Calibration Experiments for a Novel Clam Survey Dredge & Monitoring Carbonate Chemistry of Surfclam Habitat

Daphne Munroe, Jason Morson, Sarah Borsetti
Rutgers University, Haskin Shellfish Research Lab

Dr. Grace Saba
Rutgers University, Department of Marine & Coastal Sciences

Mr. Tom Dameron
Surfside Seafood Products LLC

Dr. Daniel Hennen
NOAA Northeast Fisheries Science Center

Reneé Reilly & Colleen Brust
NJ DEP

Fisheries Monitoring Of An Offshore Windfarm: Non-Extractive Sampling Of Structured Habitat




Jason Morson, Jason Adolf, Kaycee Coleman, Gregory Decelles, Keith Dunton, Thomas Grothues, Josh Kohut, Daphne Munroe, Grace Saba, Kevin Wark, and Douglas Zemeckis

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

MONMOUTH UNIVERSITY

Ørsted

Ocean Wind 1

Location: Approximately 15 miles off the coast of southern New Jersey

Timeline: Construction is planned to start in the early 2020's, with the wind farm expected to provide first power in late 2024

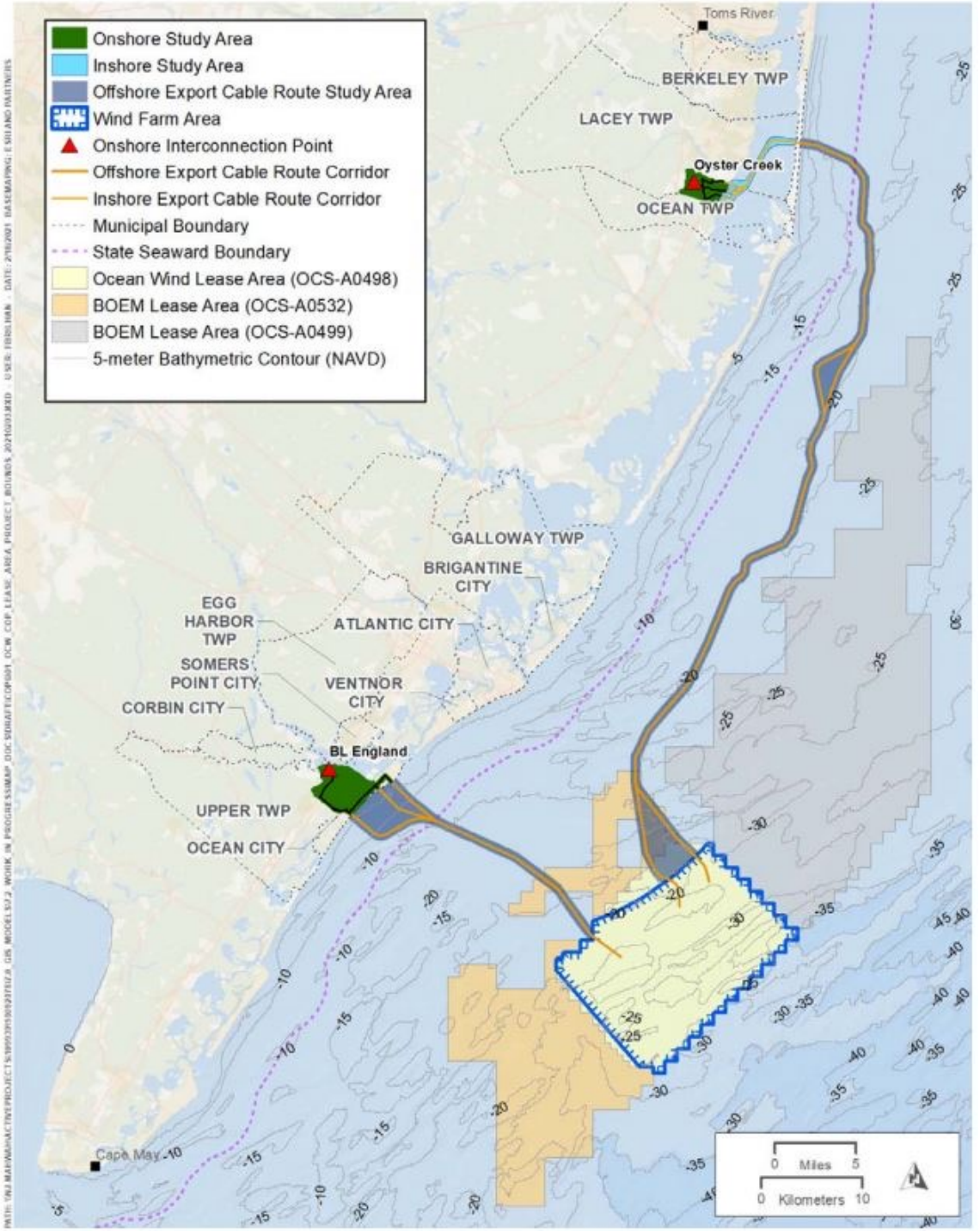
Turbine: GE Haliade X 12 MW turbine

Capacity: 1,100 MW

Annual Production: Enough to power more than 500,000 homes

Owner & Developer: 75% Ørsted, 25% PSEG

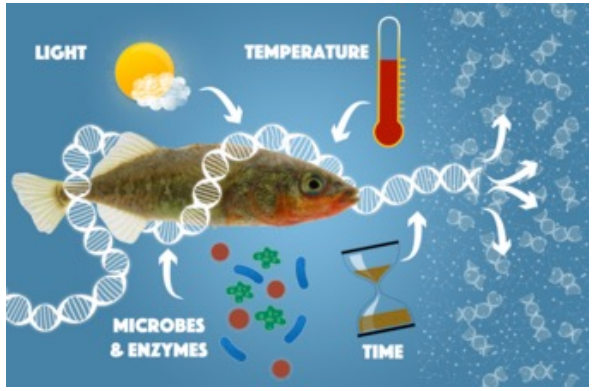
oceanwindone.com



Ocean Wind 1 Fishery Monitoring Plan

Trawl Survey (Extractive)

eDNA (Non-Extractive)

