MA Offshore Wind Habitat Working Group

May 9, 2024

Massachusetts Office of Coastal Zone Management
Saltonstall Building, Boston, MA 02114

Agenda

9:00 AM	**Coffee, Poster Session, and Networking**
9:30	**Welcome & State Updates** – *Todd Callaghan (CZM)*
9:45	**MA Offshore Wind Roadmap Strategic Plan** – *Seth Lattrell (VHB)*
10:15	**Member Updates**
10:30	**Gulf of Maine Wind Energy Areas and Proposed Sale Notice** – *Zach Jylkka (BOEM)*
11:00	Break
11:10	**Regional Wildlife Science Collaborative Science Plan** – *Emily Shumchenia (RWSC)*
11:25	**Lessons Learned From Construction – Seafloor Disturbance and Eelgrass** **Ørsted –** *Chris Sarro* **Vineyard Wind –** *Liz Marsjanik and Max Cantrell*
11:55	**Wrap-up and Next Steps** – *Hollie Emery (CZM)*
12:00 PM	Adjourn

Biodiversity Executive Order

OFFERED BY Department of Fish and Game

Biodiversity Goals for the Commonwealth

A bold vision for nature in 2050 and the roadmap to get there.

We're taking action for biodiversity—learn about our work to develop a transformative, whole-of-government approach to conserve species and habitats, build resilience to climate change, and ensure a better future for all of us.

Sign up for the latest news, events, and ways to take action!

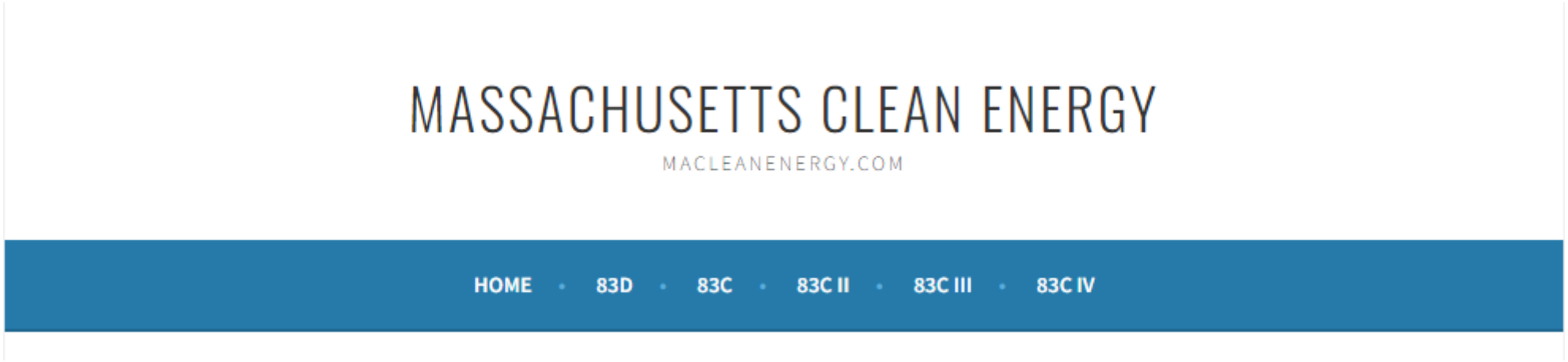
RELATED

Executive Order No. 618: Biodiversity Conservation in Massachusetts →

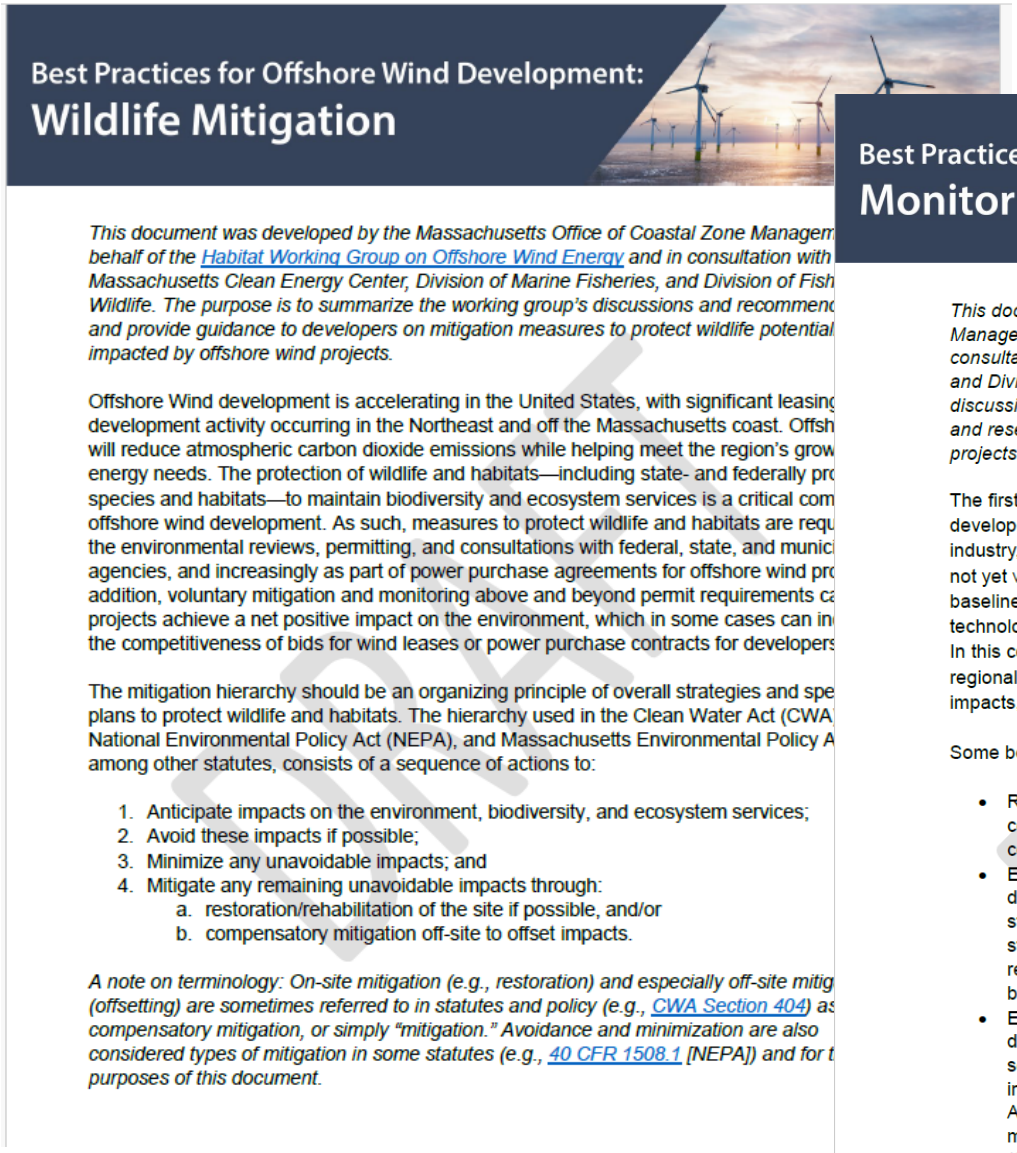
www.mass.gov/biodiversity

83 C IV Procurement

- Austin Dawson, DOER



https://macleanenergy.com/



Best Practices for Offshore Wind Development:

Wildlife Mitigation

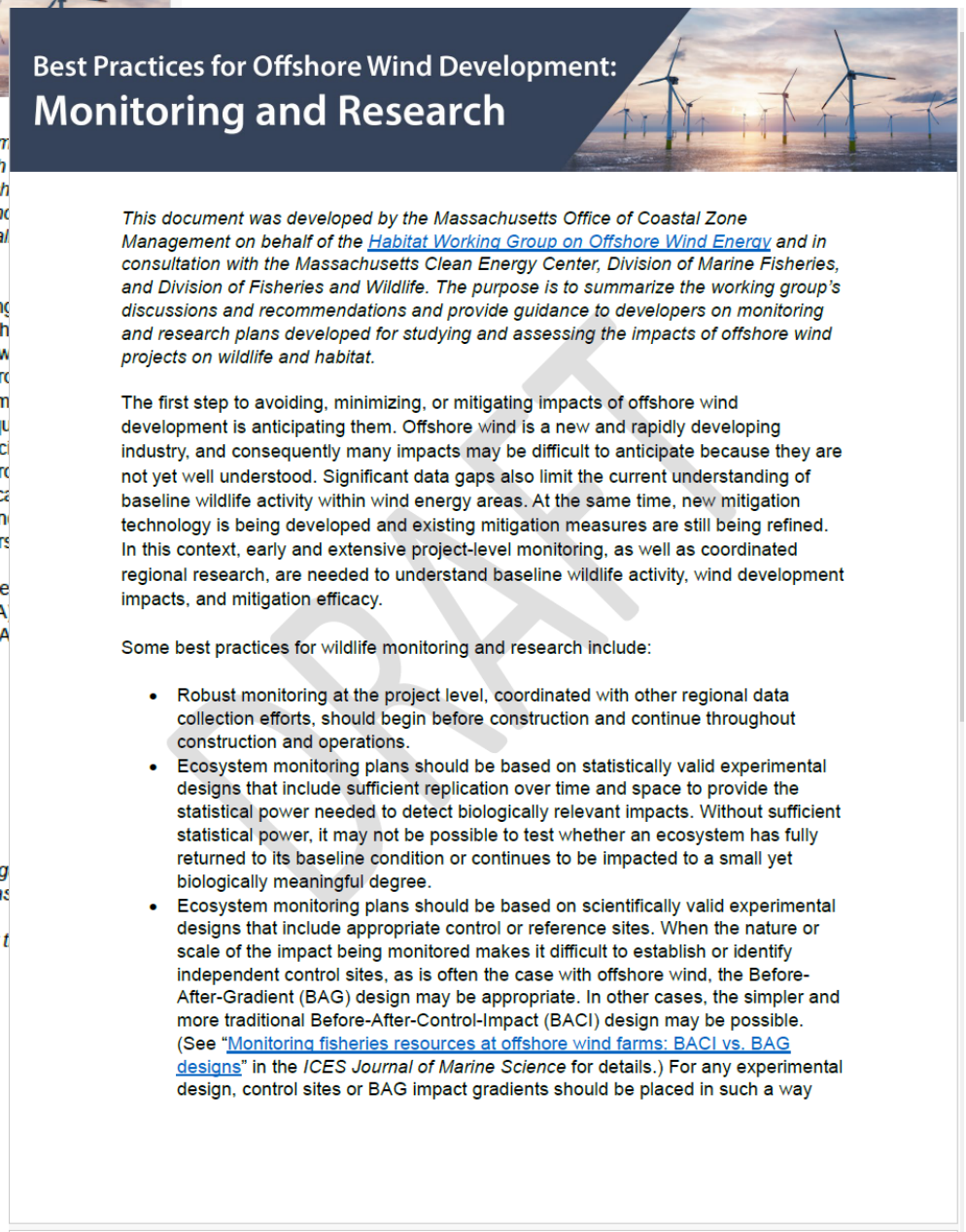
This document was developed by the Massachusetts Office of Coastal Zone Managem behalf of the Habitat Working Group on Offshore Wind Energy and in consultation with Massachusetts Clean Energy Center, Division of Marine Fisheries, and Division of Fish Wildlife. The purpose is to summarize the working group's discussions and recommend and provide guidance to developers on mitigation measures to protect wildlife potential impacted by offshore wind projects.

Offshore Wind development is accelerating in the United States, with significant leasing development activity occurring in the Northeast and off the Massachusetts coast. Offsh will reduce atmospheric carbon dioxide emissions while helping meet the region's grow energy needs. The protection of wildlife and habitats—including state- and federally pro species and habitats—to maintain biodiversity and ecosystem services is a critical com offshore wind development. As such, measures to protect wildlife and habitats are requ the environmental reviews, permitting, and consultations with federal, state, and munici agencies, and increasingly as part of power purchase agreements for offshore wind pro addition, voluntary mitigation and monitoring above and beyond permit requirements ca projects achieve a net positive impact on the environment, which in some cases can in the competitiveness of bids for wind leases or power purchase contracts for developers

The mitigation hierarchy should be an organizing principle of overall strategies and spe plans to protect wildlife and habitats. The hierarchy used in the Clean Water Act (CWA National Environmental Policy Act (NEPA), and Massachusetts Environmental Policy A among other statutes, consists of a sequence of actions to:

1. Anticipate impacts on the environment, biodiversity, and ecosystem services;
2. Avoid these impacts if possible;
3. Minimize any unavoidable impacts; and
4. Mitigate any remaining unavoidable impacts through:
    a. restoration/rehabilitation of the site if possible, and/or
    b. compensatory mitigation off-site to offset impacts.

A note on terminology: On-site mitigation (e.g., restoration) and especially off-site mitig (offsetting) are sometimes referred to in statutes and policy (e.g., CWA Section 404) as compensatory mitigation, or simply "mitigation." Avoidance and minimization are also considered types of mitigation in some statutes (e.g., 40 CFR 1508.1 [NEPA]) and for t purposes of this document.



Best Practices for Offshore Wind Development:

Monitoring and Research

This document was developed by the Massachusetts Office of Coastal Zone Management on behalf of the Habitat Working Group on Offshore Wind Energy and in consultation with the Massachusetts Clean Energy Center, Division of Marine Fisheries, and Division of Fisheries and Wildlife. The purpose is to summarize the working group's discussions and recommendations and provide guidance to developers on monitoring and research plans developed for studying and assessing the impacts of offshore wind projects on wildlife and habitat.

The first step to avoiding, minimizing, or mitigating impacts of offshore wind development is anticipating them. Offshore wind is a new and rapidly developing industry, and consequently many impacts may be difficult to anticipate because they are not yet well understood. Significant data gaps also limit the current understanding of baseline wildlife activity within wind energy areas. At the same time, new mitigation technology is being developed and existing mitigation measures are still being refined. In this context, early and extensive project-level monitoring, as well as coordinated regional research, are needed to understand baseline wildlife activity, wind development impacts, and mitigation efficacy.

Some best practices for wildlife monitoring and research include:

- Robust monitoring at the project level, coordinated with other regional data collection efforts, should begin before construction and continue throughout construction and operations.
- Ecosystem monitoring plans should be based on statistically valid experimental designs that include sufficient replication over time and space to provide the statistical power needed to detect biologically relevant impacts. Without sufficient statistical power, it may not be possible to test whether an ecosystem has fully returned to its baseline condition or continues to be impacted to a small yet biologically meaningful degree.
- Ecosystem monitoring plans should be based on scientifically valid experimental designs that include appropriate control or reference sites. When the nature or scale of the impact being monitored makes it difficult to establish or identify independent control sites, as is often the case with offshore wind, the Before-After-Gradient (BAG) design may be appropriate. In other cases, the simpler and more traditional Before-After-Control-Impact (BACI) design may be possible. (See "Monitoring fisheries resources at offshore wind farms: BACI vs. BAG designs" in the *ICES Journal of Marine Science* for details.) For any experimental design, control sites or BAG impact gradients should be placed in such a way

Website soon!

Offshore Wind Strategic Plan

MA Habitat Working Group

May 9, 2024

Interagency Offshore Wind Council Overview

- On April 20, 2023, Secretary Tepper announced the establishment of the Interagency Offshore Wind Council (IOWC) to **advance the responsible development of offshore wind to meet our ambitious climate goals** through communication, alignment, collaboration, and joint execution.
- The IOWC will be responsible for **developing and maintaining an Offshore Wind Strategic Plan** with stakeholder and community input, which will
  1. lay out the current status of the offshore wind industry in the Commonwealth, existing legal and policy frameworks, and progress made to date;
  2. identify key drivers, gaps and needs, and findings; and
  3. recommend specific actions and strategies necessary to advance the Plan's goals and objectives before 2040

IOWC Members

Interagency Offshore Wind Council

- Department of Energy Resources
- Massachusetts Clean Energy Center
- Office of Coastal Zone Management
- Dept of Fish and Game / Division of Marine Fisheries
- Dept of Fish and Game / Natural Heritage and Endangered Species Program
- Dept of Environmental Protection
- Dept of Public Utilities
- Executive Office of Economic Development
- Executive Office of Labor and Workforce Development
- Executive Office of Education

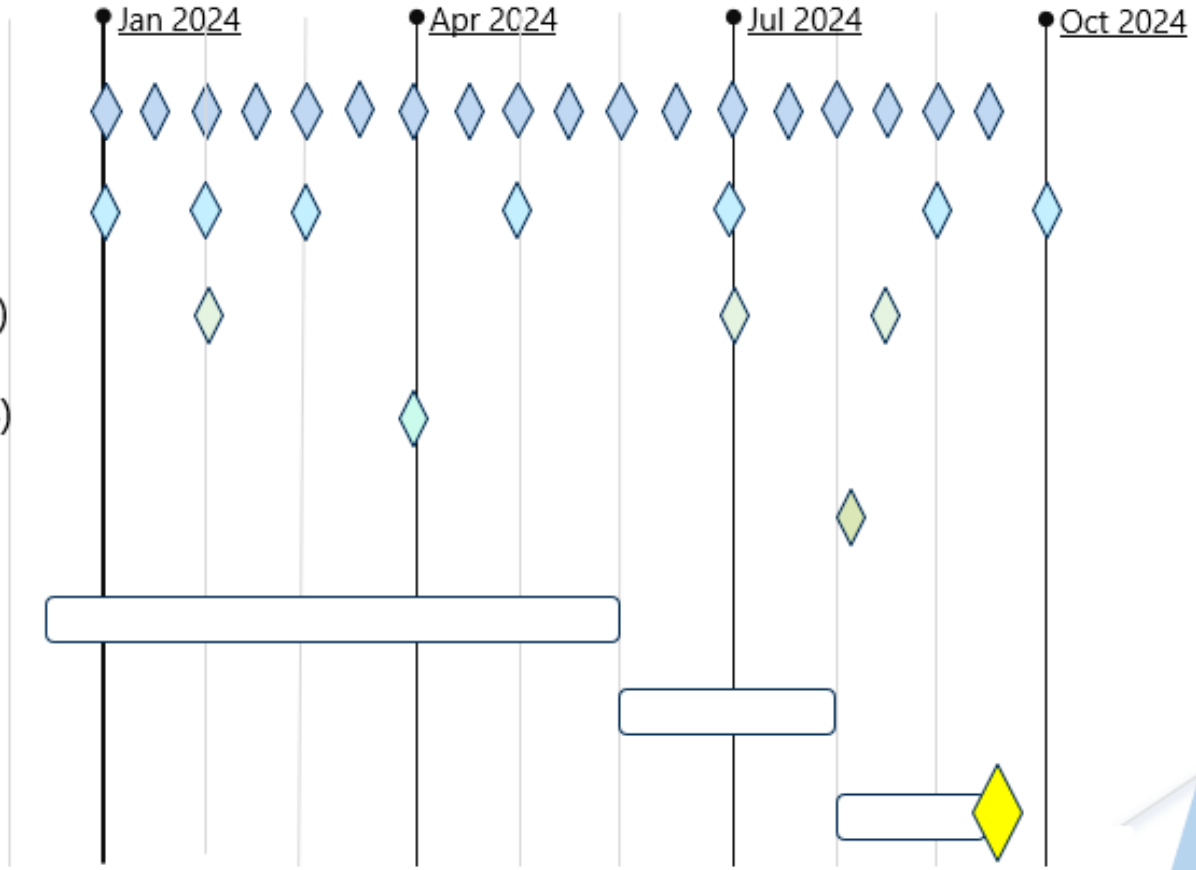
Strategic Plan Overview

Strategic Plan Goals

- The Strategic Plan will:
  - Ensure Comprehensive Planning with Robust Stakeholder Engagement.
  - Implement Efficient and Effective Environmental Reviews and Support for Mutual Co-Existence.
  - Establish a Long-Term Offshore Wind Energy Target and Plan for Procurements and Offtake.
  - Grow Massachusetts as a National Hub for Offshore Wind Economic Development.
  - Develop a Modern and Resilient Transmission System with Efficient Interconnection of Offshore Wind.
  - Promote Research and Innovation for New Technologies, Solutions, and Services to Support entrepreneurs and early-stage companies in technology and intellectual property development and commercialization and forge closer ties to developers, suppliers, and universities.
  - Advance rigorous long-term monitoring, assessment, and reporting on offshore wind performance and contribution to energy needs, industry growth, workforce expansion, diversity and equity, environmental sustainability, and compatibility with ocean users.

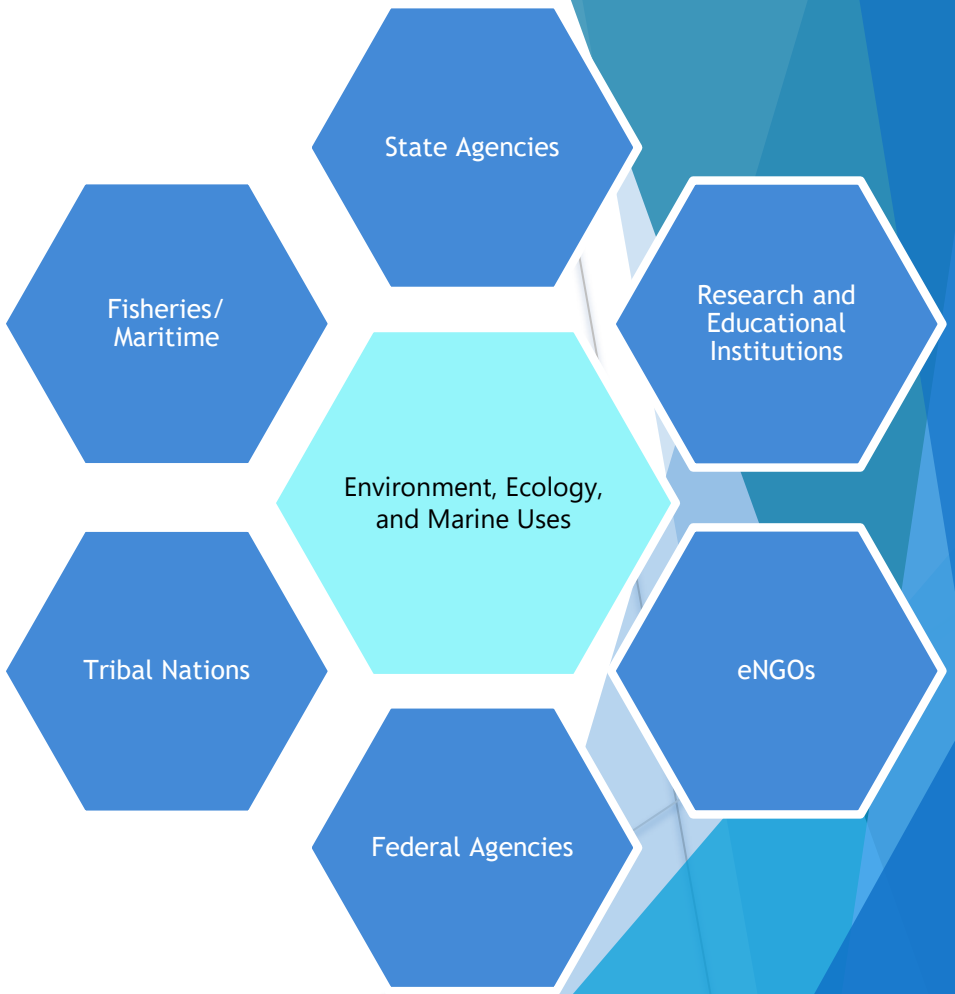
Strategic Plan Process

1. Steering Committee (bi-weekly)
2. IOWC Council
3. Council Subcommittees (recurring)
4. Stakeholder Interviews (April 2024)
5. Virtual Public Meeting (Aug 2024)
6. Strategic Plan Draft 1
7. Strategic Plan Draft 2
8. Strategic Plan Final Version



Stakeholder Session Summary
Environment, Ecology & Marine Uses

- Cumulative impact analysis and expanded ecological analysis
- Improved data sharing
- Siting concerns in priority areas
- Shared cable corridors
- Impact of array spacing on fishing access and insurance



Q&A Period

BOEM BUREAU OF OCEAN ENERGY MANAGEMENT

Gulf of Maine Proposed Sale Notice

Presentation to the Massachusetts HWG and FWG

Zach Jylkka, Renewable Energy Program Specialist

May 9-10, 2024

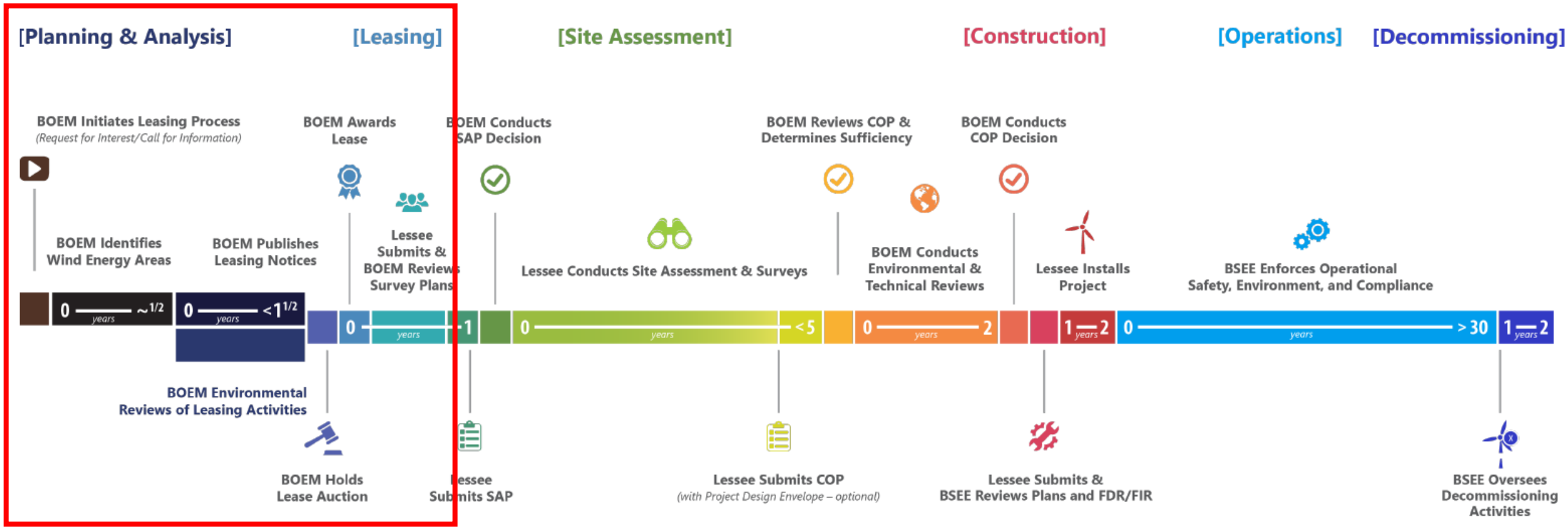
Focus for Today

- Renewable Energy Authorization Process
- Where are we, and how did we get here?
- Proposed Sale Notice
  - Lease area attributes
  - Lease stipulations
  - Bidding Credits
- Public Meeting Schedule
- Questions & Answers

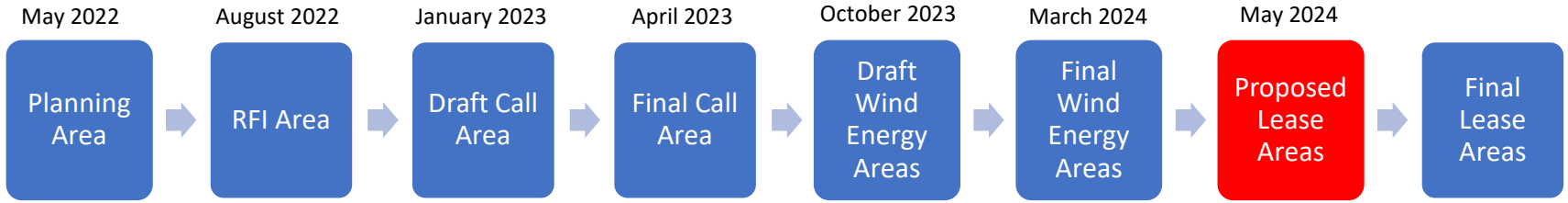
Presentation Table of Contents

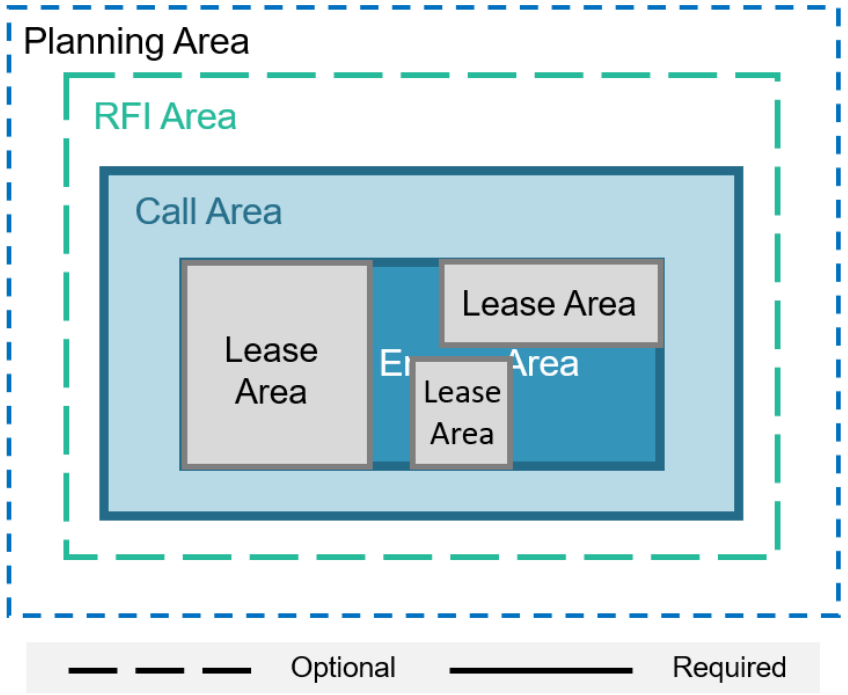
- Renewable Energy Authorization Process
- Gulf of Maine Planning Process (from Planning Area to PSN Lease Areas)
- PSN Lease Stipulations
- PSN Auction Format & Bidding Credits
- PSN Public Meetings
- PSN Overlay Maps
  - Distance from shore, HVAC vs. HVDC, depth characterization
  - AIS vessel traffic, USCG MNMPARS, National Security
  - Avian Considerations
  - Fishing Industry
  - North Atlantic Right Whale
  - Habitat
  - Biomass
  - NMFS Surveys
- Energy Density Estimates
- New 5-Year Renewable Energy Leasing Schedule

