubon as well as BirdCast were used to observe the density of bird migration along the Atlantic Flyway. Using this data, a list of species observed flying off the east coast was created and related to the IUCN watch lists. European studies were used to compare, and contrast planned NJ OWFs.

Results

While we can use European observations to understand the potential behaviors of birds around turbines, it is uncertain what the actual impacts of largescale OWFs off NJ will be. High density OWFs may be creating a wall on the east coast.

Discussion

Radar along with cameras and artificial intelligence can be used to accurately track the movement of birds close to turbines. Radio telemetry and thermal cameras are also helpful. Other potential solutions include creating offshore artificial islands for birds to rest on.

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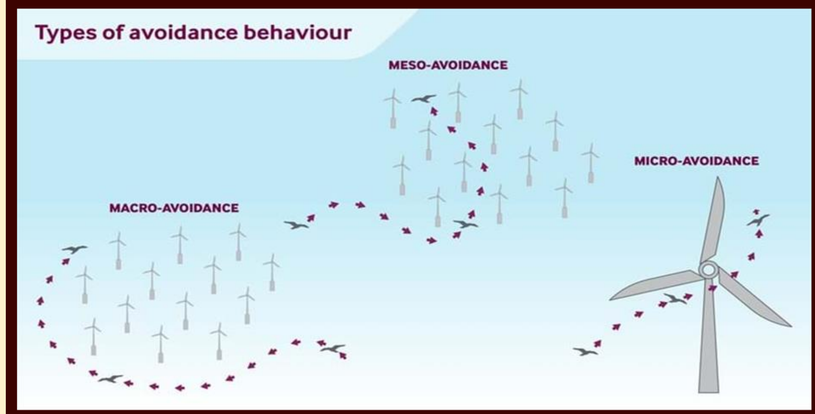
1. Smaller birds are at higher risk

2. Birds choose to avoid OWFs

3. Uncertainty about potential impacts of large scale OWFs off NJ

Common Name	Scientific Name	Concern	Continental Decline
American Kestrel	*Falco sparverius*	Least	
American Woodcock	*Scolopax minor*	Least	
Arctic Tern	*Sterna paradisaea*	Least	Common Birds in Steep Decline
Black Scooter	*Melanitta americana*	Near Threatened	
Common Tern	*Sterna hirundo*	Least	Common Birds in Steep Decline
Great Blue Heron	*Ardea herodias*	Least	
Great Egret	*Ardea alba*	Least	
Herring Gull	*Larus argentatus*	Least	Common Birds in Steep Decline
Ring-billed Gull	*Larus delawarensis*	Least	
Semipalmated Sandpiper	*Calidris pusilla*	Near Threatened	Yellow Watch List D (Steep Declines and Major Threats)
Surf Scooter	*Melanitta perspicillata*	Least	
Piping Plover	*Charadrius melodus*	Near Threatened	Red Watch List (in urgent need of special attention)
Least Sandpiper	*Calidris minutilla*	Least	
Red Knot	*Calidris canutus*	Near Threatened	Yellow Watch List D (Steep Declines and Major Threats)
Sanderling	*Calidris Alba*	Least	Common Birds in Steep Decline
American Oystercatcher	*Haematopus palliatus*	Least	Yellow Watch List R (range restricted and small populations in need of constant care)
Black-bellied Plover	*Pluvialis squatarola*	Least	Common Birds in Steep Decline

Figure 1(Top Left): List of birds tracked flying over open ocean off the coast of NJ (explorer.Audubon.org). Red Watch List and Yellow Watch List determined by the IUCN.



(Tjørnløv et. al. 2023)

Micro-avoidance: avoidance of the turbine blades
Meso-avoidance: avoidance of individual turbines by weaving through the rows
Macro-avoidance: complete avoidance of the OWF area (Tjørnløv et. al. 2023)

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