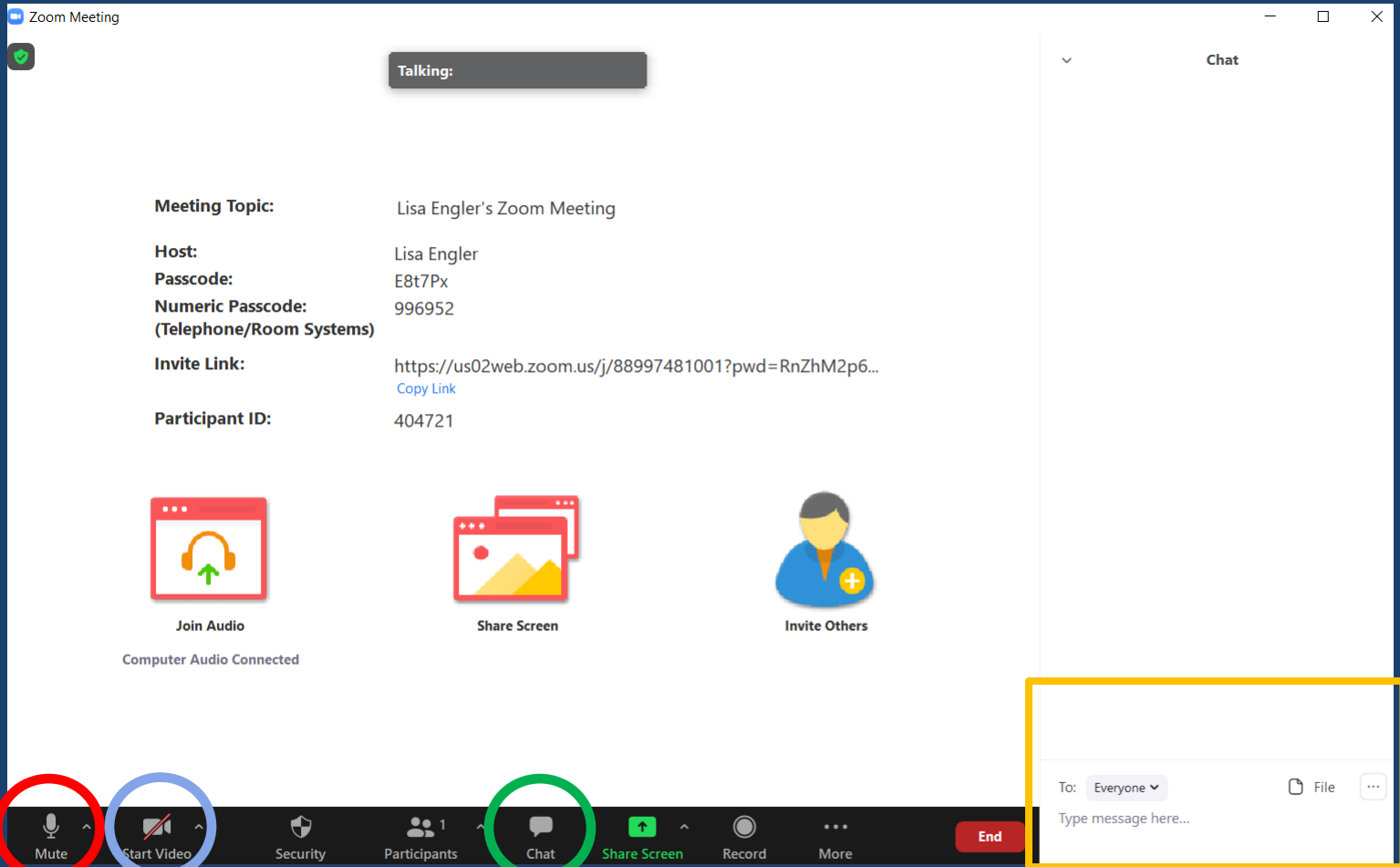
# EEA Fisheries Working Group on Offshore Wind Energy

March 2, 2022, 2:00 – 4:30 pm

# Zoom Functions



# Meeting Protocols

- Meeting will be recorded for note taking purposes
- Add your name and affiliation to the chat box
- Raise hand to speak
- Remain muted unless it is your turn to speak
- Use chat function to post questions for presenters
- Constructively receive and provide input on discussion topics
- Respectfully acknowledge and articulate differences of opinion or perspective

# Agenda

2:00 Welcome, introductions, and state updates

2:15 Pilot Regional Fisheries Studies: Study on Vessel Status Using AIS (Tom Sproul, URI; Julia Livermore, RIDEM)

2:45 Fishing Industry Updates

3:00 Offshore Wind Developer Updates:

- Vineyard Wind
- Avangrid
- Equinor
- Mayflower Wind
- Ørsted
- Update on HMS acoustic study (Jeff Kneebone, NEAq)

3:50 BOEM Renewable Energy Leasing and Analysis (Zach Jylkka, BOEM)

4:20 Announcements/Next steps

4:30 Adjourn

# Pilot Regional Fisheries Studies: Study on Vessel Status Using AIS

Tom Sproul, URI
Julia Livermore, RIDEM

# Fishing Industry Updates

# Developer Updates

Vineyard Wind

Avangrid

Equinor

Mayflower Wind

Ørsted

Update on HMS Acoustic study

# BOEM Renewable Energy Leasing and Analysis

Zach Jylkka, BOEM

# Action Items

# Thank you

# Fishing Status of Vessels Using the AIS: A Big Data and Machine Learning Approach

**Massachusetts Fisheries Working Group Meeting – 3/2/2022**

**Julia Livermore (RIDEM DMF and URI)**

**Project PI: Tom Sproul (URI ENRE)**

THE UNIVERSITY OF RHODE ISLAND

DEM RHODE ISLAND

DIVISION OF MARINE FISHERIES RHODE ISLAND

# Background – Offshore Wind in SNE

- Block Island Wind Farm – 5 turbines, 30 MW
- Federal commercial scale farms permitted or proposed – hundreds of turbines, multiple GW
  - Vineyard Wind I is 800 MW
  - 7 federal lease areas in SNE
  - Possibly hundreds of turbines
- Areas to be developed are current fishing grounds

# Problem Statement/Questions

- How will the commercial fishing industry be affected?
  - How will fishing pressure change inside or outside of wind farms areas?
  - If fishery displacement occurs, where will displaced fishermen go to fish, and how will increased pressure elsewhere affect non-wind farm displaced fishermen?
  - Will species composition of landings change in and around wind farms?
  - Do wind farms impact economic value and diversity of individual ports and will ports be affected disproportionately?

