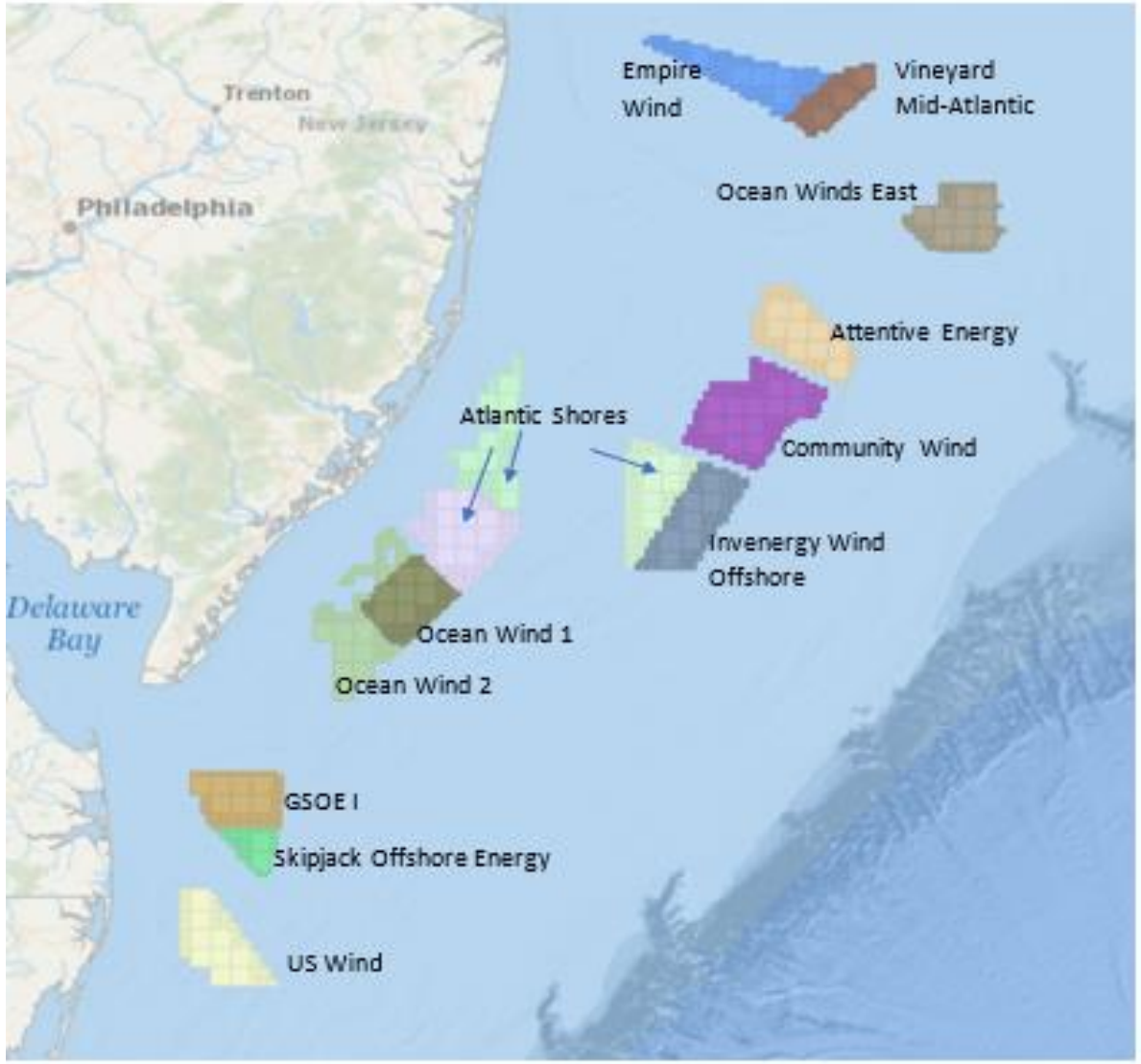
Stewardship through Research: New Jersey's Marine Resources and Offshore Wind Development

May 31, 2023

Colleen Brust, Research Scientist
Marine Resources Administration

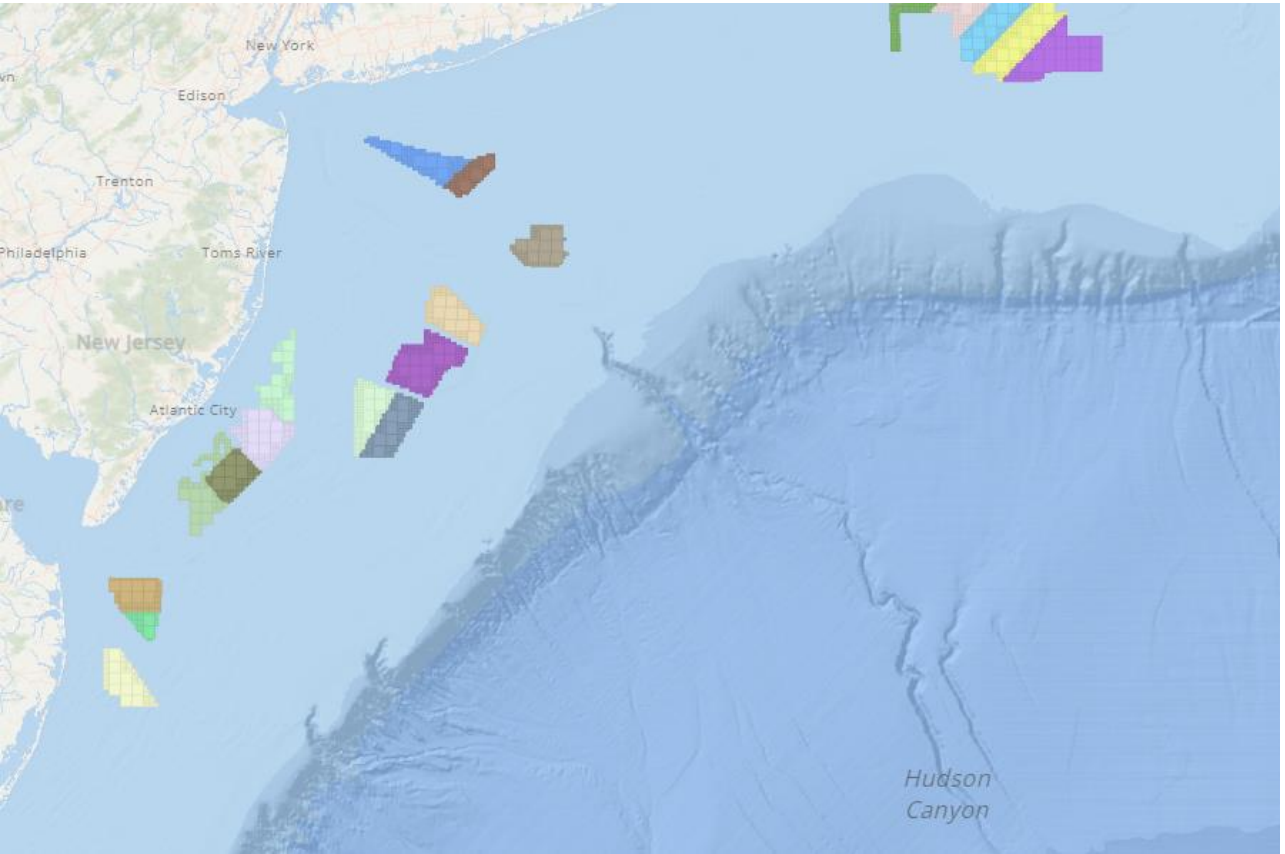
New Jersey's Offshore Wind Goals

- The state's offshore wind target is 11 GW by 2040
- Three projects in development with a third solicitation open now.
- Siting was well planned with research beginning pre-2007.
- Busy continental shelf with multiple users.
- Goal is offshore wind development with minimal impacts to marine resources.



- Goal is offshore wind development with minimal impacts to marine resources.

Identify Resources of Concern:
What resources are near the project areas?