Renewable Energy Authorization Process



Gulf of Maine Planning & Leasing Process

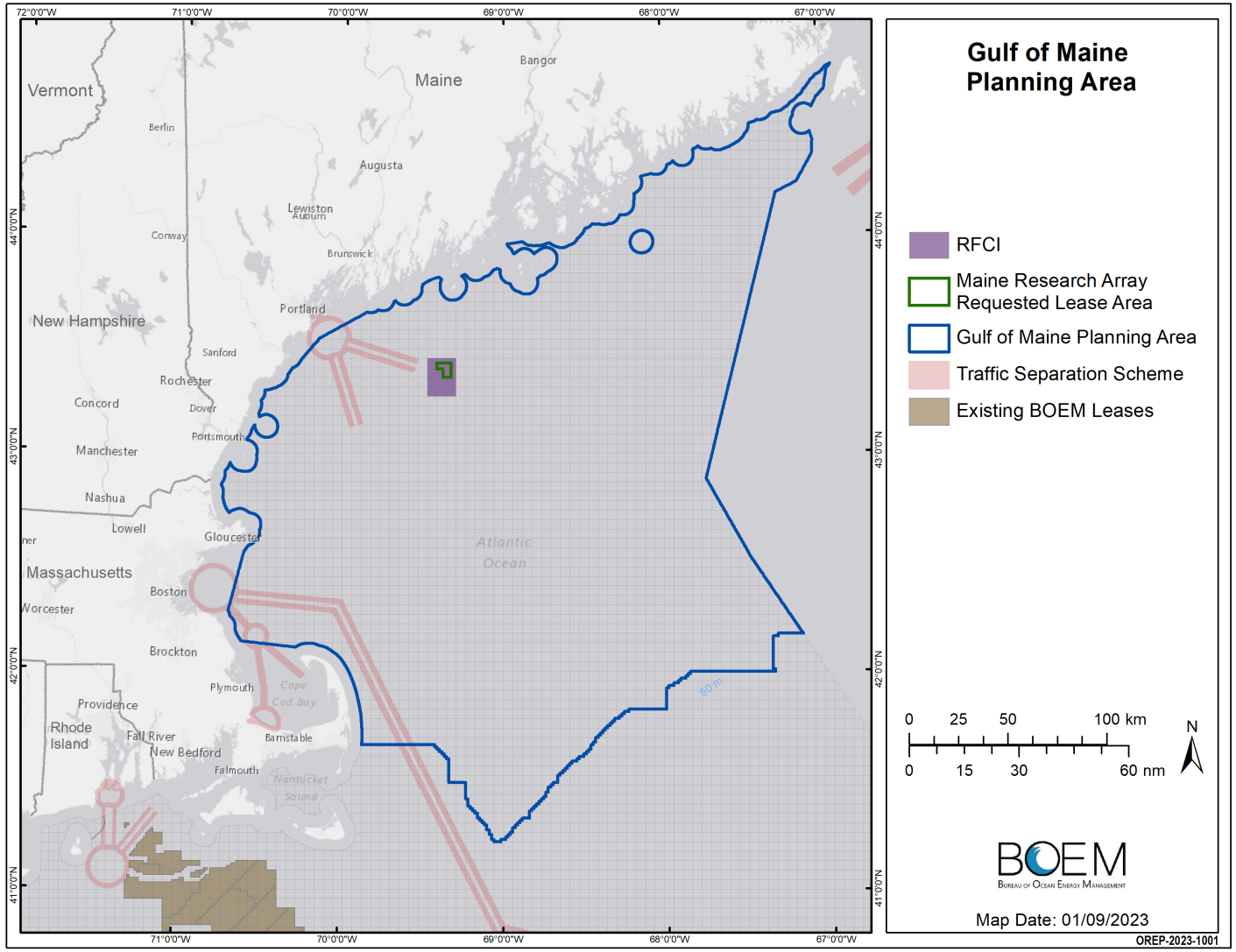




Planning Area

Planning Area → RFI Area → Draft Call Area → Final Call Area → Draft Wind Energy Areas → Final Wind Energy Areas → Proposed Lease Areas → Final Lease Areas

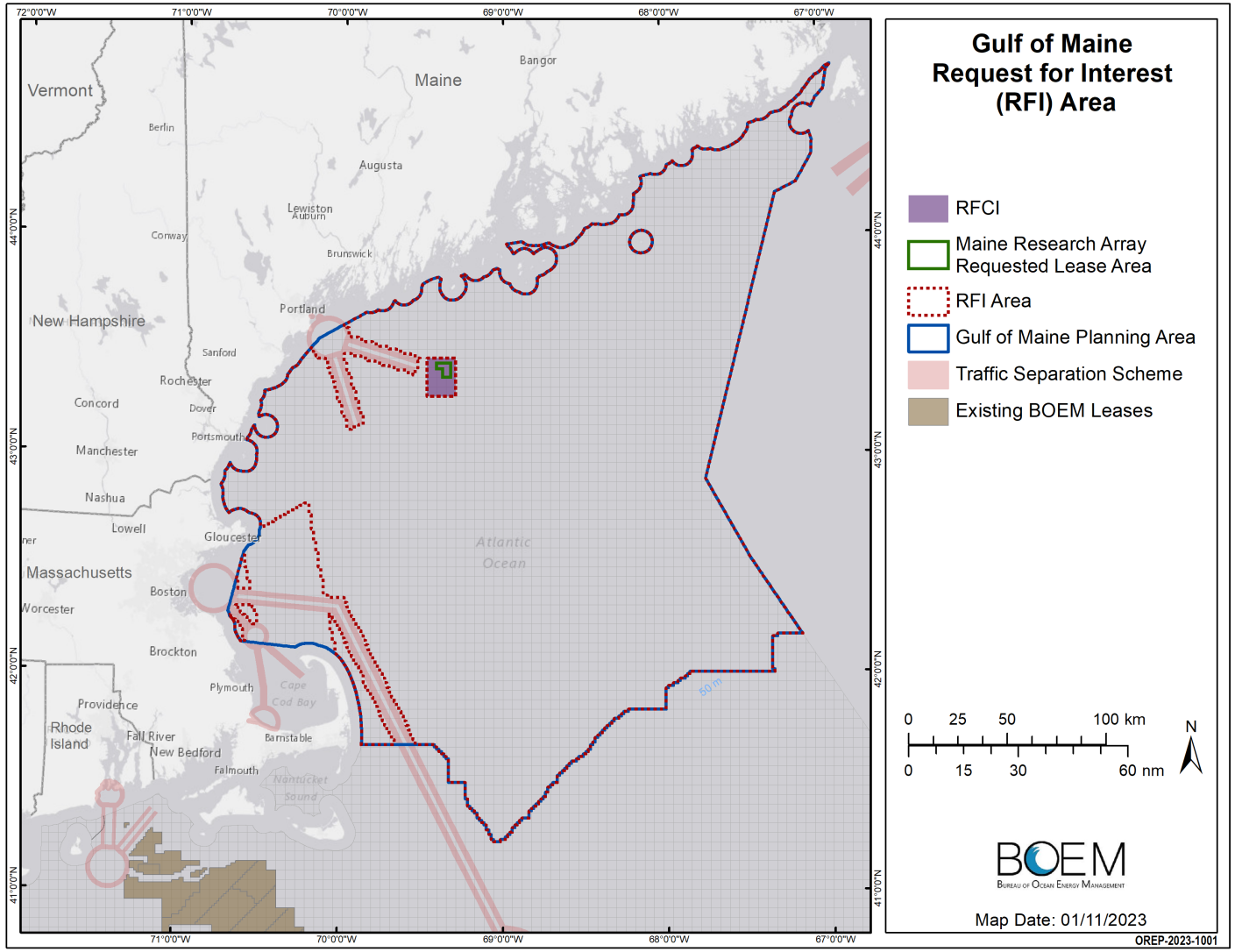
- Preliminary and optional step in the BOEM Planning Process
- Shared Planning Area and Draft RFI Area at the May 2022 Task Force meeting



Request for Interest (RFI) Area

Planning Area → **RFI Area** → Draft Call Area → Final Call Area → Draft Wind Energy Areas → Final Wind Energy Areas → Proposed Lease Areas → Final Lease Areas

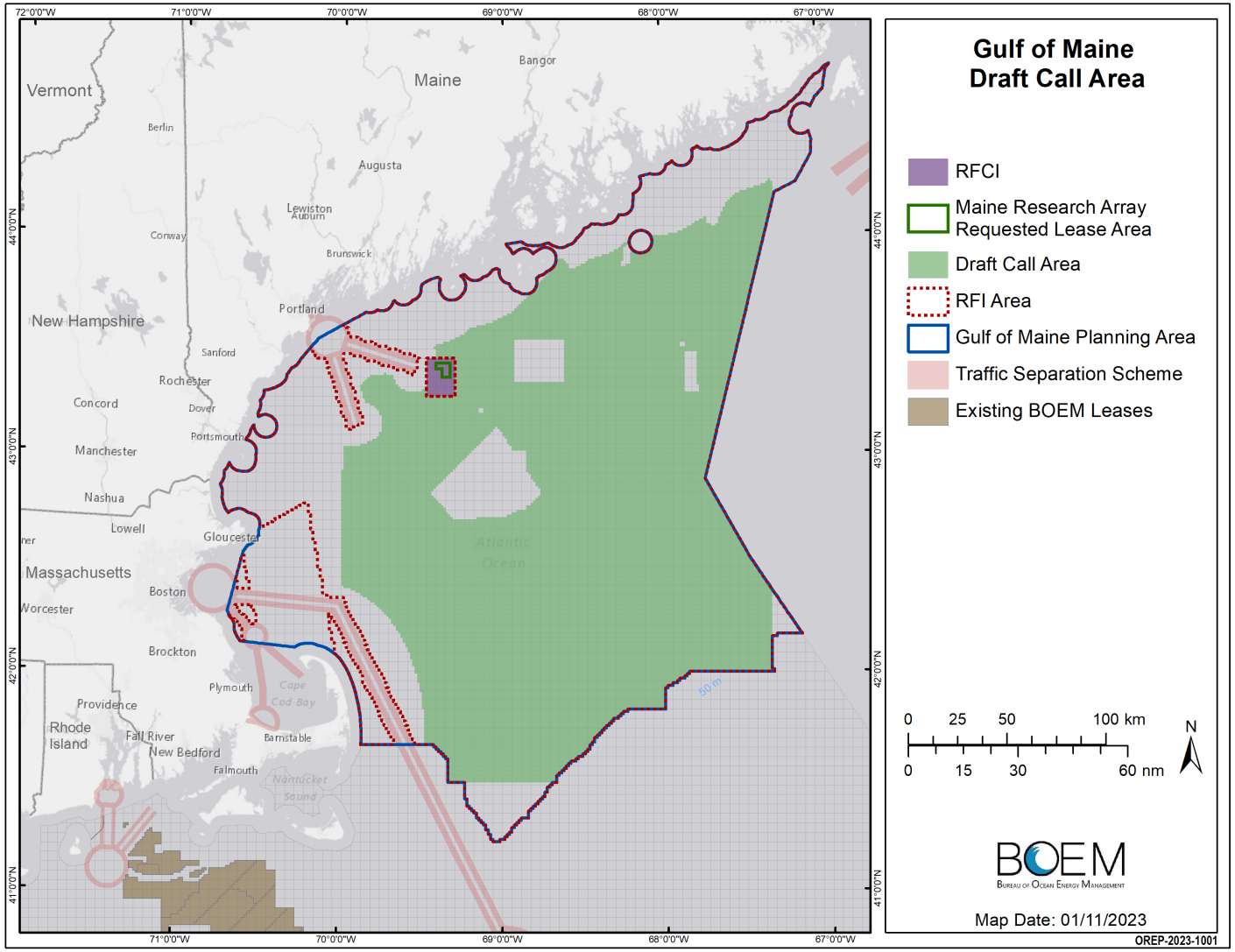
- Published RFI on August 19, 2022
  - 45-day comment period closed October 3, 2022
- RFI Area excluded "incompatible areas"
  - National Park System, National Wildlife Refuge System, National Marine Sanctuary System, or any National Monument (§585.204)
  - Existing Traffic Separation Schemes (TSS), fairways, or other internationally recognized navigation measures
  - Unsolicited lease request areas that are the subject of a separate request for competitive interest



Draft Call Area

Planning Area → RFI Area → **Draft Call Area** → Final Call Area → Draft Wind Energy Areas → Final Wind Energy Areas → Proposed Lease Areas → Final Lease Areas

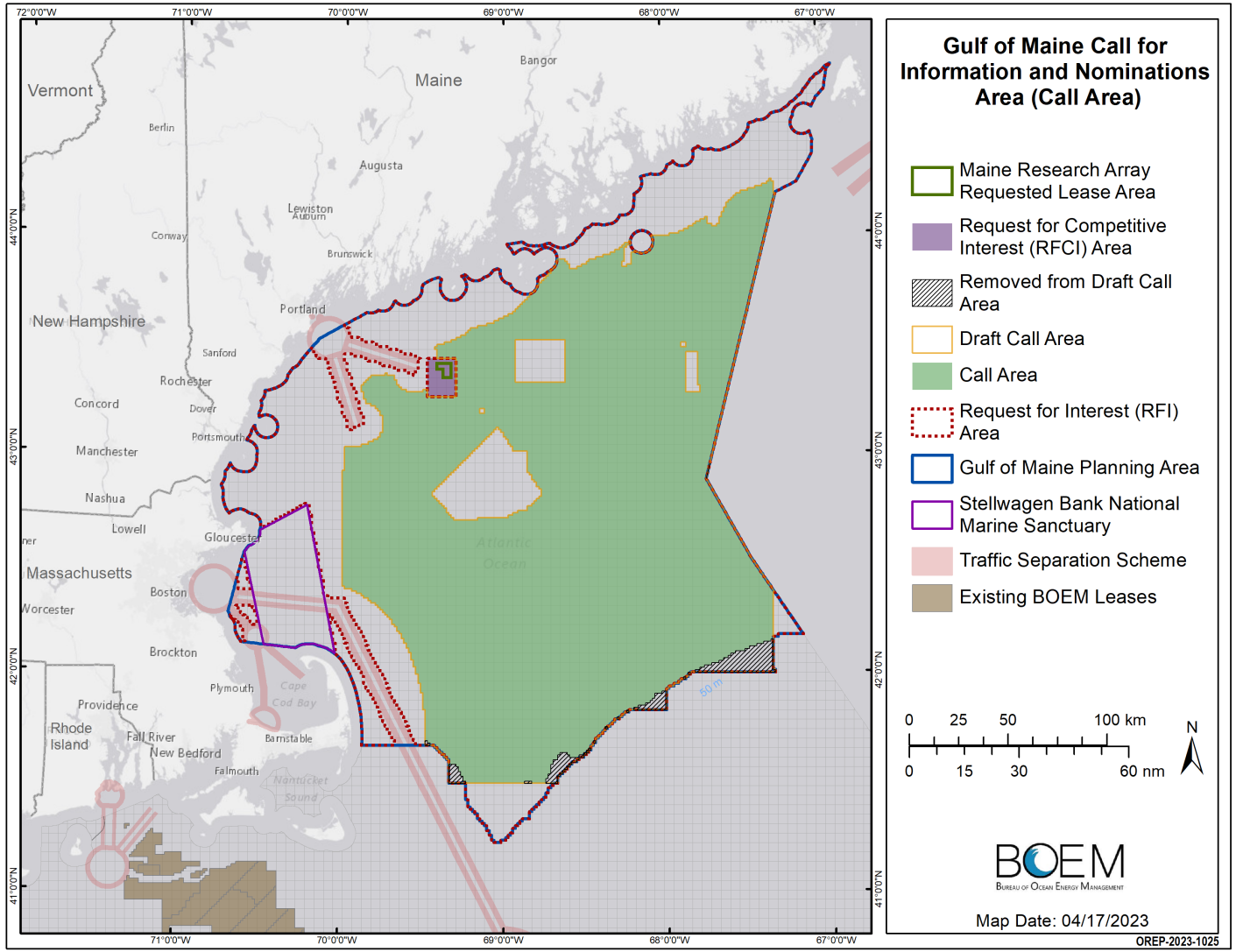
- BOEM reviewed responses to RFI and worked with NOAA NCCOS to conduct spatial analysis to inform Draft Call Area
  - 27% reduction from RFI Area
- BOEM held a series of in-person and virtual meetings.



Final Call Area

Planning Area → RFI Area → Draft Call Area → **Final Call Area** → Draft Wind Energy Areas → Final Wind Energy Areas → Proposed Lease Areas → Final Lease Areas

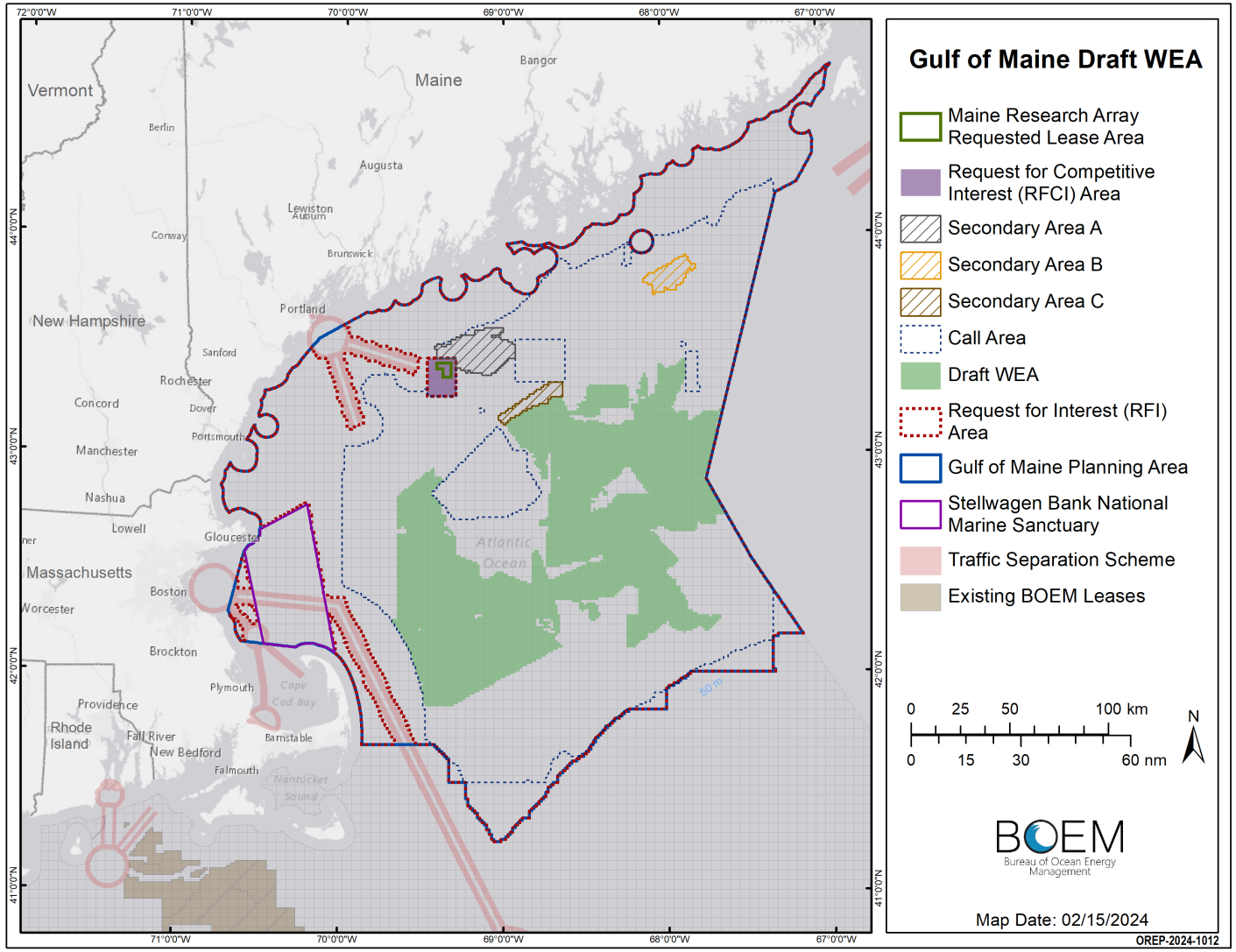
- The Final Call Area was published on April 26, 2023
  - 45-day public comment period (closed June 12, 2023)
- BOEM removed areas from the southern edge of the Call Area to better avoid Georges Bank
- BOEM held a Task Force meeting (May 2023) and invited public comment on, and assessed interest in, possible commercial wind energy development in areas within the Call Area.



Area ID: Step 1 (Draft WEA)

Planning Area → RFI Area → Draft Call Area → Final Call Area → **Draft Wind Energy Areas** → Final Wind Energy Areas → Proposed Lease Areas → Final Lease Areas

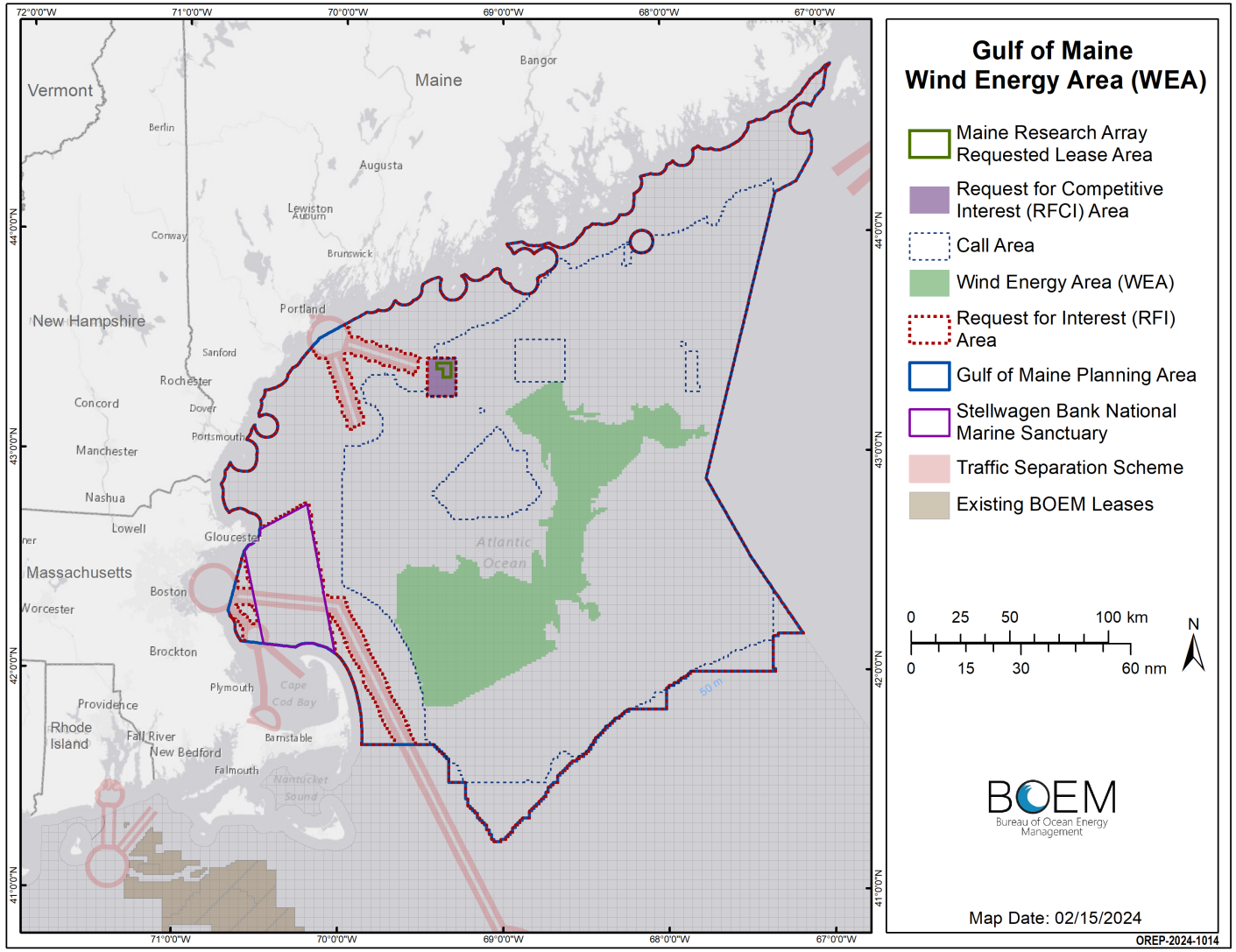
- Draft WEA was published on October 19, 2023—opening a 30-day public comment period (closed November 20, 2023)
- ~3.5 million acres, representing a 64% reduction from the Call.
- Request for Comment
  - Explained the Draft WEA and Secondary Areas
  - Asked questions about:
    - Relative developability of different areas
    - Phased leasing
    - Fishing gear used, migration patterns of fish, protected species
- Draft NCCOS Report: Wind Energy Siting Analysis
  - Modeling methodology
  - Model performance across different resource groups/stakeholder interests
- Public Meetings
  - BOEM held public meetings in July 2023 on the NCCOS model and underlying data, before holding additional meetings in October 2023 on the Draft WEA



Area ID: Step 2 (Final WEA)

Planning Area → RFI Area → Draft Call Area → Final Call Area → Draft Wind Energy Areas → **Final Wind Energy Areas** → Proposed Lease Areas → Final Lease Areas

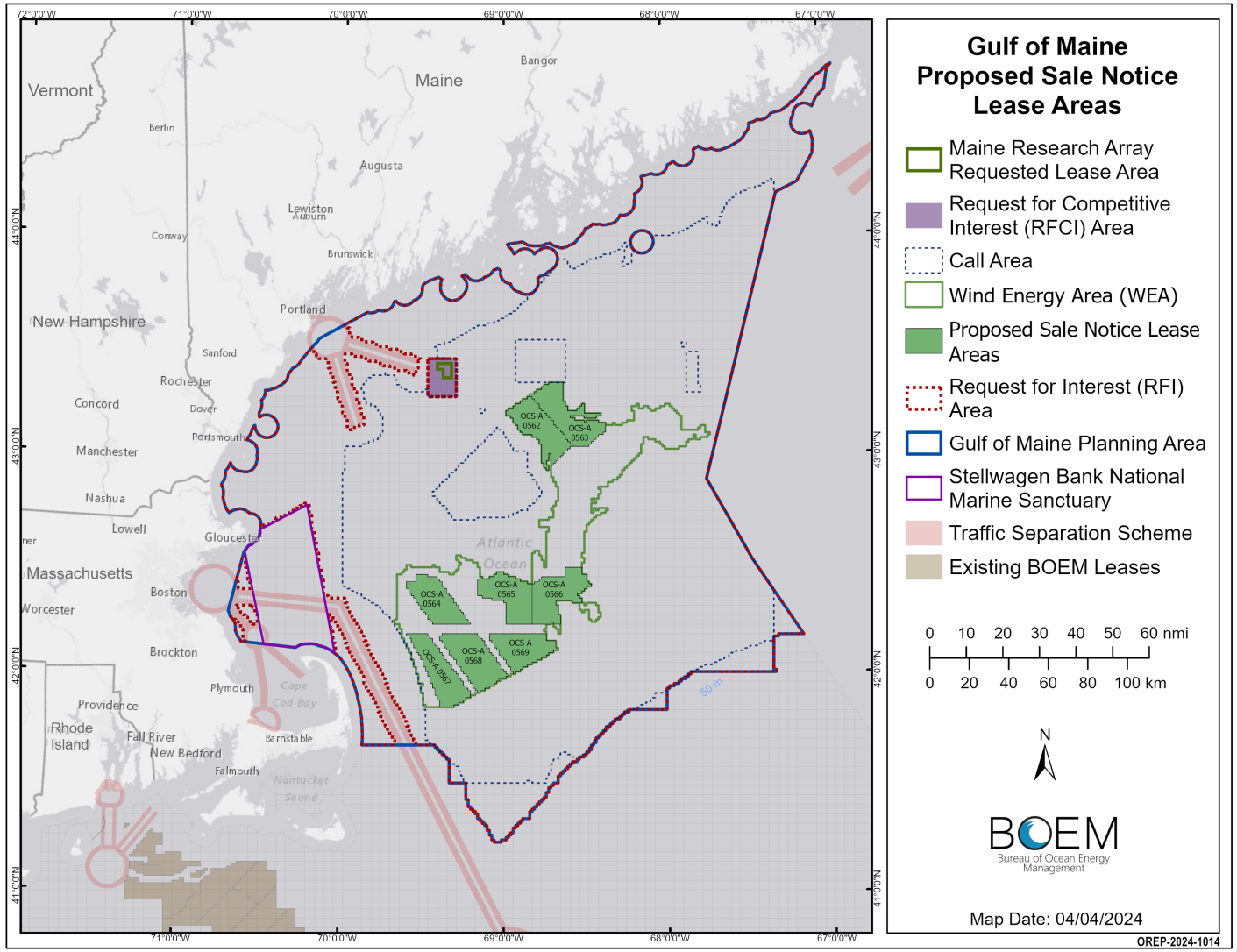
- Area ID Memo: published March 15, 2024
- ~2 million acres (~80% reduction from Call Area; 43% reduction from Draft WEA)
  - Combined capacity of 32 gigawatts (4 MW/km2)
  - Exceeds area/capacity needed for regional offshore wind goals (13-18 gigawatts)
  - Area allows for additional deconfliction
  - Could support multiple GoME Lease Sales
- BOEM worked with NCCOS to run a revised suitability model on the Draft WEA
  - Removed Secondary Areas A & B, included most of C
  - Constrained
    - Area representing top 10% of revenue for the multispecies groundfish (VTR)
    - 5-mile buffer around Cashes Ledge Groundfish Closure/HMA
- Geographic diversity
  - Includes areas that are potentially HVAC compatible (within ~75 mi of a POI) for both MA and ME
  - Avoids several key fishing grounds and important areas of North Atlantic Right Whale Critical Habitat, Tribal fishing grounds