Photo: https //www.nationalfisherman.com/national-international/offshore-wind-arrays-will-disrupt-fisheries-assessments-scientists-warn

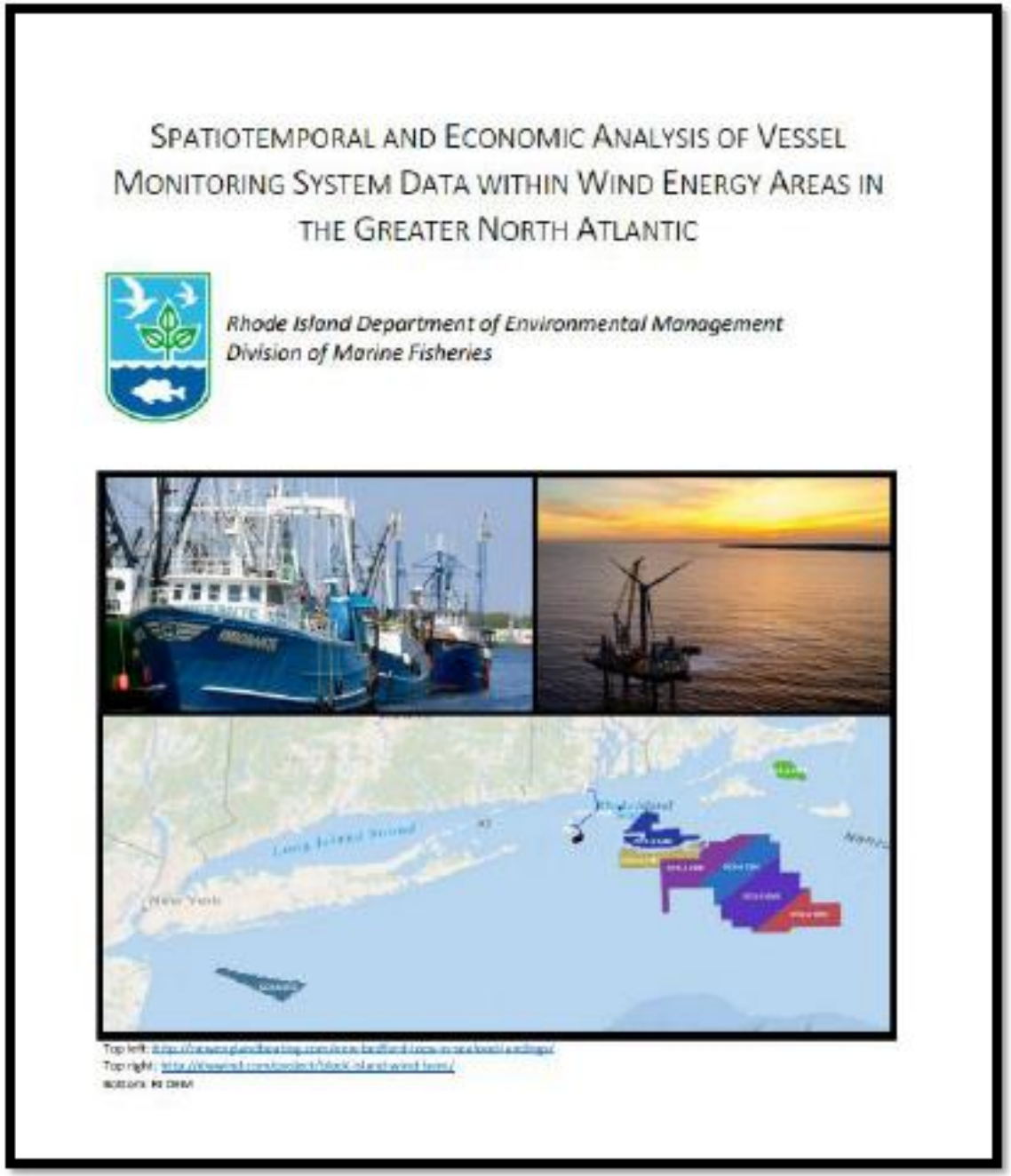
# Fisheries Dependent Data (not exhaustive)

| Dataset | Description | Challenges |
|---|---|---|
| Dealer Reports | Value, amount, and grade of seafood landed | No information about where seafood came from |
| Vessel Trip Reports/Logbooks | Self-reported effort info (location, gear used, catch, etc.) | Limited reporting based on statistical areas, poor resolution |
| Vessel Monitoring Systems | Location information for fishing vessels | Not all fisheries required to have, different reporting frequencies |
| Automatic Information System | High resolution location information for any vessel | Only required on vessels >65 ft., can be turned off or out of range |
| NOAA Observer Reports | Highly reliable fisheries observer data on catch, bycatch, gear, location, etc. | Only certain fisheries have observer requirements and limited coverage by vessels |

**None designed specifically for characterizing where fishing is occurring or valuation of offshore areas – primarily meant for enforcement or management**

# Existing Resources

- NOAA VTR and Observer Revenue Data Model
- VMS Data on NROC/MARCO Data Portals
- RIDEM VMS/VTR/Dealer Revenue Analysis
- Other models in development

