Establishing a Baseline:
Understanding Long-Term Trends of Commercial Fish with Planned Offshore Wind Development in the Mid Atlantic Bight

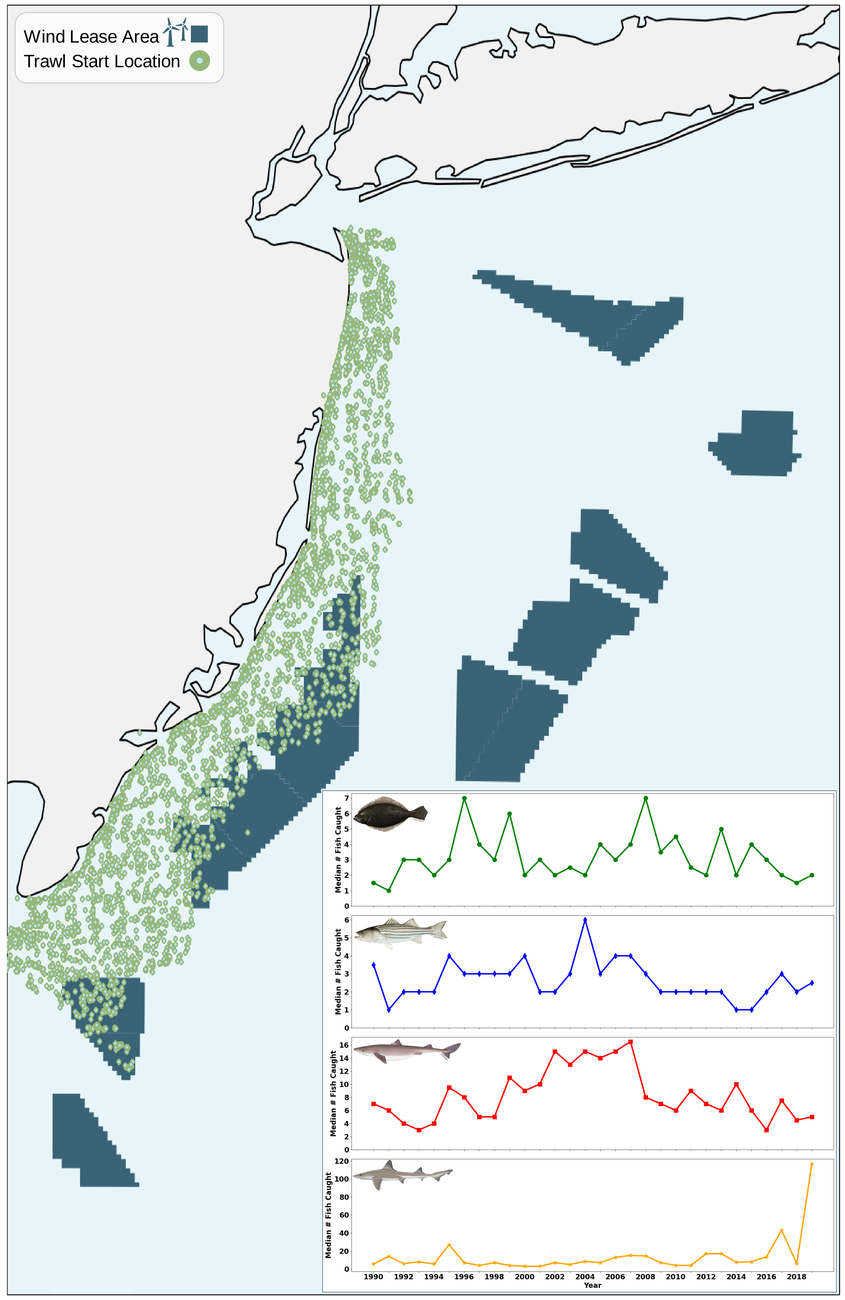
Alaimo S[1], Kohut J[1]
[1]Department of Marine and Costal Studies, Rutgers University
alaimo@marine.rutgers.edu