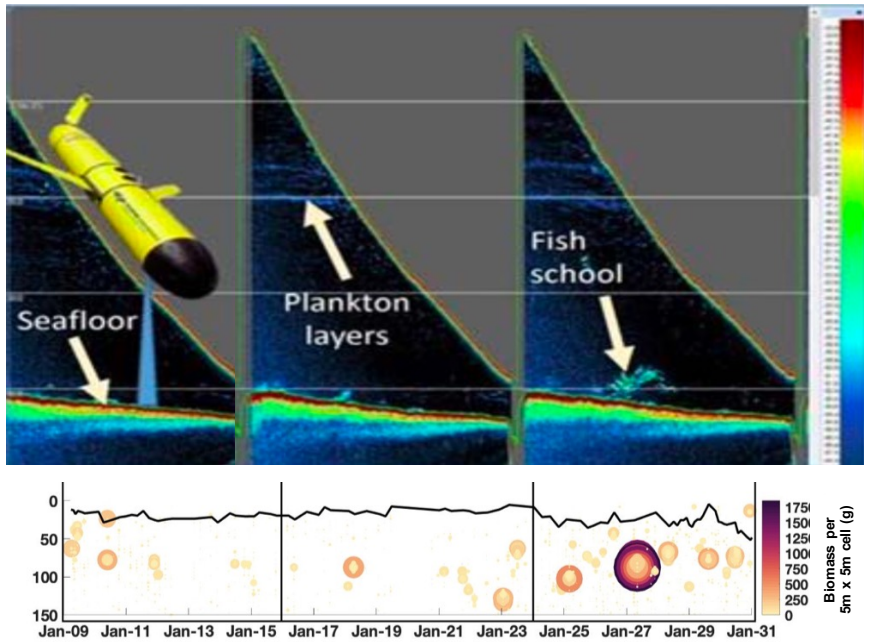


Clam Dredge Survey (Extractive)

Acoustic Telemetry
(Extractive/Non-Extractive)

Stuctured Habitat Survey:
-BRUV(Non-Extractive)
-Chevron Traps (Extractive)
-Hook-and-Line Fishing (Extractive)

Acoustic Glider-Based Surveys (Non-Extractive)



Towed Camera Surveys (Non-Extractive)


Sorted bushels of clams


Processed clam shells

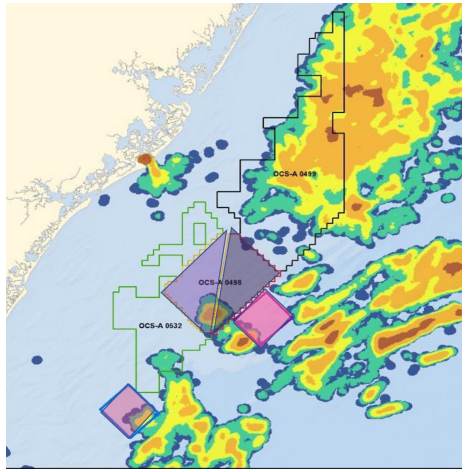
Atlantic Surfclam Cooperative Fishery Survey

Aim: Quantify dynamic abundance, distribution, age of surfclams.

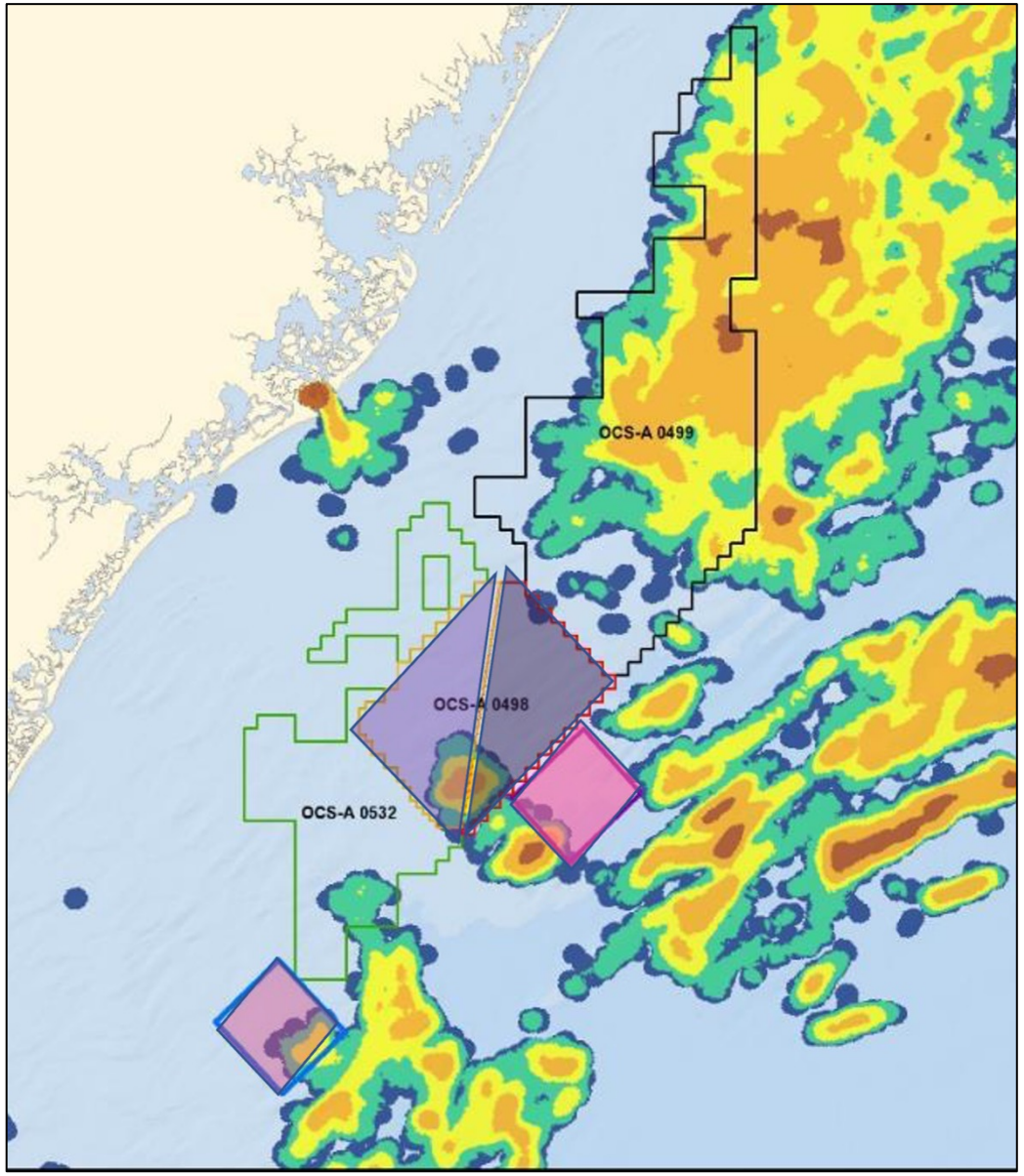
Methods:

