BOEM BUREAU OF OCEAN ENERGY MANAGEMENT

Integrating High-quality Movement Data from Proxy Species into SCRAM

26th Meeting of the Standing Committee on Offshore Science and Assessment

July 11, 2024

David Bigger | Office of Renewable Energy Programs

Background

- Collision Risk Models are frequently used to estimate migrating bird fatalities from operating wind turbines.
- Movement data are a key input. Currently, models rely on low-resolution data (geolocators) and Motus telemetry data (land-based stations).
- Temporal gaps and low spatial resolution create uncertainty in fatality estimates.
- The study idea is to explore how using existing high-resolution tracking data from ecologically similar species could fill in gaps and reduce uncertainty.

BOEM Information Need

- BOEM has a responsibility under the Endangered Species Act (ESA) to assess the risks of offshore wind energy development to listed species (Piping Plover, Red Knot, and Roseate Tern).

- Information from this effort will be used to inform ESA consultations with the US. Fish & Wildlife Service and NEPA analyses on the risk of offshore wind development projects.


Peter Paton, URI


Yves Aubry, ECCC


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Study Objectives

- 1) Obtain high-quality tracking data from proxy species to describe offshore movements for Piping Plover, Red Knot, and Roseate Tern to be integrated into the SCRAM model.

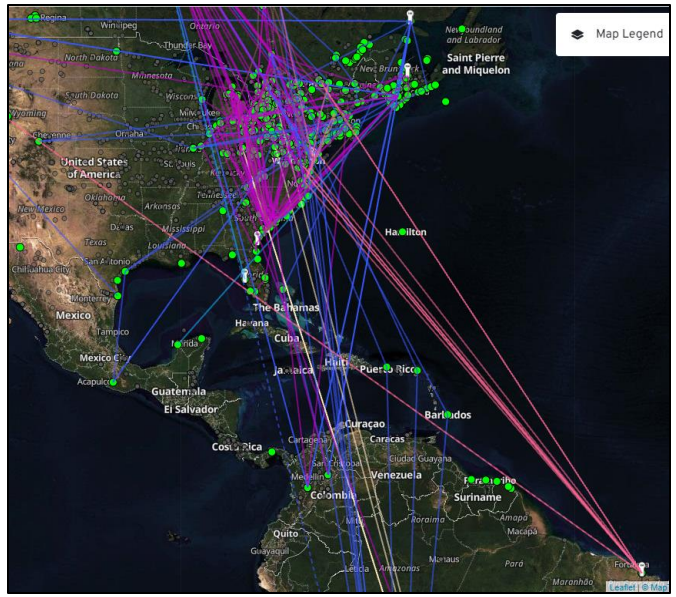
- 2) Provide relevant biological data from proxy species to expand the utility of SCRAM to include other migrating species.

- 3) Develop approaches to validate SCRAM model predictions at land-based turbines.

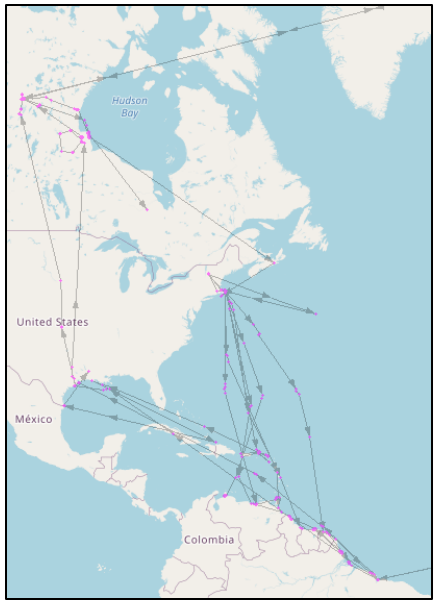
Methods

- Identify proxy species and relevant high quality data sets.
- Model overland and ocean movements.
- Prepare movement modeling results in a format to be integrated into SCRAM.