Motivation

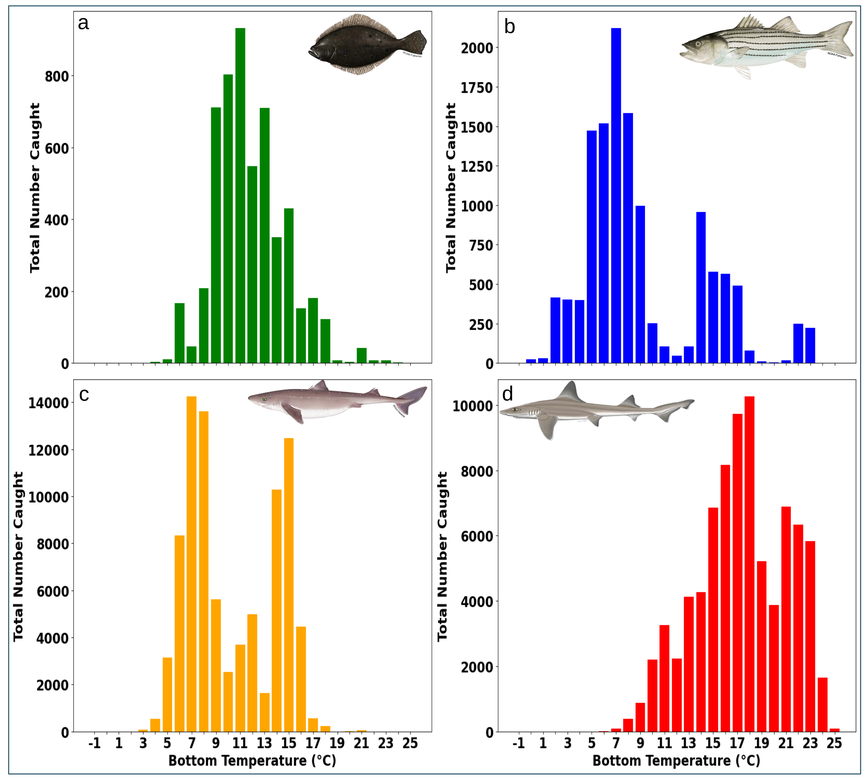
- New Jersey has an offshore wind energy goal of **11,000 MW by 2040**
- The coastal ocean off New Jersey is a dynamic environment that serves as **habitat** for many **commercial fish species**, including the Summer Flounder (*Paralichthys dentatus*), Striped Bass (*Morone saxatilis*) , Spiny Dogfish (*Squalus acanthia*), and Smooth Dogfish (*Mustelus canis*) [1]
- To better assess the **impact of offshore wind** facilities on commercial fish species we must first quantify **long term oceanographic and fisheries trends** before construction begins

Methodology

- NJDEP Bottom Trawl data includes **fisheries and oceanographic data** sampled across all seasons between **1990 and 2019** (Center Map)
- **Decadal trends** in species **abundance and biomass** will be mapped relative to ocean conditions (Upper Right)
- Particular focus will be placed on the **baseline trends** and variability in linked oceanographic and fisheries **seasonal phenology** (Map Inset)



NJ DEP ocean trawl survey locations (green) between 1990 to 2019 over offshore wind lease areas (blue) in the Mid-Atlantic Bight.



Total number of summer flounder (a), striped bass (b), spiny dogfish (c) and smooth dogfish (d) caught per temperature bin between 1990-2019.

Next Steps

For representative commercial species:

- Identify critical oceanographic habitat features and their overlap with WEAs.
- Analyze the long-term trends of these commercial species.
- Quantify changes in seasonal distributions over decadal time.

References:
[1] Miles T, Murphy S, Kohut J, Borsetti S, Munroe D. 2021. Offshore wind energy and the mid-atlantic cold pool: A review of potential interactions. Mar Technol Soc J. 55(4):72–87. doi:10.4031/MTSJ.55.4.8.

Acknowledgments:
Thank you, NJ DEP for allowing access to the Ocean Trawl Survey data. Thank you, NJ EDA for supporting this research through the Wind Institute Fellowship Program. Thank you to Rutgers University for student support. Thank you, Becca, Joe, Julia, Laura and Lori, for coding help.