

# Surfclams & Offshore Wind

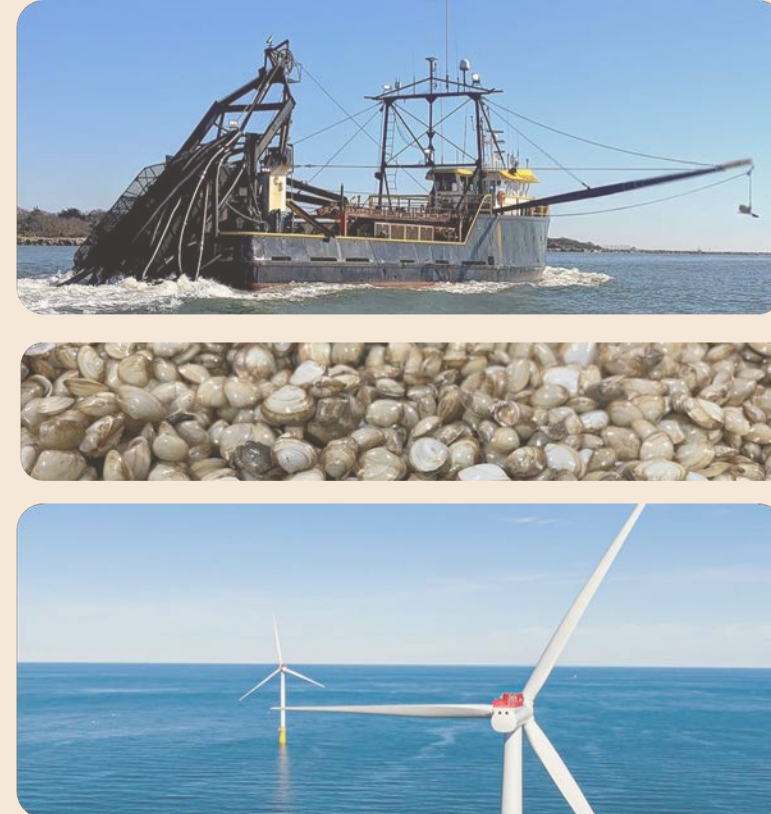
## Surveying Resource Changes & Modeling Interactions

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### Atlantic Surfclams

- Key fishery with long history of sustainable management
- Among most exposed to offshore wind energy development
- Fishery & survey vulnerability due to lack of access
- Survey impacts will increase stock status uncertainty