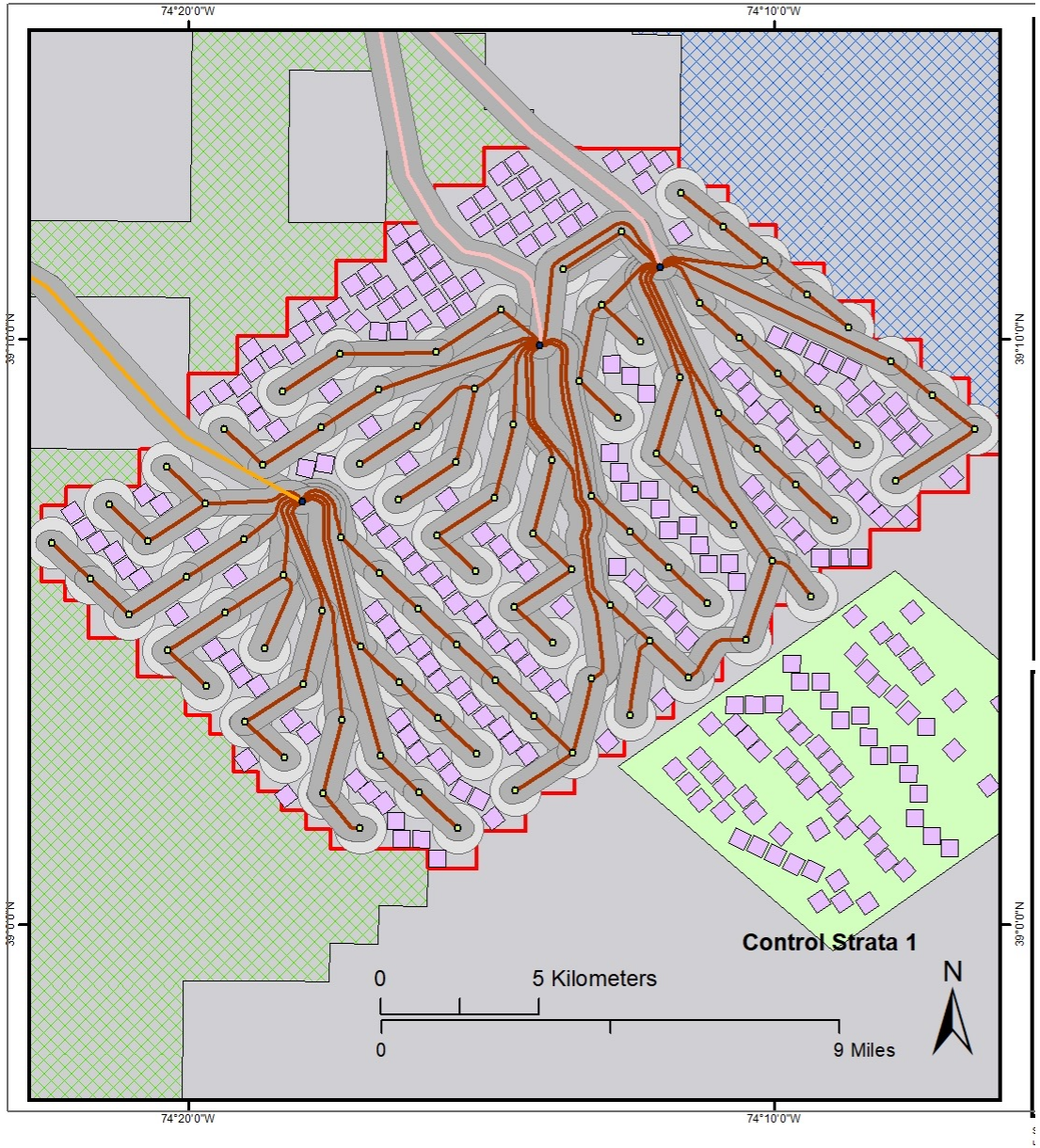
- Survey Vessel: FV Joey D, commercial clam boat
- Samples collected with a modified commercial hydraulic dredge
- Ten tows in wind lease area, ten tows in control area, per year
- Before-After-Control-Impact (BACI) design