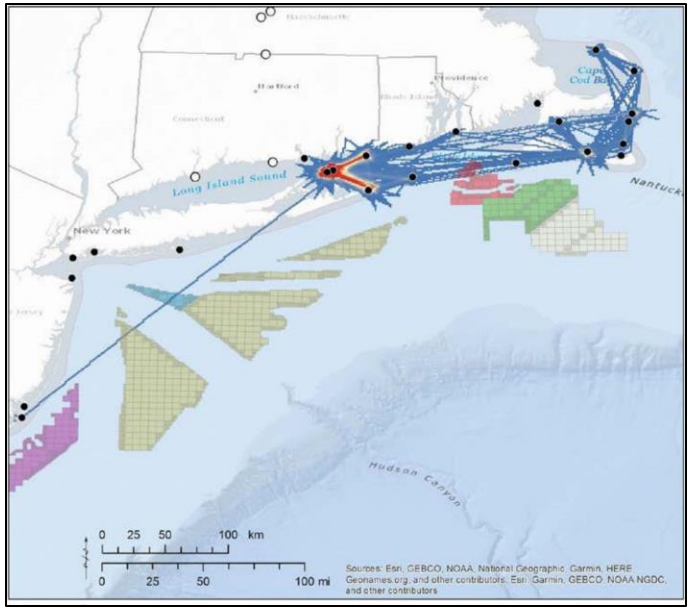
Red Knot - motus



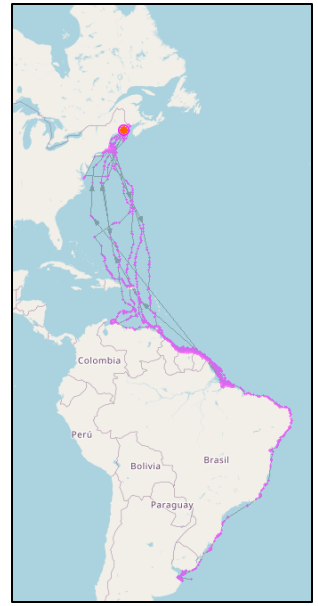
Whimbrel - sat



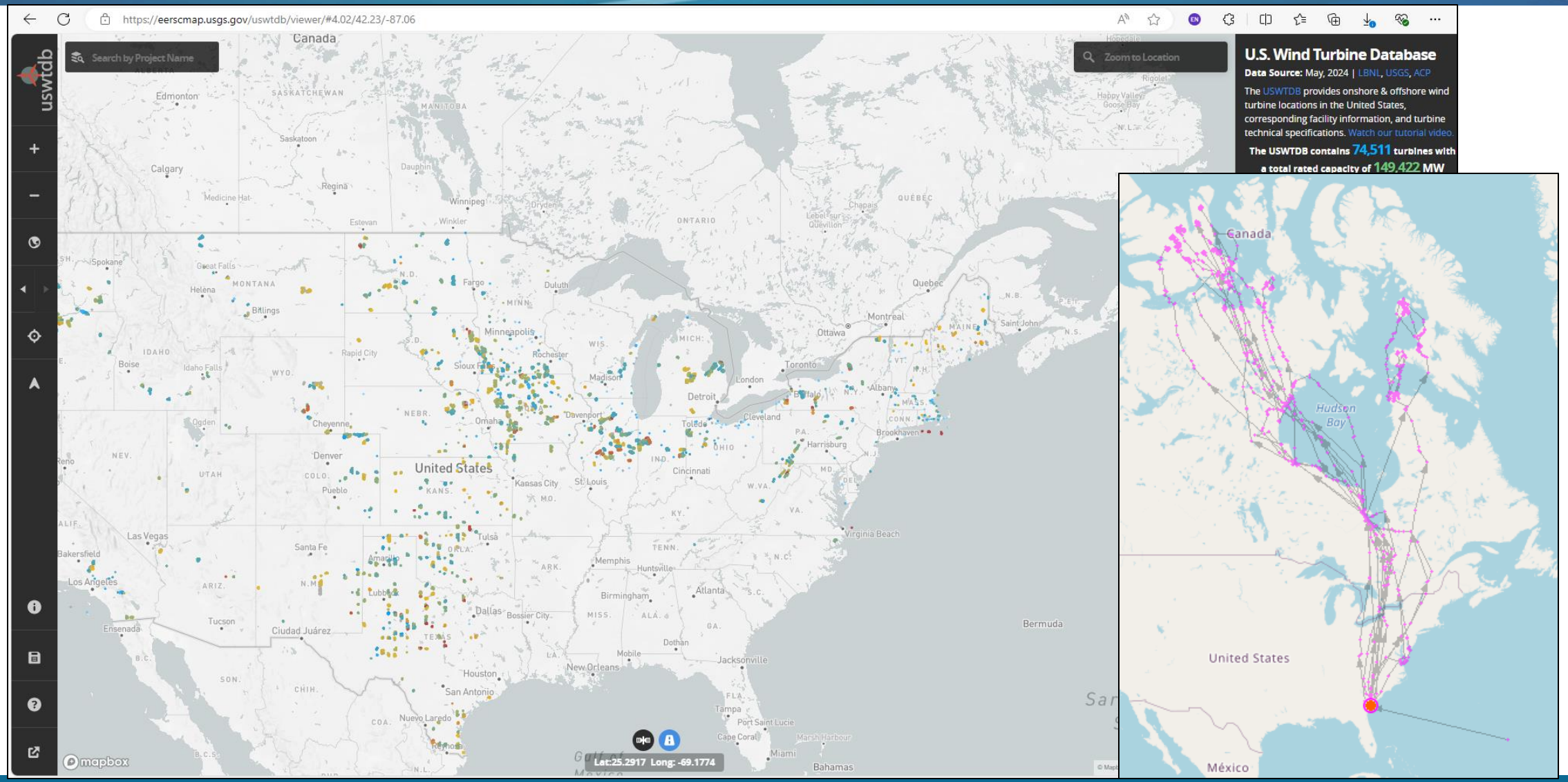
Roseate Tern - motus



Common Tern - sat



Methods


https://eerscmap.usgs.gov/uswtdb/viewer/#4.02/42.23/-87.06
uswtdb
Search by Project Name
Zoom to Location
U.S. Wind Turbine Database
Data Source: May, 2024 | LBNL, USGS, ACP
The USWTDB provides onshore & offshore wind turbine locations in the United States, corresponding facility information, and turbine technical specifications. Watch our tutorial video.
The USWTDB contains 74,511 turbines with a total rated capacity of 149,422 MW
Canada
United States
Lat:25.2917 Long: -69.1774
mapbox
Hudson Bay
México

Research Questions

- What is the efficacy of using data from proxy species over data specific to federally listed species?