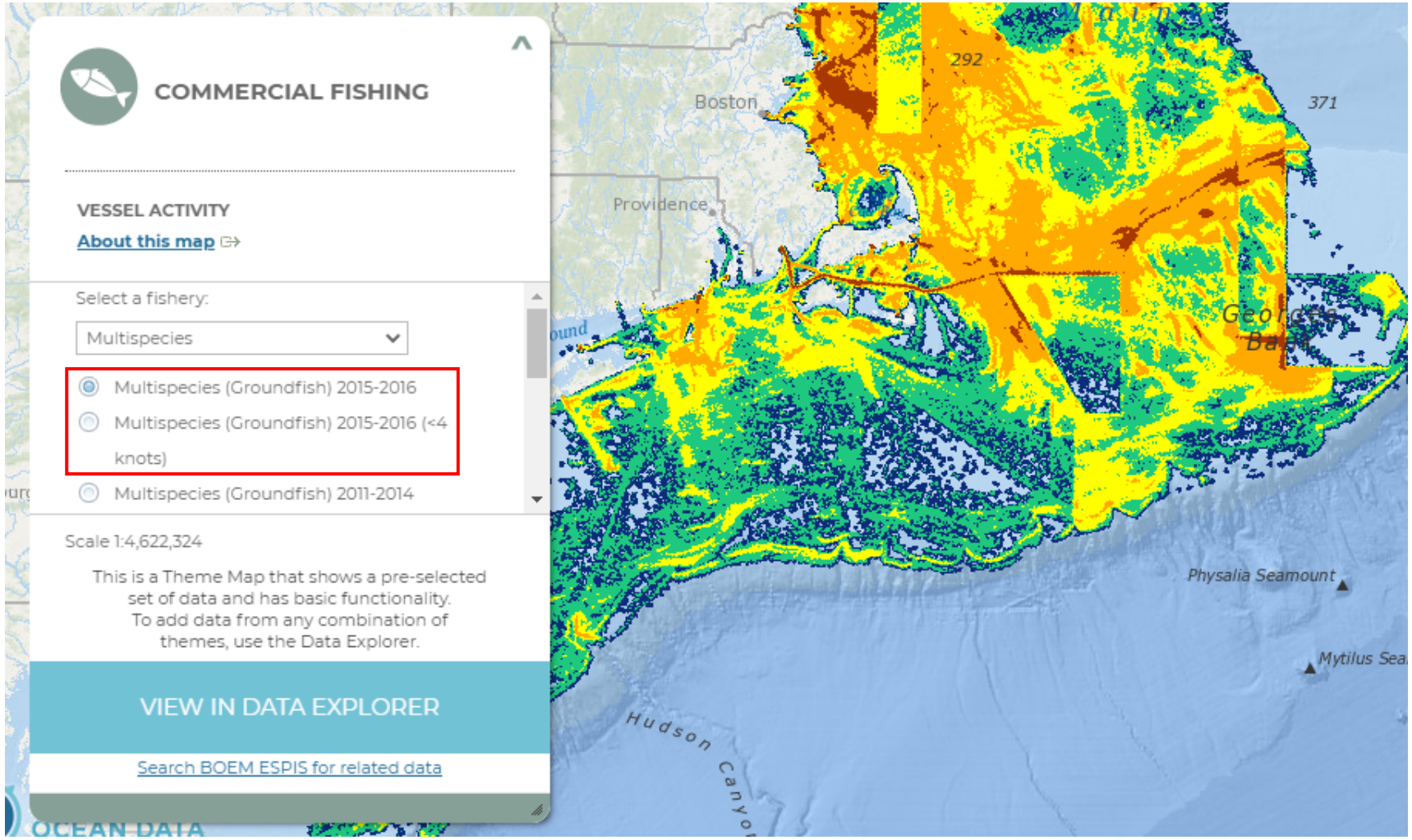


# Key Problem with Existing Approaches

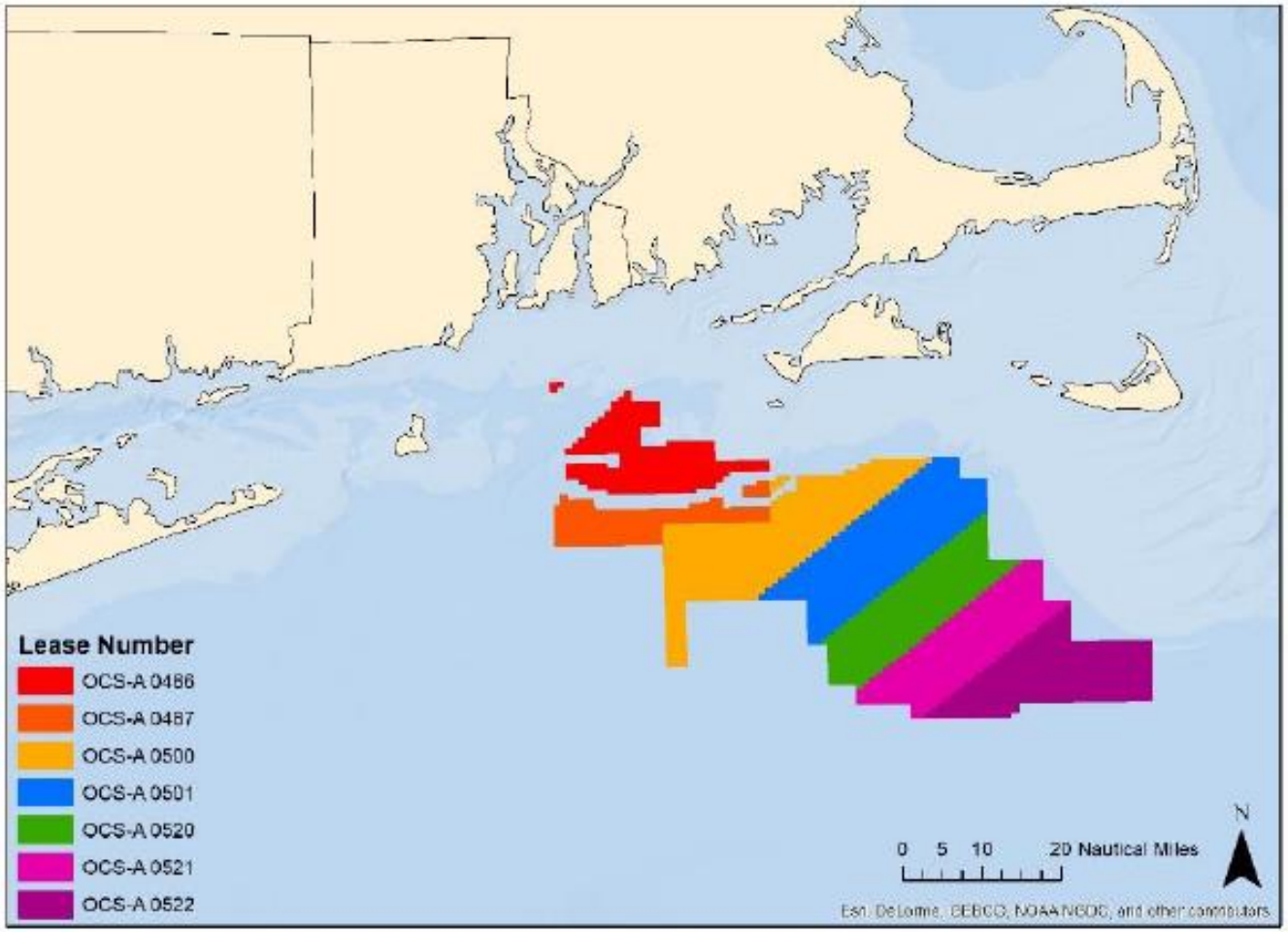
Muench et al. (2017) - On the precision of predicting fishing location using data from the Vessel Monitoring System (VMS)