- NJ Ecological Baseline Studies
- High-value marine habitats (see CZM Special Areas, Cold Pool)
- Mid-Atlantic Data Portal
- Federally & state-managed fisheries
- Literature review
- Stakeholders

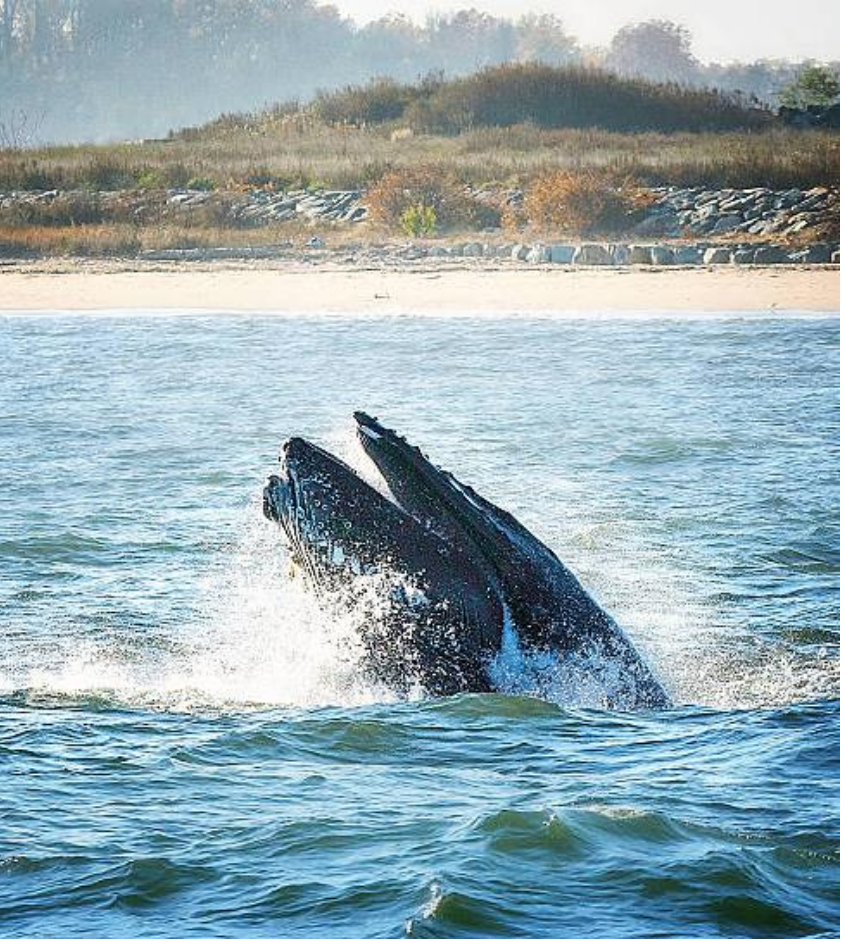
- Goal is offshore wind development with minimal impacts to marine resources.

Identify Resources of Concern:

What are the effects of offshore wind?

Build a library

- Peer-reviewed publications –
- Grey literature
- Scientific meetings
- Tethys
- BOEM RODEO studies
- etc.



- Goal is offshore wind development with minimal impacts to marine resources.

Identifying Resources of Concern:
Which resources are most vulnerable to effects?

- Resources that are threatened, endangered, or protected
- Resources sensitive to a particular effect
- Habitats likely to be significantly altered
- High value species, habitats, fisheries

Partners in Science Workshop:
Offshore Wind and the Mid-Atlantic Cold Pool

Hosted on: Wednesday, 17 July 2019
Hosted at: Coastal Education Center at the
Jacques Cousteau National Estuarine Research Reserve
130 Great Bay Blvd, Tuckerton, NJ 08087

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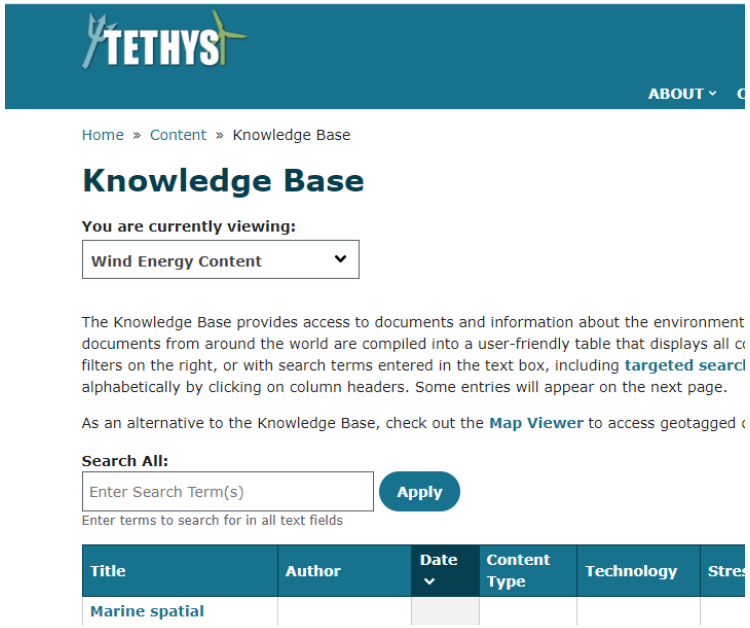
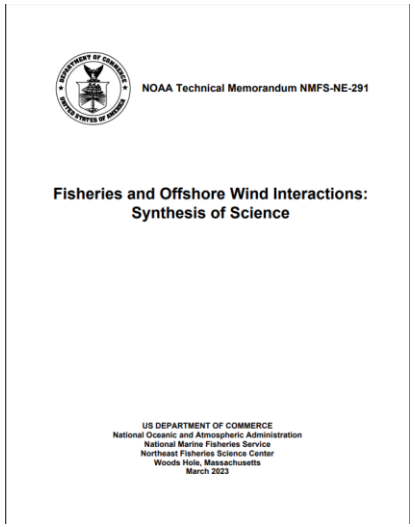
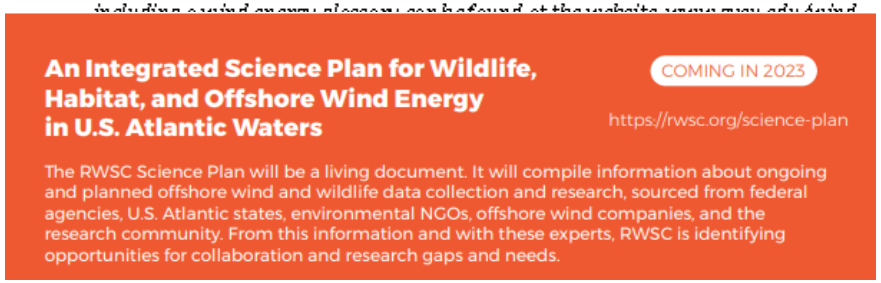
71 Dudley Road, New Brunswick, NJ 08901

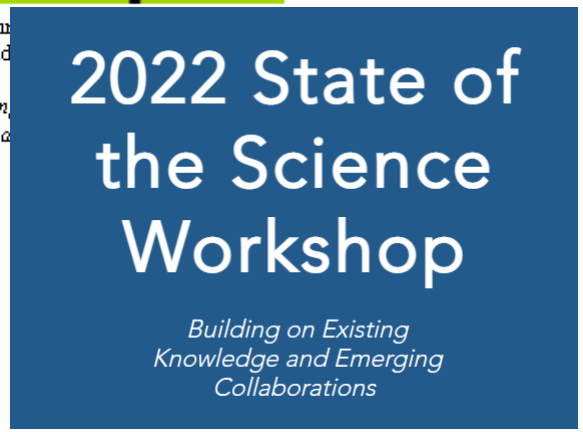




Jon VanderMolen, Technical Call-in, Grand Valley State University-An
Erik Nordman, Ph.D., Associate Professor of Natural Resources Management, Grand

The West Michigan Wind Assessment is a Michigan Sea Grant-funded project analyzin
lenges of developing utility-scale wind energy in coastal West Michigan. More informa





- Goal is offshore wind development with minimal impacts to marine resources.