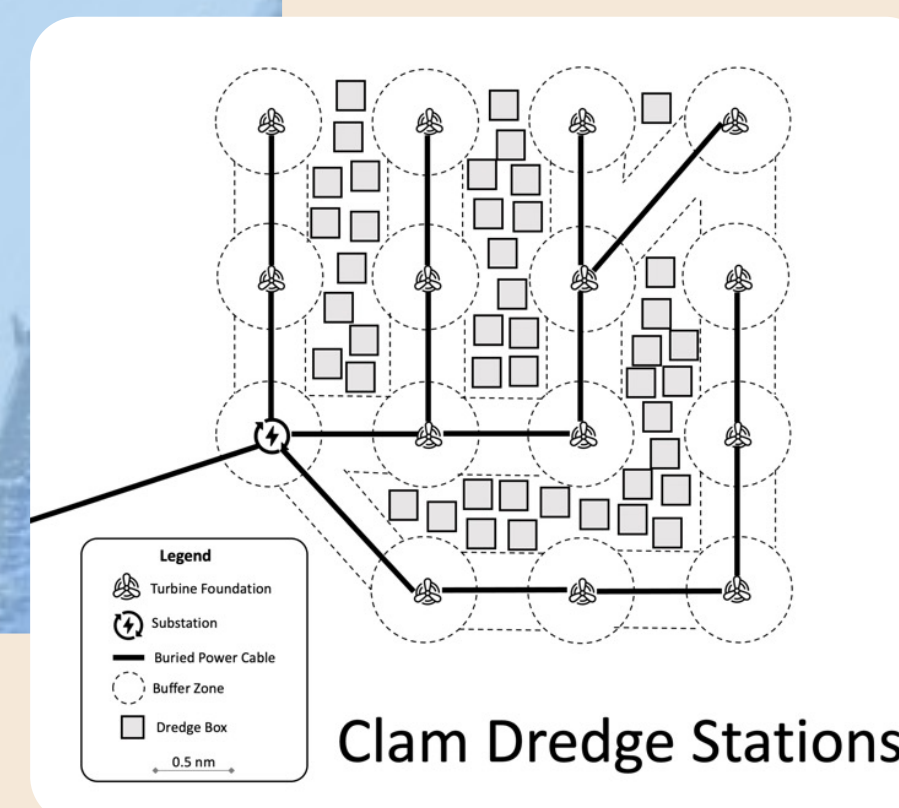
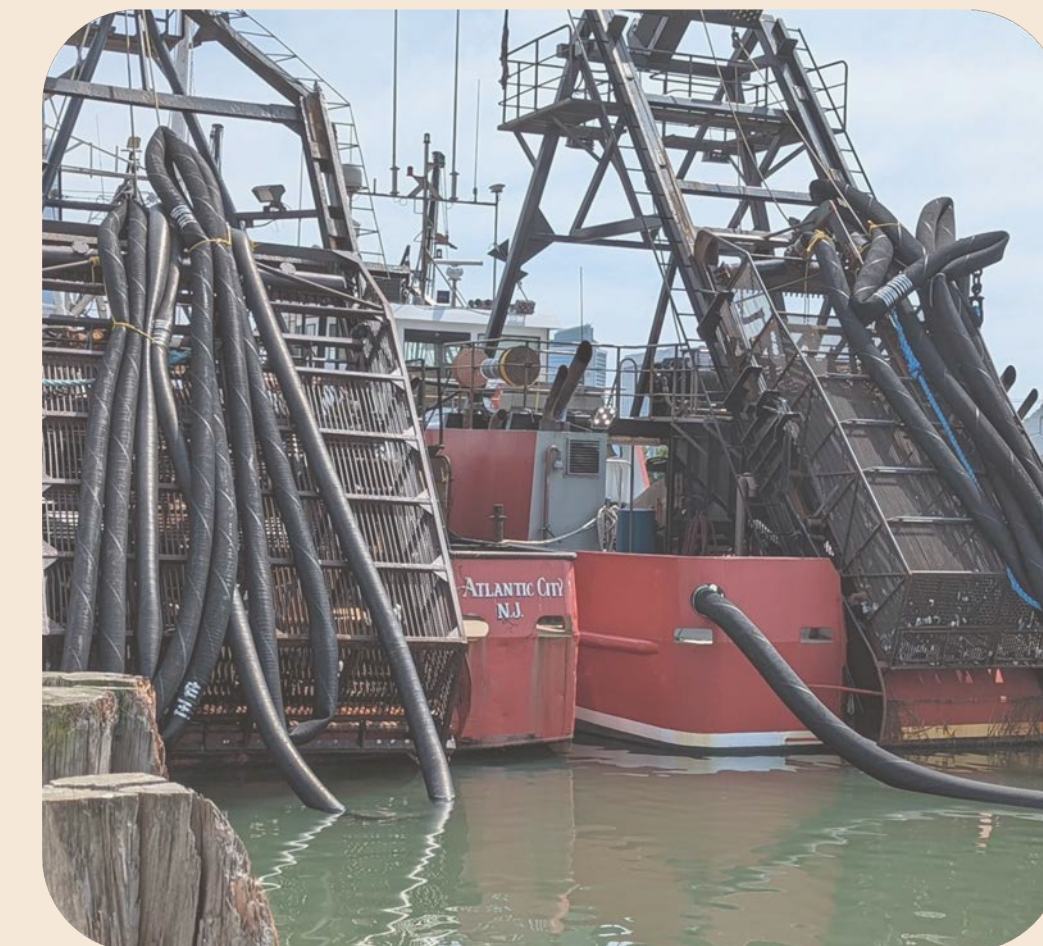


### Offshore Wind and the Surfclam Fishery

- What is the status of surfclam populations within wind leases?
- What are the economic consequences of fleet displacement?
- How should we think about mitigation in this métier?