- Using speed to separate fishing from non-fishing activity is not accurate for most gear types

**This is the problem we're focused on addressing!**



# Scope of Study



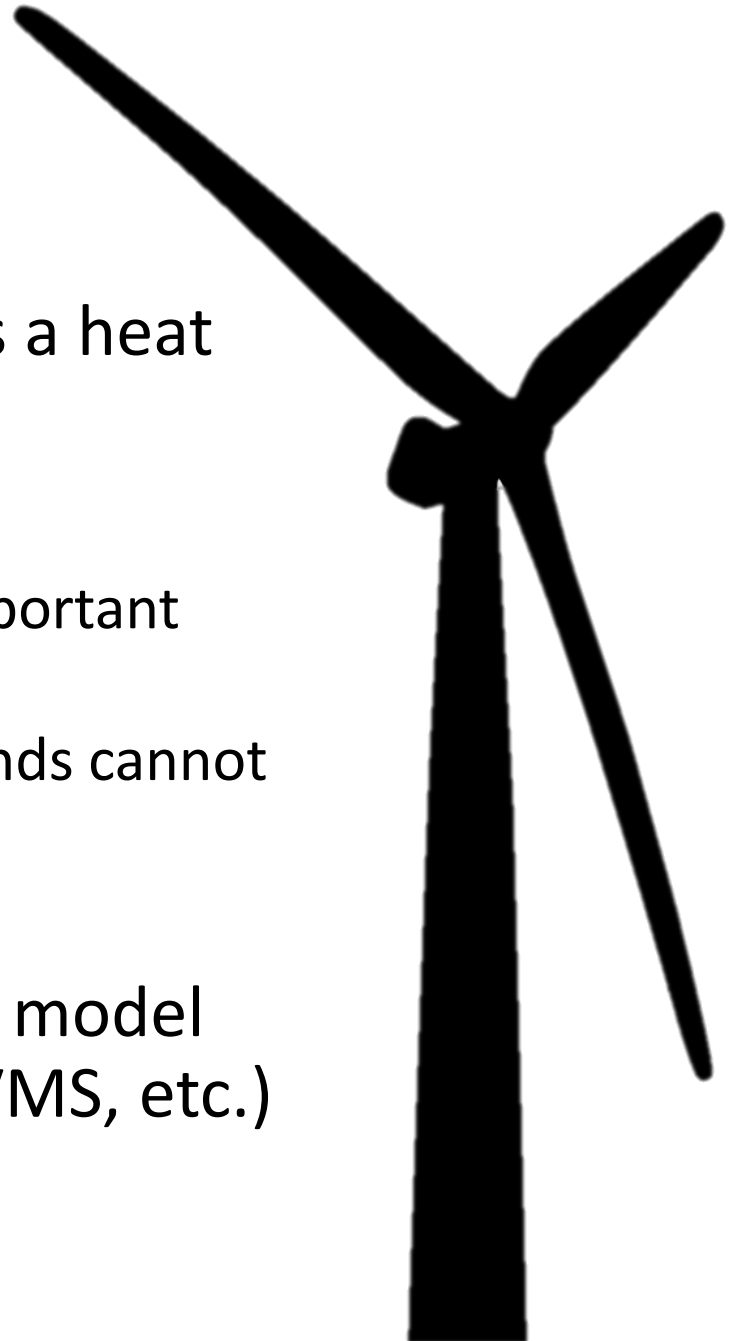

- 2013-2018 data
- Spatial extent defined at left
- Fishery Management Plans:
  - Atlantic Sea Scallop
  - Northeast Multispecies (groundfish): American plaice, Atlantic cod, Atlantic halibut, Atlantic pollock, haddock, redfish, white hake, winter flounder, witch flounder, yellowtail flounder, and ocean pout (currently prohibited)
  - Monkfish
  - Small-mesh Multispecies: offshore hake, red hake, silver hake
  - Surfclam and Ocean Quahog
  - Atlantic Mackerel, Squid, Butterfish

# Methods

- Merge AIS, VMS, VTRs, dealer reports, United States Coast Guard registry records, and the NOAA Observer data
- Develop a machine learning approach to modeling the probability of fishing based on vessel activity at the FMP level
- Enhance “feature engineering” by obtaining information on key vessel behavior patterns directly from the fishing industry and commercial fishing research organizations (CFCRI, Mass Fishermen’s Partnership, RI CFRF, and RODA)
- The model will then be trained using merged NOAA Observer Program data where fishing status of vessels is known, and fishing activity maps will be generated by extrapolating the fitted model to the full non- observer data set.

# Deliverables

- Maps by fishery estimating value of fish landed as a heat map over the study area (and tabulated by WEA)
- Data can be used:
  - in the wind development process to avoid areas of important fishing grounds/and fish habitat (micrositing)
  - in mitigation discussions when important fishing grounds cannot be avoided
  - in measuring fishing displacement in the future
- We can also test the level of improvement on our model versus other previous data models (VTR, RIDEM VMS, etc.)