Protecting Resources of Concern:

What are the most critical information gaps?

Literature review

Scientific meetings

RWSC Committees/Science Plans

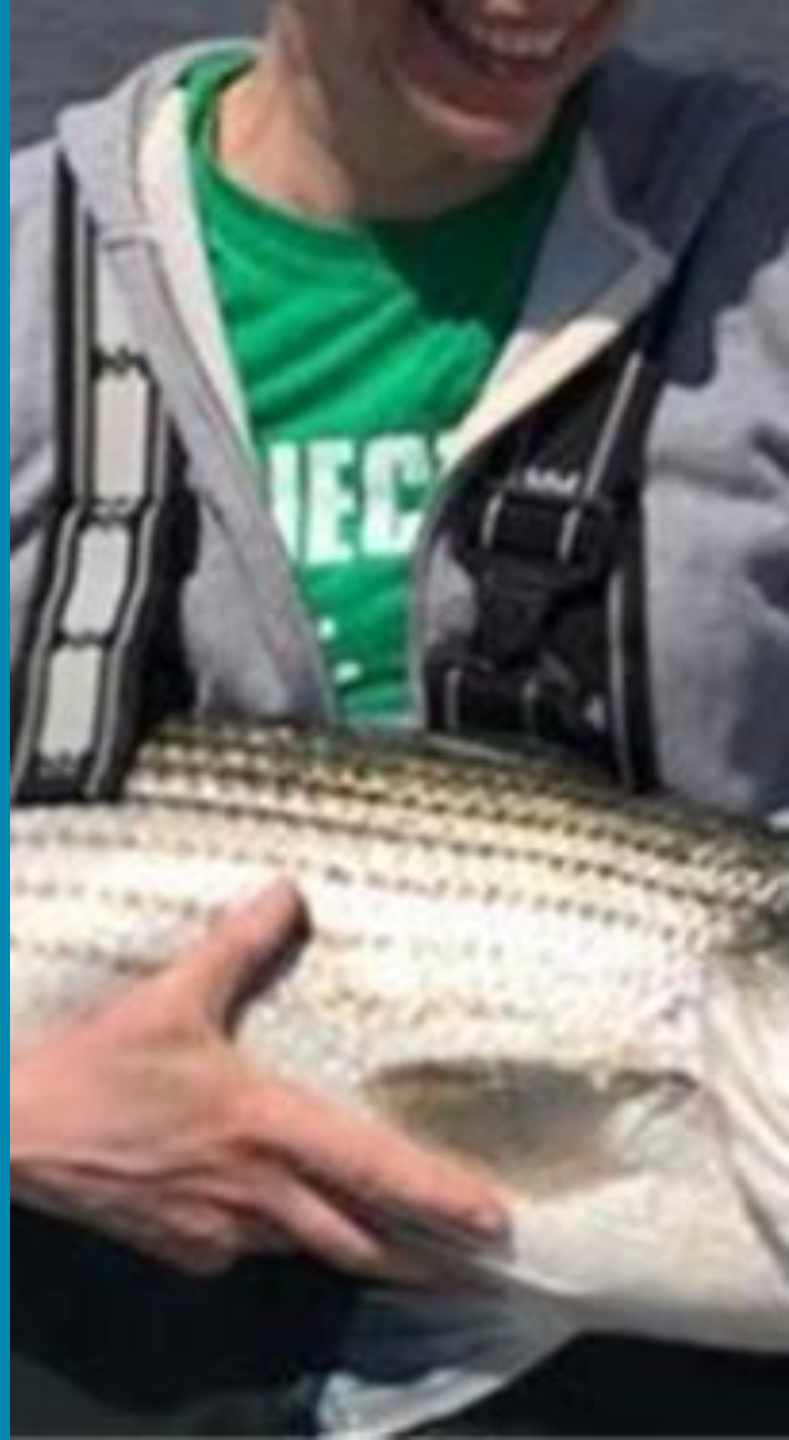
Other regional coordination

Stakeholdering of priorities

Goals of Research and Monitoring

…hypothesis-driven scientific study that improves our understanding of populations and ecosystems, and/or our ability to measure or manage these systems.

- Identify impacts on resources if they occur
- Quantify impacts on resources if they occur
- Replace data loss for potentially-impacted surveys



New Jersey's Offshore Wind Research & Monitoring Initiative (RMI)

- Initial funding through NJ's 2nd Offshore Wind Solicitation
- $10K/MW for research and monitoring on wildlife and fisheries
- Research priorities developed in house and stakeholdered
- Projects developed in collaborations with subject matter experts
- Project funding awarded through contracts with state universities, NJ Sea Grant Consortium members, and through RFPs

Initial Research Priorities

Data standardization, processing, analysis, housing, and QA/QC

Impacts on seafloor, light conditions, and ocean stratification

Potential effects on mobile bottom gear fisheries

Sea turtle movement, distributions, and habitat use

Baseline estimates of marine mammals

Evaluate relative threat of mortality/injury to whales from vessel strike

Identify & evaluate valuable bottom habitats and species

Potential effects on recreational fisheries

Baseline population-level distribution information for birds and bats

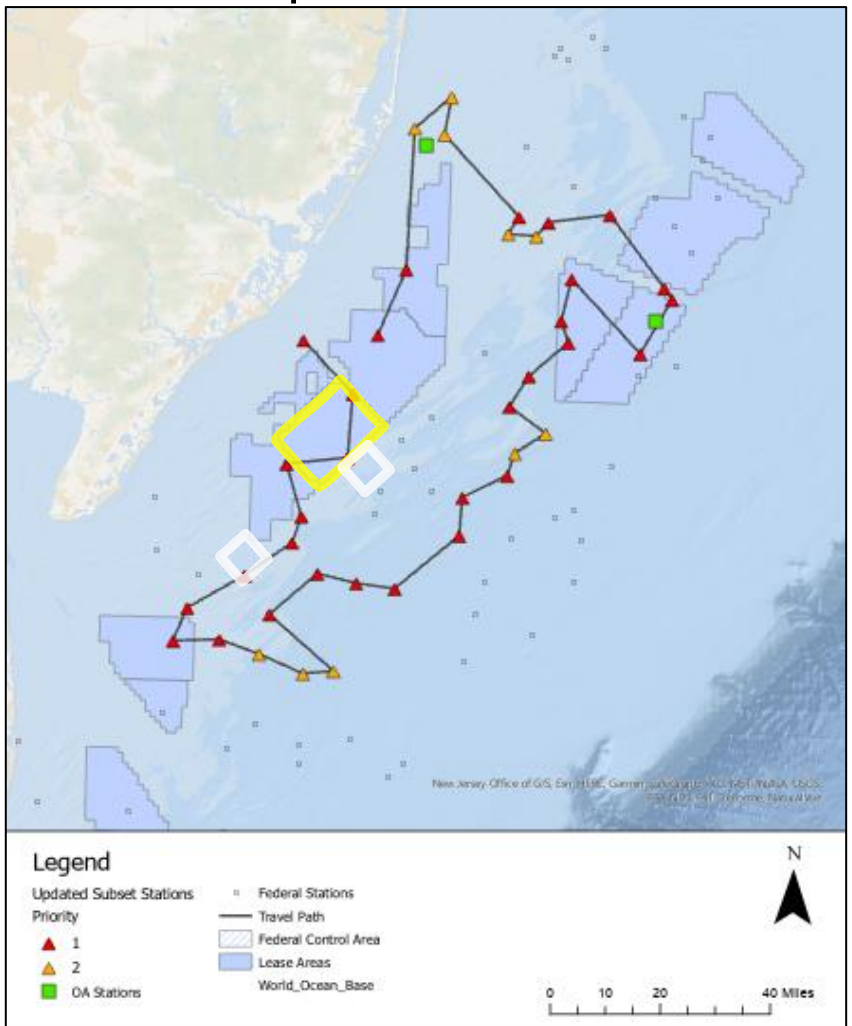
Effects of OSW on various life stages of fish & invertebrates