Proposed Sale Notice (PSN)

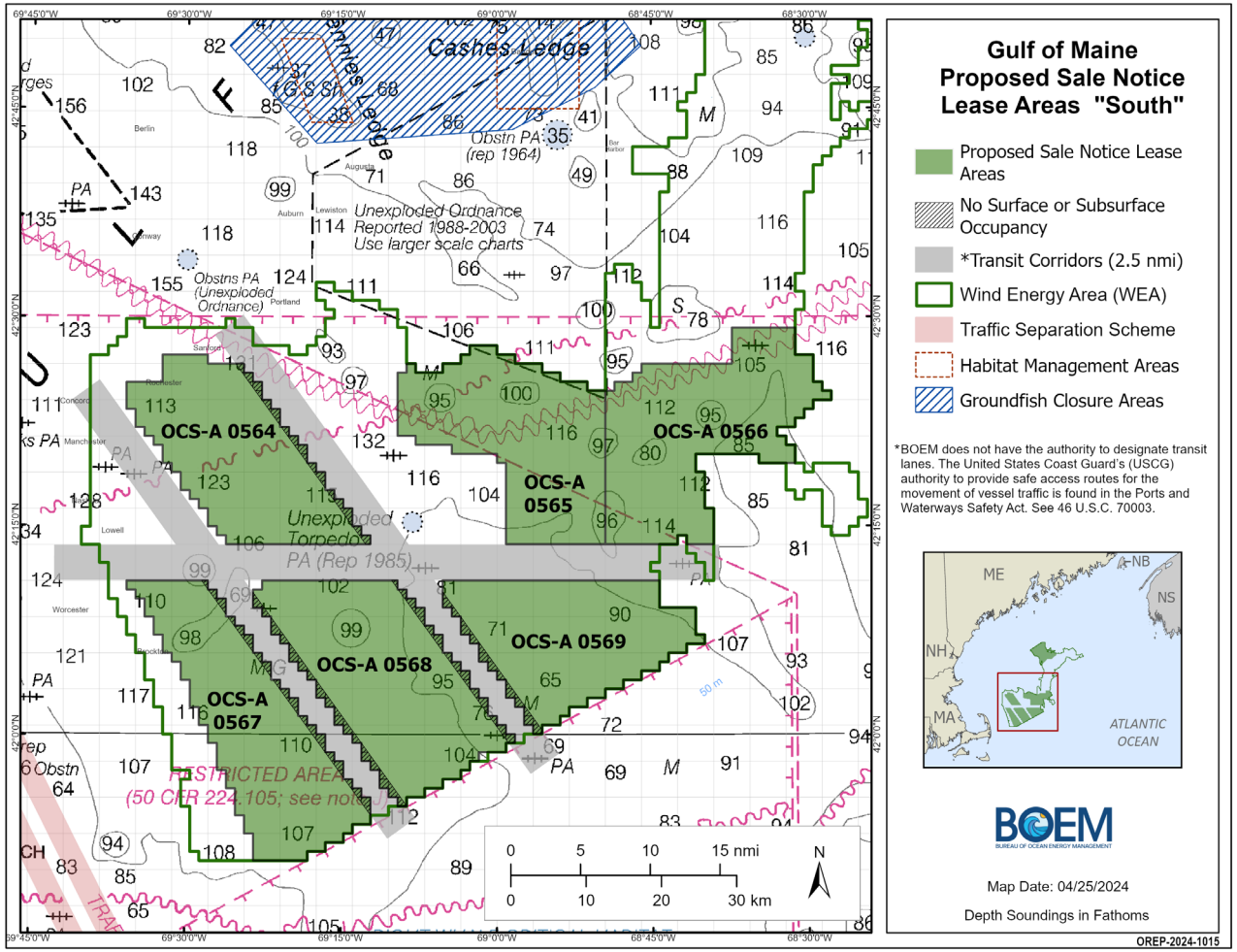
Planning Area → RFI Area → Draft Call Area → Final Call Area → Draft Wind Energy Areas → Final Wind Energy Areas → **Proposed Lease Areas** → Final Lease Areas

- Area summary:
  - 8 Leases
  - 969,999 acres (944,422 “developable” acres)
  - ~50% reduction from the Final WEA; ~90% reduction from the Call Area
  - Average lease size: 121,250 acres
  - Combined capacity of **15 gigawatts** (4 MW/km2)
  - Within range of the regional offshore wind goals (13-18 gigawatts)
- Geographic diversity
  - Includes areas that are potentially HVAC compatible (within ~75 mi of a POI) for both MA and ME
- Areas avoided from Final WEA:
  - Several heavily utilized areas for groundfish fishery
  - 3 transit corridors in southern region of WEA
  - Mayo Swell; Rogers Swell (important fishing/habitat areas)
  - Areas furthest offshore and likely most expensive to develop



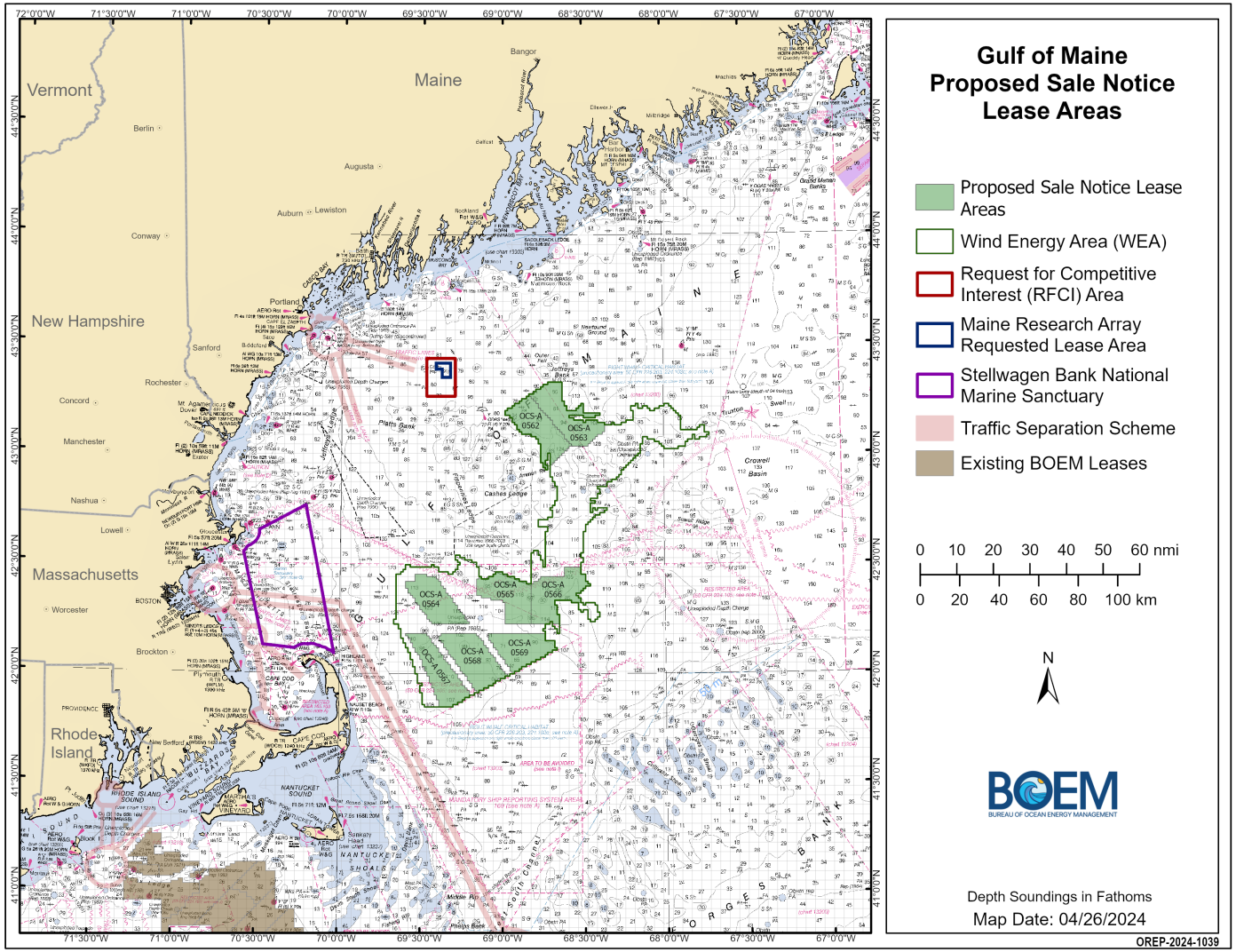
PSN: Lease Stipulations

- Minimal changes from Central Atlantic
- Areas of no surface/subsurface occupancy in the southern region of the Final WEA.
  - facilitate existing transit (three 2.5 nm corridors).
- "Good Neighbor" stipulation
  - neighboring leases must maintain 2 common lines of orientation (WTG layout) or have a setback from the lease boundary.
- PSN Questions:
  - Transit
  - Baseline monitoring for marine mammals/habitat



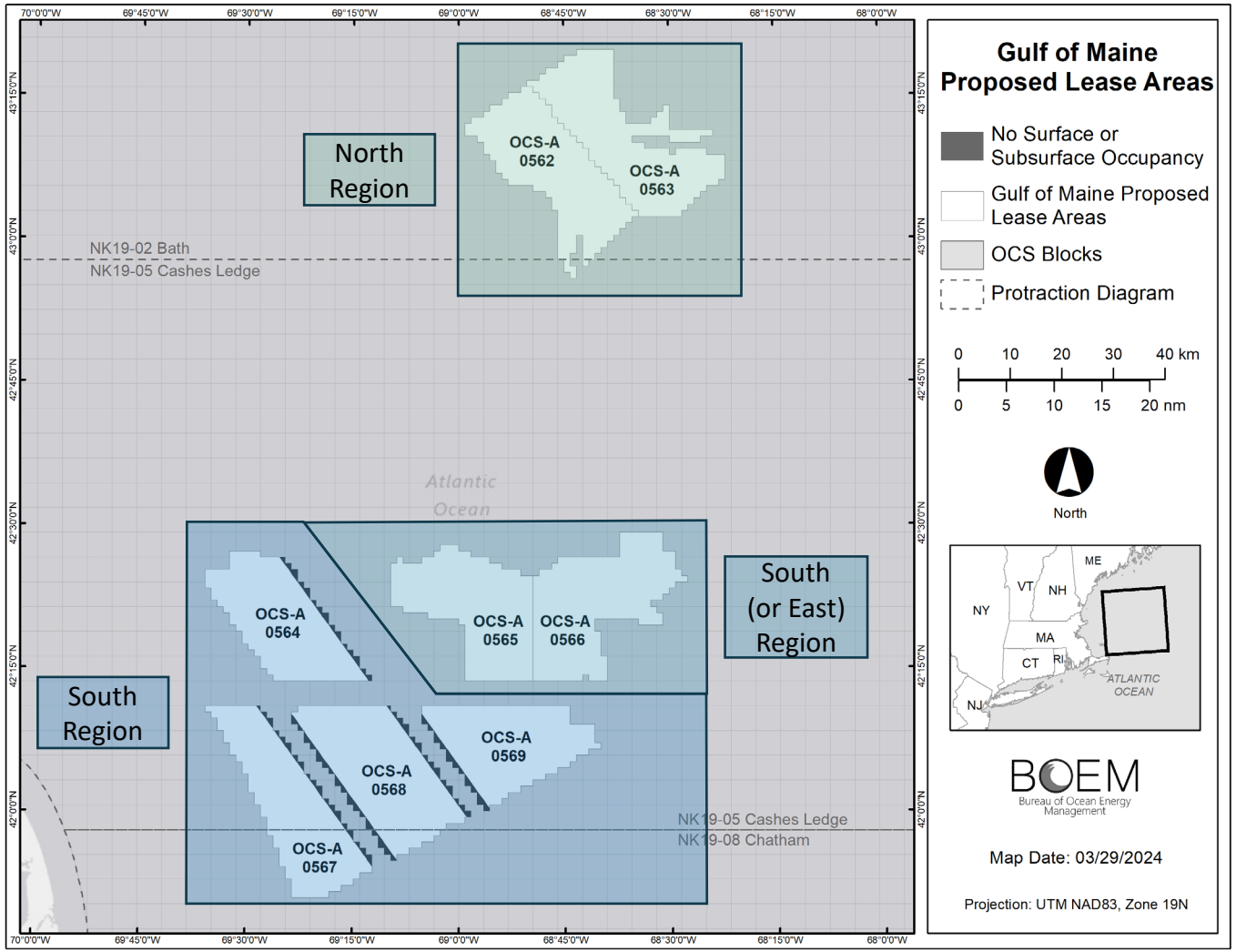
PSN: Lease Stipulations

PSN Areas	Region	Total Acres	Developable Acres
OCS-A 0562	North	121,339	121,339
OCS-A 0563	North	132,369	132,369
OCS-A 0564	South	110,308	105,499
OCS-A 0565	South	115,290	115,290
OCS-A 0566	South	127,388	127,388
OCS-A 0567	South	123,118	117,391
OCS-A 0568	South	134,149	123,389
OCS-A 0569	South	106,038	101,757
Total		**969,999**	**944,422**
Average		**121,250**	**118,053**



PSN: Auction Format

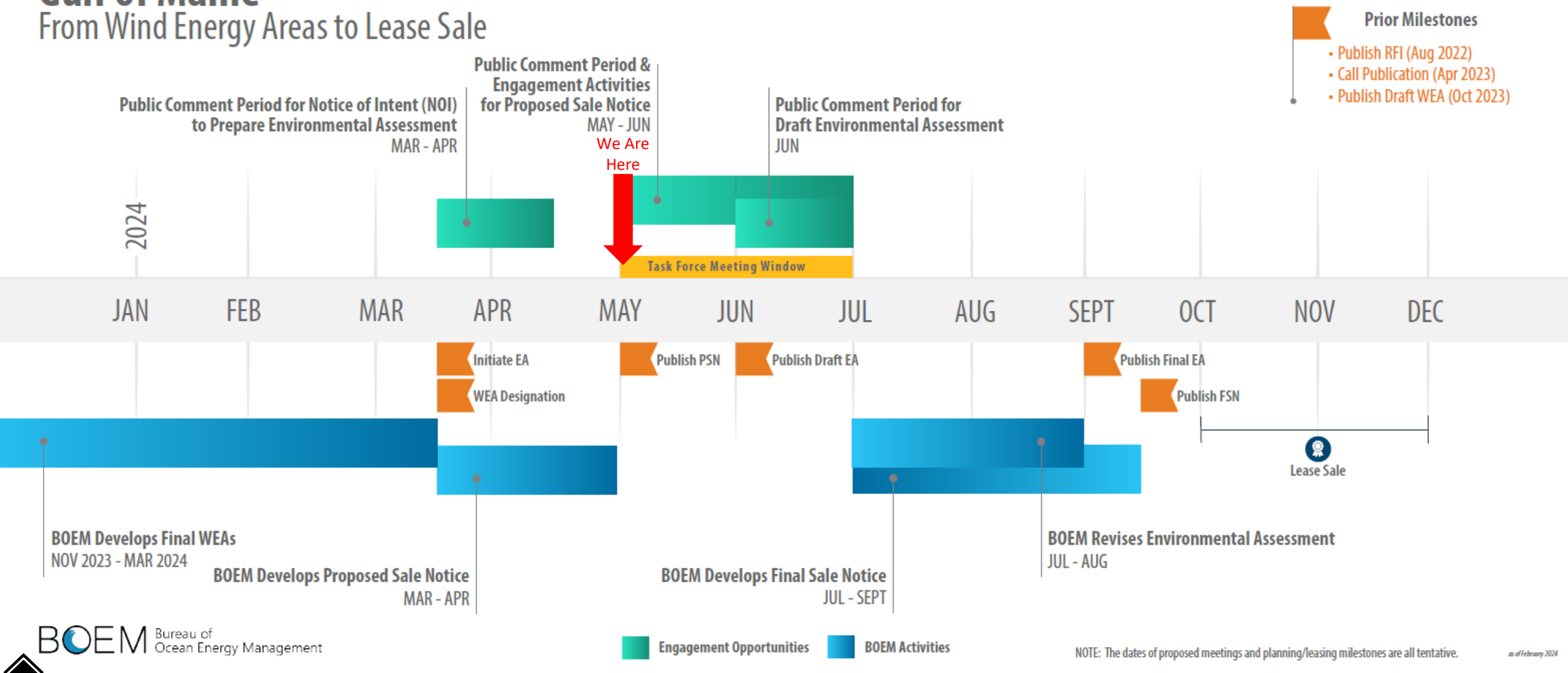
- As proposed, a bidder can win a maximum of two South Region leases, or one North Region lease and one South Region lease.
  - Supports competitive bidding and States' desire for a competitive offtake procurement process.
  - BOEM is soliciting public comment on the proposal, as well as an alternative structure that includes three regions.
    - Under this alternative, bidders could win a maximum of two leases, with a limit of one per region.
- Multiple-factor auction format.
  - The bidding system will be a combination of monetary (75%) and non-monetary factors (25%).
  - Winning bidders will pay the 'second price' which is highest bid amount where there was competition.
  - The proposed minimum bid is $50 per acre.



PSN: Bidding Credits

- **Bidders may receive bidding credits up to 25% in exchange for committing to a qualifying monetary contribution to programs or initiatives supporting offshore wind.**
  - The proposed bidding credits are the same as those offered in GOMW-1, although the individual credit percentages may vary.
  - Bidding credits are calculated as a percentage of the bid.
- **Two bidding credits are proposed:**
  - 12.5% bidding credit for a commitment to invest in programs that will advance U.S. floating offshore wind energy workforce training and/or supply chain development.
    - The credit is intended to incentivize investments that would not occur otherwise.
    - Includes investments in port infrastructure related to component manufacturing and assembly areas for offshore wind construction and deployment (e.g., foundations, turbine components).
  - 12.5% bidding credit for establishing or contributing to a Fisheries Compensatory Mitigation Fund.
    - BOEM encourages lessees to work together to establish or contribute to a single regional fund.

Gulf of Maine
From Wind Energy Areas to Lease Sale



BOEM Bureau of Ocean Energy Management

NOTE: The dates of proposed meetings and planning/leasing milestones are all tentative.

as of February 2024

PSN: Public Meetings (In-Person)

- For the most up-to-date public meeting information, see BOEM's website.
- Open House – Portland, Maine
  - Date: Tuesday, May 28, 2024
  - Time: 5-8pm
  - Location: Holiday Inn Portland-by the Bay (88 Spring Street Portland, ME 04101
- Open House – Portsmouth, New Hampshire
  - Date: Wednesday, May 29, 2024
  - Time: 5-8pm
  - Location: Urban Forestry Center (45 Elwyn Rd, Portsmouth, NH 03801)
- Open House – Danvers, Massachusetts
  - Date: Thursday, May 30, 2024
  - Time: 5-8pm
  - Location: DoubleTree by Hilton, North Shore (50 Ferncroft Rd, Danvers, MA 01923)
- Task Force Meeting – Plymouth, MA
  - Date: Friday, May 31, 2024
  - Time: 8:30am-4:30pm
  - Location: Hotel 1620 (180 Water St, Plymouth, MA 02360)

PSN: Public Meetings (Virtual)

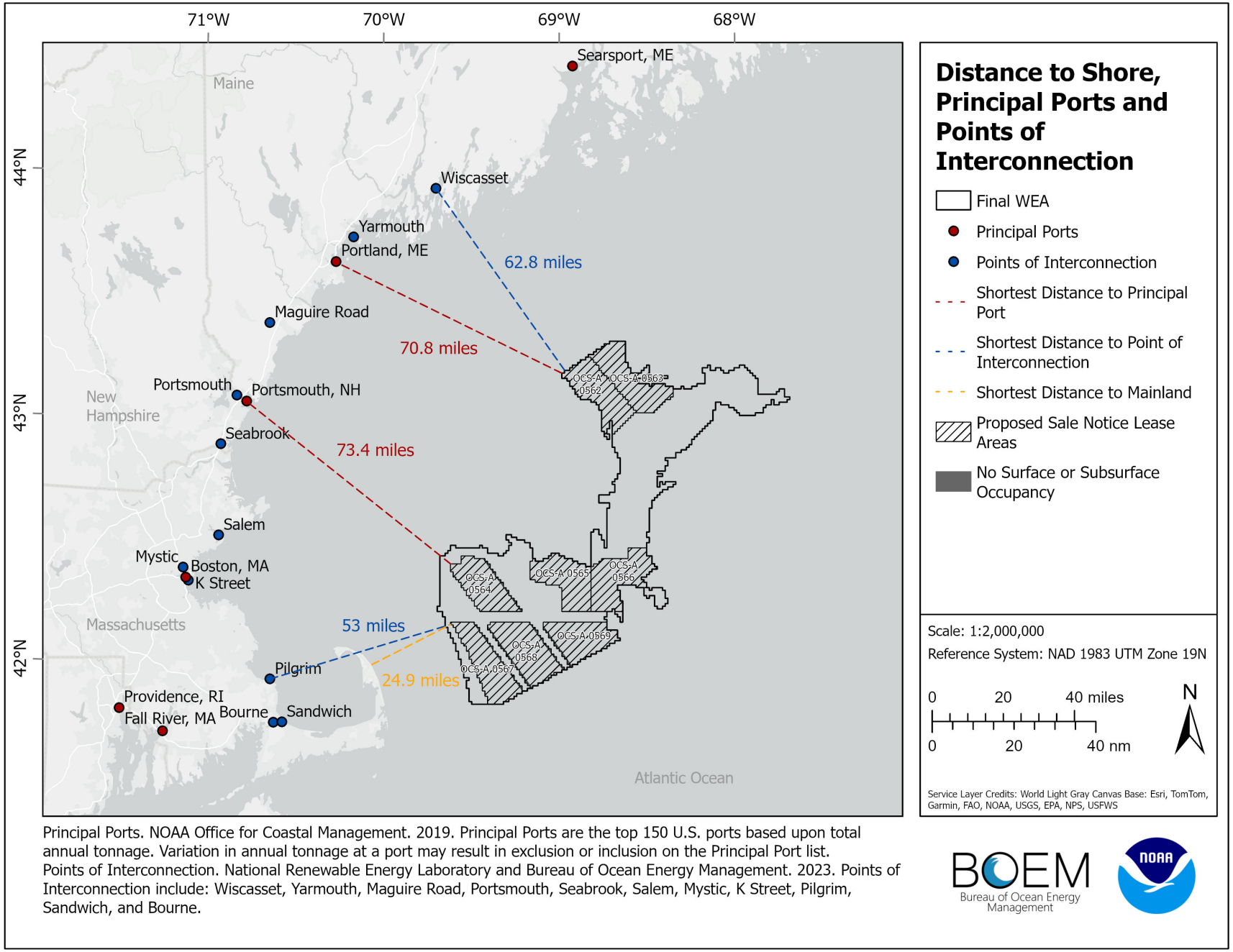
- For the most up-to-date public meeting information, see BOEM's website.
- General Public
  - Date: Thursday, May 23, 2024
  - Time: 6-8pm
- Commercial Fishing (Mobile & Fixed Gear)
  - Date: Thursday, June 6, 2024
  - Time: 5-7pm
- Recreational Fishing and Highly Migratory Species
  - Date: Tuesday, June 11, 2024
  - Time: 5-7pm
- Environmental Non-Governmental Organizations (eNGOs)
  - Date: Monday, June 10, 2024
  - Time: 1:30-3:30pm
- Commercial Maritime (Shipping)
  - Date: Monday, June 10, 2024
  - Time: 4-6pm

BOEM

BUREAU OF OCEAN ENERGY MANAGEMENT

BOEM.gov

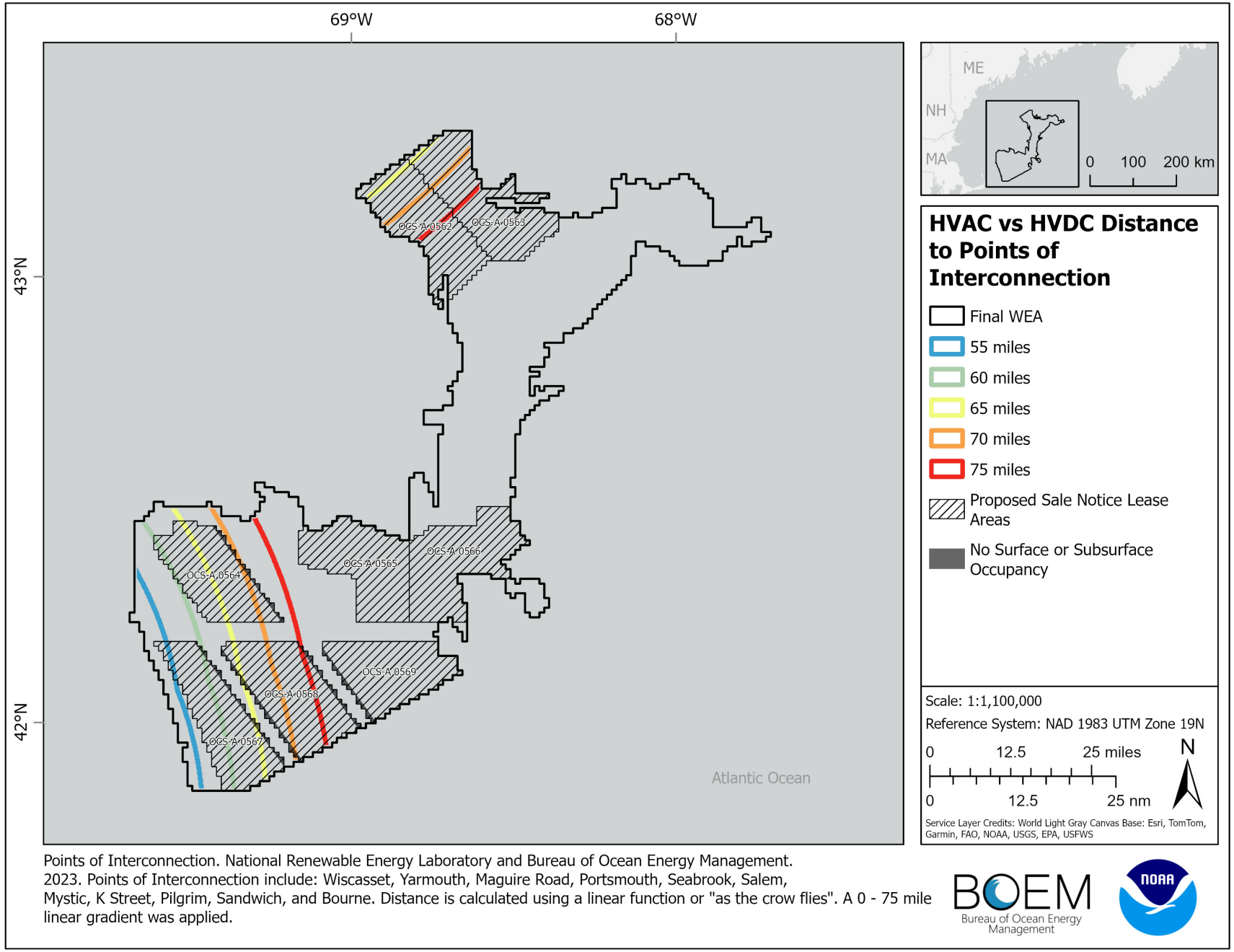
Zach Jylkka | Zachary.Jylkka@boem.gov | (978) 491-7732



Principal Ports. NOAA Office for Coastal Management. 2019. Principal Ports are the top 150 U.S. ports based upon total annual tonnage. Variation in annual tonnage at a port may result in exclusion or inclusion on the Principal Port list.
Points of Interconnection. National Renewable Energy Laboratory and Bureau of Ocean Energy Management. 2023. Points of Interconnection include: Wiscasset, Yarmouth, Maguire Road, Portsmouth, Seabrook, Salem, Mystic, K Street, Pilgrim, Sandwich, and Bourne.