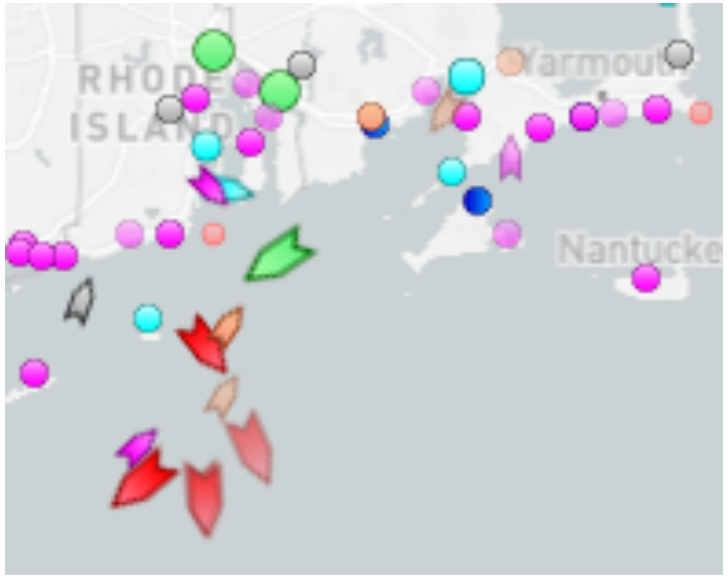


# Progress

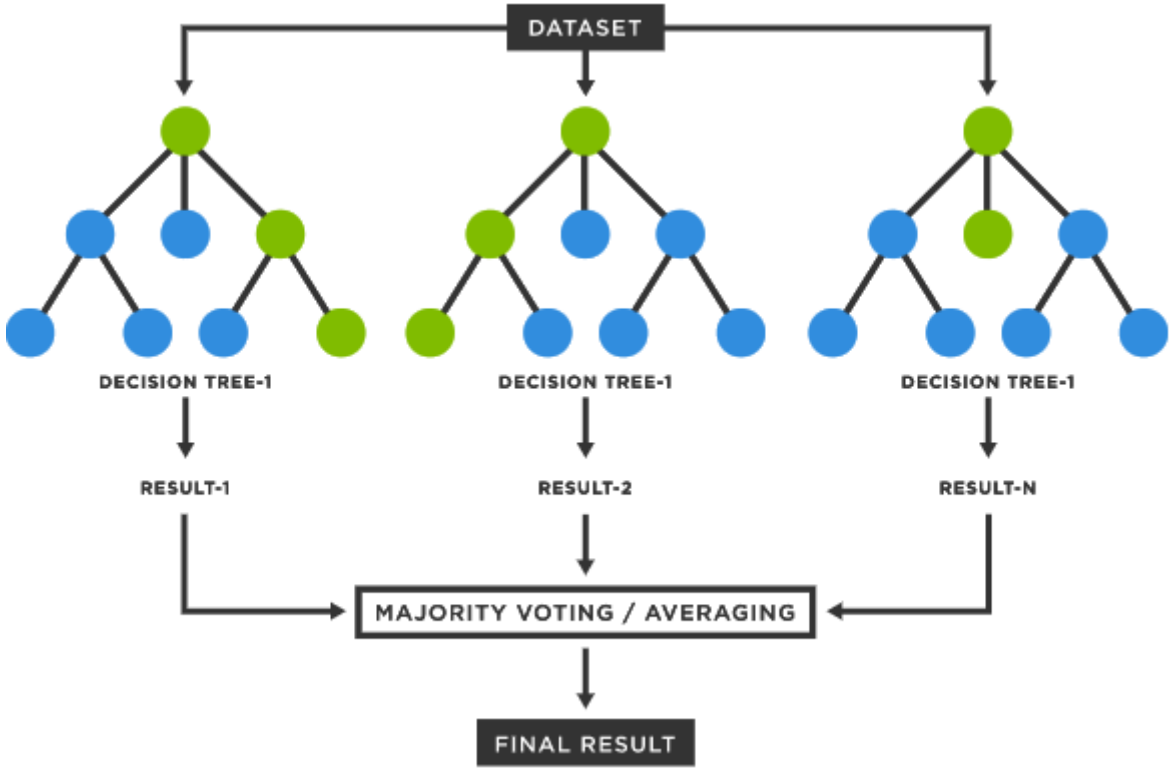
- AIS, VMS, VTRs, landings, observer data (NEFOP), and GARFO permit files all acquired
  - However, data access does not extend to the full project team.
  - Given this data confidentiality requirement, the project timeline has been extended from 2 to 4 years.
- Datasets have all been merged
  - AIS to NEFOP based on vessel information (permit) and timestamp
    - Timestamps in both used to label fishing and non-fishing in the labeled dataset (time between start and end of trawls)
  - Gear type from VTRs, FMP from VMS, etc.

# Progress

- Moving window approach to estimate fishing or not
- Features (variables), thus far:
  - Average speed
  - SD speed
  - SD in depth
  - Start-end distance
  - Total distance
  - Variance in change of course
  - Start-end course change
  - Cumulative course change
  - Day of week
  - Month
  - Moon phase
  - FMP (trawl only)



# Progress




- First approach is 15-minute windows
  - Window labeling instead of point labeling (per O'Farrell et al. (2017))
  - Windows may differ by FMP
- Currently building models
  - Random forest approach to start
  - Clustering models
  - Other: Bayesian, nearest neighbor, etc.
- Cross-validation across vessels and trips to verify out of sample prediction

# Challenges

- Data coverage coupled with confidentiality
  - Not all target FMPs may meet data requirements.
- How often is the AIS turned off or out of range when fishing?
  - Will we have sufficient training data?
- Finally, mapping may be challenging computationally

Julia Livermore
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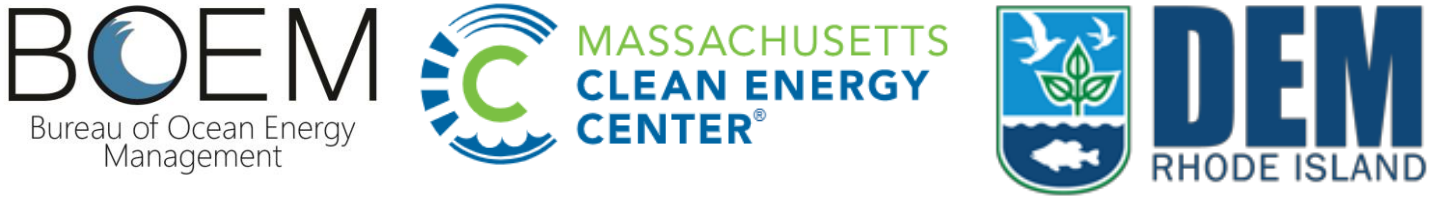
Tom Sproul
URI Dept. of Env. and Nat. Resource Economics
sproul@uri.edu

# Thanks to the Regional Offshore Wind Science Pilot for funding this work!




References:

Muench A, DePiper GS, Demarest C (2017) On the precision of predicting fishing location using data from the vessel monitoring system (VMS). Can J Fish Aquat Sci 75:1036–1047. doi: 10.1139/cjfas-2016-0446