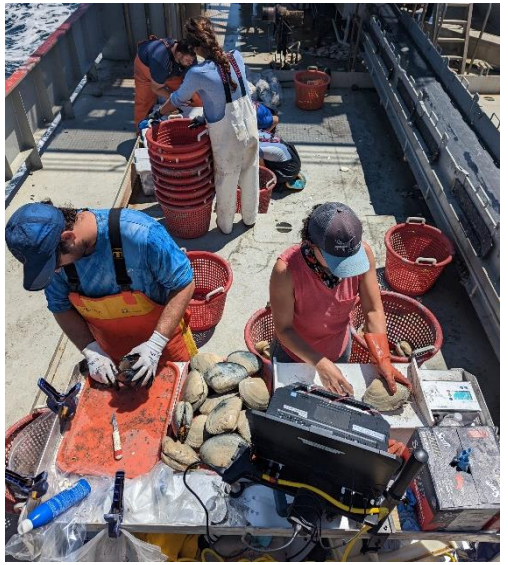
Adapt DEP trawl survey

RUTGERS

Surveys and Experiments for Monitoring Surfclams at Offshore Wind Projects

Daphne Munroe

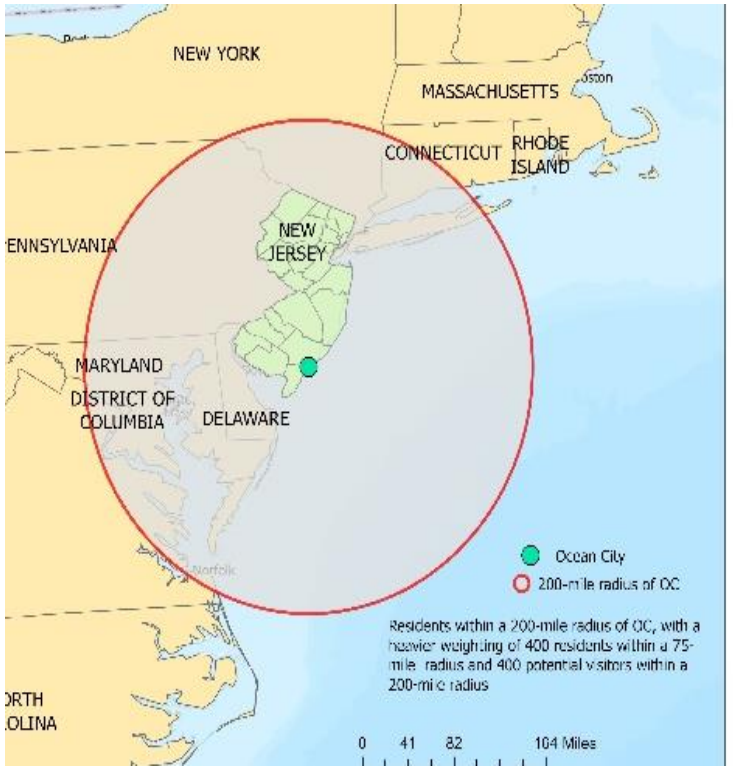


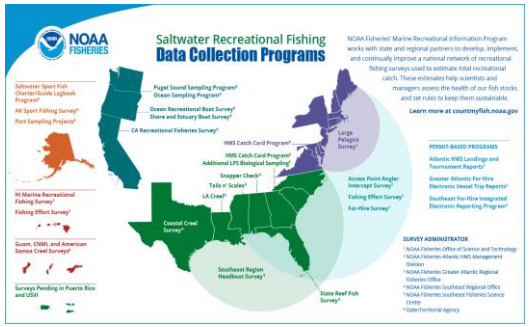


Monitoring the Socioeconomic Impacts of Offshore Wind Development on the Recreational Fisheries Economy

Pankaj Lal

- Addresses need for recreational fisheries-based baseline data
- Estimate and track nature and size of OSW's potential effects on recreational fishing
- Estimating sector specific and regional level multipliers and regional impact
- Modeling sector specific and regional-level intersectoral impact.
- Capture the proportional amount of change in recreational fishing economic activity.

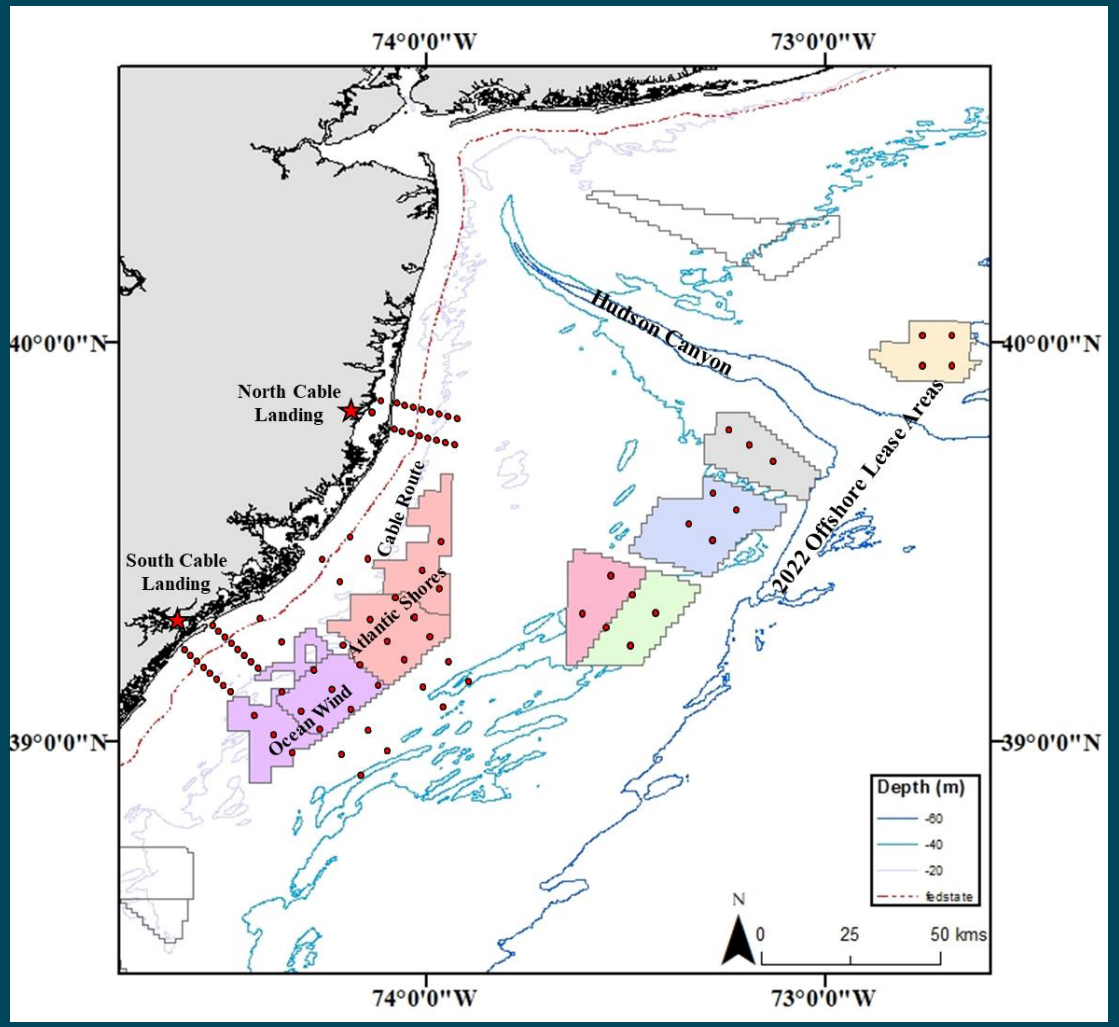




MONTCLAIR STATE UNIVERSITY

Acoustic telemetry for protected, prohibited, and commercially/recreationally important fish species