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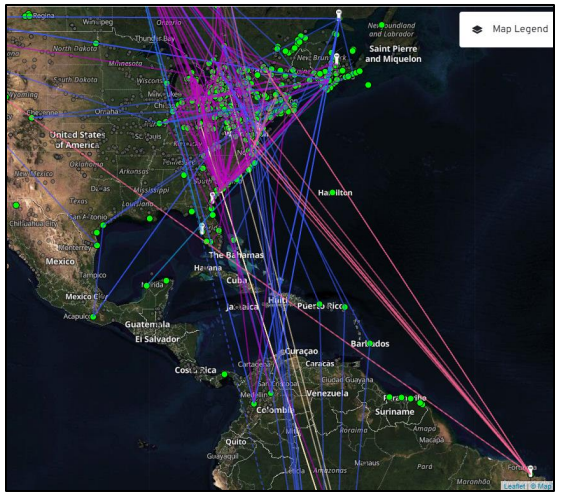
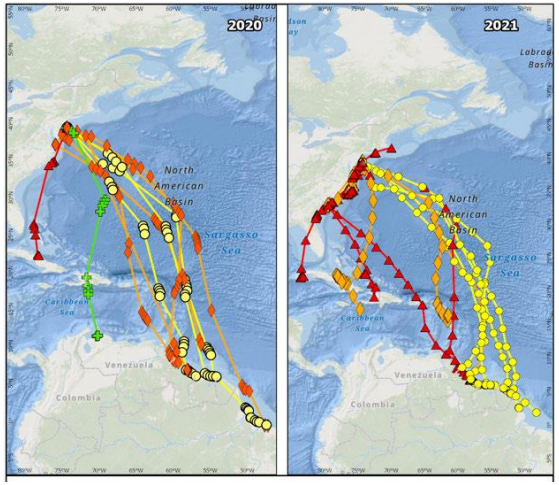
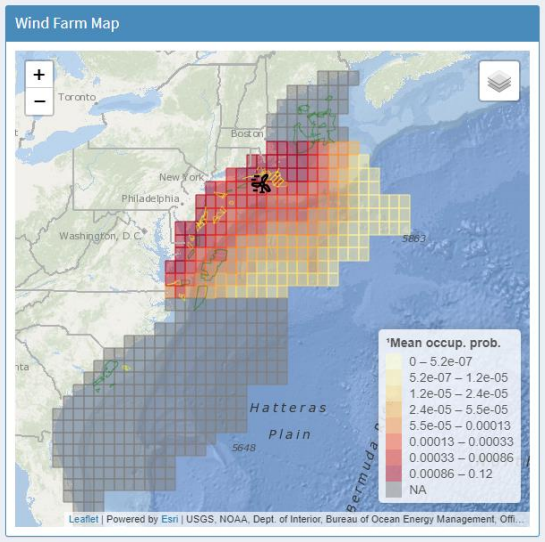
Extra info


Map Legend
Saint Pierre and Miquelon
United States of America
Mexico
The Bahamas
Cuba
Haiti
Puerto Rico
Jamaica
Guatemala
El Salvador
Curaçao
Barbados
Caracas
Venezuela
Colombia
Suriname
Quito
Hamilton


United States
México
Colombia


2020
2021
North American Basin
Sargasso Sea
Caribbean Sea
Venezuela
Colombia


Wind Farm Map
Toronto
Boston
New York
Philadelphia
Washington, D.C.
Hatteras
Plain
Bermuda
5883
5648
¹Mean occup. prob.
0 – 5.2e-07
5.2e-07 – 1.2e-05
1.2e-05 – 2.4e-05
2.4e-05 – 5.5e-05
5.5e-05 – 0.00013
0.00013 – 0.00033
0.00033 – 0.00086
0.00086 – 0.12
NA
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