### Surfclam Population Surveys

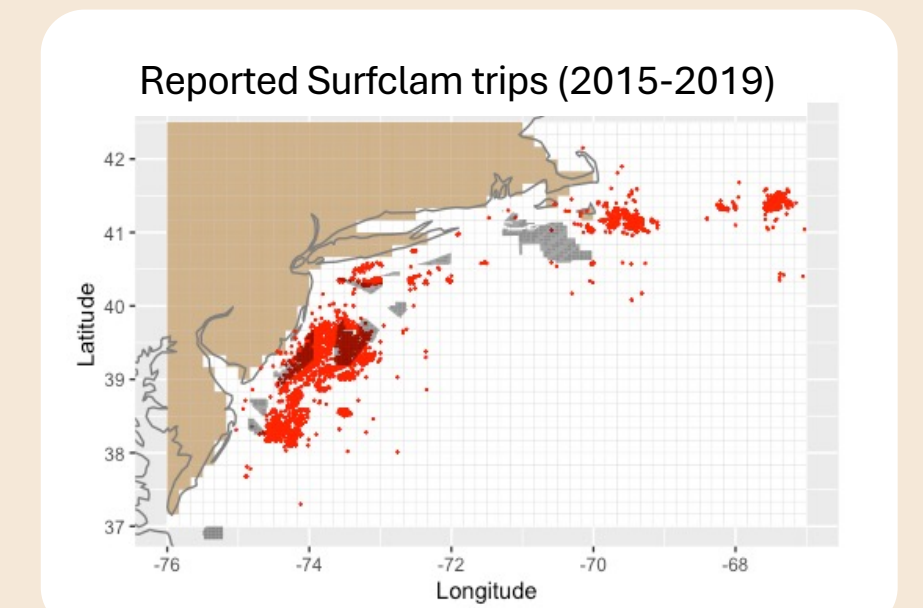
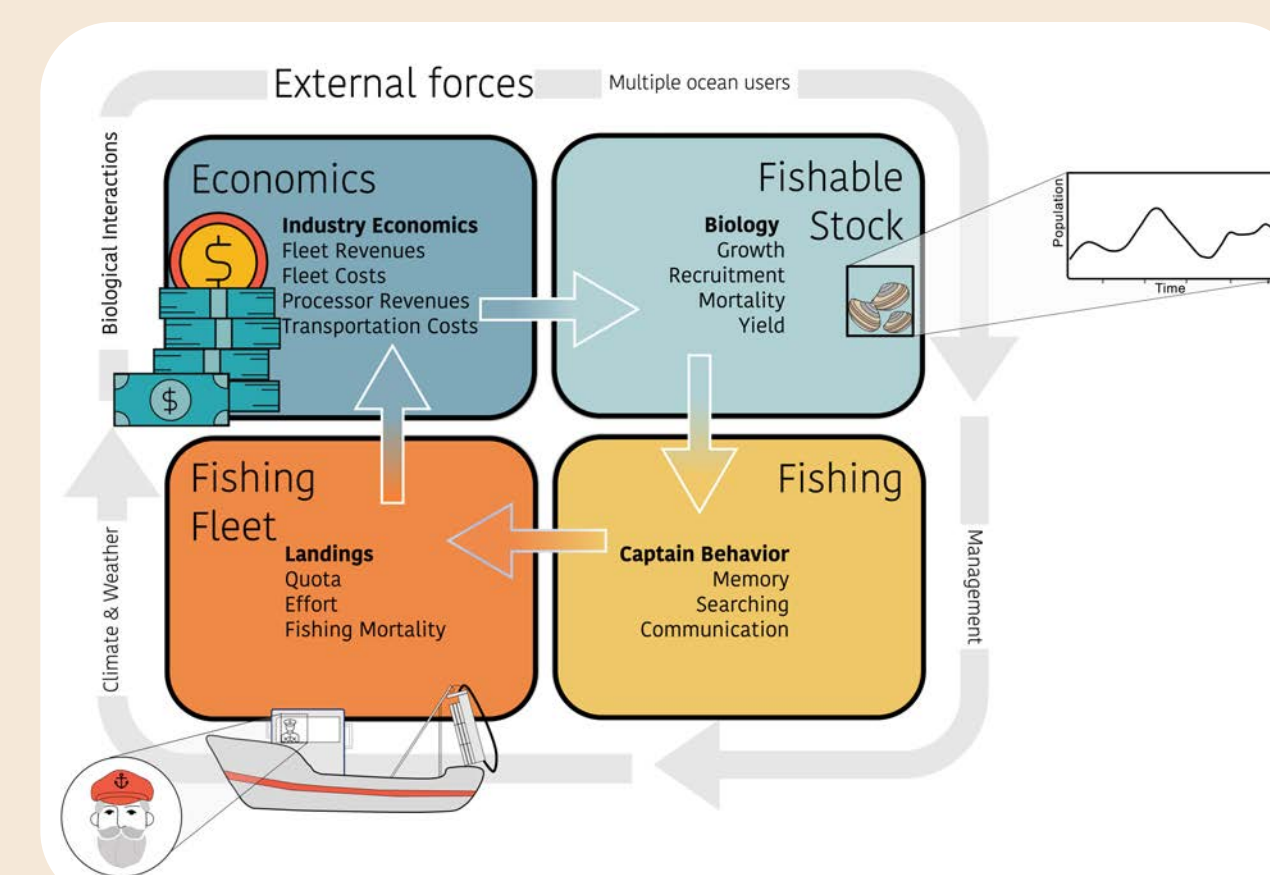
- Fishery Cooperative Surveys
  - Part of Developers' Fishery Monitoring Plans
- Strategy Follows the Federal Survey
- Samples Collected with a Calibrated Science Dredge
  - Before-After-Control-Impact Design
- Generating Population Data
  - Age-at-length, biomass, size composition, recruitment
- Collecting Oceanographic Data
- Collaborative with Other FMP Elements
  - eDNA, acoustic telemetry, trawl, baited camera trap, gliders