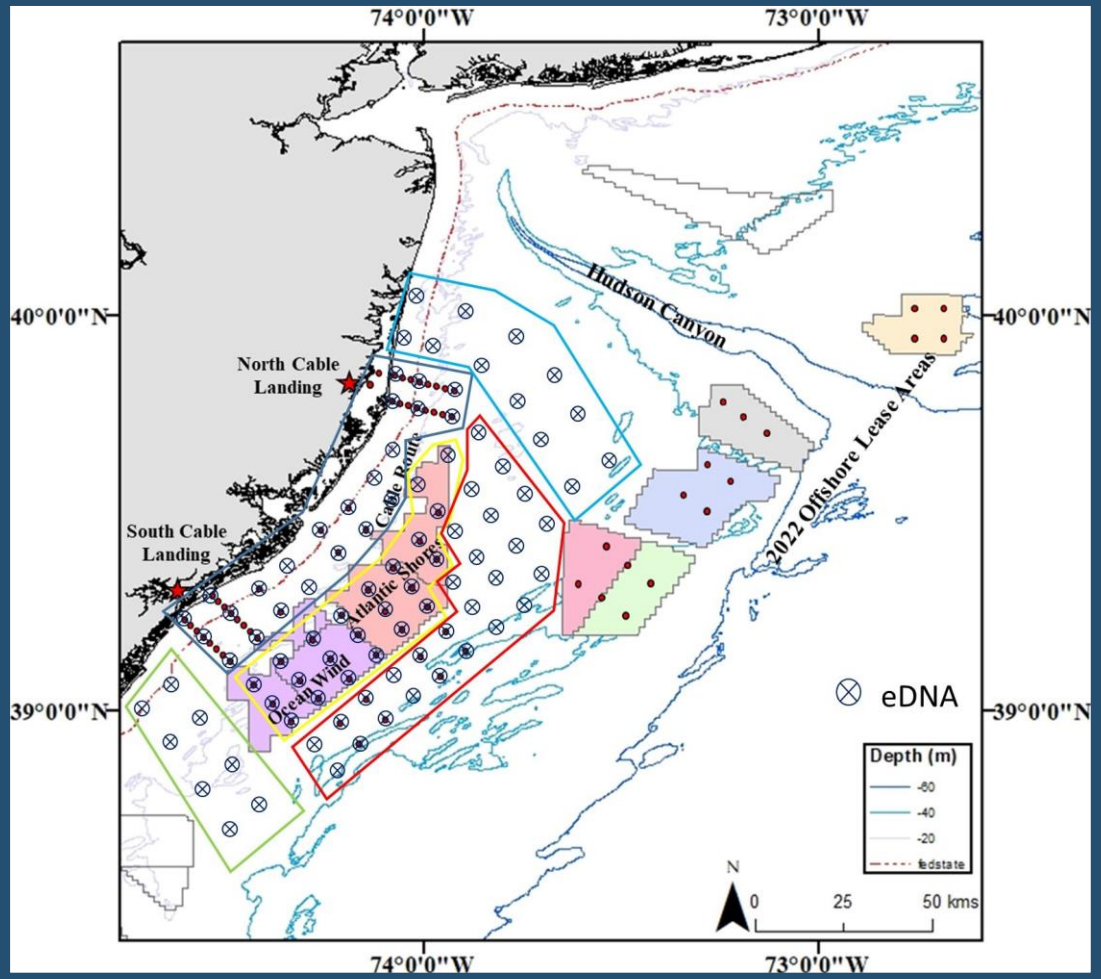
Keith Dunton, Jason Adolf, Jeff Kneebone



- Tag priority species
- Install and maintain network of acoustic receivers
- Spatial/temporal migratory movements, residencies, relative abundance, and shifts in behavior of animals
- Commercial and Recreational fishing partnership
- Multi-species approach

Assessing the impacts of offshore wind development with marine eDNA: an innovative, non-extractive approach for monitoring protected, prohibited, and commercially/recreationally important species

Jason Adolf, Keith Dunton, Shannon O'Leary

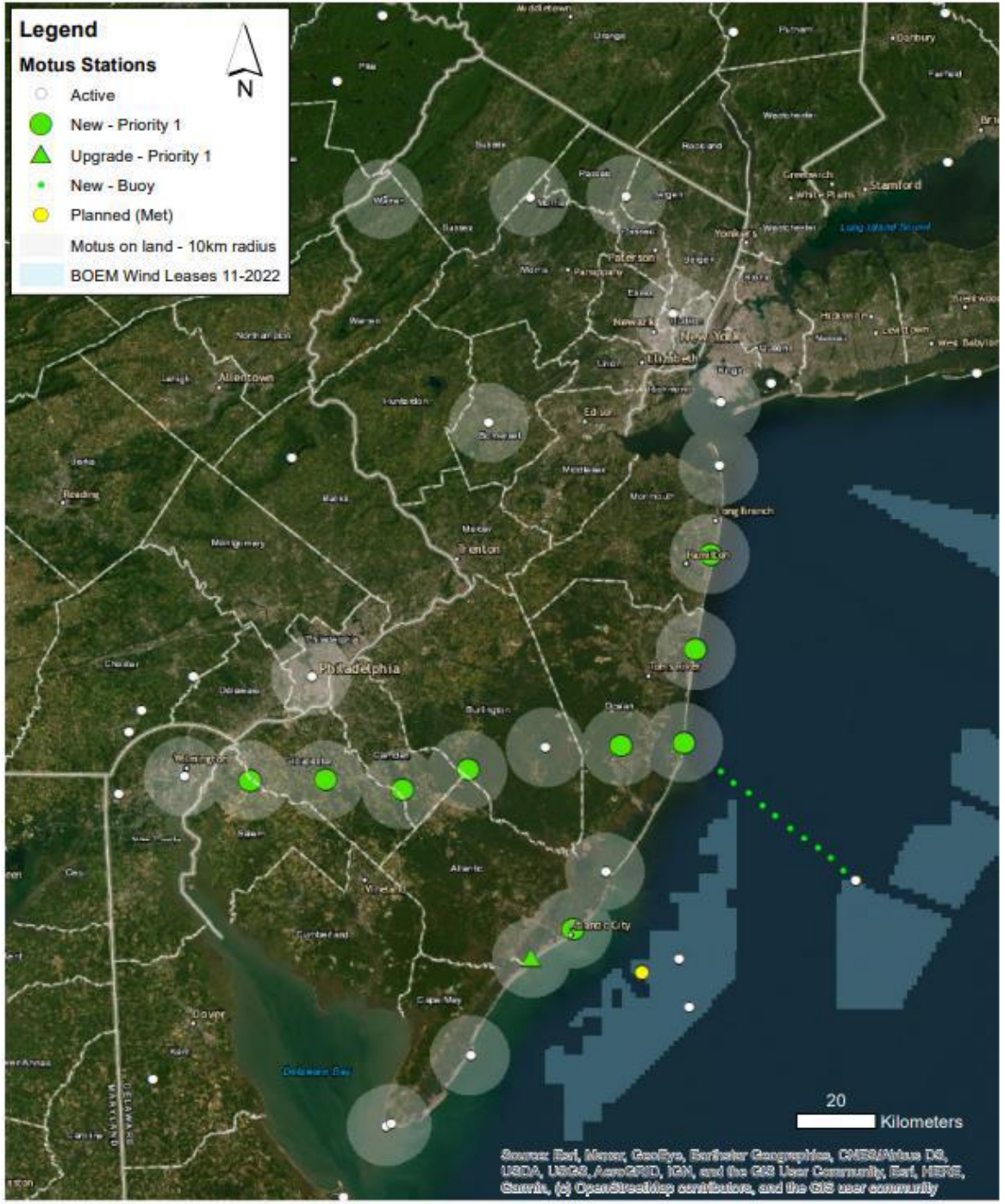


- Paired eDNA sampling with
  - NJ DEP-MRA Ocean Trawl surveys
  - NJ DEP-MRA Artificial reef surveys
  - Acoustics telemetry arrays (Dunton and Adolf RMI)
- Pilot citizen fisheries scientist program (eDNA)
- Long term dataset analyses for regional reference

