



**BOEM** BUREAU OF OCEAN  
ENERGY MANAGEMENT

# Potential Hydrodynamic Impact of Offshore Wind Energy on Nantucket Shoals Regional Ecology: An Evaluation from Wind to Whales

National Academies 102<sup>nd</sup> Ocean Studies Board Meeting

BOEM Response and Plans

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## ○ Technical takeaways

1. Observational data, both physical and ecological, are needed before and during all phases of development.
2. Modeling studies need to consider all key hydrodynamic processes identified in the report (i.e., Page 3 Figure 2) as well as turbine-scale processes (such as turbine-induced wind and water wake, wind speed at air-sea boundary).

## ○ Strategic takeaways

1. More robust and meaningful engagement with the scientific community
2. Coordination with the developers for observation and monitoring before and during all phases of development
3. Monitoring programs that are spatially integrated and supported by all relevant stakeholders across sectors and regions

# Efforts directly informed by the NASEM report

1. **Coupled hydrodynamic–ecosystem modeling of southern New England impacts from offshore wind farms (NT-24-x09)**
  - FY2024 – 2026
  - Performer: Woods Hole Oceanographic Institution (via Interagency Agreement with NOAA (i.e., NOAA’s Cooperative Institute for the North Atlantic Region (CINAR) program)
2. **Offshore Wind Impacts on Oceanographic Processes: North Carolina to New York (AT-22-01A and B)**
  - FY2022 – 2024
  - Performers: DHI Water & Environment (A) and RPS Group Inc. (B)
3. **NASEM Nantucket Shoals monitoring workshop (July 2024)**

# Studies in other regions informed by the NASEM report

1. **Offshore Wind Farm Impacts on Pacific Upwelling, Nutrients, and Productivity (NT-23-09)**
  - FY 2023 – 2025
  - Performers: NOAA Southwest Fisheries Science Center via Interagency Agreement with subaward to UCSC, Integral Consulting, and Sandia National Lab
2. **Ocean Environmental Monitoring and Sound Propagation Study at Mid-Atlantic Shelfbreak Offshore Wind Area (AT-24-03)**
  - FY2024 – 2028 (competitive CA to be awarded later this FY)
  - In coordination with NSF OOI Pioneer Array effort
3. **Hydrodynamics-focused studies in the Gulf of Mexico, Pacific, and Puerto Rico/US Virgin Island.**
  - Proposed for FY2025~

# Other notable developments

- **Stronger engagement and feedback loop with the research community**
  1. Pacific upwelling workshop (March 2024) – hosted by BOEM, steering team included NOAA Southwest Fisheries. Participants were from the Federal and State Governments, Tribal fisheries consortium, regional ocean observation consortia, industry, and academia (WHOI, OSU, SIO, UCSC, CU Boulder).
  2. Special session at the Ocean Sciences Meeting (New Orleans, February 2024) “Offshore Renewable Energy: Resource characterization and environmental impacts” – Co-organized by BOEM, U of Bangor, and U of Rhode Island, participated by the academia, industry, and government scientists from across the globe.
  3. Pacific upwelling study (NT-23-09) – developed with NOAA Southwest Fisheries
  4. Coordination with NSF OOI Pioneer Array effort
  5. Planning for another hydrodynamics-focused workshop in ~1-2 years
- **Direct industry buy-in through contribution authority**
  1. Partnership for an Offshore Wind Energy Regional Observation Network (POWERON) – Atlantic PAM network is partially funded through operator contributions to RWSC



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