BOEM Bureau of Ocean Energy Management

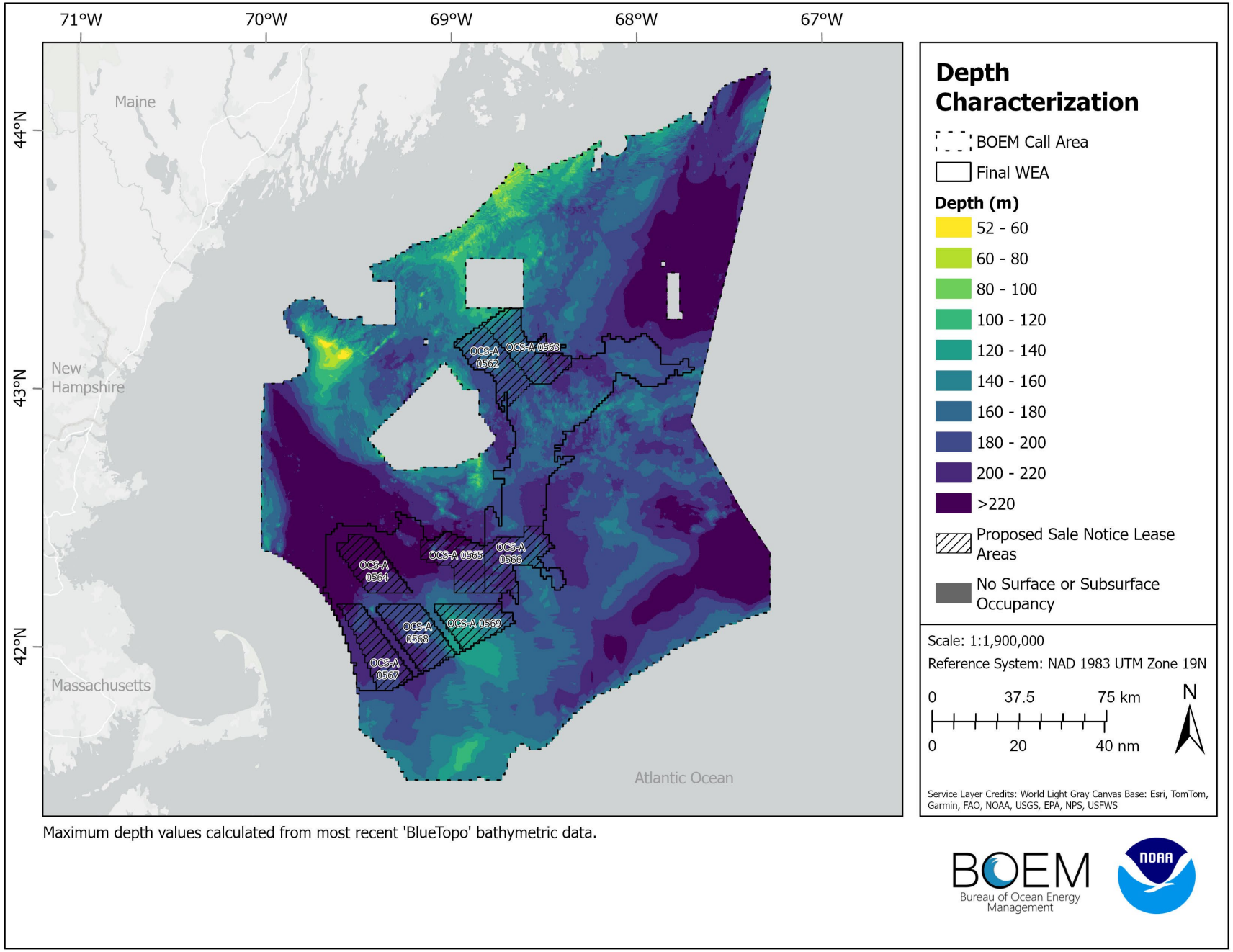
NOAA



Points of Interconnection. National Renewable Energy Laboratory and Bureau of Ocean Energy Management. 2023. Points of Interconnection include: Wiscasset, Yarmouth, Maguire Road, Portsmouth, Seabrook, Salem, Mystic, K Street, Pilgrim, Sandwich, and Bourne. Distance is calculated using a linear function or "as the crow flies". A 0 - 75 mile linear gradient was applied.

BOEM Bureau of Ocean Energy Management

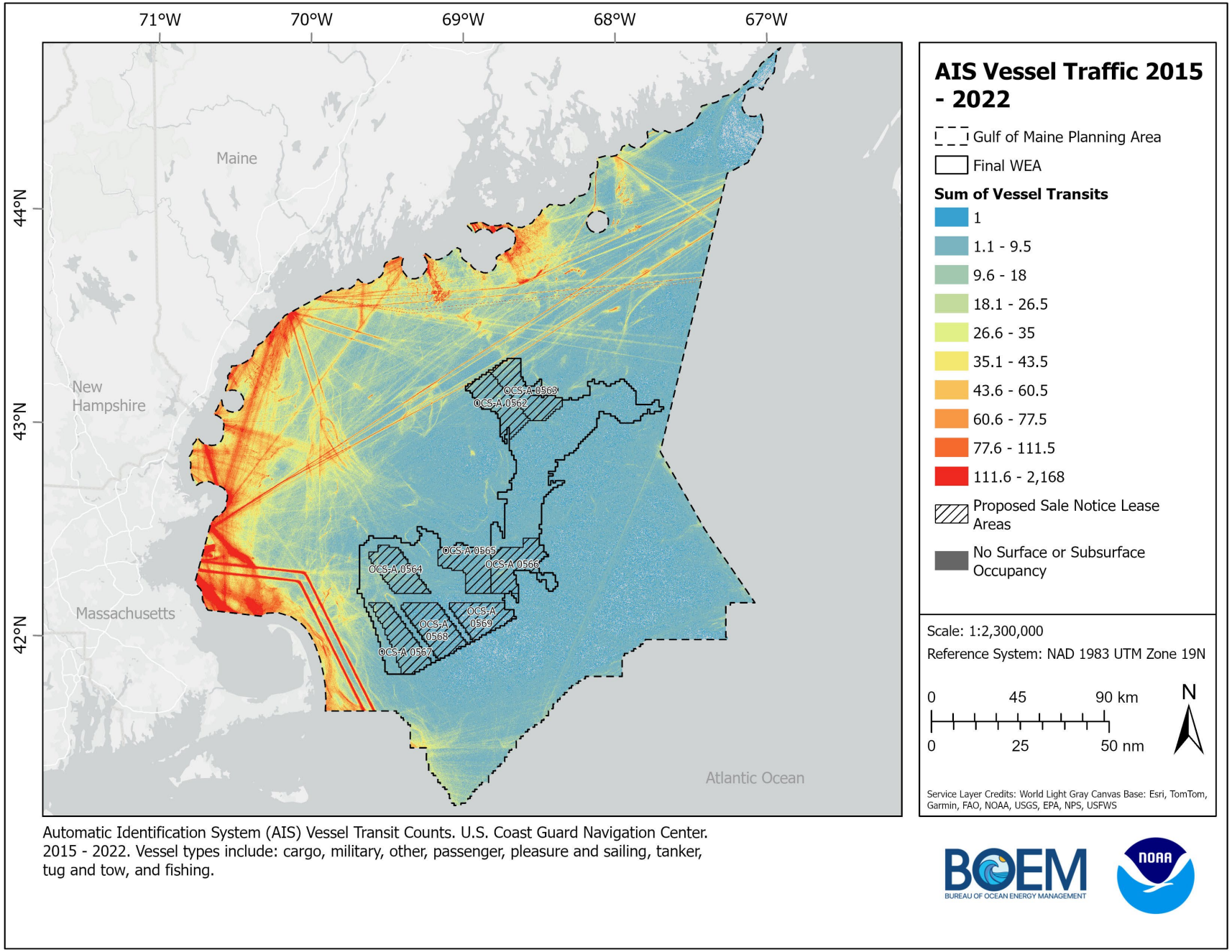
NOAA



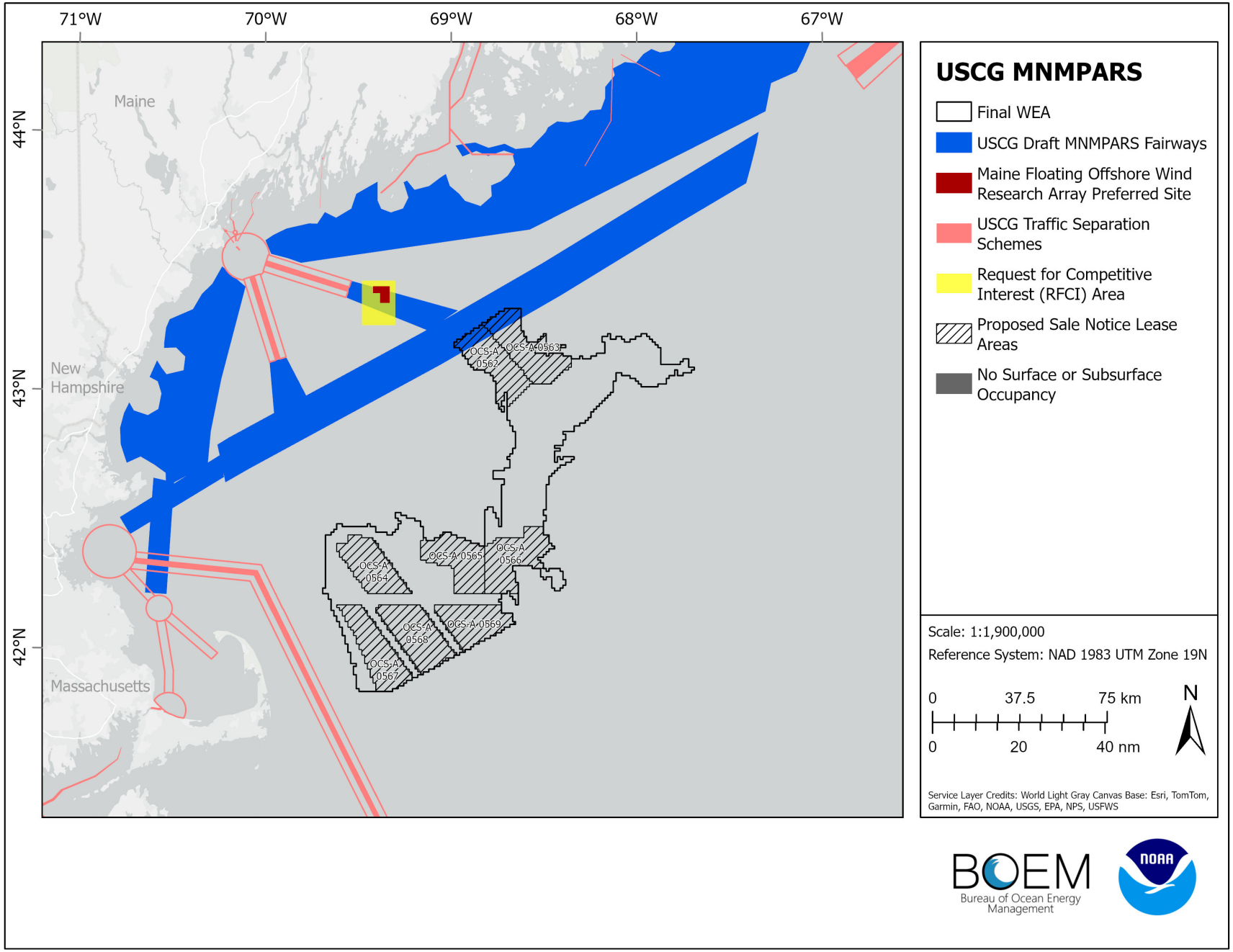
Maximum depth values calculated from most recent 'BlueTopo' bathymetric data.

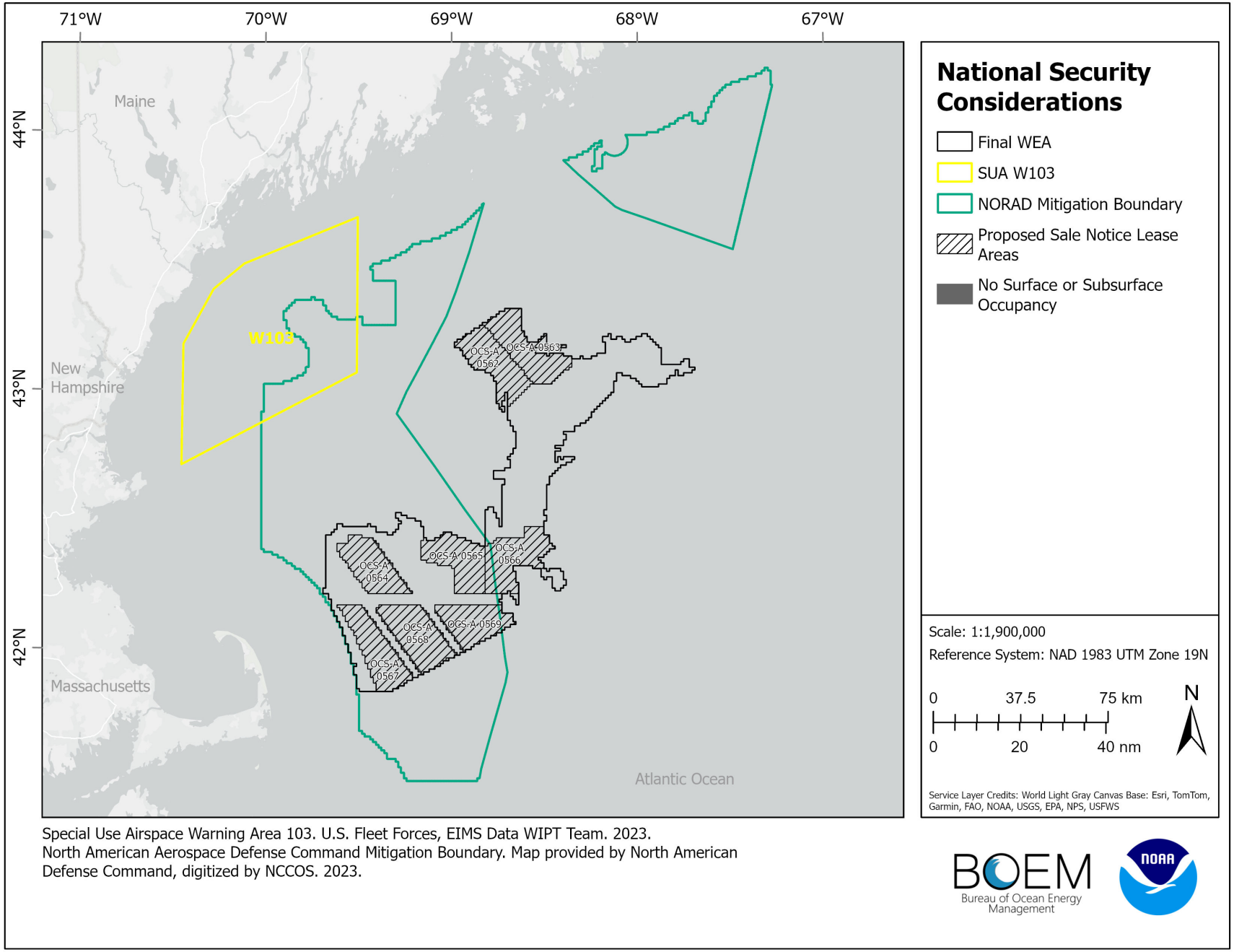
BOEM Bureau of Ocean Energy Management

NOAA



Automatic Identification System (AIS) Vessel Transit Counts. U.S. Coast Guard Navigation Center. 2015 - 2022. Vessel types include: cargo, military, other, passenger, pleasure and sailing, tanker, tug and tow, and fishing.

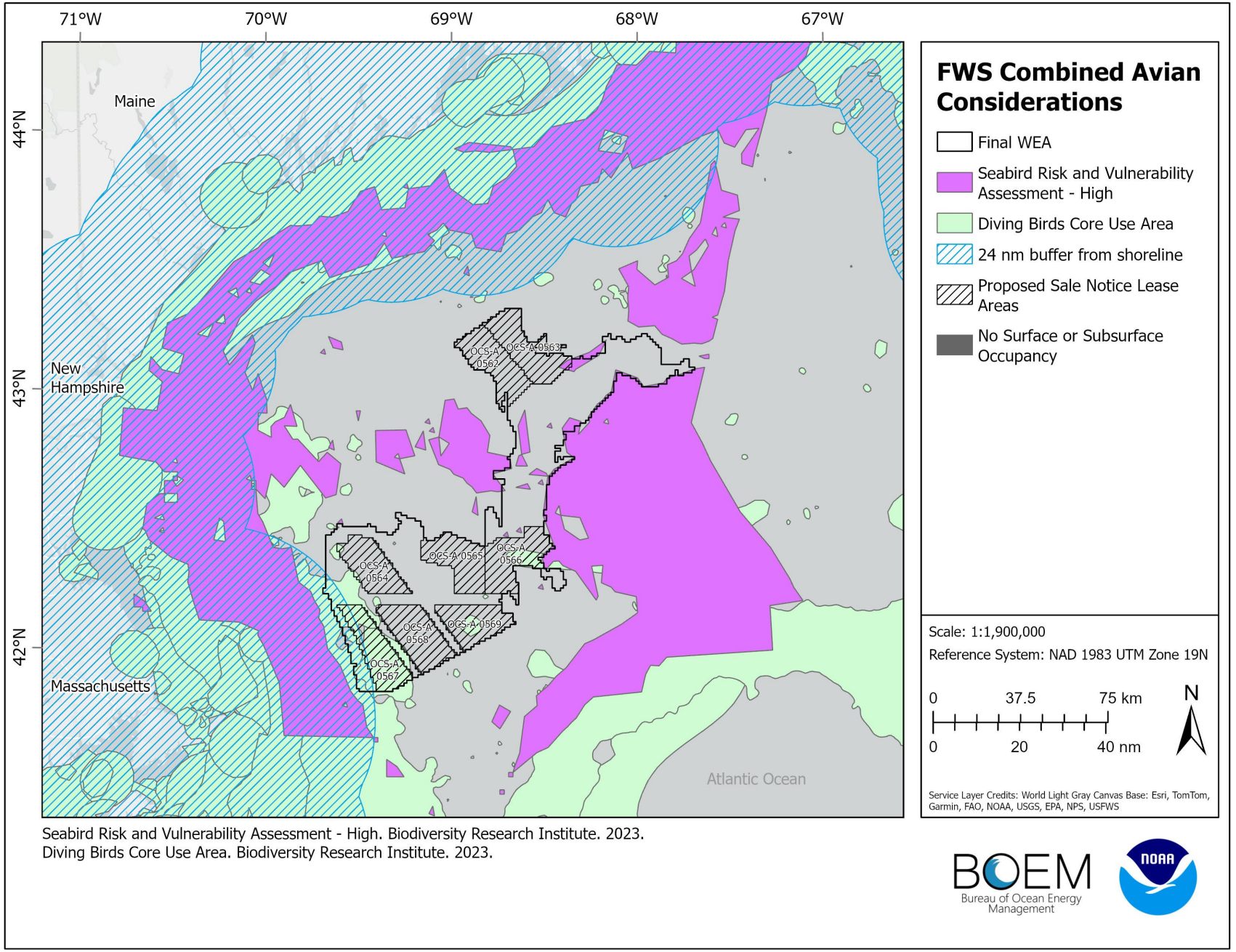

71°W
70°W
69°W
68°W
67°W
44°N
43°N
42°N
Maine
New Hampshire
Massachusetts
OCS-A 0562
OCS-A 0563
OCS-A 0564
OCS-A 0565
OCS-A 0566
OCS-A 0567
OCS-A 0568
OCS-A 0569
USCG MNMPARS
Final WEA
USCG Draft MNMPARS Fairways
Maine Floating Offshore Wind Research Array Preferred Site
USCG Traffic Separation Schemes
Request for Competitive Interest (RFCI) Area
Proposed Sale Notice Lease Areas
No Surface or Subsurface Occupancy
Scale: 1:1,900,000
Reference System: NAD 1983 UTM Zone 19N
0
37.5
75 km
0
20
40 nm
N
Service Layer Credits: World Light Gray Canvas Base: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS
BOEM
Bureau of Ocean Energy Management
NOAA



Special Use Airspace Warning Area 103. U.S. Fleet Forces, EIMS Data WIPT Team. 2023.
North American Aerospace Defense Command Mitigation Boundary. Map provided by North American Defense Command, digitized by NCCOS. 2023.

BOEM Bureau of Ocean Energy Management

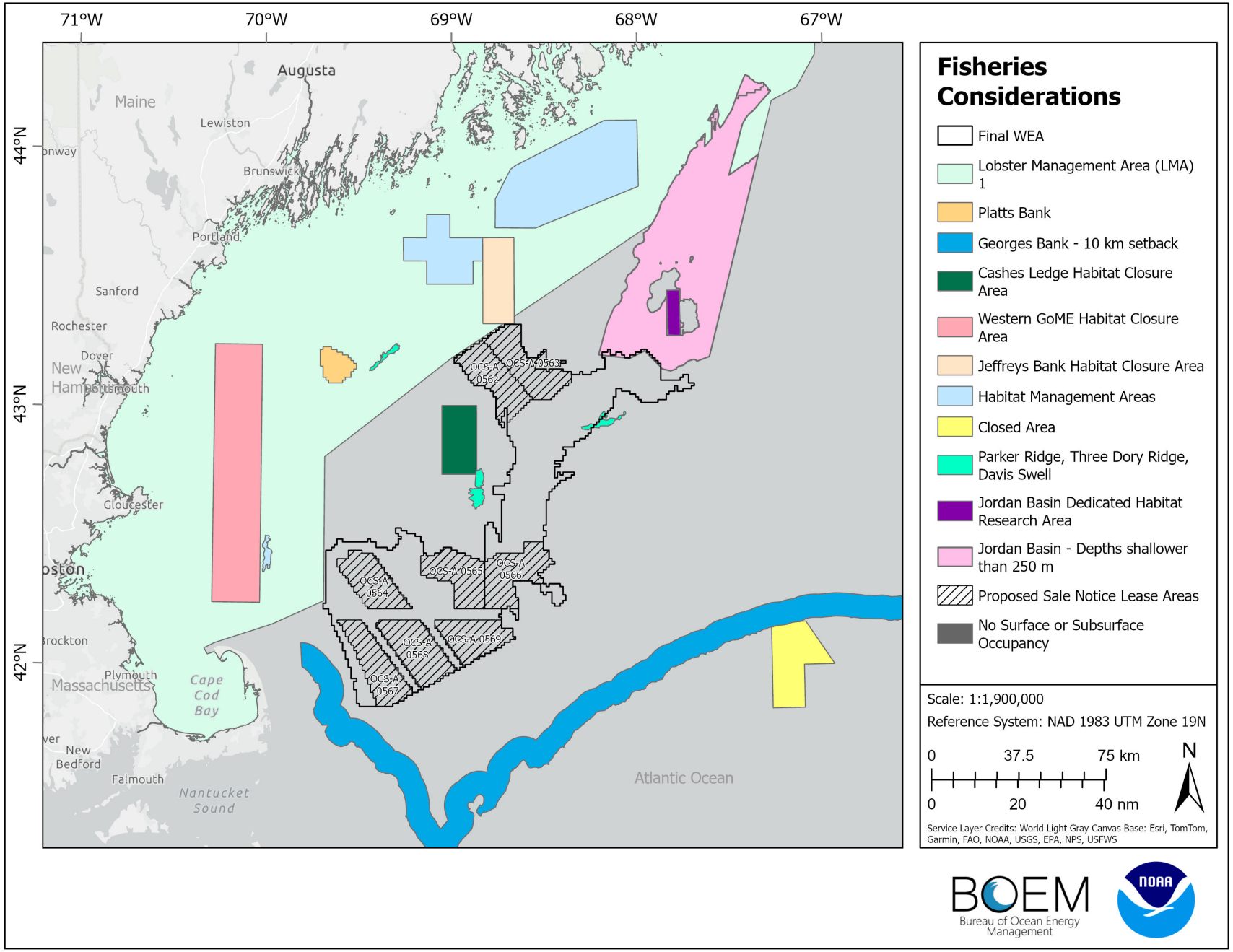
NOAA

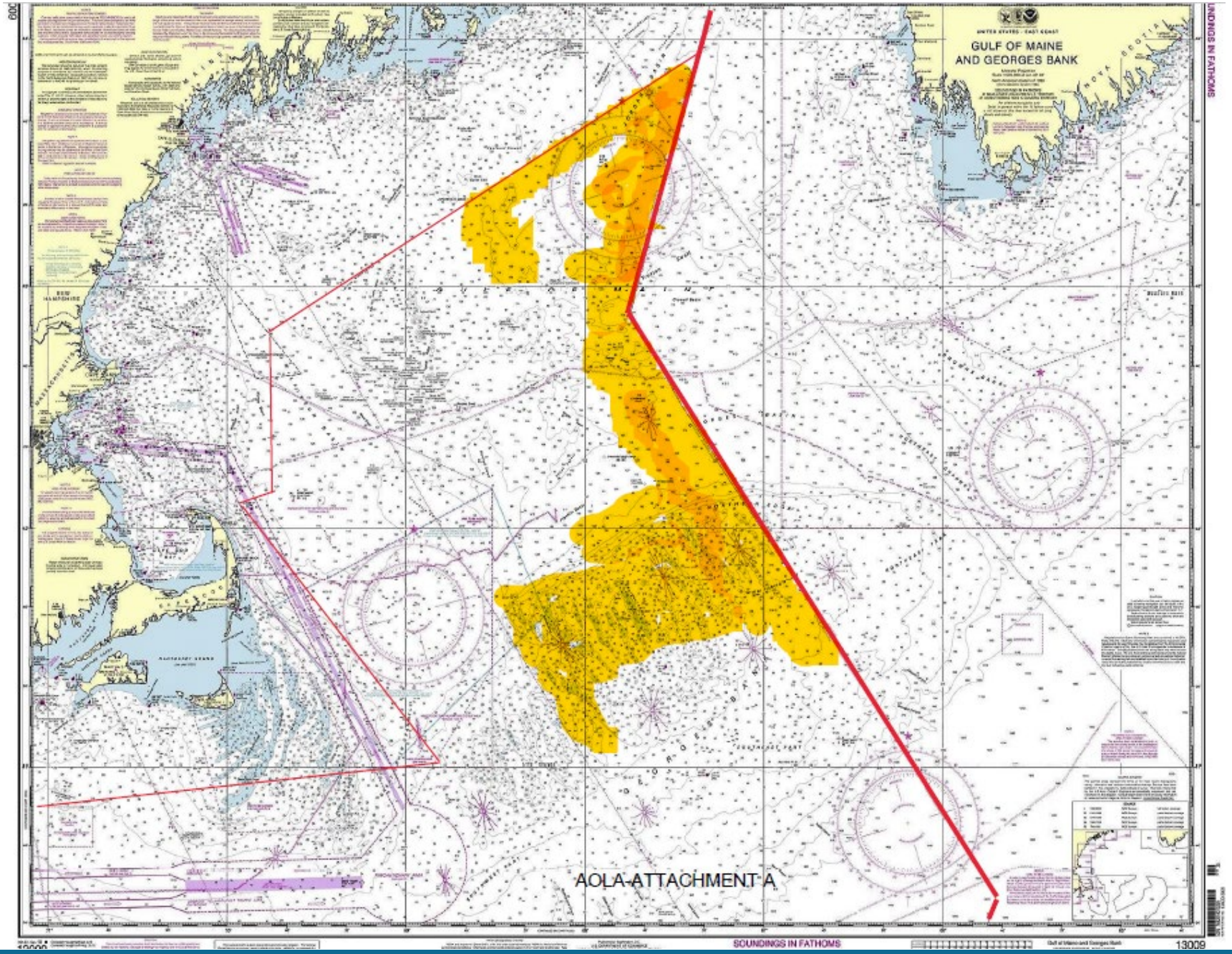


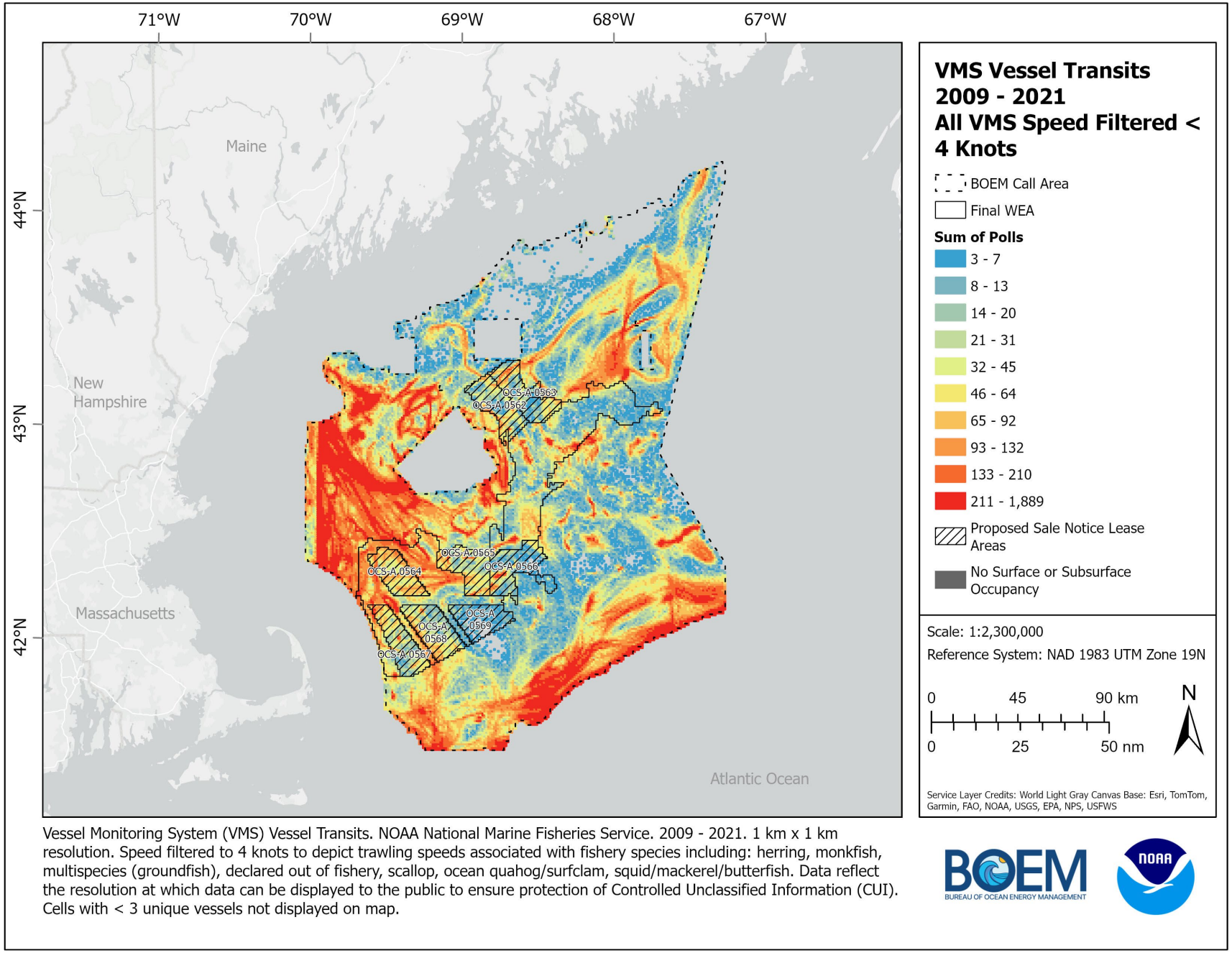
Seabird Risk and Vulnerability Assessment - High. Biodiversity Research Institute. 2023.
Diving Birds Core Use Area. Biodiversity Research Institute. 2023.