Bid Opportunities

Request for Proposals: Expansion of New Jersey's Motus Wildlife Tracking System to Inform Baseline Avian and Bat Population Movements Near Offshore Wind Energy Areas

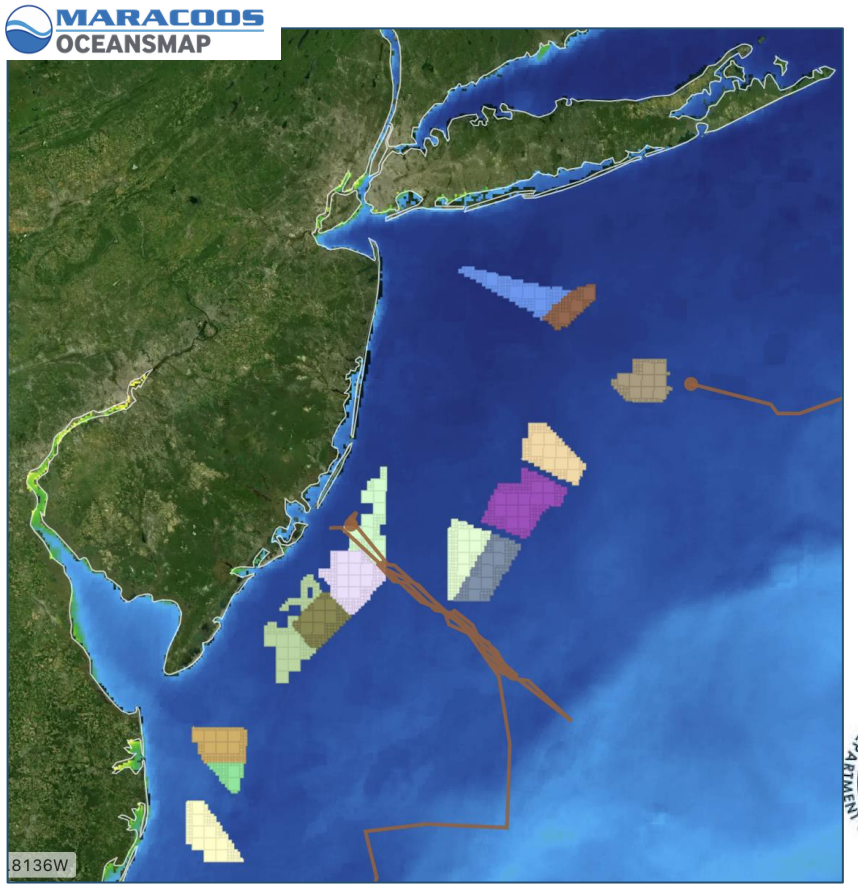
- Component 1 – Coastal Plain land-based Motus station deployment
- Component 2 – Offshore Motus station deployment on buoys



Offshore wind farm contributions to a regional environmental and ecological monitoring system to address multi-user needs

Josh Kohut, Mike Crowley, Doug Zemeckis, Tony MacDonald, Tom Herrington,
Rebecca Green, Chris Hein, and Kris Ohleth

- **Task 1 -** Provide recommended language on monitoring requirements/guidance to be included in the third NJ OREC solicitation (***Completed***)
- **Task 2 -** Develop a Conceptual Plan for individual wind energy area contribution to a Regionally-Based Environmental and Ecological Monitoring System (***Will begin summer 2023***)

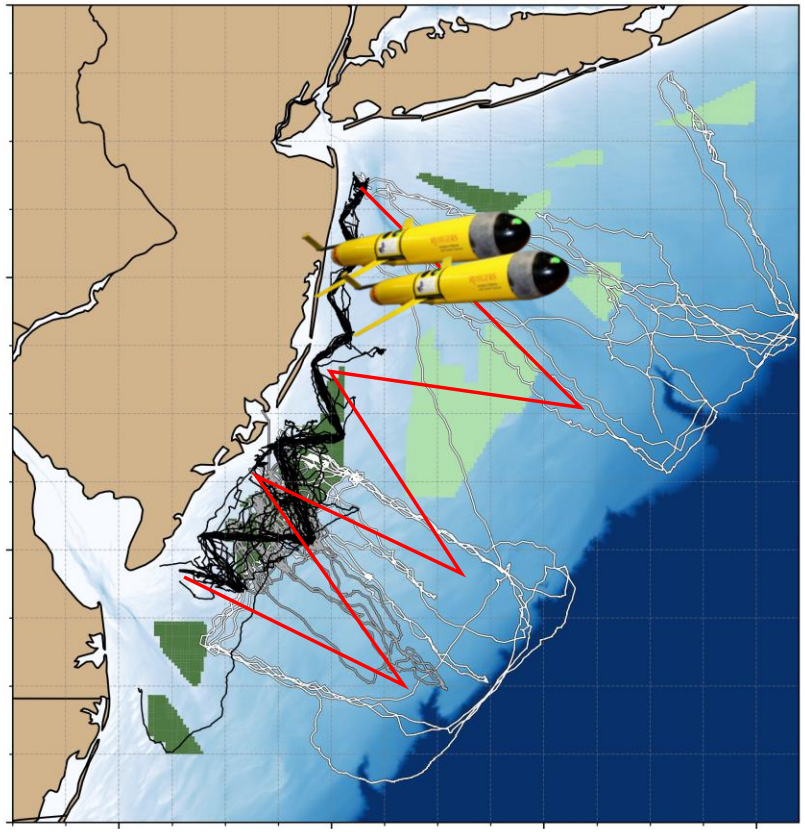


An autonomous-based oceanographic and ecological baseline to inform offshore wind development over the continental shelf off the coast of New Jersey, northeast U.S.

Grace Saba, Josh Kohut and Mark Baumgartner

- 4 seasonal deployments (2 years)

Temperature	Active acoustics - fish (38, 120, 200 kHz)
Salinity	Active Acoustics - zooplankton (120, 200, 455, 769 kHz)
Density	Passive acoustics – mammals
pH	Fish Telemetry
Dissolved oxygen	
Chl Fluorescence	
CDOM	
Optical backscatter	



- Conduct research and develop data products:

e.g., overlap between oceanographic features & distribution of fishes and marine mammals, between marine mammal predators & their prey

Harbor seal satellite tagging and health assessment in Great Bay, NJ: local and regional implications

Jacalyn Toth Sullivan (Stockton University, NJ), Robert A. DiGiovanni, Jr. (Atlantic Marine Conservation Society, NY)

What are movement patterns of harbor seals along the NJ coast / regionally?
Harbor seal distribution / movements / dive behavior over time?
Differences in harbor seal health patterns latitudinally in the NW Atlantic?