O'Farrell, S., Sanchirico, J. N., Chollett, I., Cockrell, M., Murawski, S. A., Watson, J. T., Haynie, A., Strelcheck, A., & Perruso, L. (2017). Improving detection of short-duration fishing behaviour in vessel tracks by feature engineering of training data. ICES Journal of Marine Science, 74(5), 1428–1436. https://doi.org/10.1093/icesjms/fsw244

# New England Wind

## *Massachusetts Fisheries Working Group*

*Caela Howard- Fisheries Liaison*

March 2, 2022

AVANGRID RENEWABLES

# New England Wind

## Federal Permitting

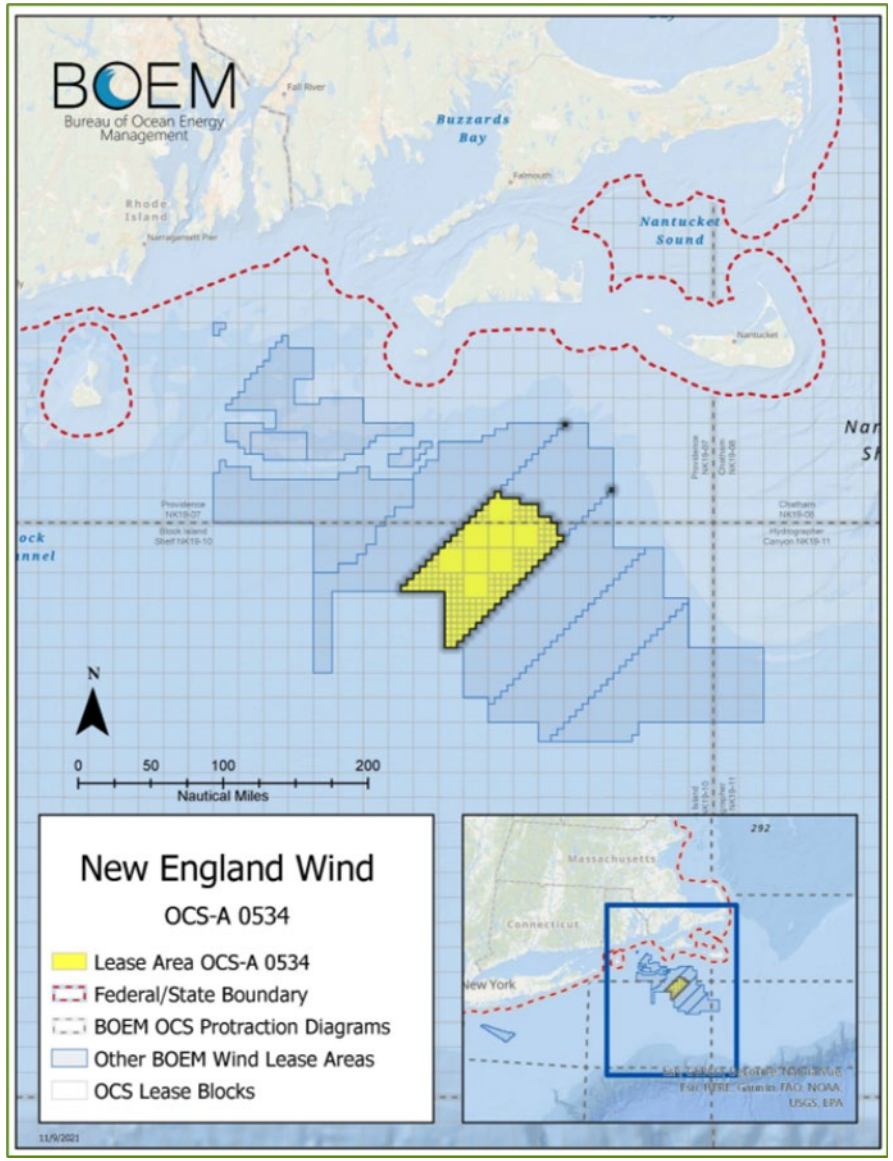
### New England Wind COP

New England Wind (formerly Vineyard Wind South) consists of two phases.

- Phase 1: Park City Wind (804 MW), which is located immediately southwest of Vineyard Wind 1.
- Phase 2: Commonwealth Wind (1,232 MW), which is located southwest of Phase 1.

Recent Public Comment period occurred Nov – Dec 2021

| Completed Steps | Pending Steps |
|---|---|
| COP received (July 2, 2020) | Scoping report published (pending) |
| NOI published (June 30, 2021; BOEM-2021-0047) | Draft EIS published (pending) |
| Scoping/comment period ends (July 30, 2021) | Public comment period for the Draft EIS ends (pending) |
| Notice for additional scoping published (November 22, 2021; BOEM-2021-0047) | Final EIS published (pending) |