BOEM Bureau of Ocean Energy Management

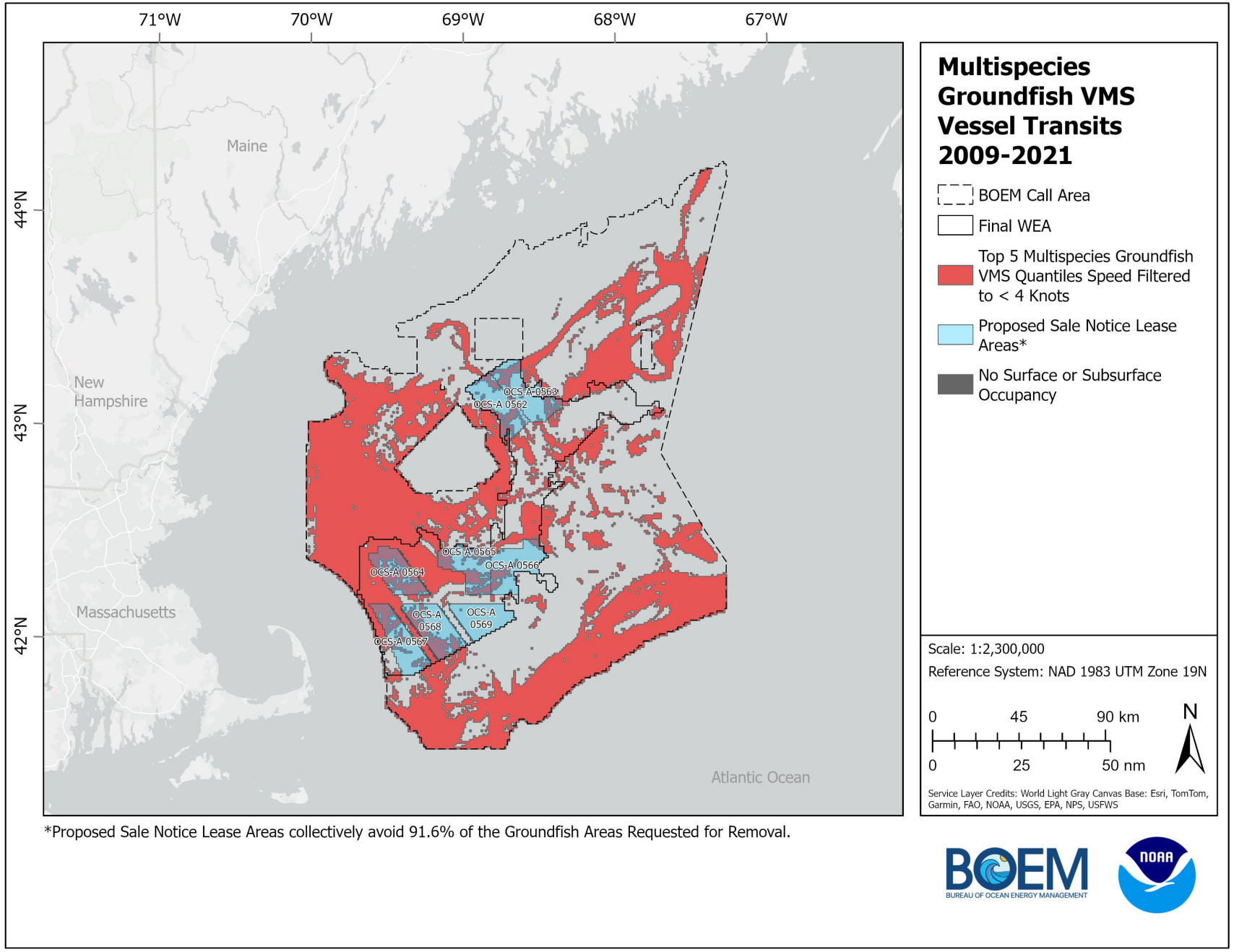
NOAA


71°W
70°W
69°W
68°W
67°W
44°N
43°N
42°N
Augusta
Maine
Lewiston
Brunswick
Portland
Sanford
Rochester
Dover
New Hampshire
Portsmouth
Gloucester
Boston
Brockton
Plymouth
Massachusetts
Cape Cod Bay
New Bedford
Falmouth
Nantucket Sound
Atlantic Ocean
OCS-A 0562
OCS-A 0563
OCS-A 0564
OCS-A 0565
OCS-A 0566
OCS-A 0567
OCS-A 0568
OCS-A 0569
Fisheries Considerations
Final WEA
Lobster Management Area (LMA) 1
Platts Bank
Georges Bank - 10 km setback
Cashes Ledge Habitat Closure Area
Western GoME Habitat Closure Area
Jeffreys Bank Habitat Closure Area
Habitat Management Areas
Closed Area
Parker Ridge, Three Dory Ridge, Davis Swell
Jordan Basin Dedicated Habitat Research Area
Jordan Basin - Depths shallower than 250 m
Proposed Sale Notice Lease Areas
No Surface or Subsurface Occupancy
Scale: 1:1,900,000
Reference System: NAD 1983 UTM Zone 19N
0
37.5
75 km
0
20
40 nm
N
Service Layer Credits: World Light Gray Canvas Base: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS
BOEM
Bureau of Ocean Energy Management
NOAA


GULF OF MAINE
AND GEORGES BANK
AOLA-ATTACHMENT A
SOUNDINGS IN FATHOMS
13009



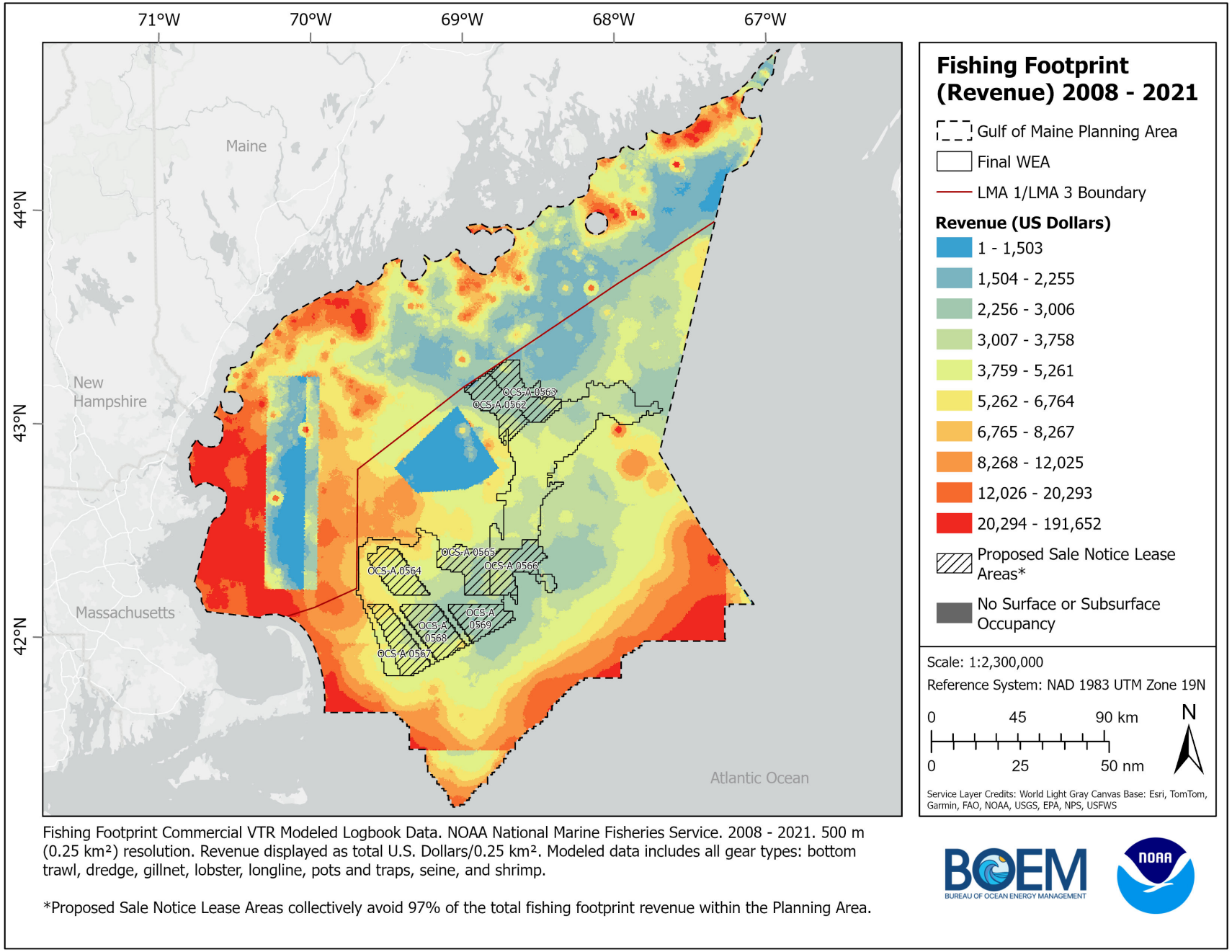
Vessel Monitoring System (VMS) Vessel Transits. NOAA National Marine Fisheries Service. 2009 - 2021. 1 km x 1 km resolution. Speed filtered to 4 knots to depict trawling speeds associated with fishery species including: herring, monkfish, multispecies (groundfish), declared out of fishery, scallop, ocean quahog/surfclam, squid/mackerel/butterfish. Data reflect the resolution at which data can be displayed to the public to ensure protection of Controlled Unclassified Information (CUI). Cells with < 3 unique vessels not displayed on map.



*Proposed Sale Notice Lease Areas collectively avoid 91.6% of the Groundfish Areas Requested for Removal.

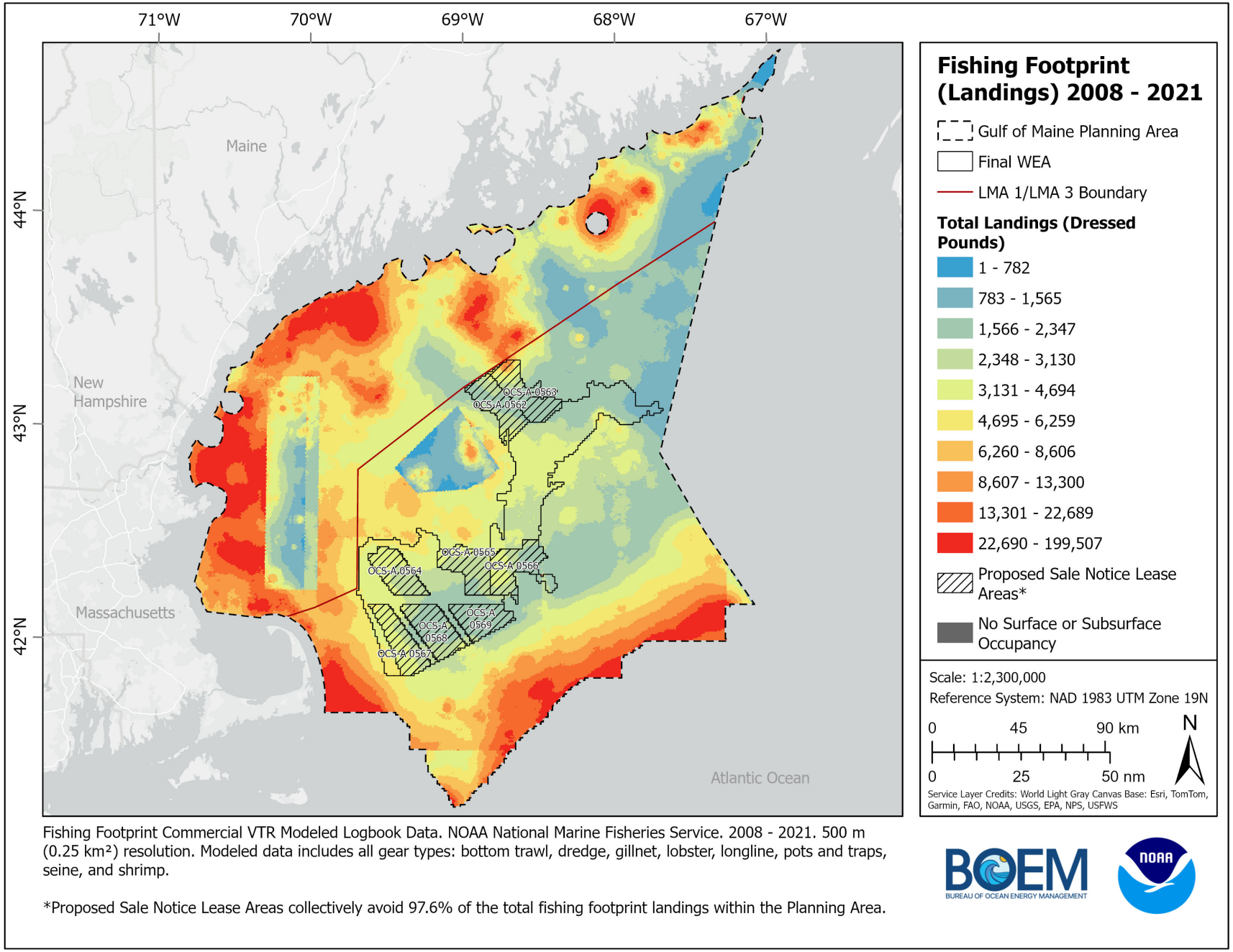
BOEM BUREAU OF OCEAN ENERGY MANAGEMENT

NOAA



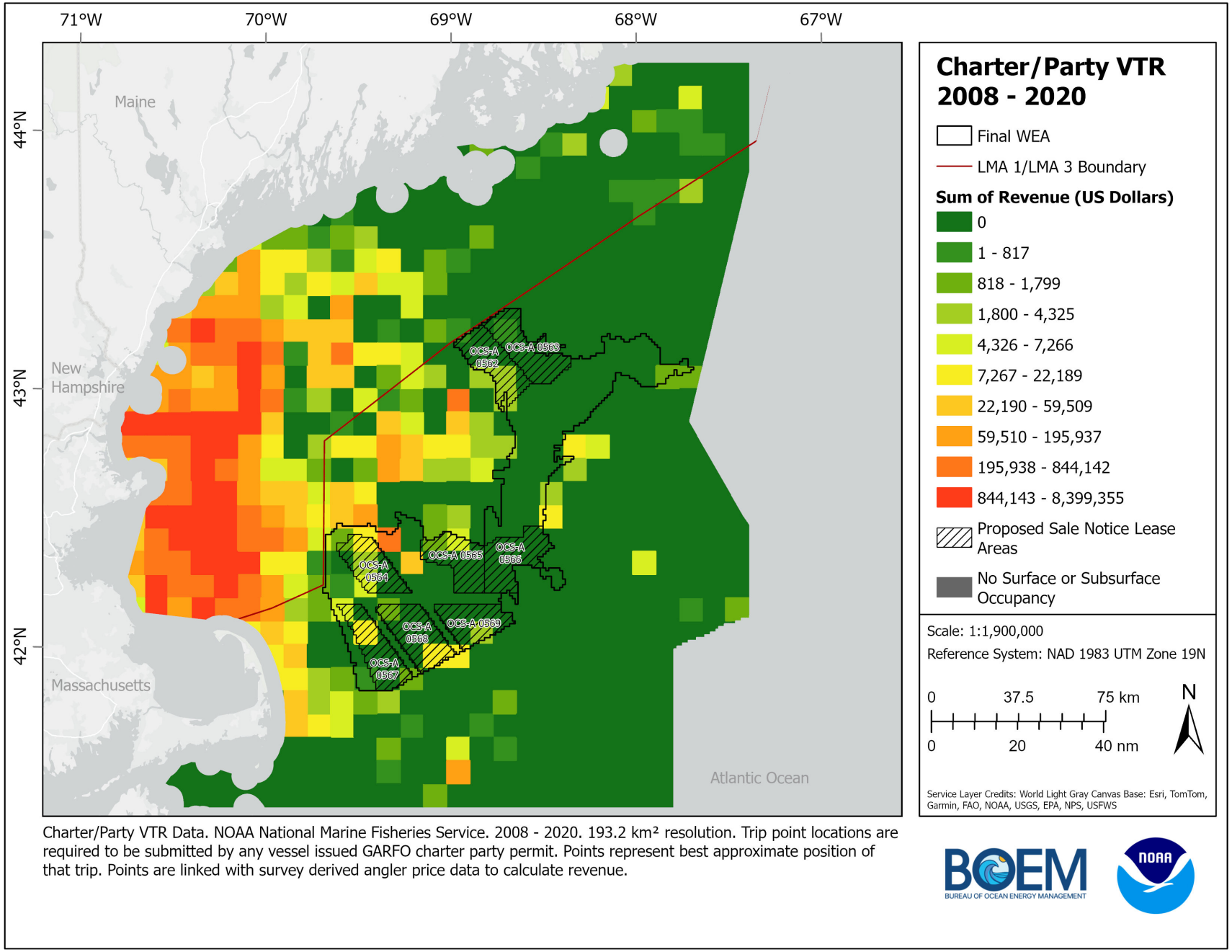
Fishing Footprint Commercial VTR Modeled Logbook Data. NOAA National Marine Fisheries Service. 2008 - 2021. 500 m (0.25 km²) resolution. Revenue displayed as total U.S. Dollars/0.25 km². Modeled data includes all gear types: bottom trawl, dredge, gillnet, lobster, longline, pots and traps, seine, and shrimp.

*Proposed Sale Notice Lease Areas collectively avoid 97% of the total fishing footprint revenue within the Planning Area.

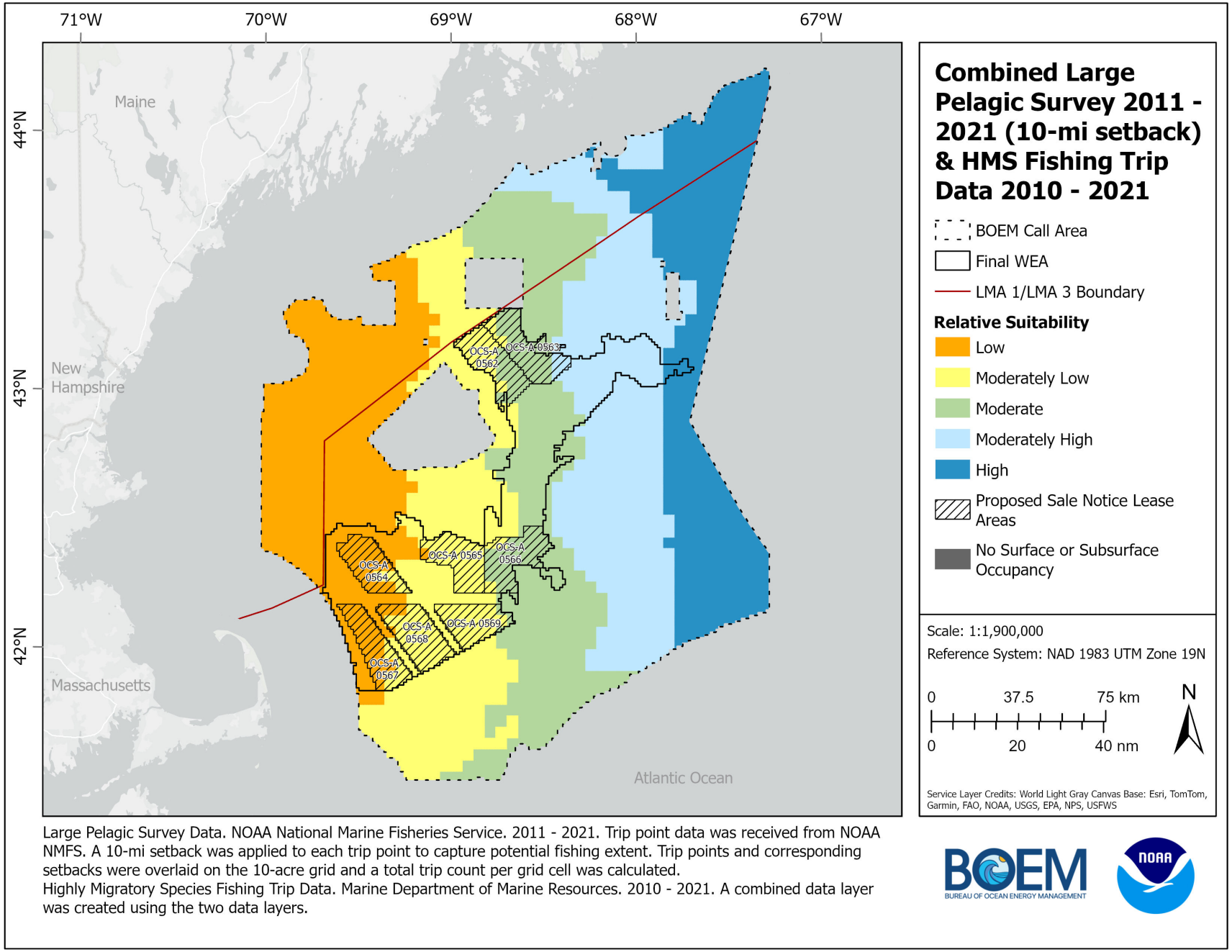


Fishing Footprint Commercial VTR Modeled Logbook Data. NOAA National Marine Fisheries Service. 2008 - 2021. 500 m (0.25 km²) resolution. Modeled data includes all gear types: bottom trawl, dredge, gillnet, lobster, longline, pots and traps, seine, and shrimp.

*Proposed Sale Notice Lease Areas collectively avoid 97.6% of the total fishing footprint landings within the Planning Area.



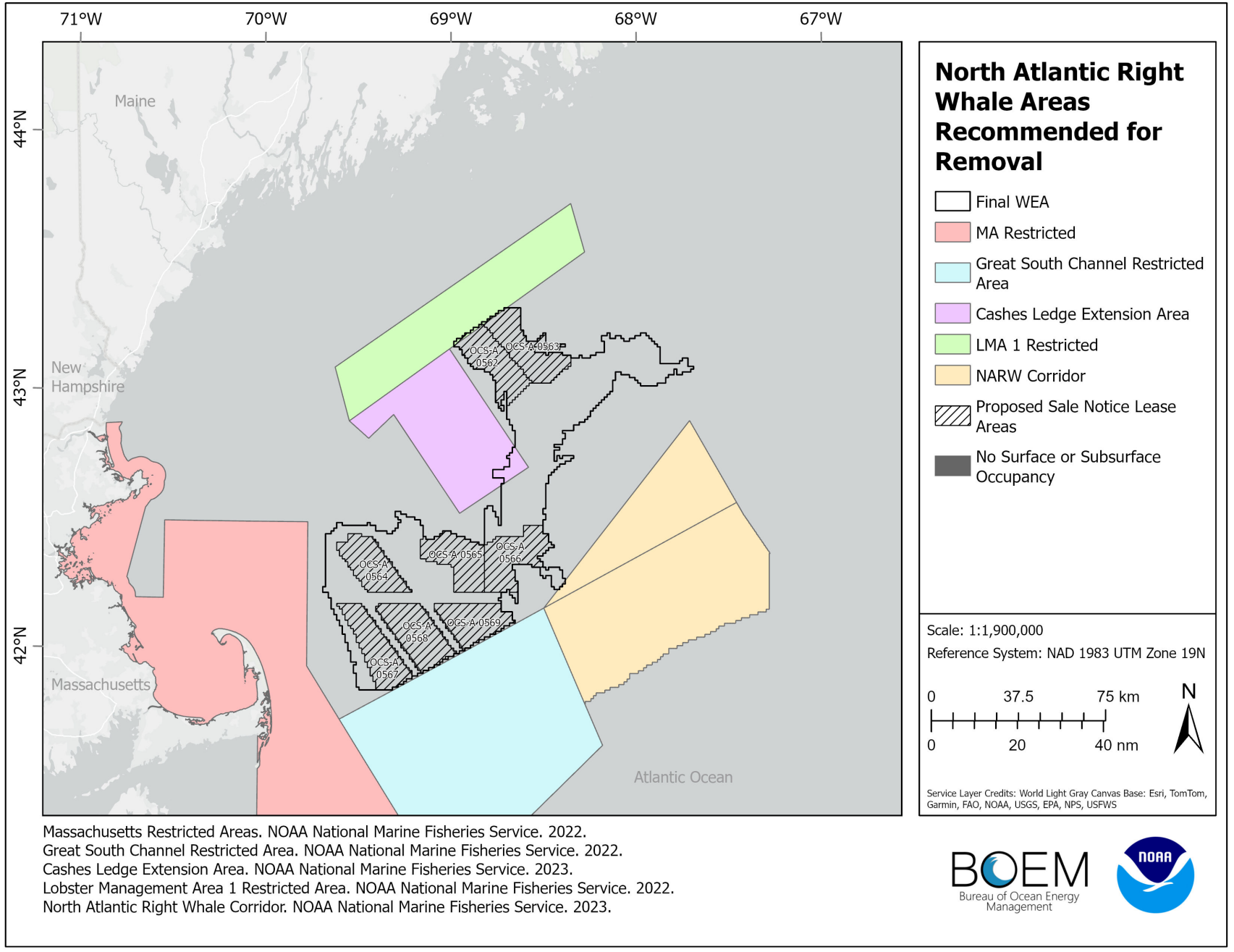
Charter/Party VTR Data. NOAA National Marine Fisheries Service. 2008 - 2020. 193.2 km² resolution. Trip point locations are required to be submitted by any vessel issued GARFO charter party permit. Points represent best approximate position of that trip. Points are linked with survey derived angler price data to calculate revenue.



Large Pelagic Survey Data. NOAA National Marine Fisheries Service. 2011 - 2021. Trip point data was received from NOAA NMFS. A 10-mi setback was applied to each trip point to capture potential fishing extent. Trip points and corresponding setbacks were overlaid on the 10-acre grid and a total trip count per grid cell was calculated.
Highly Migratory Species Fishing Trip Data. Marine Department of Marine Resources. 2010 - 2021. A combined data layer was created using the two data layers.