- Tag overwintering harbor seals
- Maximize utility of seal interactions: health assessment effort, life history data recorded (molt stage, length, weight, girth, sex), collect biological samples (blood, nasal/rectal cultures, scat)
- Data pooled with collaborating tag/health assessment studies

STOCKTON UNIVERSITY

NOAA

NAVSEA WARFARE CENTERS

MYSTIC AQUARIUM

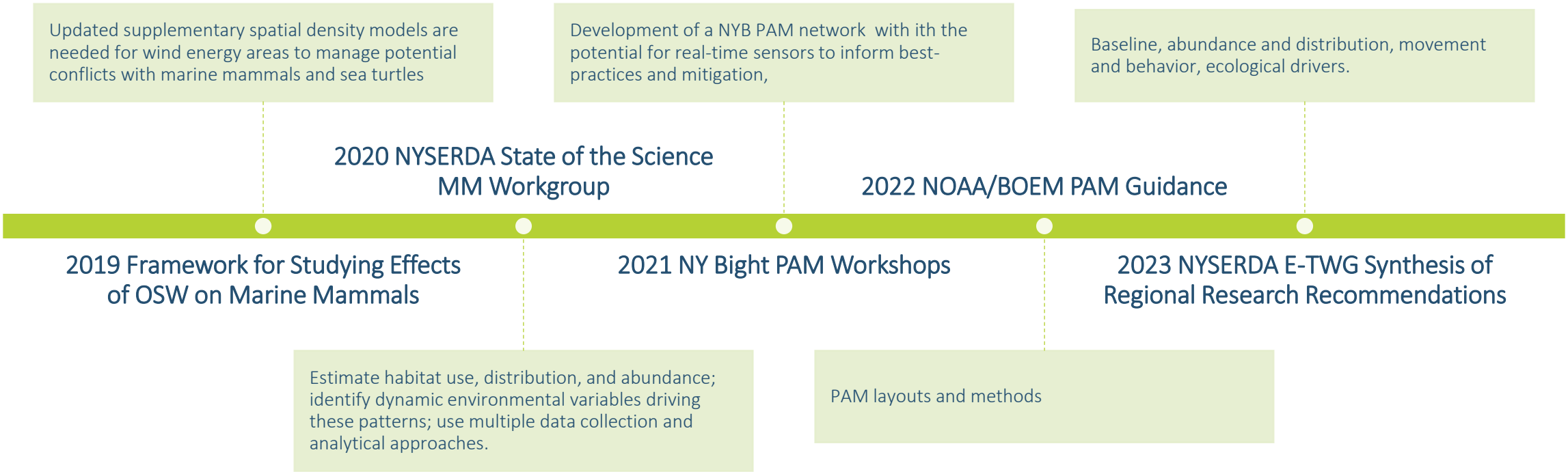
Marine Mammals of Maine

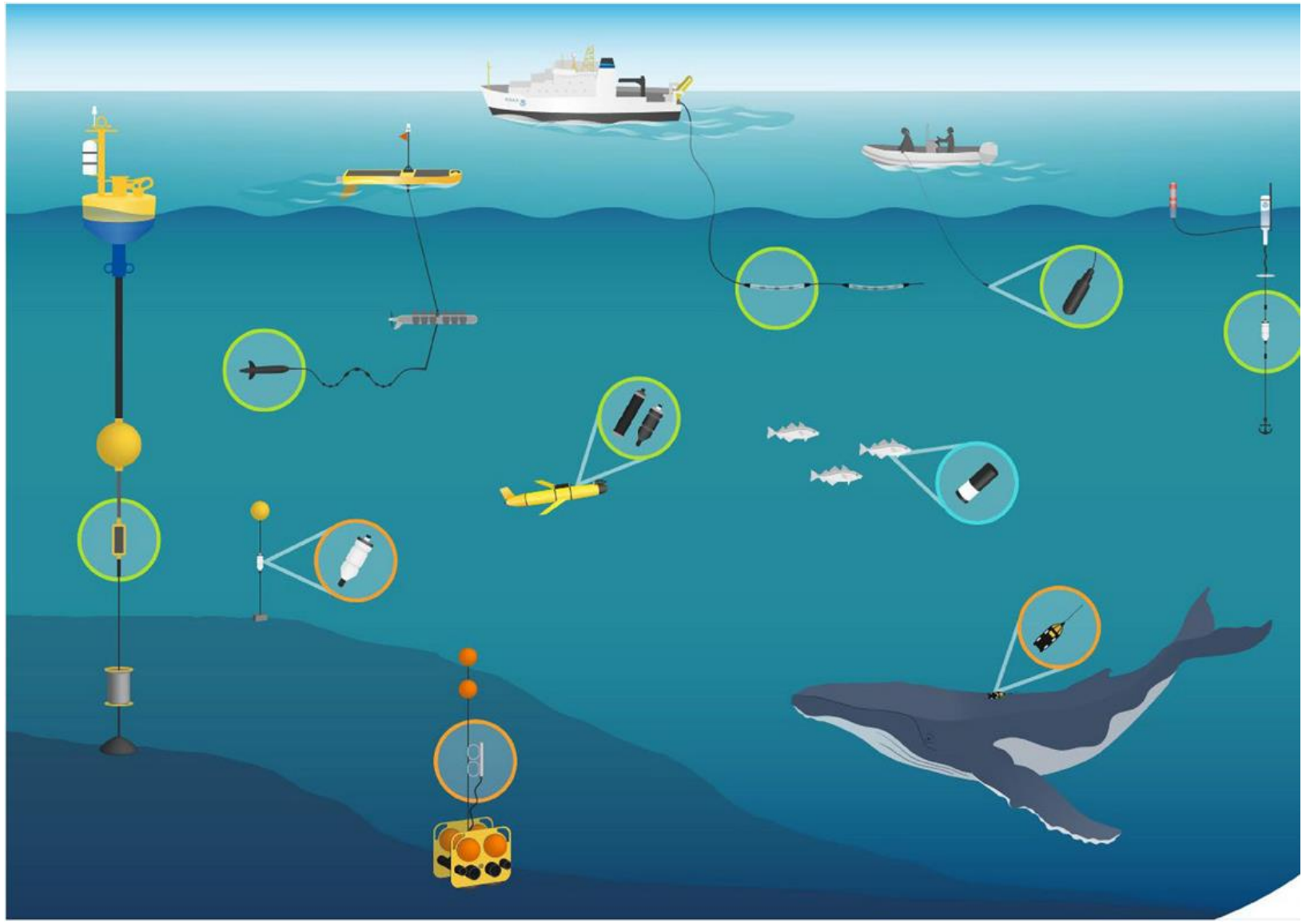
ATLANTIC MARINE CONSERVATION SOCIETY
Promoting Marine Conservation Through Action

Tufts UNIVERSITY | Cummings School of Veterinary Medicine

Recommendations from the Scientific Community

Recommendations for Research for Marine Mammals and Offshore Wind





Latest scientific recommendations for wind and whales

Recommendations for Use of Passive Acoustic Listening Systems in Offshore Wind Energy Development Monitoring and Mitigation Programs

Van Parijs SM, Baker K, Carduner J, Daly J, Davis GE, Esch C, Guan S, Scholik-Schlomer A, Sisson NB and Staaterman E (2021) NOAA and BOEM Minimum Recommendations for Use of Passive Acoustic Listening Systems in Offshore Wind Energy Development Monitoring and Mitigation Programs. Front. Mar. Sci. 8:760840. doi: 10.3389/fmars.2021.760840

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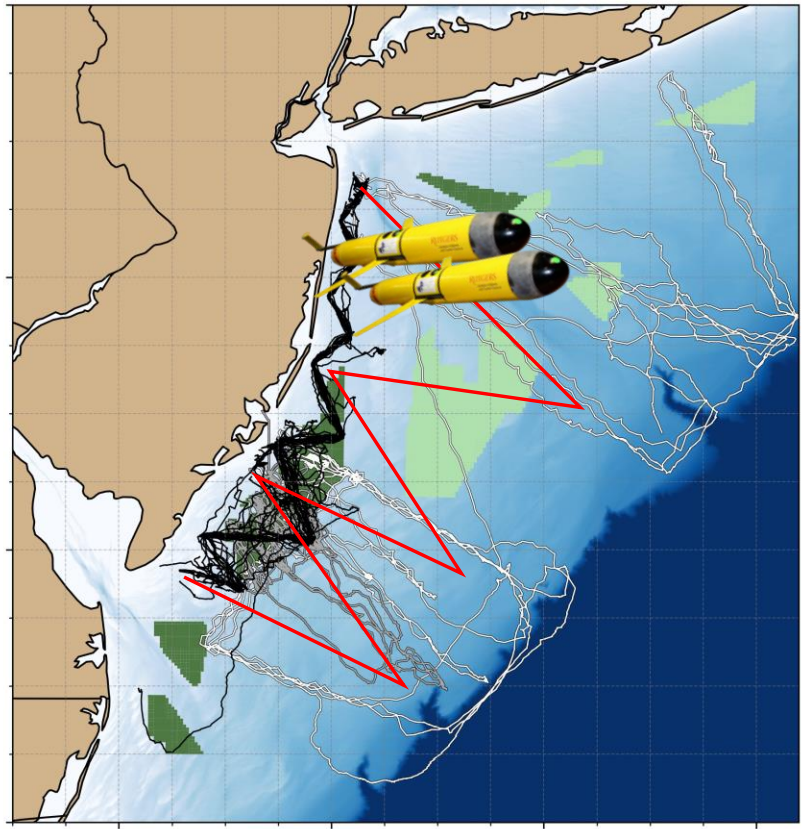
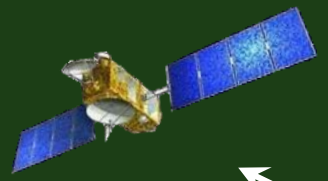