# New England Wind

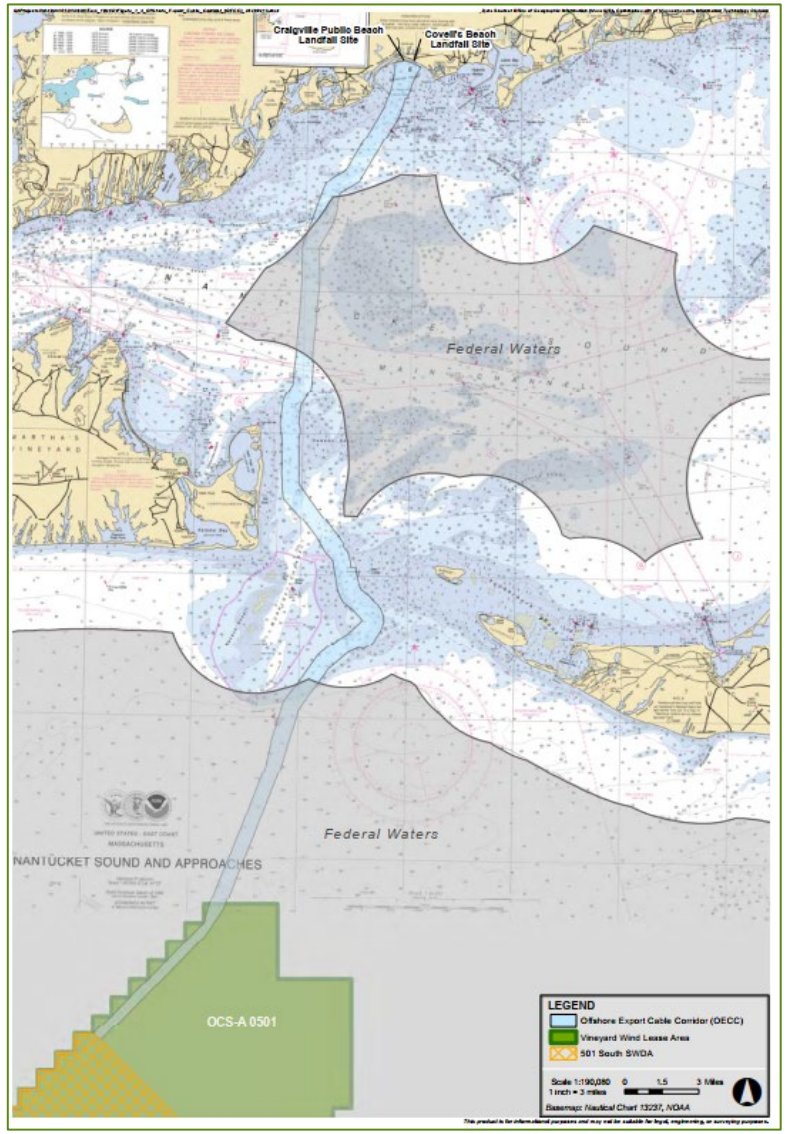
## Massachusetts State Permitting

- New England Wind 1 Connector
  - Scope of the review: New England Wind's Phase 1 Project (Park City Wind) offshore export cable located in state waters and onshore infrastructure in Massachusetts

- **MA Environmental Policy Act (MEPA)**
  - **MEPA certificate Obtained Q1 2022**

- Energy Facilities Siting Board review underway
  - EFSB petition filed May 28, 2020
  - Docket #EFSB 20-01

- State permitting progressing



# Upcoming Outreach Events

## Castafari Offshore Fishing Seminar

- Quincy MA
- March 5th & 6th

## New England Saltwater Fishing Show

- Providence RI
- March 11th- 13th


## CT Fishing & Outdoor Show

- Uncasville CT
- March 25th- 27th

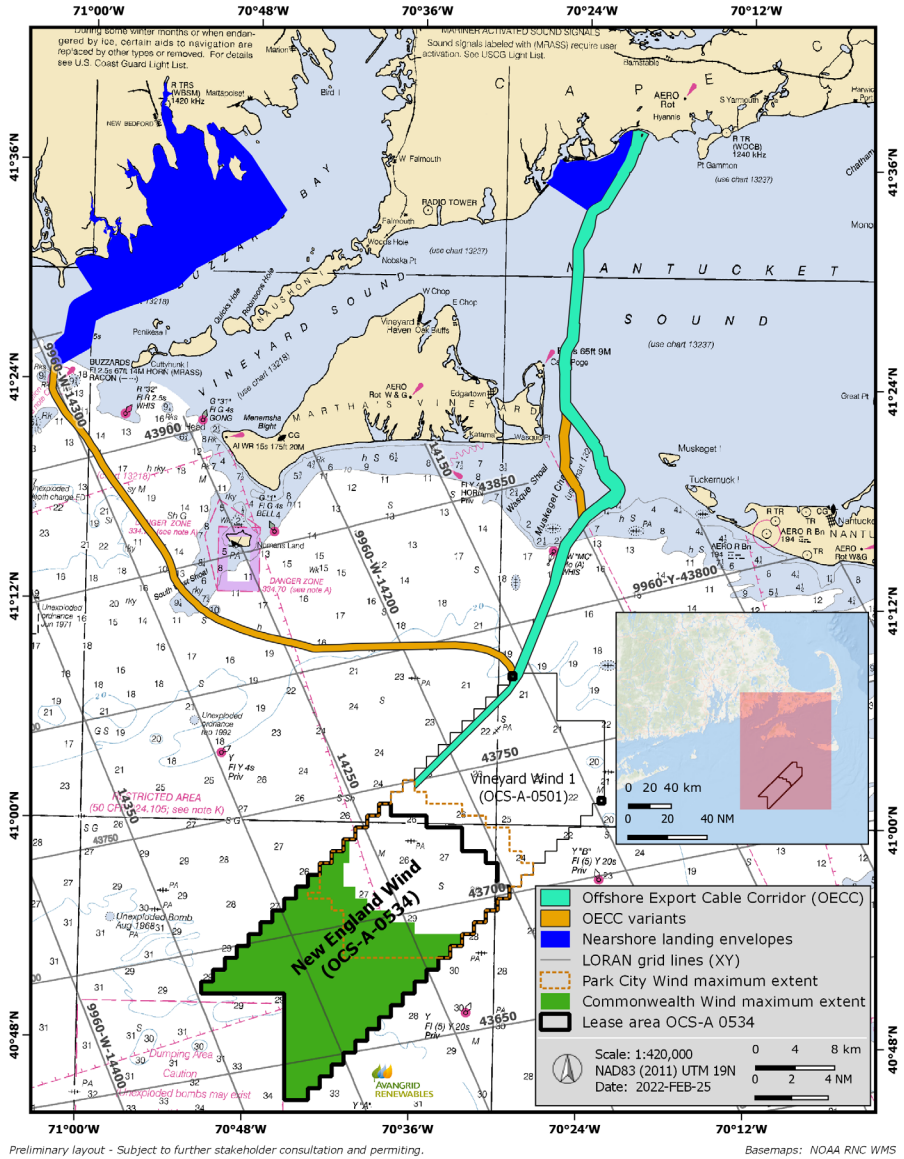
# Upcoming Surveys

## Fisheries Surveys

- Bottom Trawl
- Drop Camera

## G&G

- Geophysical- State waters/ Buzzards Bay
  - 2-3 vessels
  - Expected April-June
- Geotechnical- 534 lease area
  - Up to 2 vessels
  - Expected June- September
- Geotechnical- nearshore MA State waters/Buzzards Bay
  - 1 vessel
  - Expected late Spring



