Sea Grant
NJ Sea Grant Consortium

Assessing and Improving the Resiliency of New Jersey's Commercial Fishing Communities to Climate Change Impacts

Dr. Lisa Auermuller
Principal Investigator
Rutgers, The State University of New Jersey
Institute of Marine and Coastal Sciences
Jacques Cousteau National Estuarine Research Reserve

Dr. Douglas Zemeckis
Co-Investigator
Rutgers, The State University of New Jersey
zemeckis@njaes.rutgers.edu

Dr. Eleanor Bochenek
Co-Investigator
Rutgers, The State University of New Jersey
eboch@hsrl.rutgers.edu

Vanessa Tropiano
Co-Investigator
Rutgers, The State University of New Jersey
tropiano@ejb.rutgers.edu

Background

The commercial fishing industry is vital to New Jersey. It contributes $2.1 billion annually to the state GDP (2015) and supports livelihoods and surrounding coastal communities. Due to changing climate conditions, commercial fishing ports are experiencing increased natural hazards to shoreside infrastructure from sea level rise, flooding, and storms and shifts in marine fishery resources driven in part by warming ocean temperatures.
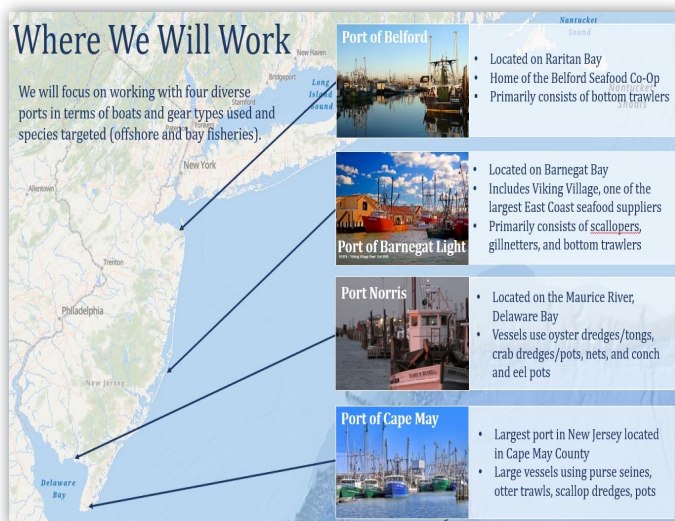
Goal

To assess and improve the resiliency of New Jersey's commercial fishing industry to climate change impacts.

How We Are Doing Our Work

We will focus on working with four diverse fishing ports in terms of boats and gear types used and species targeted (offshore and bay fisheries) including the Port of Belford, the Port of Barnegat Light, Port Norris and the Port of Cape May.

- We are gathering geospatial information on commercial fisheries related infrastructure for each port and preparing flood visualization maps using various data sets available through the public online NJFloodmapper tool. We will map

Where We Will Work

We will focus on working with four diverse ports in terms of boats and gear types used and species targeted (offshore and bay fisheries).

Port of Belford
- Located on Raritan Bay
- Home of the Belford Seafood Co-Op
- Primarily consists of bottom trawlers

Port of Barnegat Light
- Located on Barnegat Bay
- Includes Viking Village, one of the largest East Coast seafood suppliers
- Primarily consists of scallopers, gillnetters, and bottom trawlers

Port Norris
- Located on the Maurice River, Delaware Bay
- Vessels use oyster dredges/tongs, crab dredges/pots, nets, and conch and eel pots

Port of Cape May
- Largest port in New Jersey located in Cape May County
- Large vessels using purse seines, otter trawls, scallop dredges, pots

coastal hazards to port infrastructure using a range of sea level rise projections, as well as a Total Water Level approach that incorporates a composite of sea level rise, extreme high tide, and storm surge.

- We are working with ports to adapt to and prepare for shifts in the distribution of fishery resources which will help to improve the resiliency of New Jersey's commercial fishing industry to climate change impacts. We are utilizing NOAA/NMFS's Projected Thermal Habitat and Projected Climate Vulnerability Assessment Overview and Rutgers University's Ocean Adapt prediction maps to depict changes in species distribution for the top species landed at each port. For example: summer flounder have exhibited notable shifts in their spatial and temporal distribution, which has impacted the dynamics of commercial fisheries targeting this species.

- We are building on existing Fisheries Resilience Indices by Mississippi-Alabama and Alaska Sea Grants to develop a commercial fisheries resilience self-assessment for New Jersey. The self-assessment will incorporate questions about future coastal hazards and species shifts to help commercial fishing communities assess and improve their preparedness for changing climate conditions and disruptions.

Climate Induced Species Shifts Mapping

Adapting to and preparing for shifts in the distribution of fishery resources will help to improve the resiliency of New Jersey's commercial fishing industry to climate change impacts.

Top 5 Five Species by Value by Port (2015-2019)

Belford	Barnegat Light	Cape May/Wildwood	Port Norris
summer flounder	sea scallops	sea scallops	oysters
menhaden	golden tilefish	illex squid	blue crab
loligo squid	monkfish	loligo squid	menhaden
scup	bigeye tuna	menhaden	American eel
black sea bass	summer flounder	surf clam	whelks