- Conduct research and develop data products:

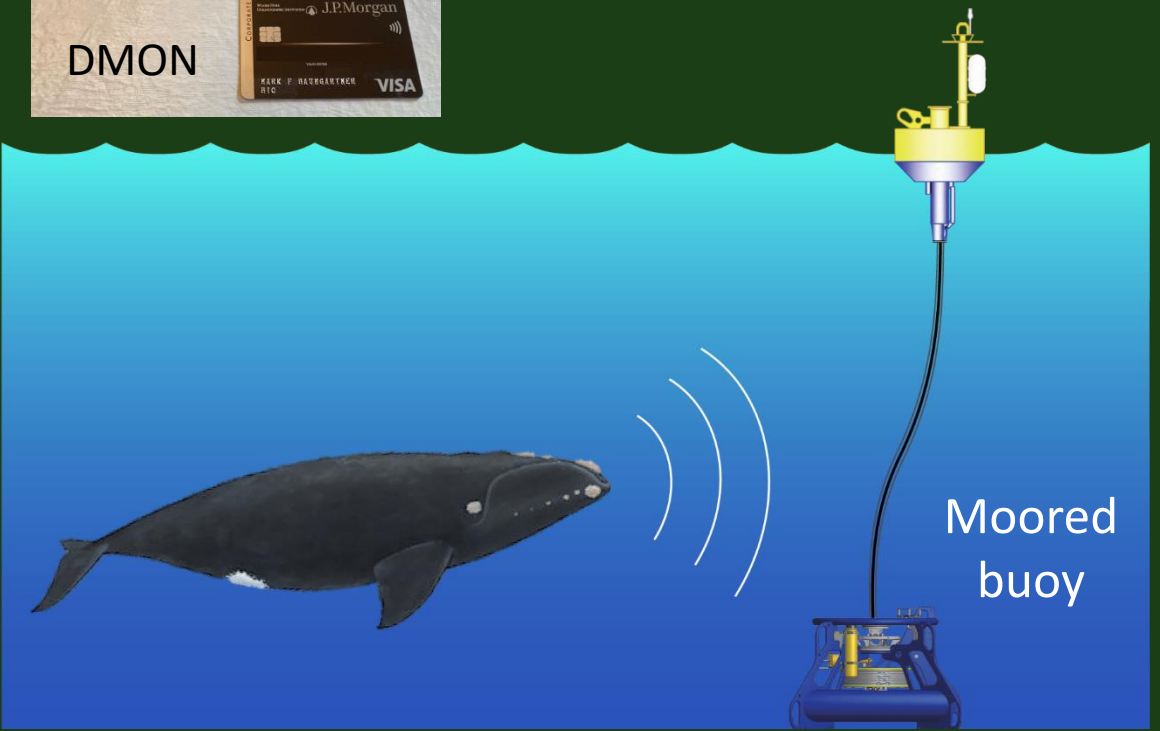
e.g., overlap between oceanographic features & distribution of fishes and marine mammals, between marine mammal predators & their prey

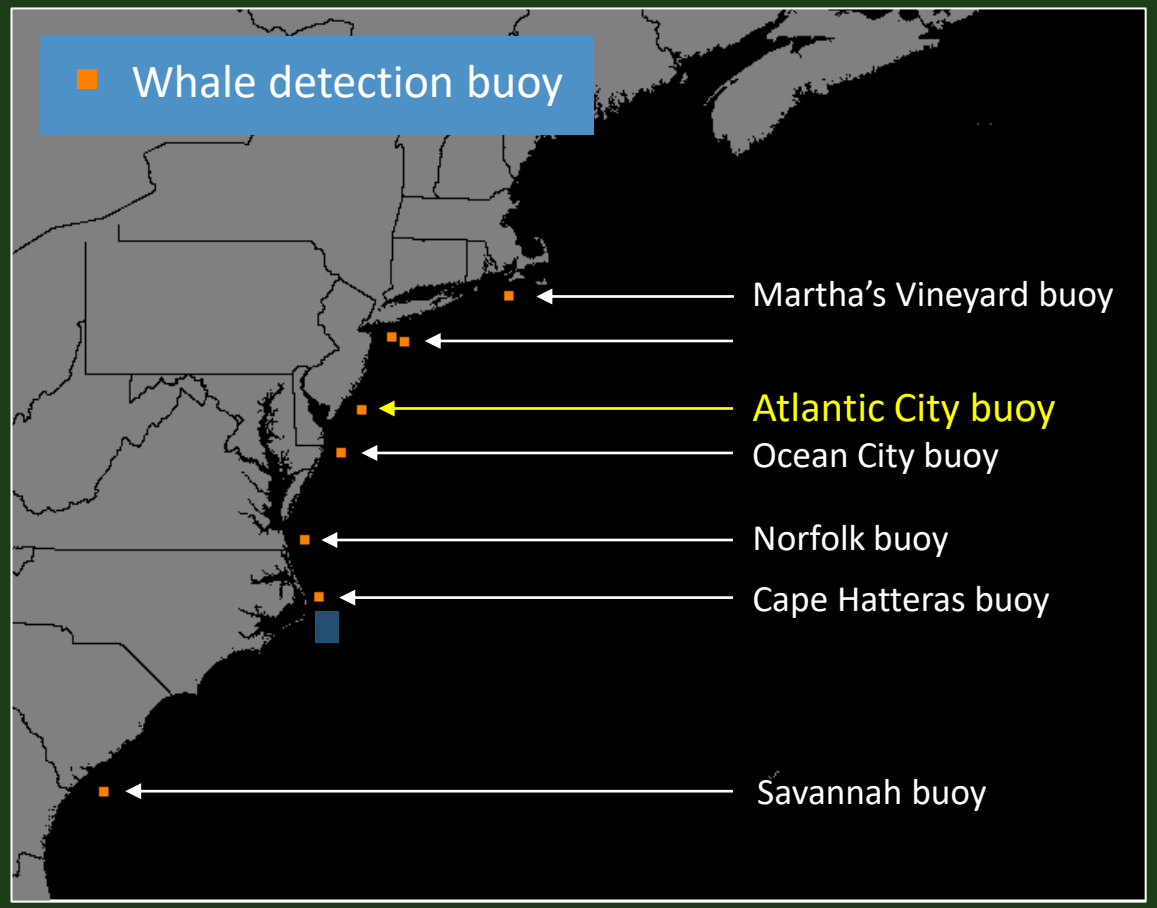
Near real-time passive acoustic monitoring off New Jersey to mitigate the effects of offshore wind development on baleen whales

Mark Baumgartner
WOODS HOLE OCEANOGRAPHIC INSTITUTION



robots4whales.whoi.edu





Bid Opportunities

Request for Proposals:
Archival passive acoustic monitoring (PAM) to inform distribution and abundance of large whales in the NY/NJ Bight

Research Priorities

Be adaptive *throughout the Initiative to reflect that different or expanded research and monitoring needs may arise to accommodate both unforeseen circumstances and new scientific information as future offshore wind projects are developed.*

Periodic Review of Priorities

As priorities are addressed with MRI projects

As new science becomes available

- Regional Wildlife Science Collaborative for Offshore Wind
- Synthesis of the Science
- State of the Science