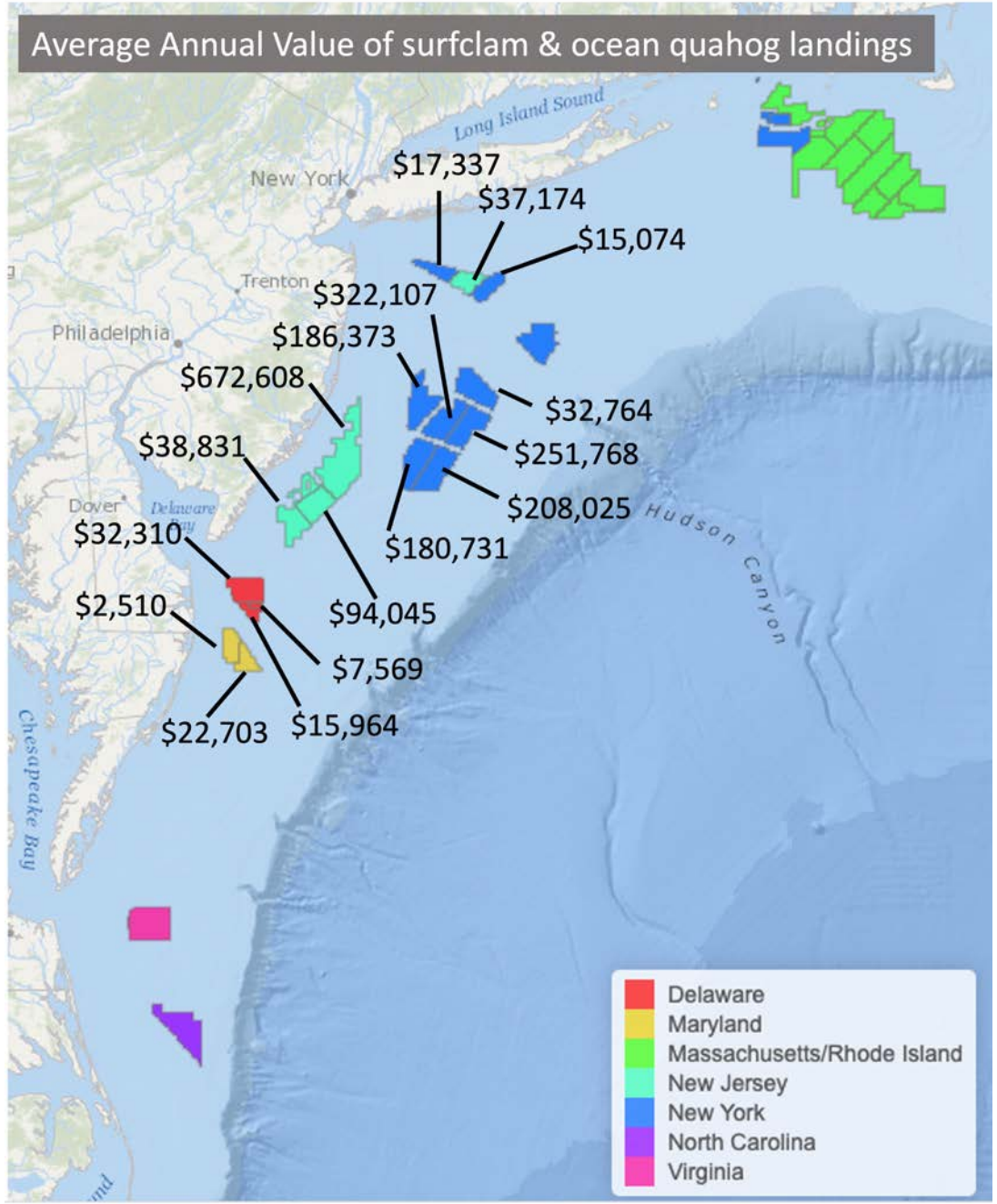
Anticipated Outcome: document the commercial clam resource within the wind lease and evaluate any changes to the stock over time or due to wind farm construction.



Survey strata (purple) and controls (pink) with heatmap of fishing activity.


OCS-A 0499
OCS-A 0498
OCS-A 0532


74°20'0"W
74°10'0"W
39°10'0"N
Control Strata 1
0
5 Kilometers
0
9 Miles
N



Annual average values from each lease area over 2015-2019. Data from NOAA Socioeconomic Impacts of Atlantic Offshore Wind Development, GARFO online data resource. Accessed June 30, 2022.
https://www.fisheries.noaa.gov/resource/data/socioeconomic-impacts-atlantic-offshore-wind-development

Calibration Experiments for a Novel Clam Survey Dredge & Monitoring Carbonate Chemistry of Surfclam Habitat

Goals of the Project

- **Obj1:** Construction of a scientific surfclam dredge
  - Smaller bar spacing
- **Obj2**: Dredge calibration
  - Federal Survey Stations
  - Size Selectivity Experiments
  - Dredge Efficiency Experiments
- **Obj3**: Ocean Acidification Data
  - Profile carbonate saturation.
  - Benthic grabs (early recruits)
  - Shell strength testing