### Potential Economic Consequences of Fleet Displacement

Model simulations indicate:

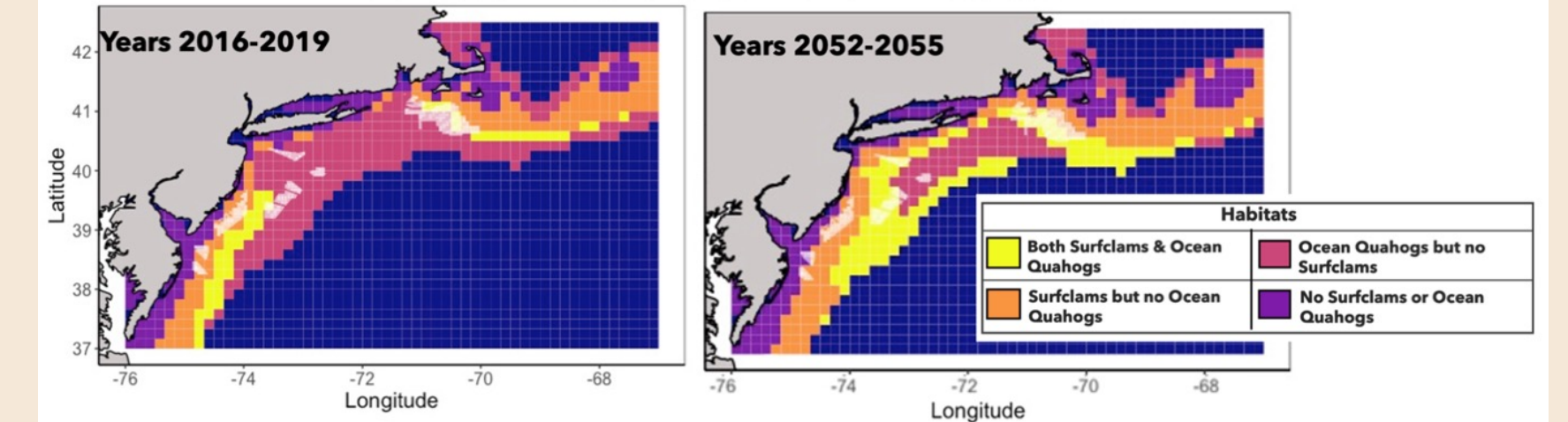
- Number of trips declines and average time at sea increases
- Decreases in fishing activity cause reduced revenues ~3-15%
- Displacement increases fuel costs ~0-10%
- Fleet in Atlantic City disproportionately impacted