BOEM BUREAU OF OCEAN ENERGY MANAGEMENT

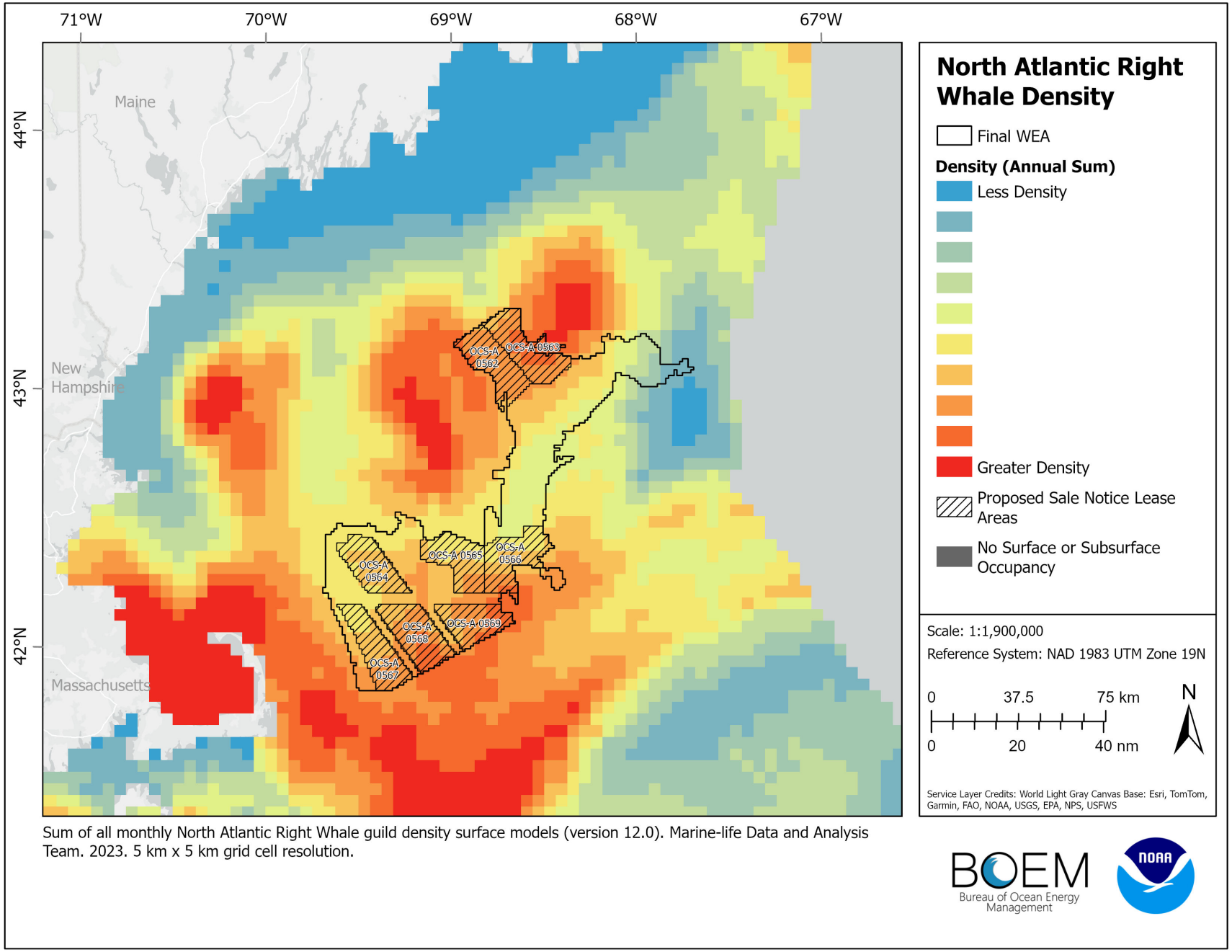
NOAA



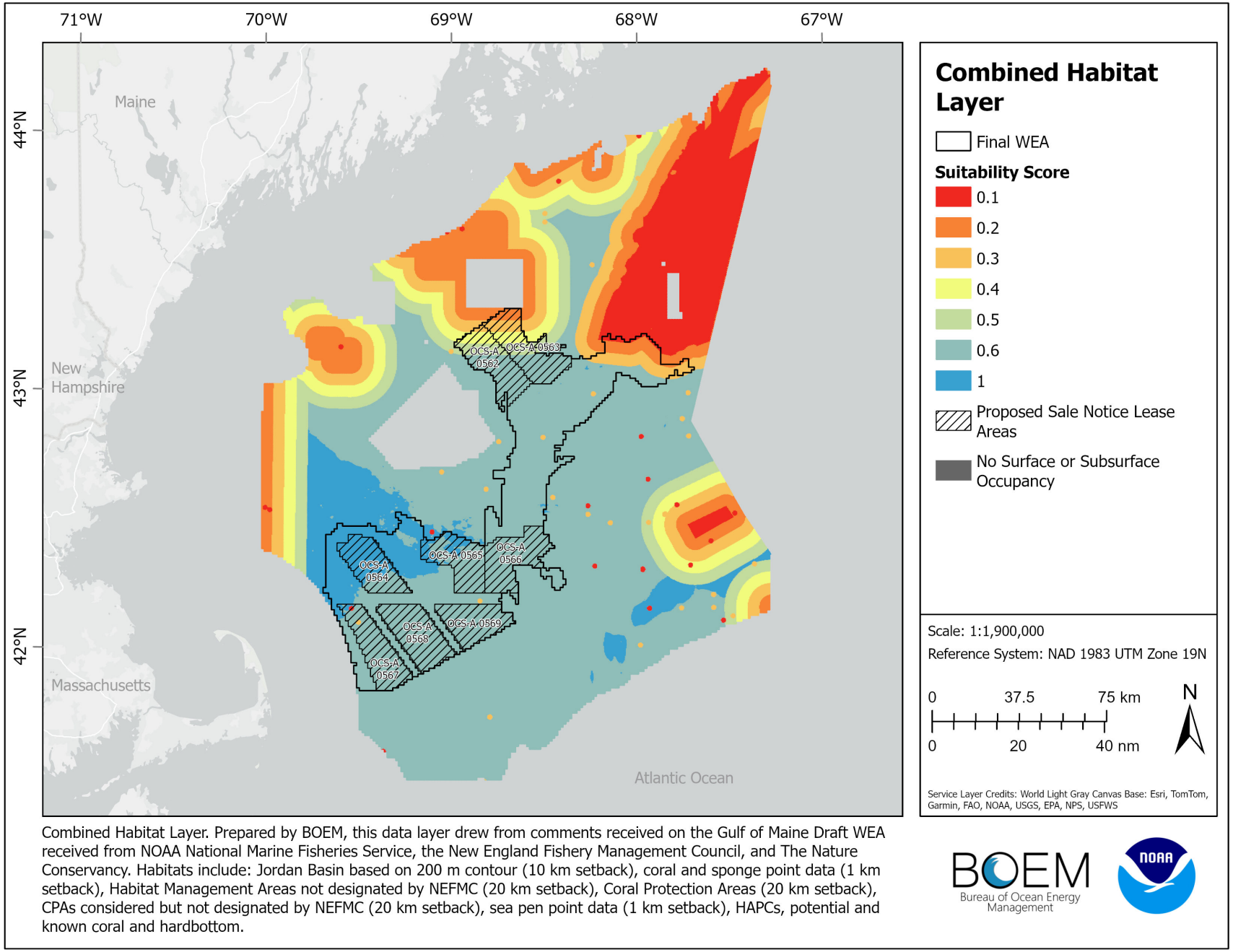
Massachusetts Restricted Areas. NOAA National Marine Fisheries Service. 2022.
Great South Channel Restricted Area. NOAA National Marine Fisheries Service. 2022.
Cashes Ledge Extension Area. NOAA National Marine Fisheries Service. 2023.
Lobster Management Area 1 Restricted Area. NOAA National Marine Fisheries Service. 2022.
North Atlantic Right Whale Corridor. NOAA National Marine Fisheries Service. 2023.

BOEM Bureau of Ocean Energy Management

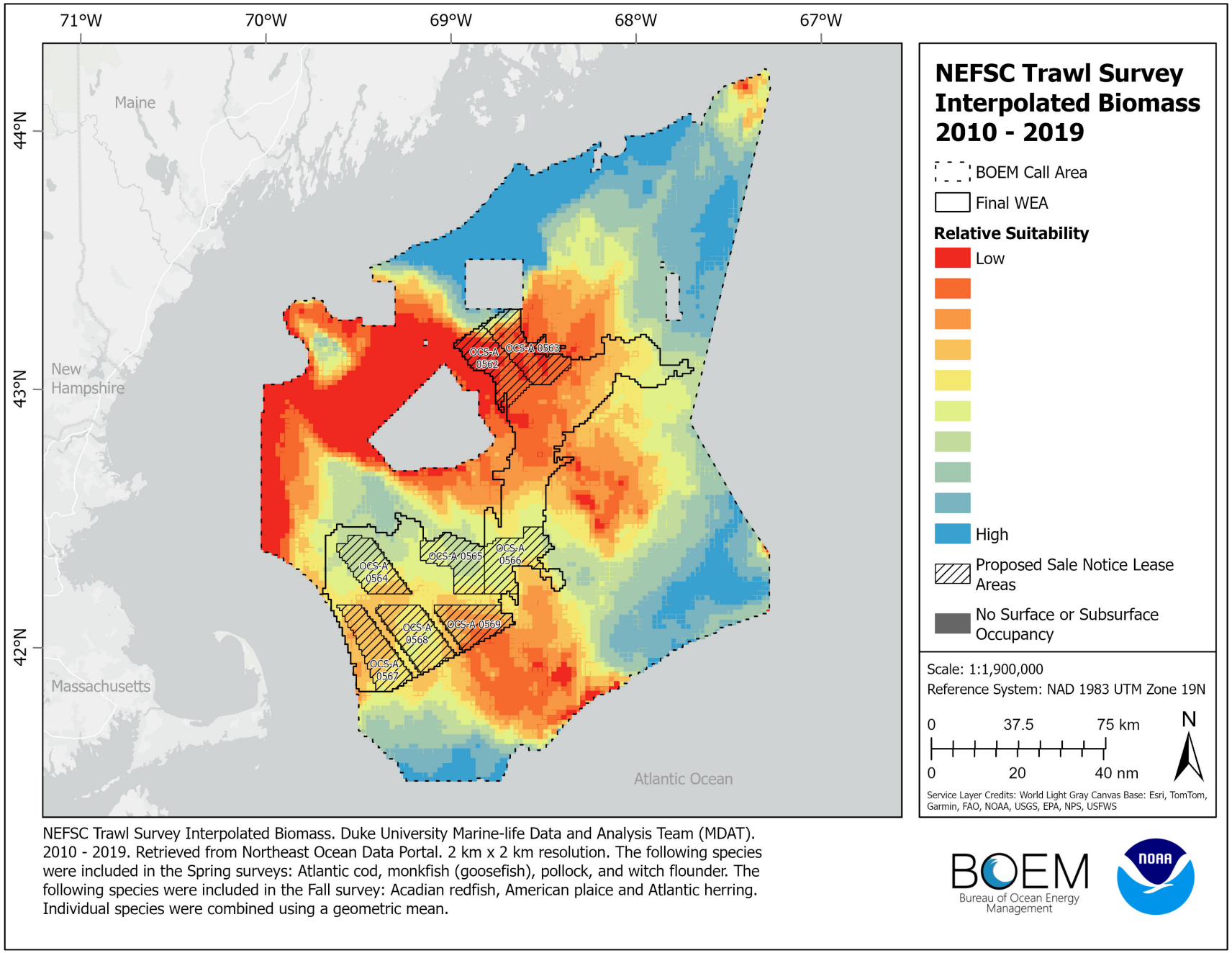
NOAA



Sum of all monthly North Atlantic Right Whale guild density surface models (version 12.0). Marine-life Data and Analysis Team. 2023. 5 km x 5 km grid cell resolution.



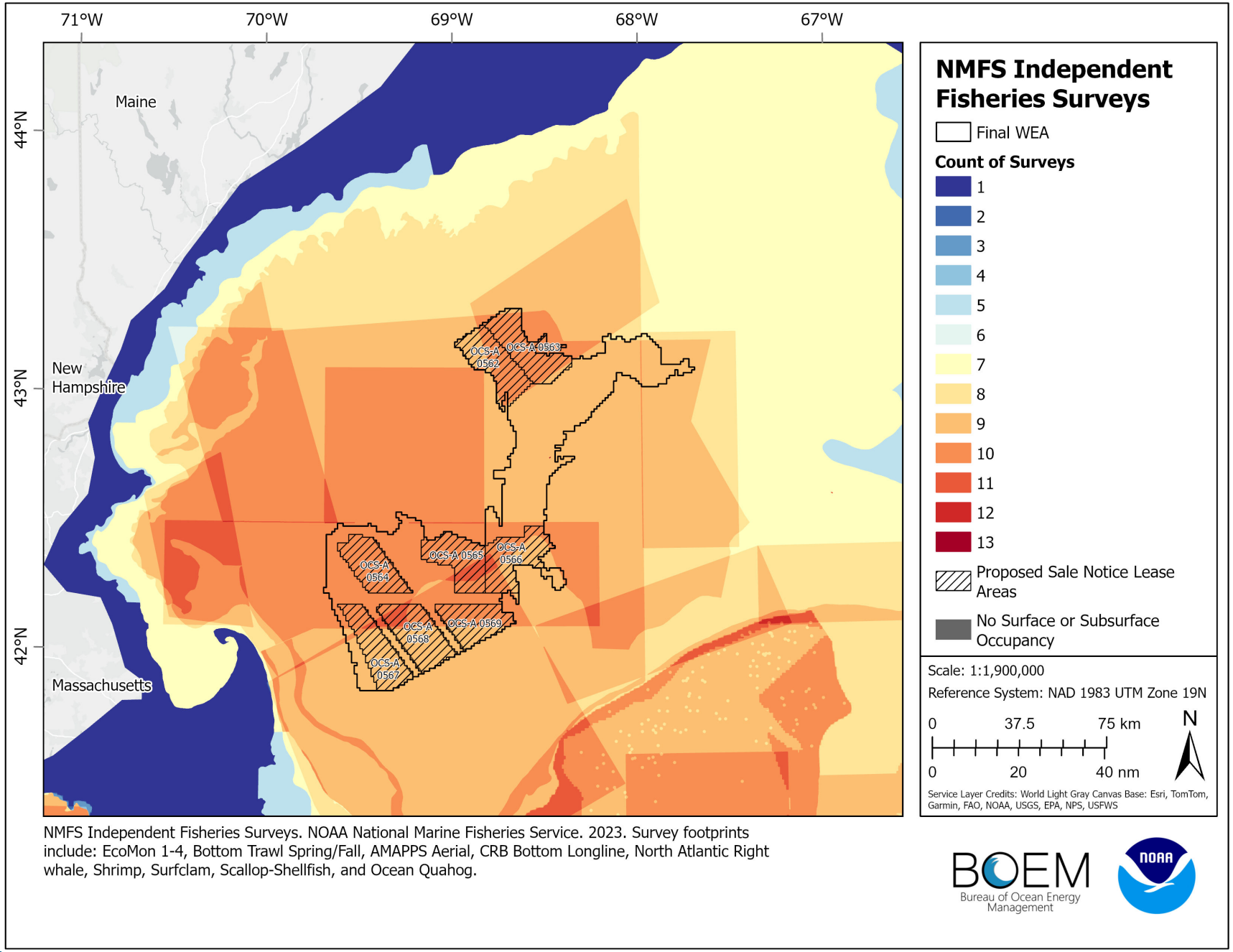
Combined Habitat Layer. Prepared by BOEM, this data layer drew from comments received on the Gulf of Maine Draft WEA received from NOAA National Marine Fisheries Service, the New England Fishery Management Council, and The Nature Conservancy. Habitats include: Jordan Basin based on 200 m contour (10 km setback), coral and sponge point data (1 km setback), Habitat Management Areas not designated by NEFMC (20 km setback), Coral Protection Areas (20 km setback), CPAs considered but not designated by NEFMC (20 km setback), sea pen point data (1 km setback), HAPCs, potential and known coral and hardbottom.



NEFSC Trawl Survey Interpolated Biomass. Duke University Marine-life Data and Analysis Team (MDAT). 2010 - 2019. Retrieved from Northeast Ocean Data Portal. 2 km x 2 km resolution. The following species were included in the Spring surveys: Atlantic cod, monkfish (goosefish), pollock, and witch flounder. The following species were included in the Fall survey: Acadian redfish, American plaice and Atlantic herring. Individual species were combined using a geometric mean.

BOEM Bureau of Ocean Energy Management

NOAA



NMFS Independent Fisheries Surveys. NOAA National Marine Fisheries Service. 2023. Survey footprints include: EcoMon 1-4, Bottom Trawl Spring/Fall, AMAPPS Aerial, CRB Bottom Longline, North Atlantic Right whale, Shrimp, Surfclam, Scallop-Shellfish, and Ocean Quahog.

BOEM Bureau of Ocean Energy Management

NOAA

Renewable Energy Goals: How many acres are needed?

- Planning and Analysis phase is based on winnowing – starting large, receiving feedback and deconflicting
- Spatial modeling acreage assumptions
  - Call and Draft WEA comments documented several capacity requests
  - MA – 10 GW of capacity by 2050
  - ME – 3 GW of capacity by 2040
  - ISO-NE – 18GW
  - American Clean Power – 20 GW
- PSN Lease Areas are ~ 944,000 acres (developable acres).

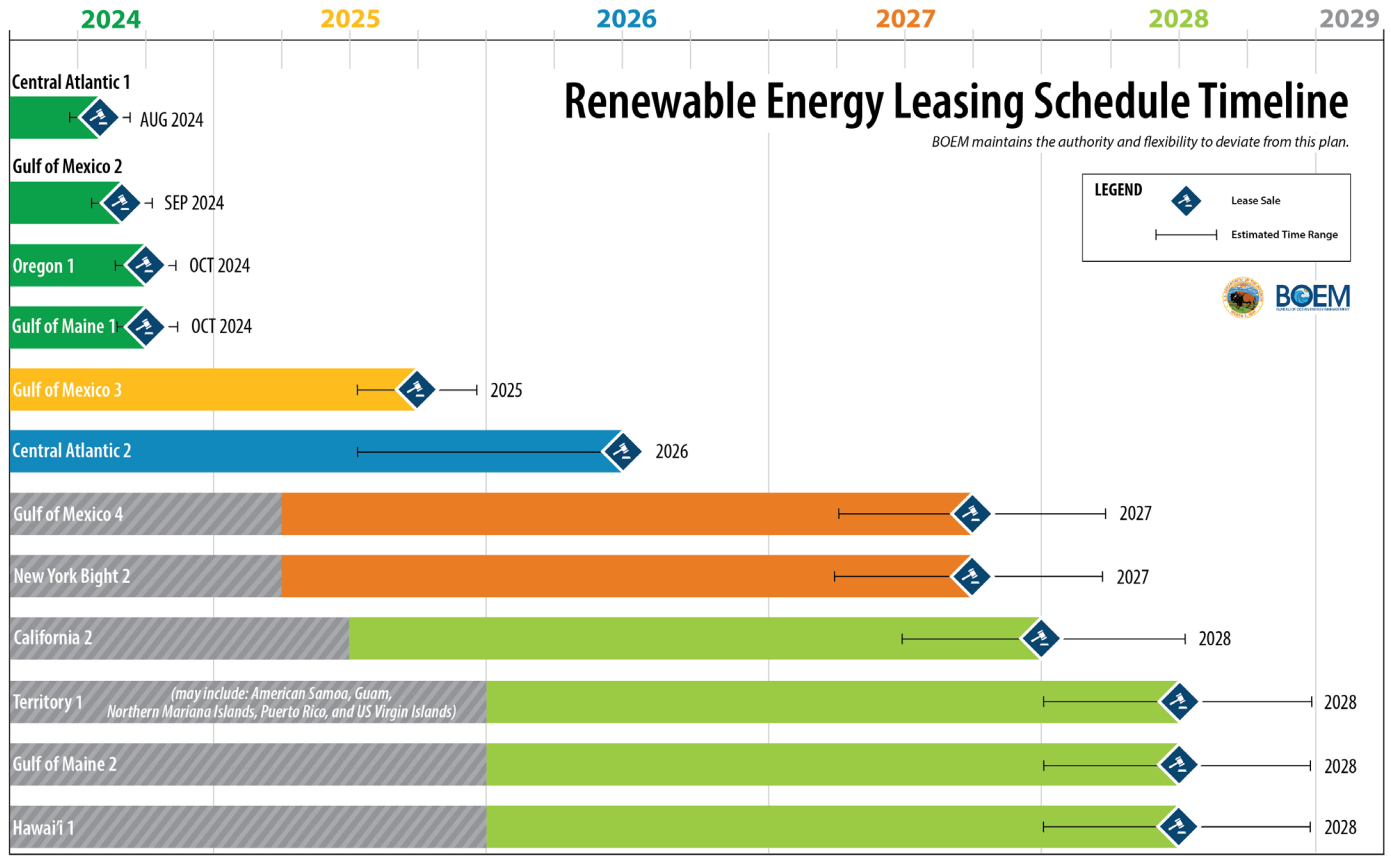
Capacity (GW) to acreage – **Energy Density***

MW	PLANNING DENSITY (Old) ~0.012 MW/acre or 3 MW/km²	PLANNING DENSITY (New) ~0.016 MW/acre or 4 MW/km²	AVERAGE DENSITY OF BOEM PROPOSED PROJECTS ~ 0.019 MW/acre or 4.7 MW/km²
13,000	1,083,333	812,500	684,211
18,000	1,500,000	1,125,000	947,368
20,000	1,666,667	1,250,000	1,052,632

*Energy density estimates are highly variable, and mostly based on fixed offshore wind experience.

5-Year Renewable Energy Leasing Schedule

- April 2024, Secretary Haaland announced new 5-year renewable energy leasing schedule
- Required under new "Modernization Rule"
- Gulf of Maine-2 sale is envisioned for 2028.
  - BOEM asked about "Phased leasing" approach when we published the Draft WEA in October 2023.
  - Area Identification memo referenced broad support received for a phased leasing; however, recommendations for scale and timing of phases varied widely across individuals and stakeholder groups.
  - The Secretary's announcement is a continuation of this conversation on "phased leasing"
  - The timing and scope of a second Gulf of Maine sale would be directly informed by the results of the 2024 sale, as well as the future position of potentially affected Tribes, Gulf of Maine states, stakeholder engagement, relevant market conditions, and regional energy goals.



RWSC

Regional Wildlife Science Collaborative for Offshore Wind

RWSC update to: Massachusetts Offshore Wind Habitat Working Group

Emily Shumchenia, Director

May 9, 2024

Subcommittees

Marine Mammals

Birds & Bats

Sea Turtles

Protected Fish Species

Habitat & Ecosystem (includes seafloor and oceanography

Technology

Data Governance

RWSC

Regional Wildlife Science Collaborative for Offshore Wind

2024 Subcommittee Work Plans

- The science bodies of RWSC
- 75+ meetings of six Subcommittees since late 2021
- Participation from science experts and all offshore wind developers w/ Atlantic interests
- Forums for information sharing and coordination – data collection & research
- Expert review of study design, data analysis methods, etc.
- Materials and meetings are public

rwsc.org/science-plan

Offshore Wind & Wildlife Research Database

https://database.rwsc.org

Provides an understanding of ongoing and planned research projects, including the methods used and types of data being collected.

As results are published they are compiled by the Tethys Knowledge Base.

TETHYS

A new field in the Database provides a link to the Map where users can view the planned or deployed sensors or surveys associated with any research project.

A new field in the Database provides links to the Data Catalog for each dataset collected by an ongoing research project.

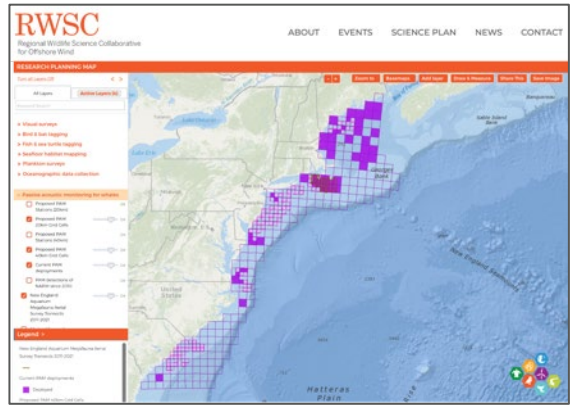
NORTHEAST OCEAN DATA
Maps and Data for Ocean Planning in the Northeastern United States

MARCO Mid-Atlantic Ocean Data Portal

Provides information as web services that can be ingested by regional ocean data portals and other web-based maps and tools.

Map of deployed offshore wind research assets and activities

Shows where sensors are located or where surveys are being conducted, who is responsible, the type of instrumentation being used, and where the data are being stored.



under development

Click on the Map to open a popup with links to the Data Catalog for each dataset collected at a given location.

IOOS Integrated Ocean Observing System

Motus Wildlife Tracking System

Ingests metadata from multiple external repositories as recommended by each Subcommittee and aggregates into a single catalog.

Offshore Wind & Wildlife Research Data Catalog

Lists all of the datasets being collected or produced by ongoing or completed research projects and provides information about who collected the data and how (metadata), with links to access and download the data.

under development

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

ABOUT EVENTS SCIENCE PLAN NEWS CONTACT

Wind Forecast Improvement Project 3 (WFIP-3)

METHODS

Water quality and oceanography

Model development and statistical frameworks

LIDAR

TAXON/TOPIC

Habitat & Ecosystem

SCIENCE PLAN SUBREGION

Southern New England

LEAD ENTITY

WHOI

PARTNER ENTITIES

PNNL, NREL, NCAR, UT Dallas, Tufts, DNV-GL, Lawrence Livermore NL, Argone NL, University of Colorado-Boulder, MassCEC, NOAA

PROJECT CONTACT

akirincich@whoi.edu

PROJECT WEBSITE

https://www2.whoi.edu/site/wfip3/

PROJECT START DATE

January 1, 2021

PROJECT END DATE

December 31, 2025

PROJECT DESCRIPTION

The 3rd Wind Forecast Improvement Project (WFIP3), sponsored by the U.S. Department of Energy, seeks to improve our understanding of the physics of the atmosphere and ocean that dictate the structure and variability of the wind resource within the Marine Atmospheric Boundary Layer (MABL).

This 5-year effort, started in the fall of 2021 will carry out a multi-seasonal offshore field measurement campaign in 2024-2025, linked to intensive numerical modeling development and validation efforts, that will:

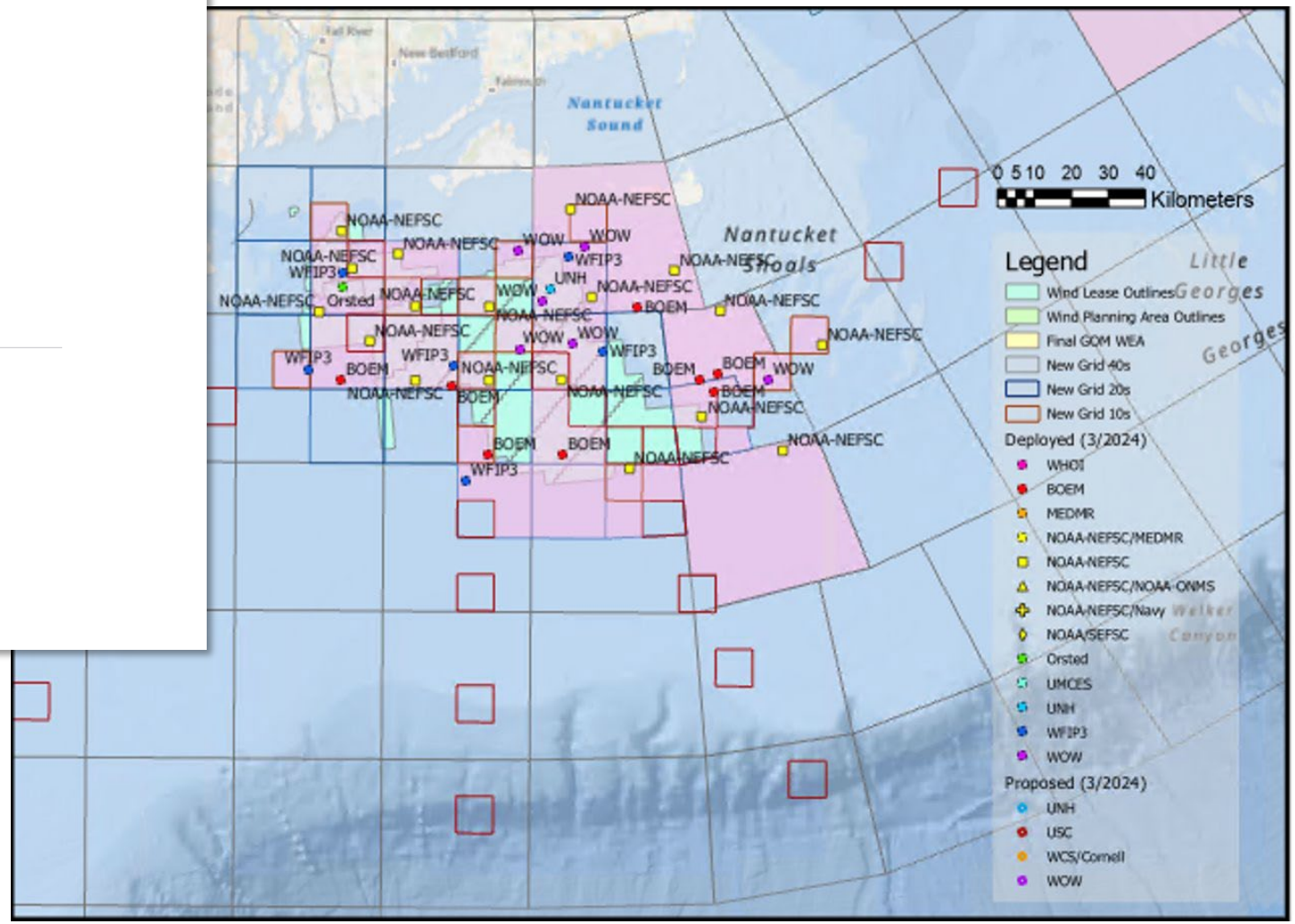
RESEARCH THEMES

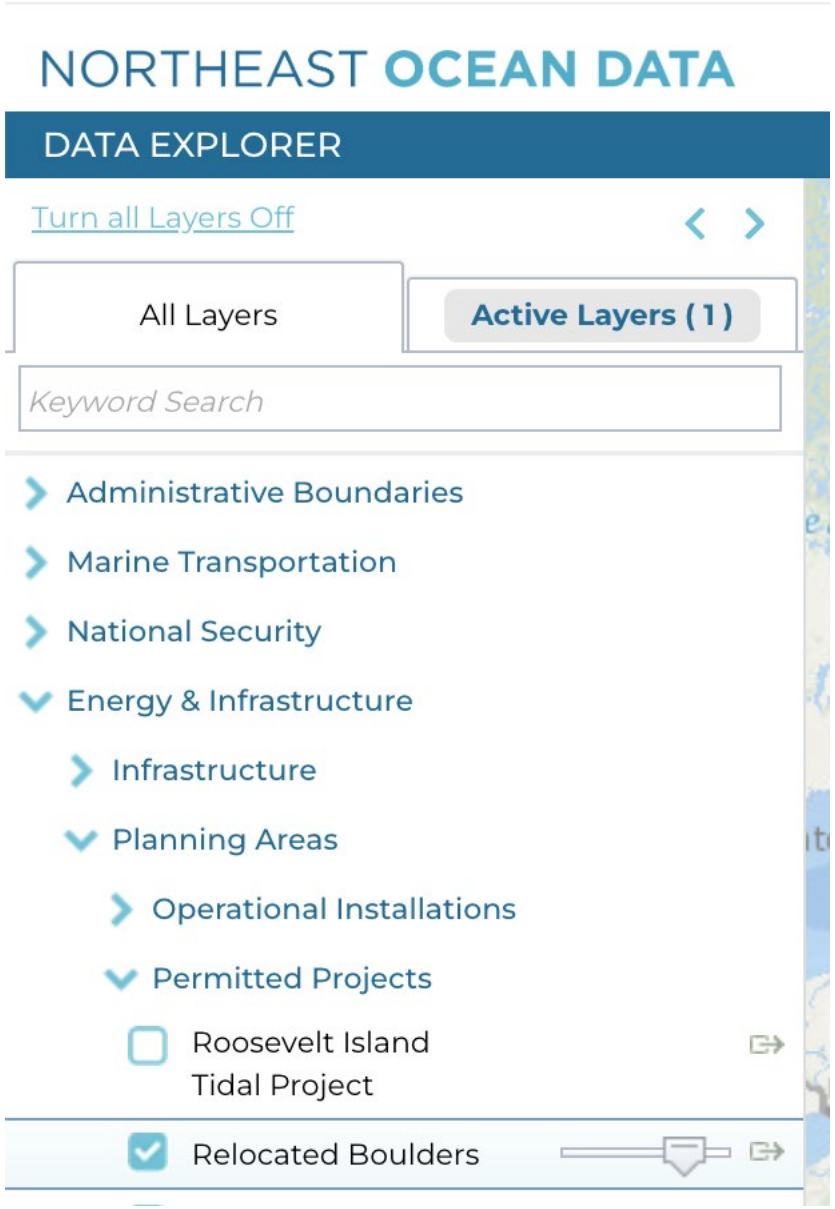
Detecting and quantifying changes to wildlife and habitats