2022 Surfclam Surveys

Ocean Wind 1
RMI Federal Survey Calibration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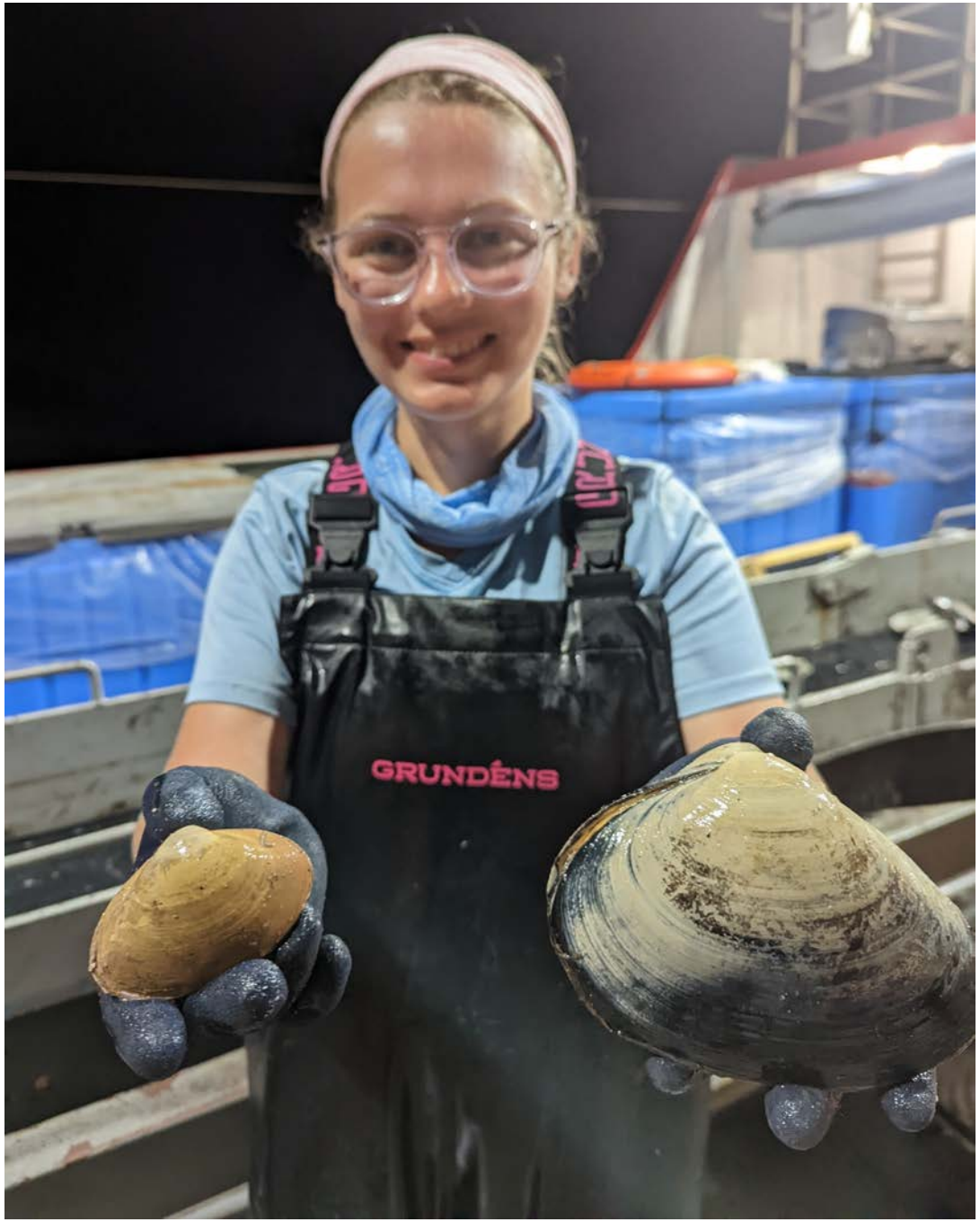
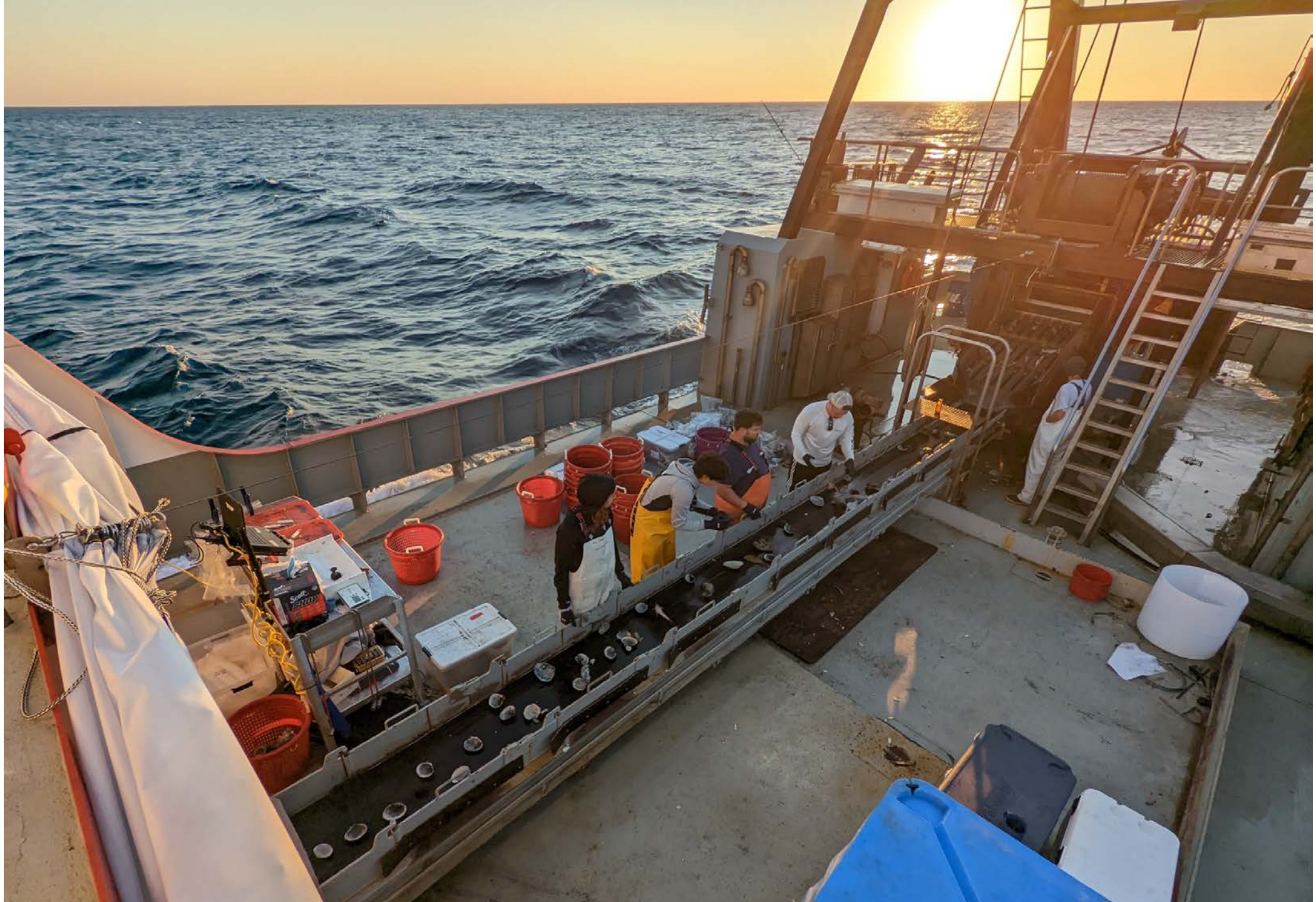
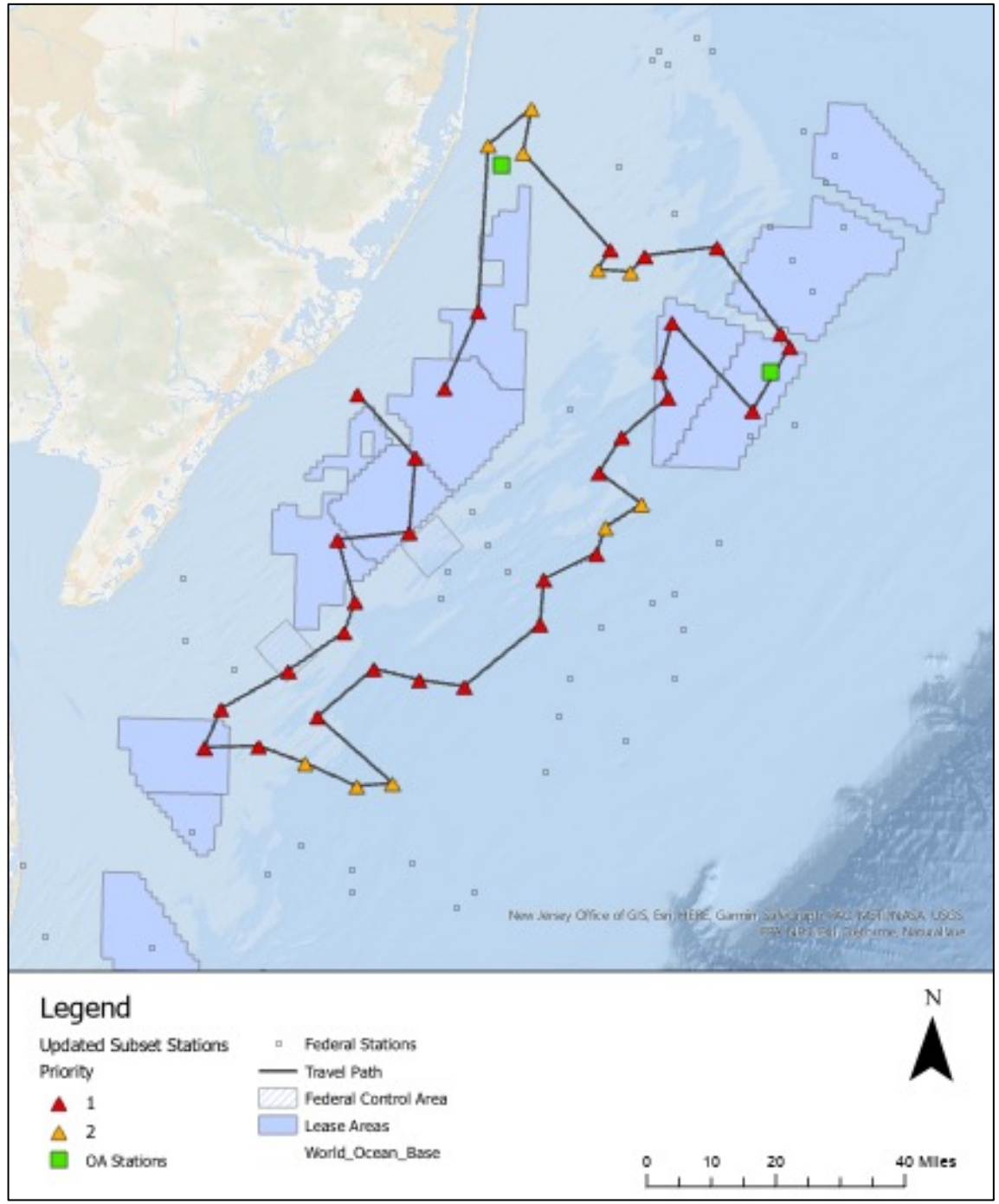
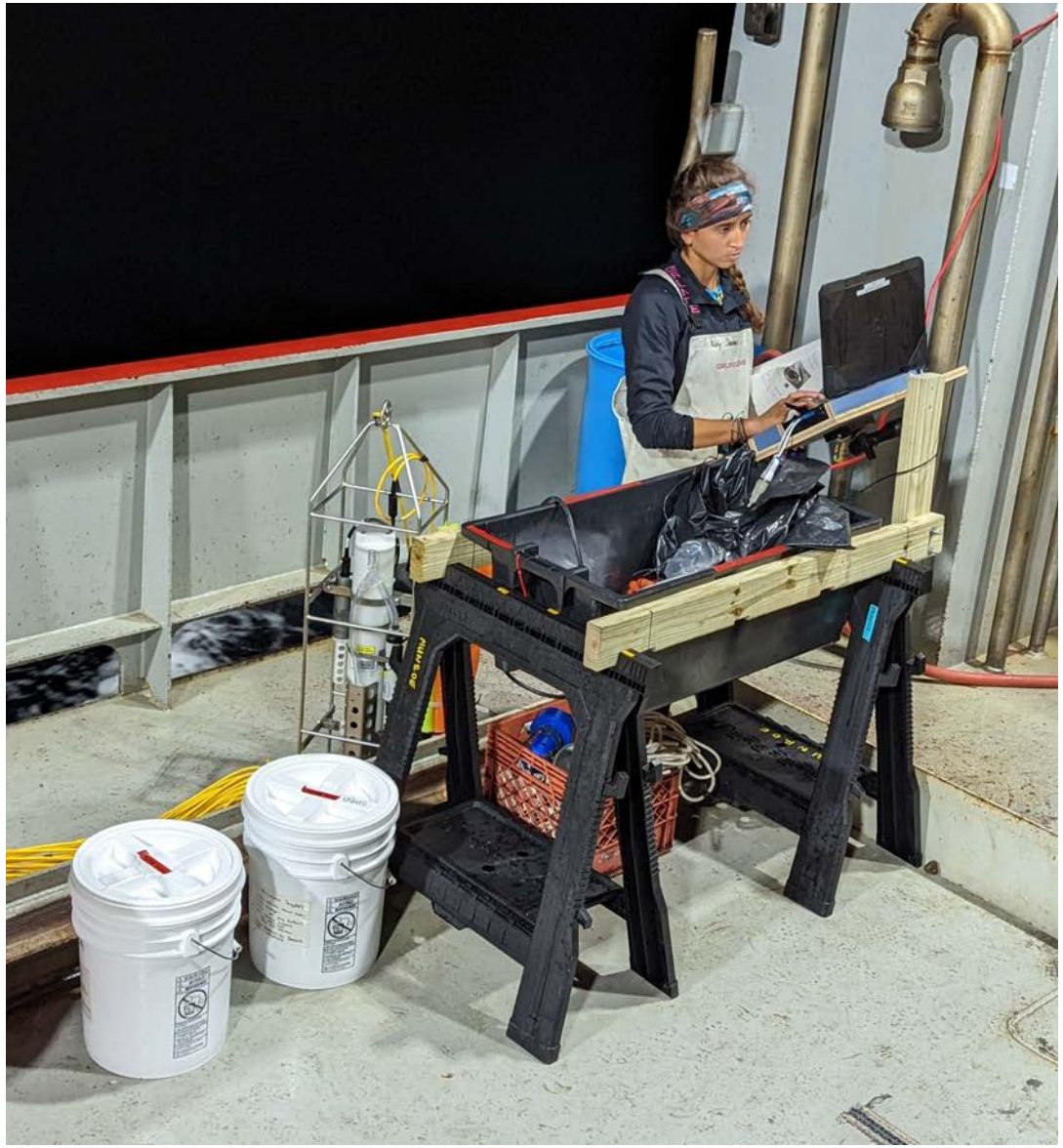