### Model has also been used to:

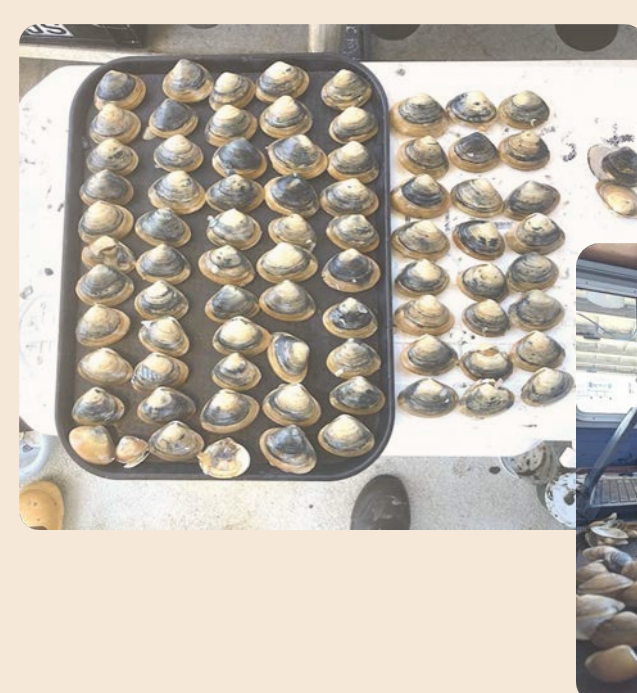
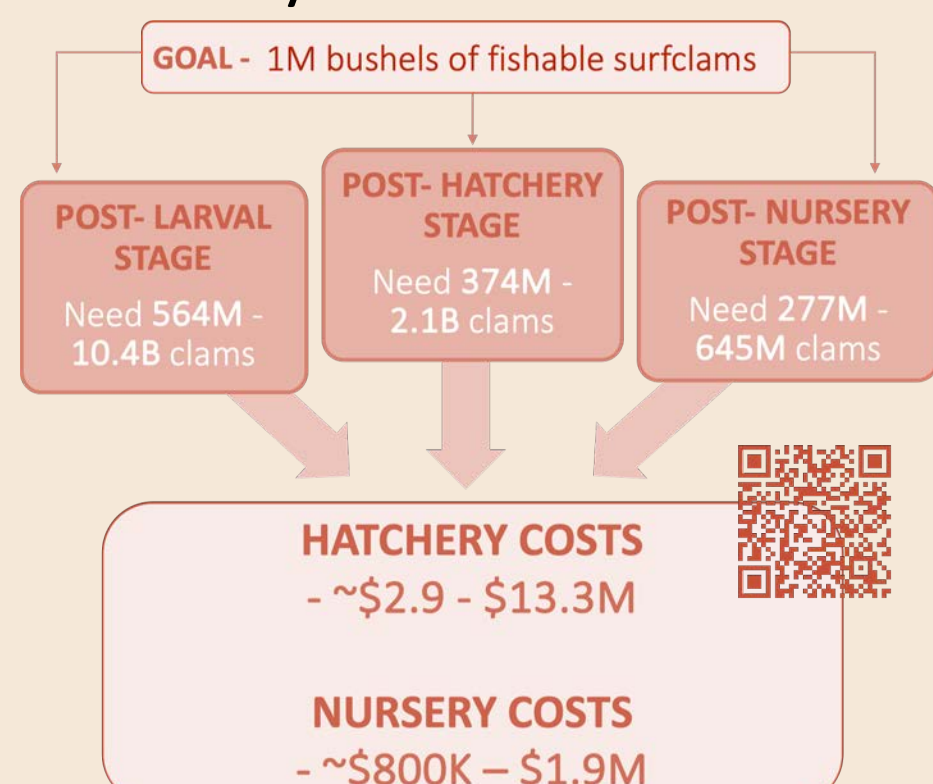
- Examine species interactions
- Estimate stock assessment impacts
- Project future stock distributions and forecast OSW interactions

### Predicted future surfclam habitat



### Seed Production

A desktop study demonstrated enhancement may be feasibly supported by hatcheries.



### Seed Survival & Growth

Experiments evaluating seed clam response to ocean stressors, growth and survival under various conditions.

### Seeding Strategies

Optimization of a seeding device and machine learning to identify locations for enhancement.



### How Should We Think About Mitigation?

Offshore wind could lead to losses in surfclam fishery

- \$1-\$5M annually for fishing vessels
- \$3-\$17M annually for processing sector

Mitigation of lost fishing opportunities

- Priority for federal agencies

Possible strategy

- Enhance fishing grounds outside lease areas

Thank you to our funders



BOEM



NOAA



NSF



Thank you to our fishing partners



Thank you to our collaborators