Understanding the environmental context around changes to wildlife and habitats

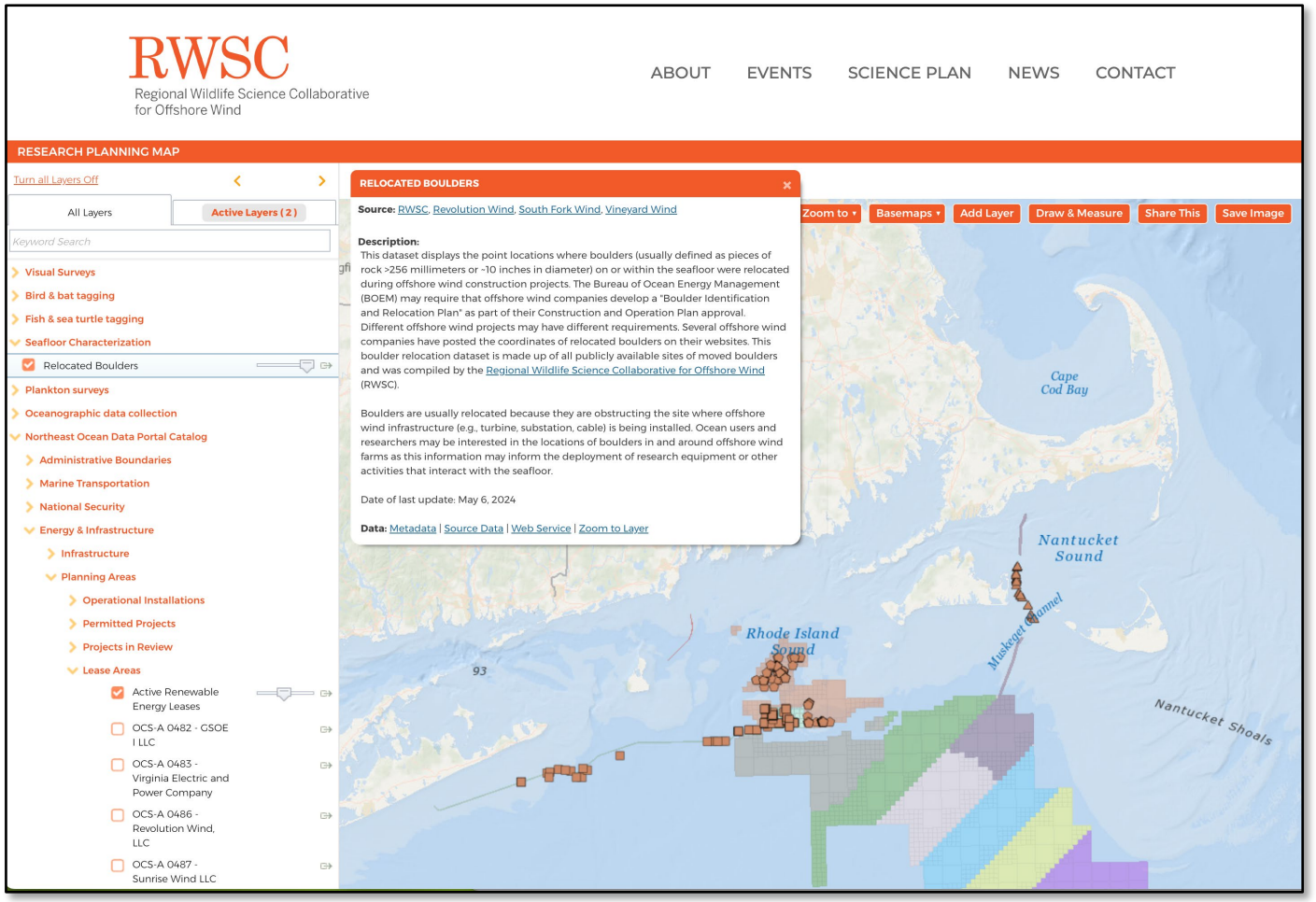
https://database.rwsc.org

[one example]





[coming soon]



[but also available now at www.northeastoceandata.org]

Coordination with RWSC

MECHANISM:

- In their agreements, funders require grantees and contractors to…
- BOEM requires developers to…
- RWSC will be requiring all awardees to…
- Voluntary commitments by researchers to…

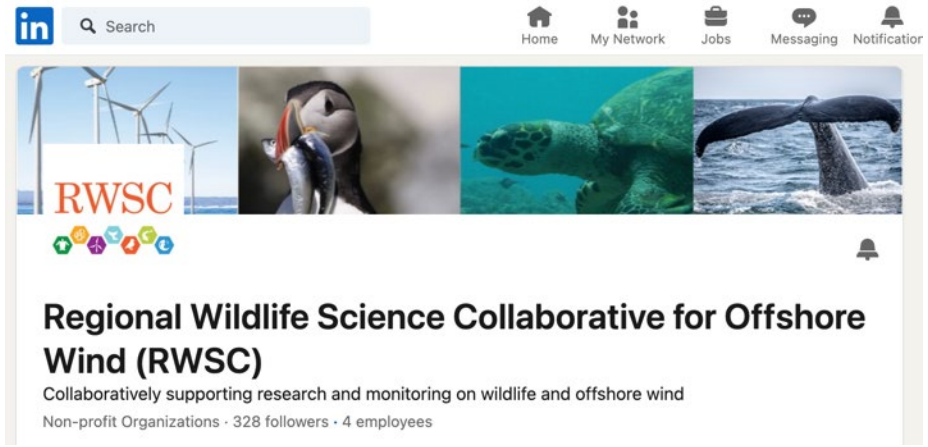
The RWSC Steering Committee is requesting funders and researchers to:

- Clearly describe their work to the community (is it data collection, data analysis, and/or data management? To what species group(s) or topic(s) does it pertain?)
- Join RWSC Subcommittee meetings to share project info and updates
  - A list of the specific data being collected, where those data are being stored, any access constraints, and who can be contacted about data use
  - Specify a frequency of data upload to digital repositories, no less frequently than annually
- Add project info to the Offshore Wind & Wildlife Research Database
- Share coordinates of sensors, sampling locations, or other research activities with the appropriate Subcommittee for inclusion in the Research Planning Map.

RWSC

Regional Wildlife Science Collaborative for Offshore Wind

How to receive updates



RWSC
Regional Wildlife Science Collaborative for Offshore Wind

All RWSC Subcommittee meetings are open to the public: visit https://rwsc.org/events

Monthly e-newsletter: meeting invites and other news

Contact information

Emily Shumchenia, PhD, RWSC Director
emily.shumchenia@rwsc.org

Avalon Bristow, MARCO Executive Director
abristow@midatlanticocean.org

Nick Napoli, NROC Executive Director, MARCO Senior Advisor
nnapoli@northeastoceancouncil.org

Ørsted

Ørsted Offshore North America

Lessons learned

May 2024

Chris Sarro

Orsted Northeast Program

South Fork Wind

- Onshore: Construction Commenced
- Offshore: Pre-construction Fall 2022
- Construction: Spring 2023
- Operations: Winter 2024

Revolution Wind

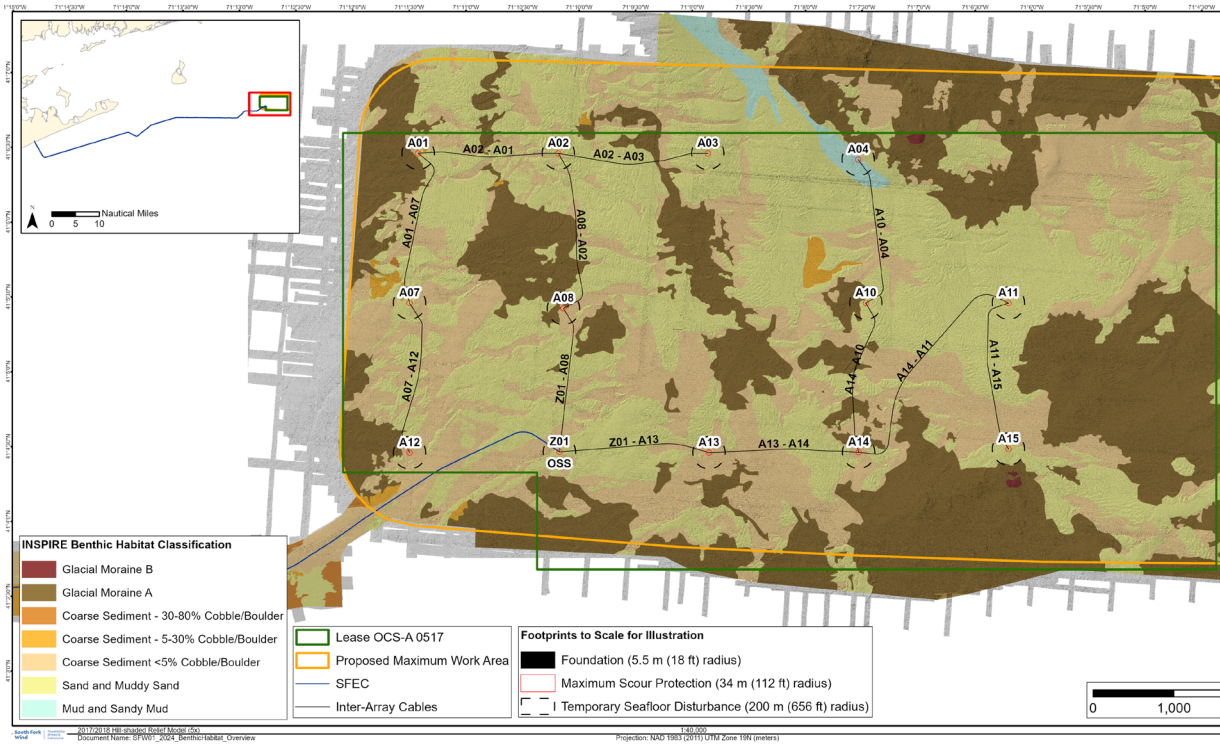
- Onshore: Construction Commenced
- Offshore: Pre-construction Winter 2024
- Construction: Spring 2024

Sunrise Wind

- DEIS: December 2022
- FEIS: July 2023
- ROD: March 2024
- COP Approval: June 2024

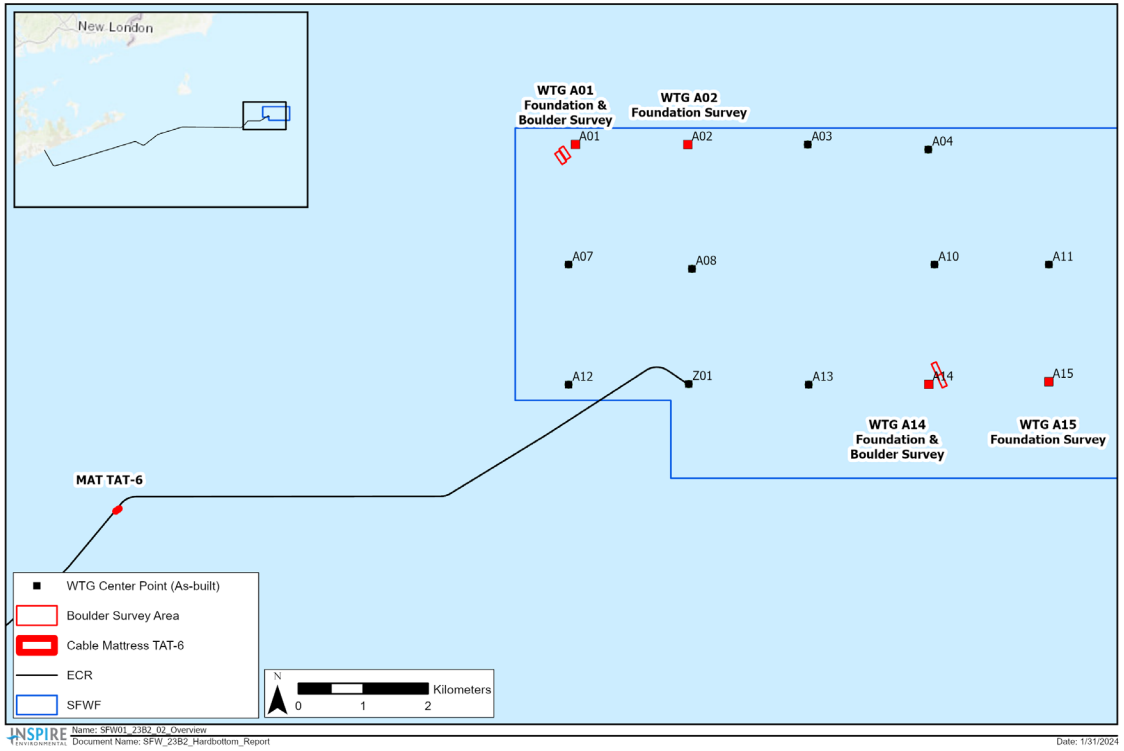
Lessons learned – Project development

- Early engagement with stakeholders is important
- Avoid installing foundations and cables in certain areas
- Microsite to minimize impacts if avoidance is not possible
- Mitigation is possible if avoidance and minimization are not possible

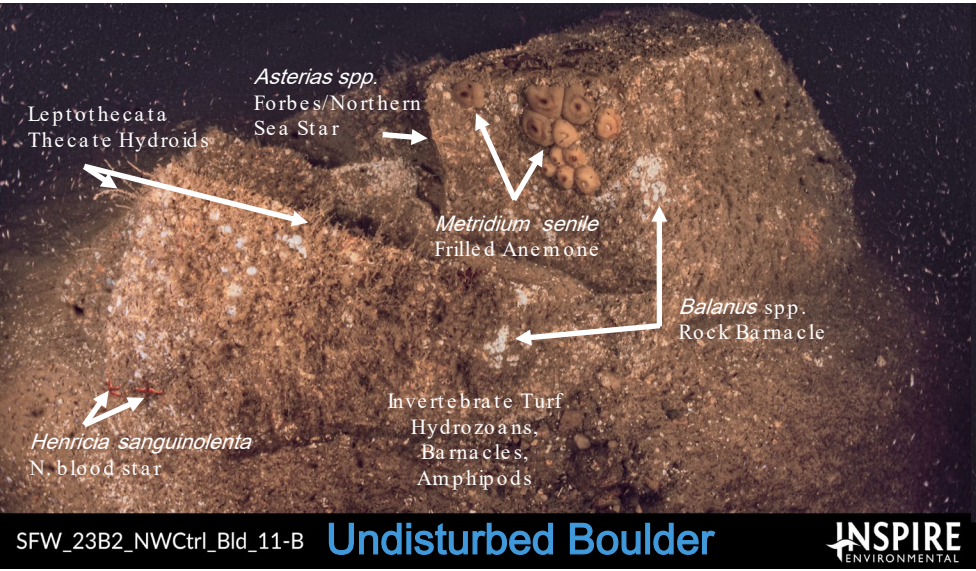


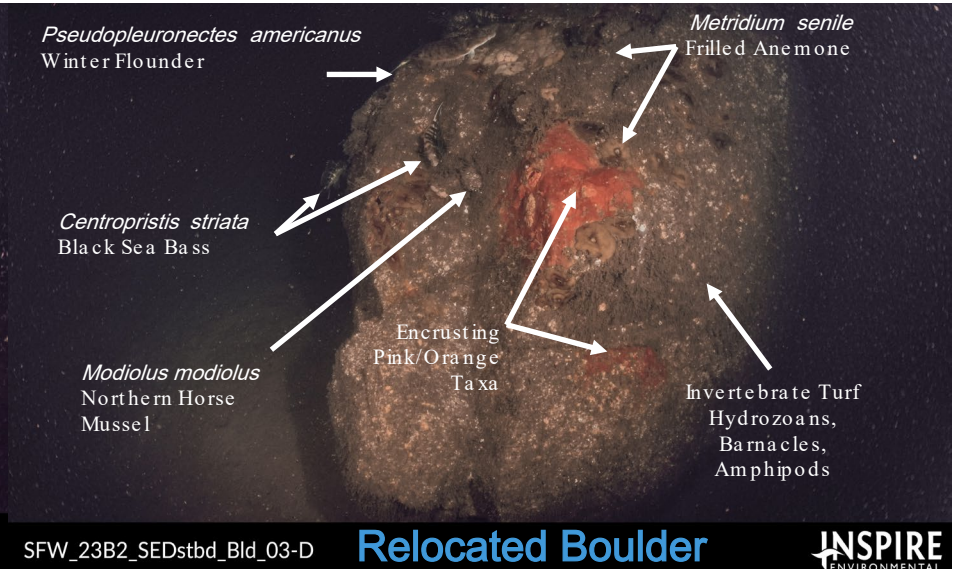
SFW Native boulder habitat and novel surfaces ROV survey

- Survey was conducted by Inspire Environmental in late October 2023
  - Boulder survey
    - Images of undisturbed and relocated boulders
  - Foundation survey
    - Images along the foundation and scour protection layer
  - Cable mattress survey
    - Images of the cable protection mattresses



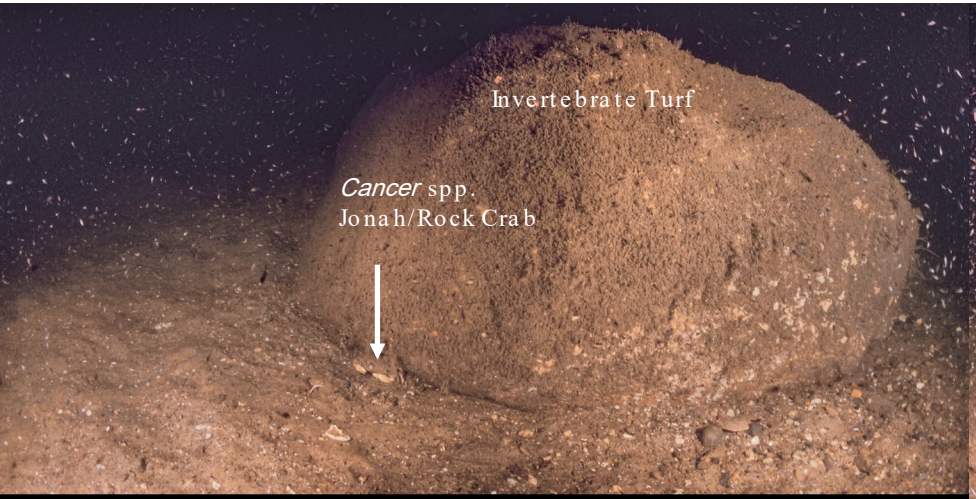
Boulders



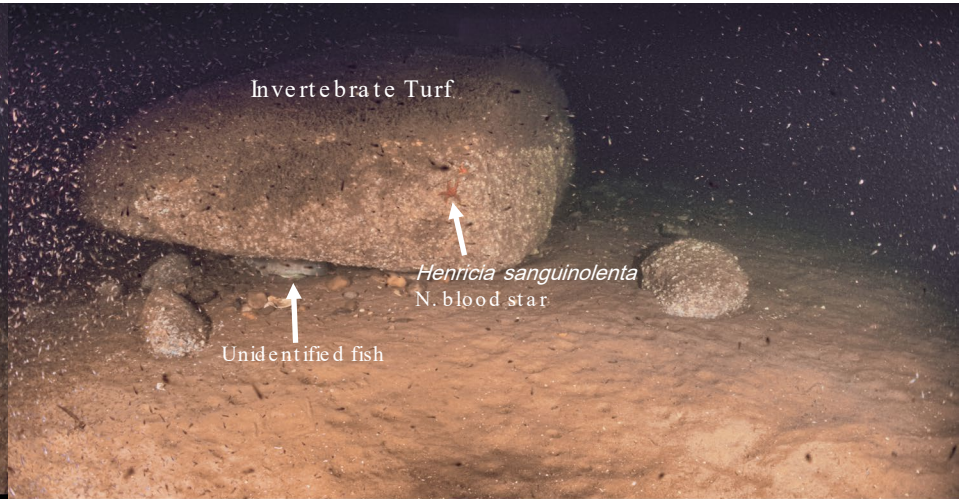


Ørsted

Boulders

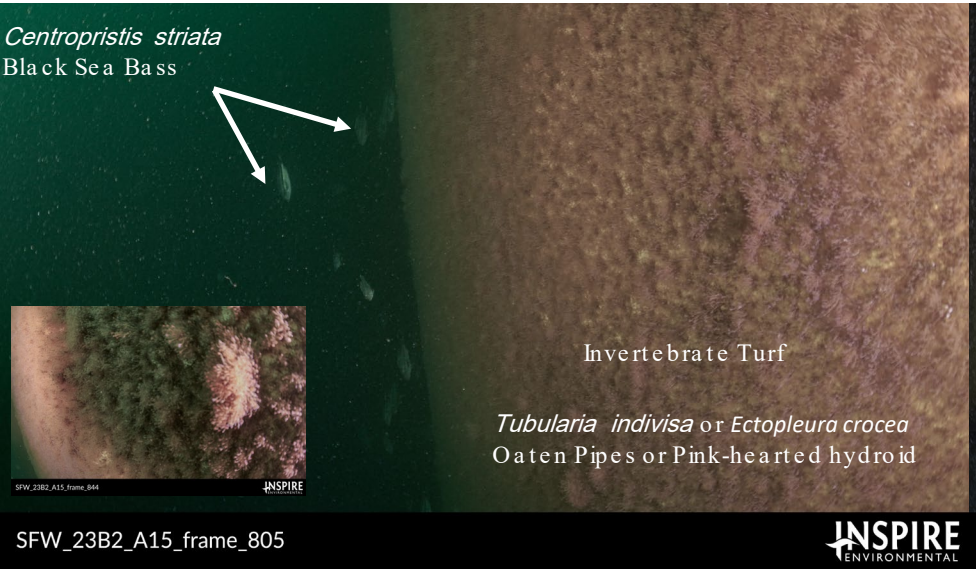


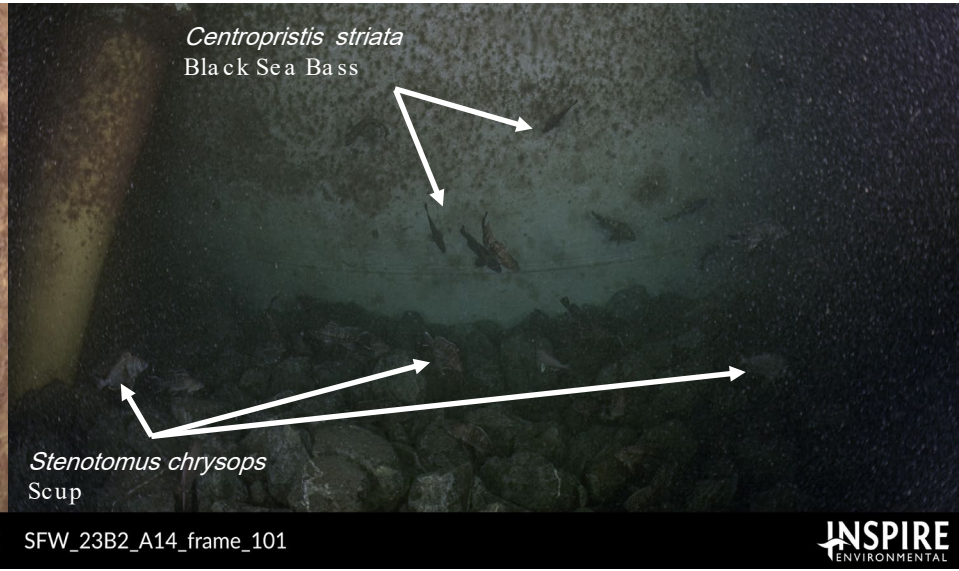
SFW_23B2_NWCtrl_Bld_06-A **Undisturbed Boulder**



SFW_23B2_NWDstbd_Bld_13-D **Relocated Boulder**

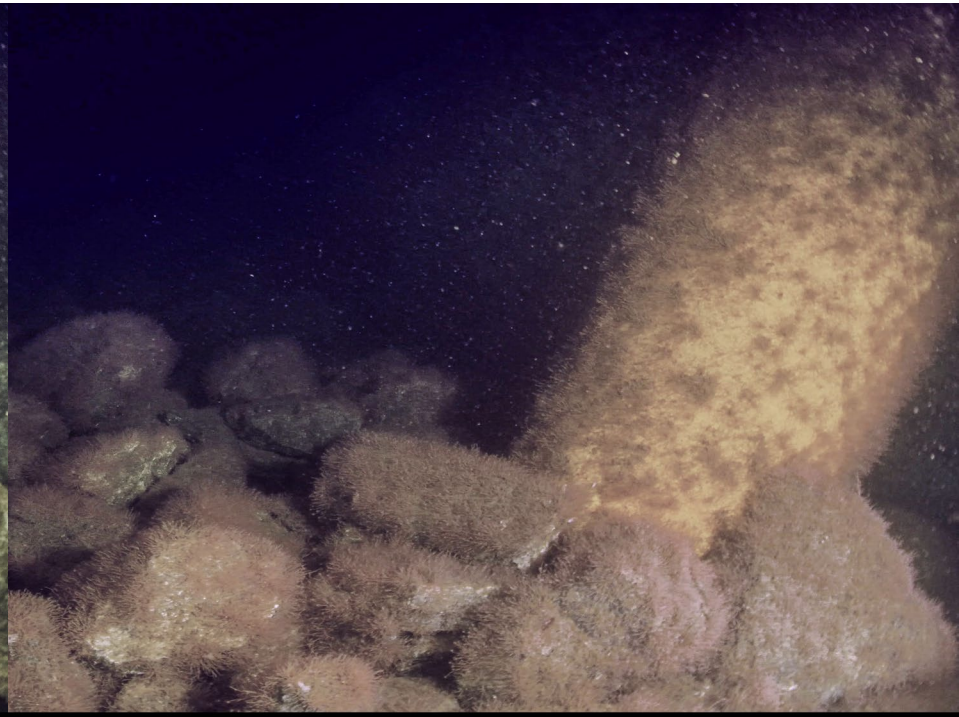
Foundations





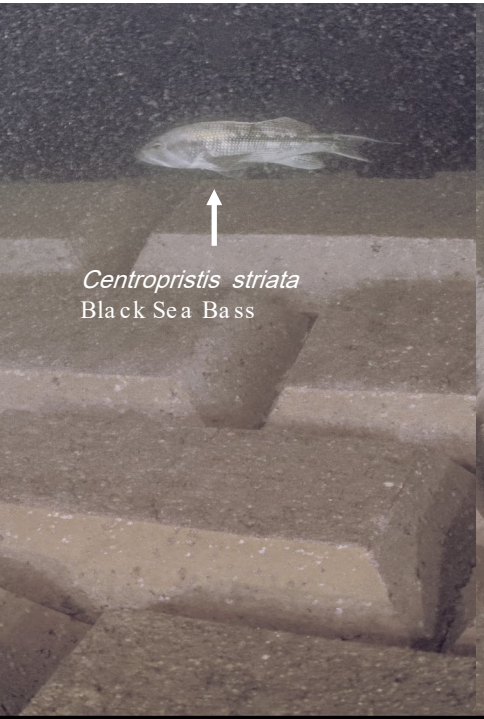
Scour pads

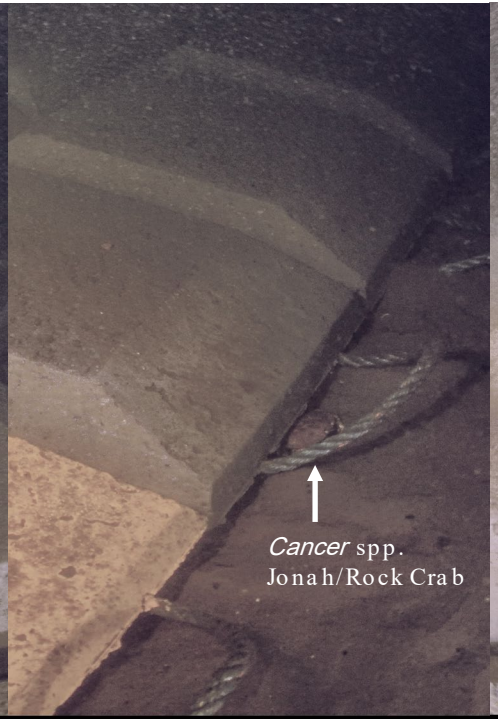
SFW_23B2_A01_frame_1532

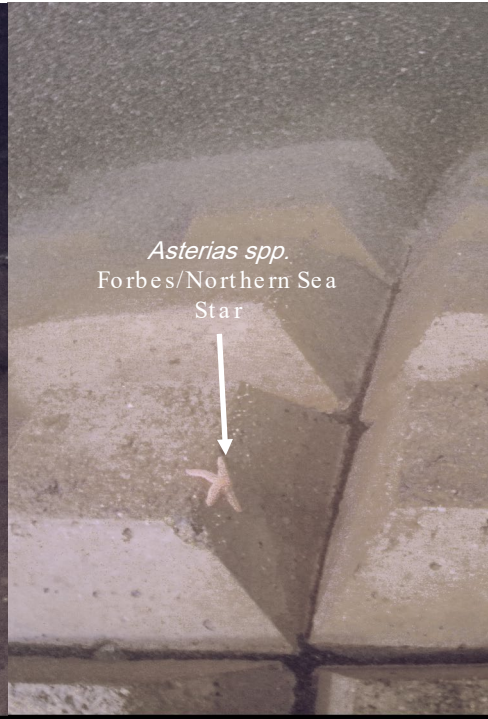


SFW_23B2_A02_frame_929

Mattresses







ttress_05-B

Lessons learned – SFW Benthic Monitoring (Y0)

- Native Boulder Habitat
  - Relocated boulders resemble control boulders
  - Invertebrate turf dominates all surfaces
  - Taxa presence and abundance generally similar on control and relocated boulders
- Novel surfaces
  - Rapid colonization of invertebrate turf on the foundations and some scour protection
  - Bare space on cable mattresses
  - Fish and invertebrates found around all novel surfaces

SFW_23B2_Mattress_05-G

Questions?