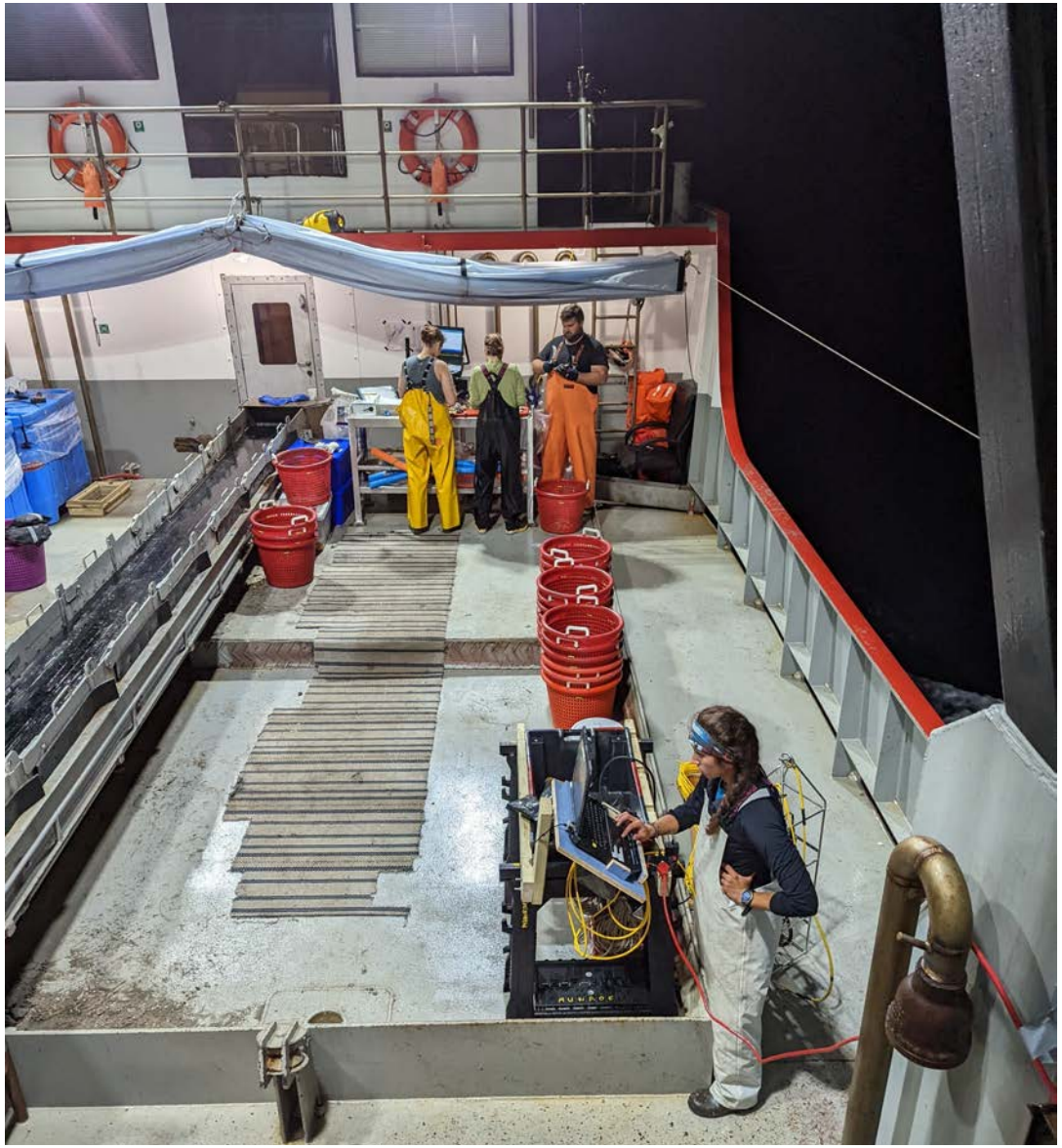
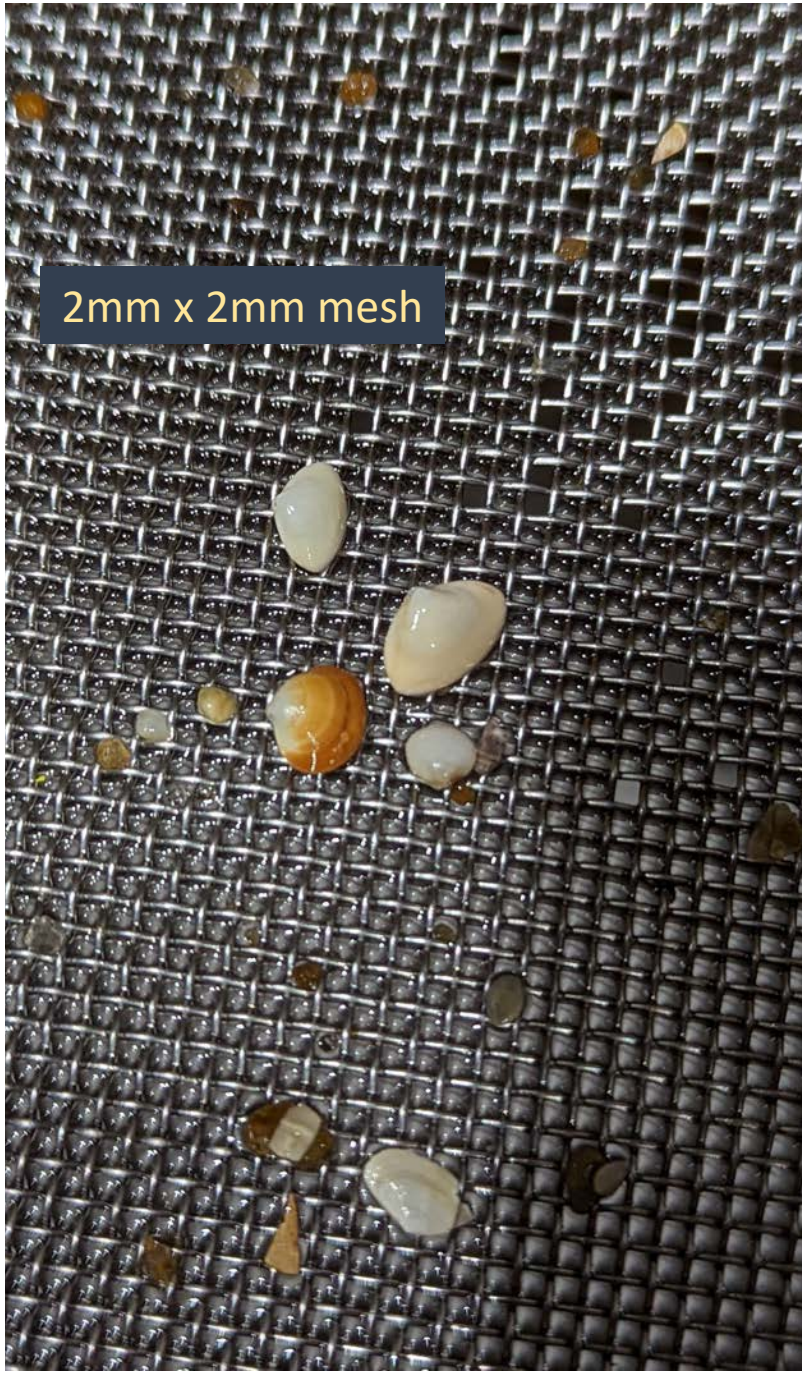

GRUNDÉNS




Legend
Updated Subset Stations
Priority
1
2
OA Stations
Federal Stations
Travel Path
Federal Control Area
Lease Areas
World_Ocean_Base
N
0
10
20
40 Miles






2mm x 2mm mesh

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Next Steps

- **Obj2**: Dredge calibration
  - Size Selectivity Experiments
  - Dredge Efficiency Experiments
- **Obj3**: Ocean Acidification Data
  - Oceanographic data processing
  - Shell ages
  - Shell strength testing

Acknowledgements

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RUTGERS
New Jersey Agricultural Experiment Station
Cooperative Extension

Rutgers Offshore Wind Living Resources Studies (ROWLRS)
https://rowlrs.marine.rutgers.edu/