Detecting Regional Impacts of Offshore Wind Farms and Evaluating Fisheries Monitoring Plans

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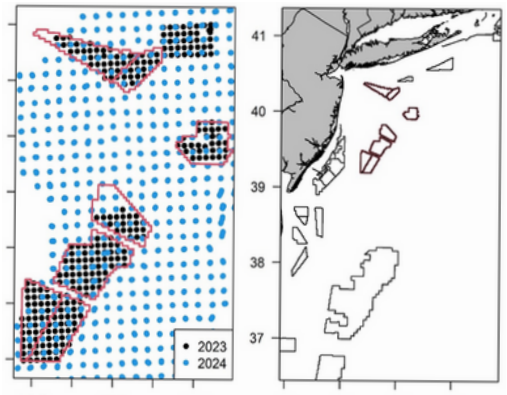
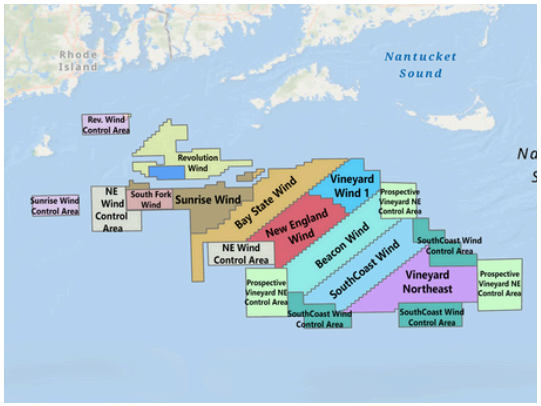
PROJECT OVERVIEW

This project will explore how **modern spatiotemporal models** can integrate **data** from **local** and **regional fisheries monitoring programs,** with **environmental** and **oceanic conditions,** to predict **where** species are found **over time**. These models will be used to **simulate** data for **existing** and **proposed fisheries monitoring plans,** evaluating their sensitivity to **detect changes** in **marine communities**. The proposed methods will be tested in **Southern New England** and the **Mid-Atlantic**.



The selected wind energy areas in the Mid-Atlantic with the coverage of drop camera sampling locations.



Current offshore wind lease areas and proposed reference areas in the Southern New England wind energy area.

HOW THE STUDY WORKS

- Collect publicly-available data from ongoing **regional monitoring programs** and data from existing partnerships with **offshore wind developers**.
- Fit **spatiotemporal models** to observations from **scallop** and **trawl surveys** to predict distributions of **shellfish** and **finfish** populations.
- **Simulated catch data** obtained from the models will be used to **evaluate** the **sensitivity** of **existing fisheries monitoring methodologies**.

OUTCOMES

- A **data-driven framework** for **assessing the designs** of **fisheries monitoring plans** and **regional monitoring programs**.
- Evaluation of methodologies for assessing **regional impacts and cumulative effects of wind farms** by **integrating data** across multiple offshore wind farms.

WHY THIS MATTERS

- Well-designed monitoring programs are critical for ensuring that the collected data is **representative**, **reliable**, and **precise** for assessing the **potential impacts** of **offshore wind development** on **fisheries**.
- To understand the impact offshore wind farm development has on marine ecosystems, research needs to be conducted on **varying spatial**, **temporal**, and **ecological scales**.
- **Spatiotemporal models** can be extended to predict the **joint distributions** of **multiple species** that depend on similar habitats.

PROJECT GOALS

- Assess the efficacy of predictive **models** for integrating **biological** and **environmental data** collected at varying spatial and temporal scales.
- Establish an **analytical framework** for **evaluating fisheries monitoring plans**.
- Lay the groundwork for **future assessments** of **regional impacts** of offshore development on **marine communities.**

ROSA Regional Research & Monitoring

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