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VINEYARD OFFSHORE

Massachusetts Habitat Working Group Project Update

May 9, 2024

Vineyard Offshore is committed to developing, permitting, and deploying well-sited offshore wind projects with minimal environmental impact. We also strive to ensure mutually beneficial coexistence of our projects with host communities, fisheries, ocean users, native habitats, and wildlife.

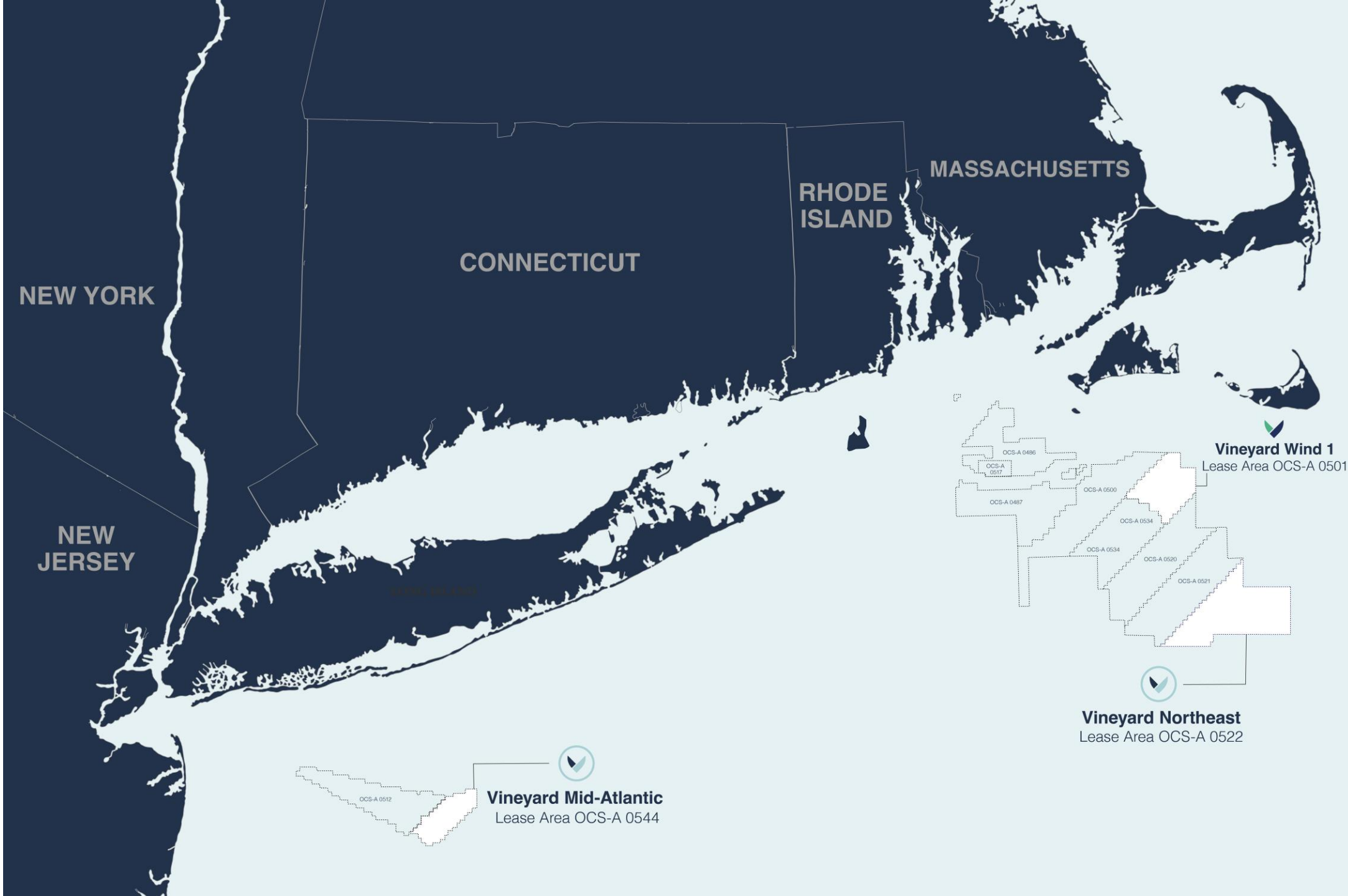
Who We Are

- Vineyard Offshore is Copenhagen Infrastructure Partners' (CIP's) exclusive development partner in the US
- CIP is a global leader in clean energy investments with $19 billion of assets under management

VINEYARD OFFSHORE CIP

- Vineyard Offshore was launched in April 2022 by the development team behind Vineyard Wind 1
- Leading the **development of 3 lease areas** owned by CIP - OCS-A 0522 (MA WEA), OCS-A 0544 (NY Bight), and OCS-P 0562 (California)
- Combined with Vineyard Wind 1, Vineyard Offshore has more than **6 gigawatts of potential capacity** for development on the East and West Coasts

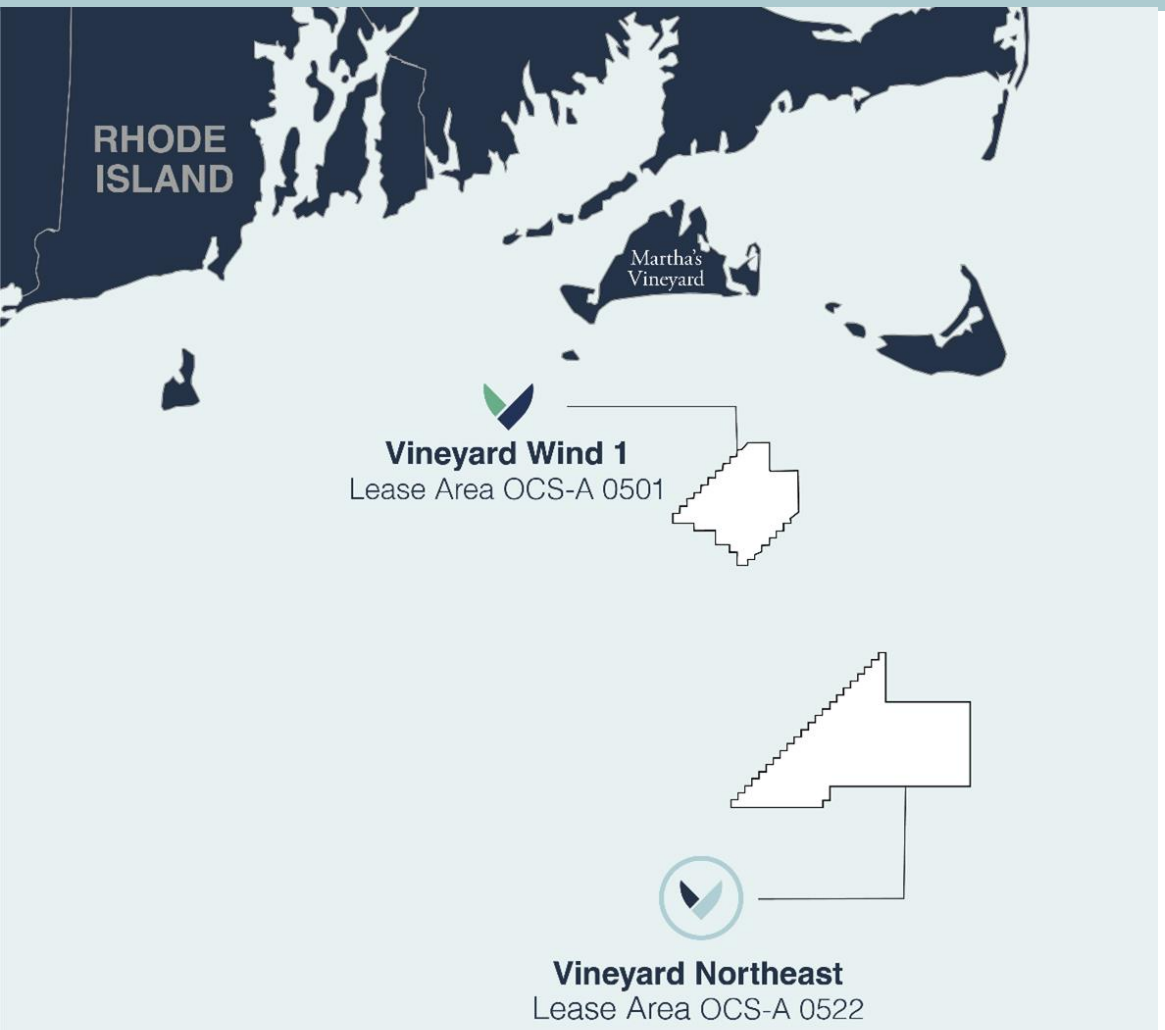
Our East Coast Projects and Lease Areas



Vineyard Northeast

OCS-A 0522

VINEYARD OFFSHORE



Overview

- Acquired in 2018
- Location
  - 29 miles south of Nantucket
  - 50 miles east of Montauk
- Size
  - 132,370 acres
- Development Milestones
  - Filed federal permit in 2022
  - Offshore geophysical site assessment complete
- Next Steps
  - Contracting underway for major project component
- Commercial Operation Date anticipated 2030/2031

Excelsior Wind

Bringing Offshore Wind to New York State

VINEYARD OFFSHORE

Overview

- 1,314 megawatts (MW)
- Located 24 miles south of Fire Island & 31 miles south of Jones Beach
- Point of Interconnection: East Garden City in Uniondale
- Evaluating cable landfall options with a focus on community engagement

700,000
HOMES POWERED

REDUCES CARBON DIOXIDE BY
1.1 MILLION
METRIC TONS

= 225,000
CARS OFF THE ROAD


Vineyard Wind 1


Vineyard Wind 1

Vineyard Wind 1


WBUR

Vineyard Wind 1 Construction Update
May 2024

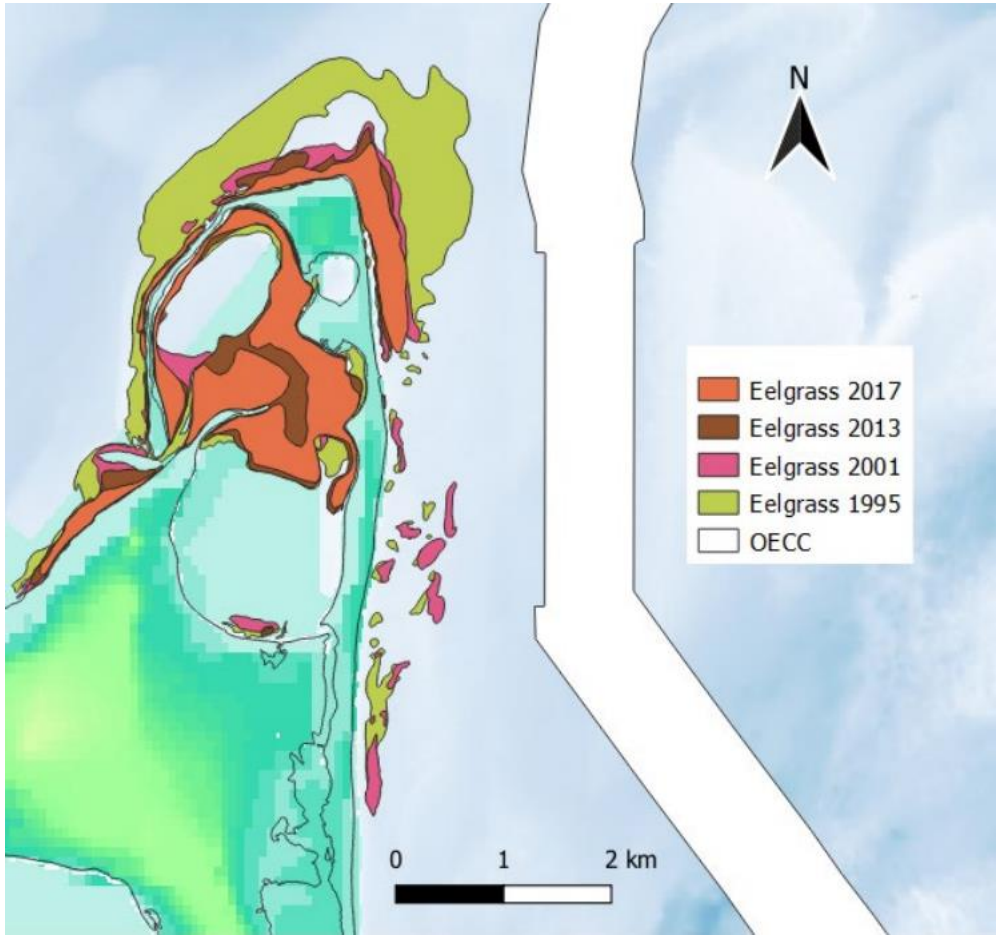
- Onshore Construction complete
- Offshore export cable installation complete
- Electrical service platform commissioning underway
- Inter-array cable installation underway
- 12 WTGs fully installed
- TP installation resumed

Eelgrass (Zostera marina) Background

- Eelgrass is an important component of coastal ecosystems that provides habitat for numerous marine species of fish, shellfish, and waterfowl (Cottam and Munro 1954).

- The extensive root system for eelgrass stabilizes the coastal environment by preventing erosion from storms (Newell and Koch 2004), and the plants act as filters by absorbing pollutants such as PCBs as well as greenhouse gasses such as carbon dioxide and methane (Short and Short 1984)

- Distance between OECC and outer boundary of historically (2017) mapped bed is approx. 1.0-1.2 km.



Historical eelgrass bed extent around Cape Poge documented by the MassDEP from aerial images

Cape Poge Eelgrass Study

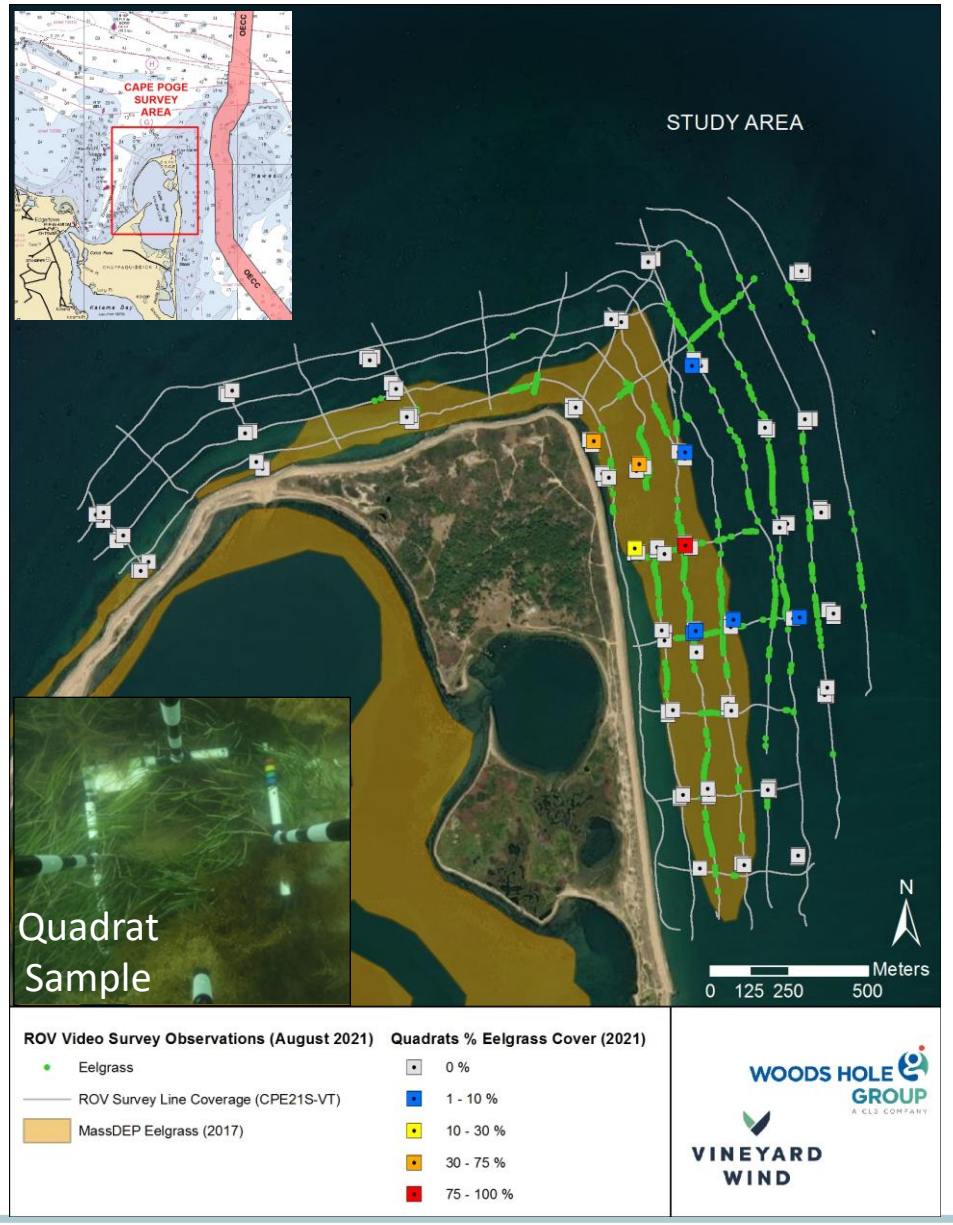
Scope: Map the extent of eelgrass beds surrounding Cape Poge prior to, and after OECC cable laying activities. Mapping observations will be used to evaluate whether cable lay activities have a measurable impact on eelgrass beds in the Cape Poge area. MassDEP approved the monitoring plan.

Methods: Eelgrass beds mapped using visual observation, acoustic echograms, underwater 4K video, still images, and free divers/snorkelers. The general survey approach consisted of a series of transects run in a grid off the beach. Data collected at the study area and a local control site.

Partner: Woods Hole Group

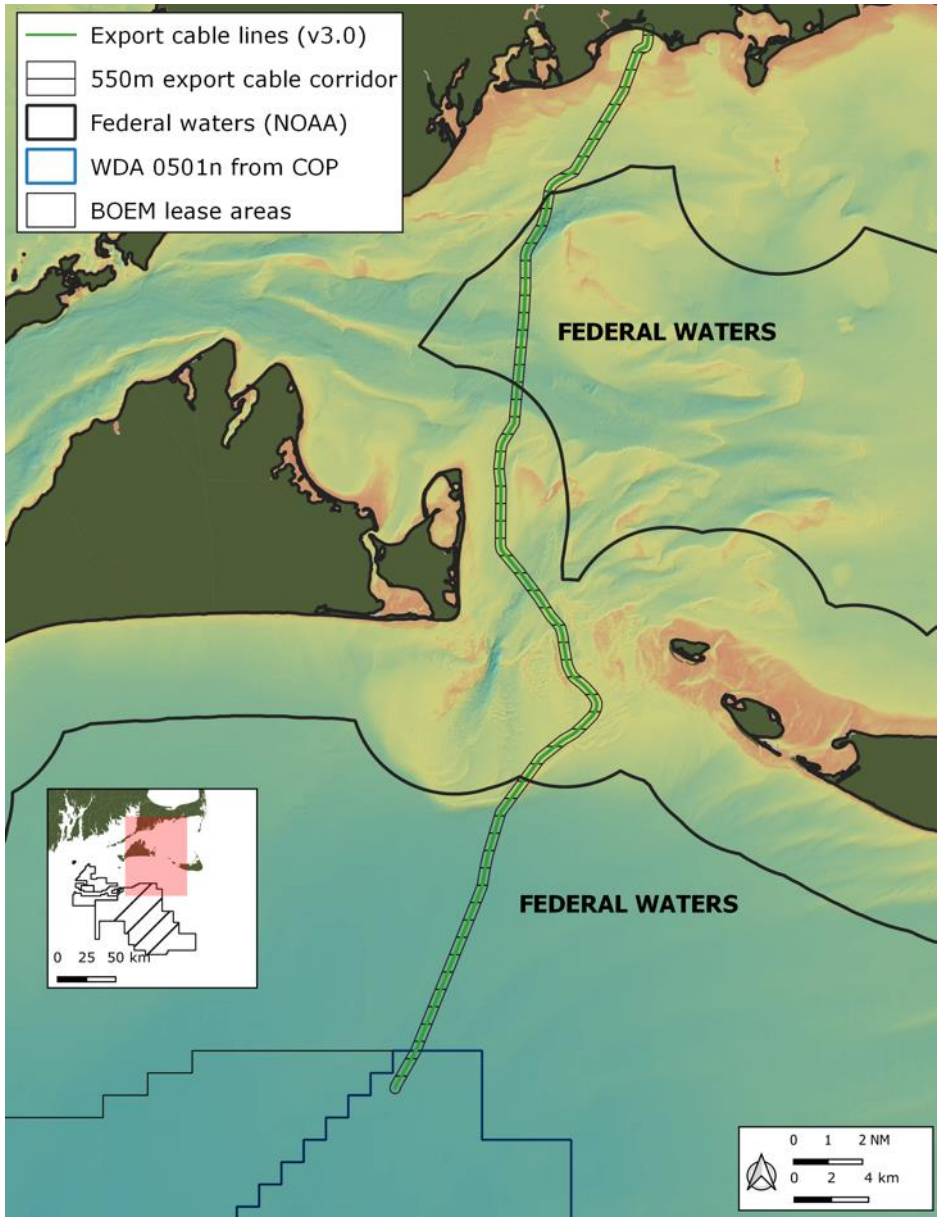
Schedule:

- Baseline study: August 18- September 1, 2021
- 2nd study anticipated for August 2024 (1-Yr Post Construction)



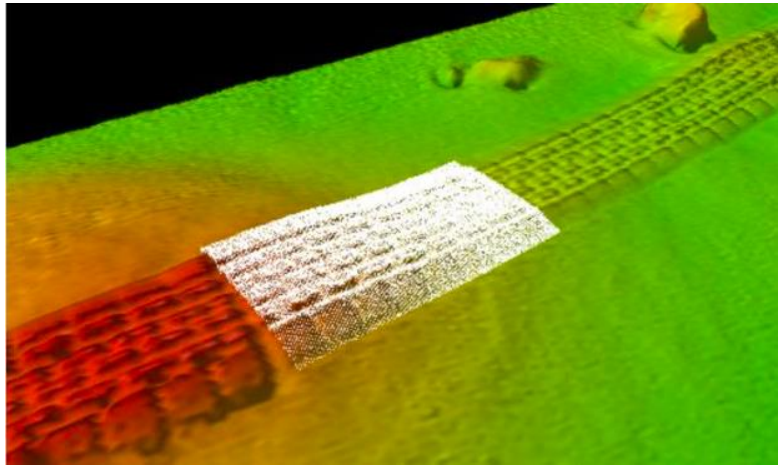
Export Cable Overview/ Installation

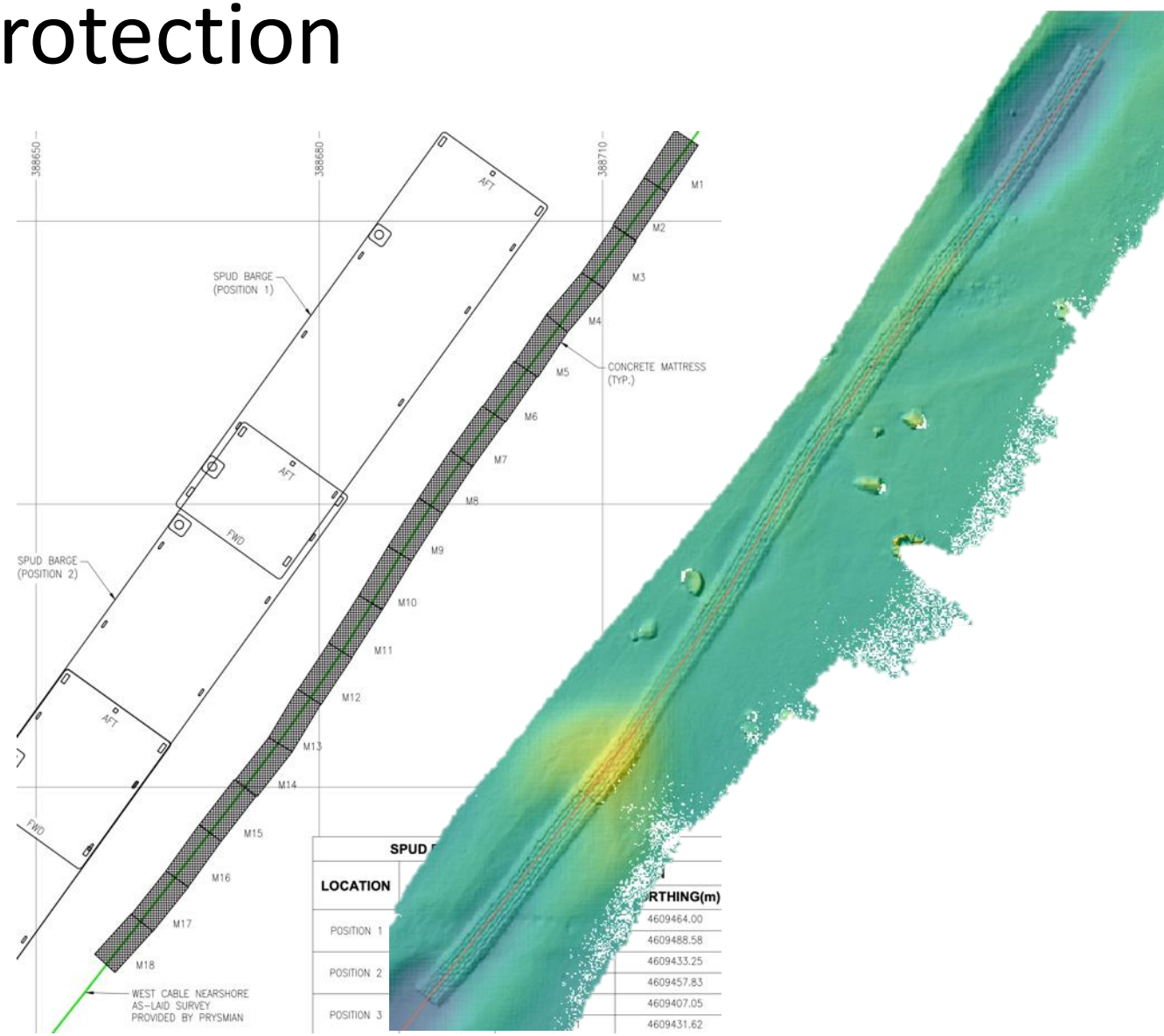
- 800MW transmission system consisting of two 220kV circuits
- Cables land at Covell's Beach in Barnstable, through HDD, jointed to onshore cables
- Installed in 3 sections, 2 submarine field joints, in-line joints on offshore platform
- Total cable route: 40.016 miles/ 64.4 km



Nearshore Shallow Water Protection

- CFE burial of nearshore area from HDD punchout to VI transition to burial
- East cable buried to minimum 1.5m across length, but hard impenetrable seabed experienced from KP 0.817 to KP 0.907 on Western circuit
- Cable protection solution engineered with ECONcrete mattresses, to be deployed lengthways on top of cable
- Trawl proof tapered edges
- 18 x mattresses installed on cable





Lessons Learned

- Effective planning & contracting of installation & burial method to identify the optimum solution for the specific site
  - Surveys of the seabed, benthic habitat, environmental properties
  - Ulisse barge with VI tool was most suitable for the VW1 seabed and route
    - Minimizes seabed impact, reduces risk for cable protection needs
- Communication & coordination with local stakeholders
  - New Bedford & Hyannis, US Coastguard, fisheries liaison, hire of fishing vessels where possible
- Full consideration of the environment & on cable protection solution – concrete mattresses, gabion rock bags, rock protection or sand bags
  - Protection offered vs environmental impact vs risks for installation vs mobility
- Use of tried & tested solutions – previous case studies, track records, benthic monitoring – concrete mattresses & rock bags