# Thank you

***caela.howard@avangrid.com***
***617-999-3882***

AVANGRID RENEWABLES

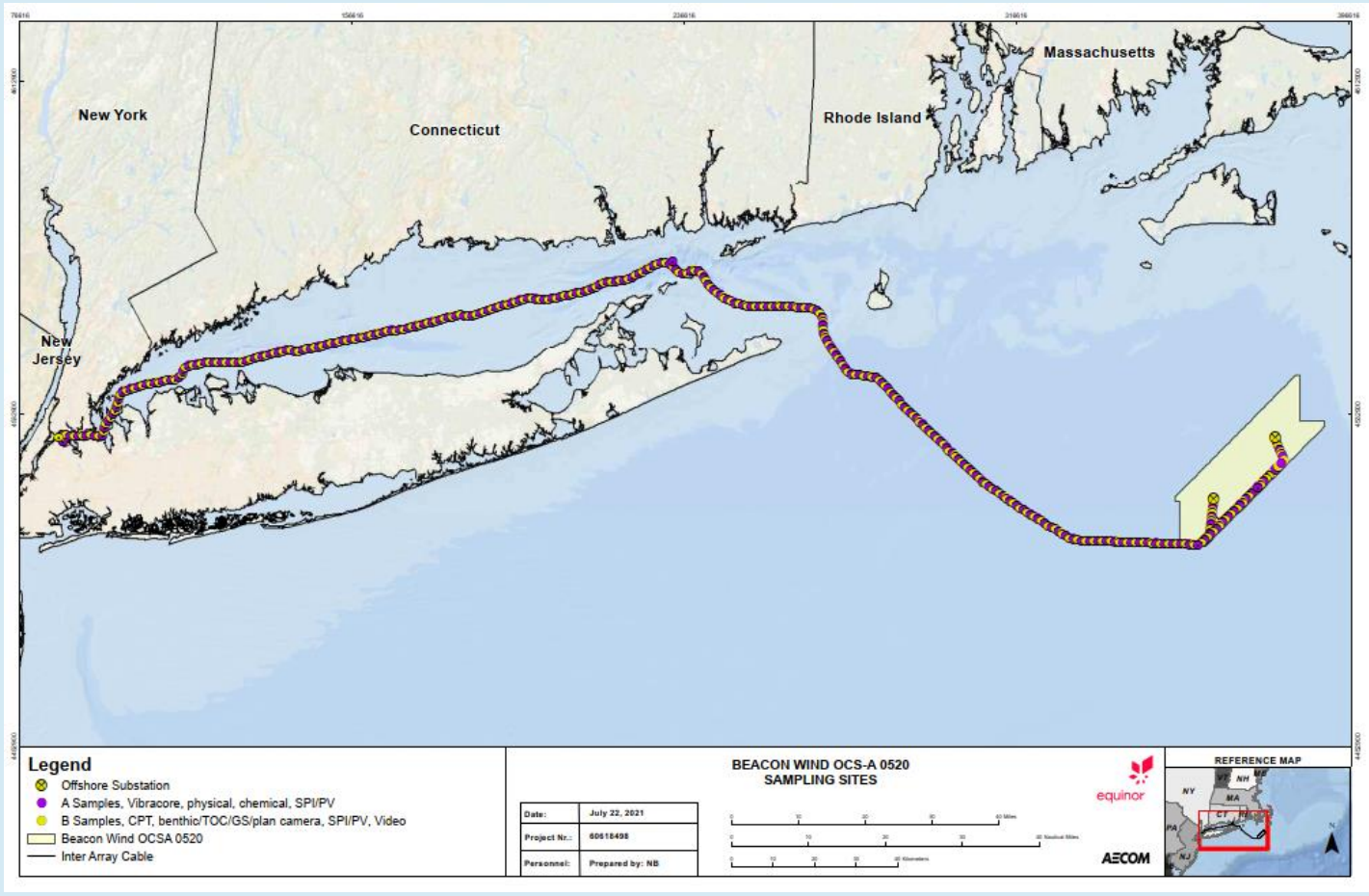
# Beacon Wind

Fisheries Working Group
March 2, 2022

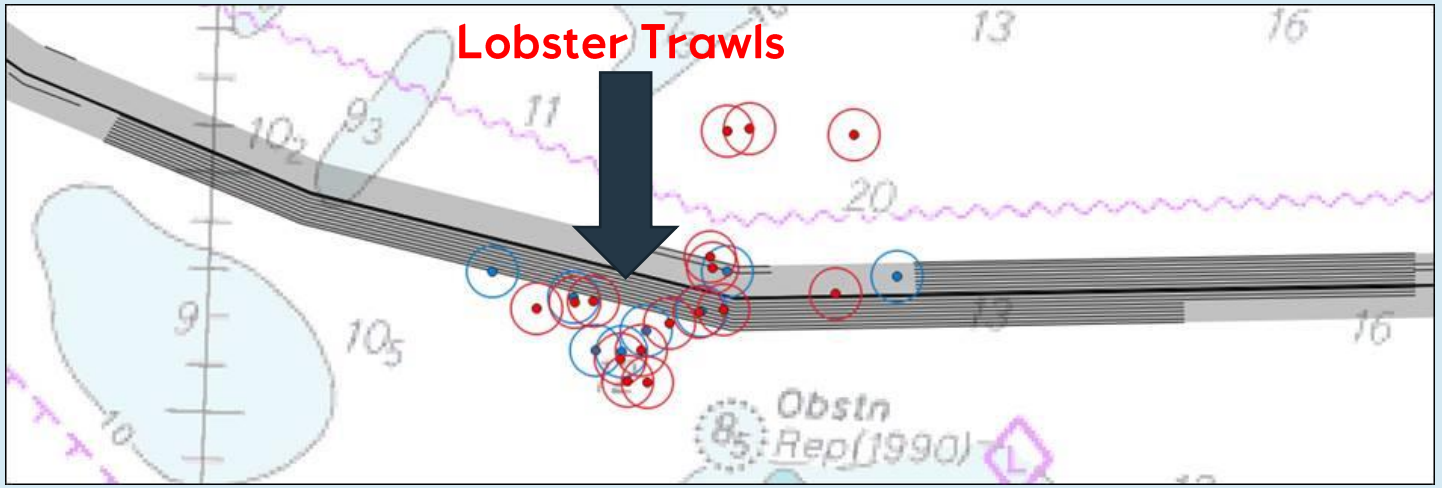
equinor

# Beacon Wind Surveys Recap

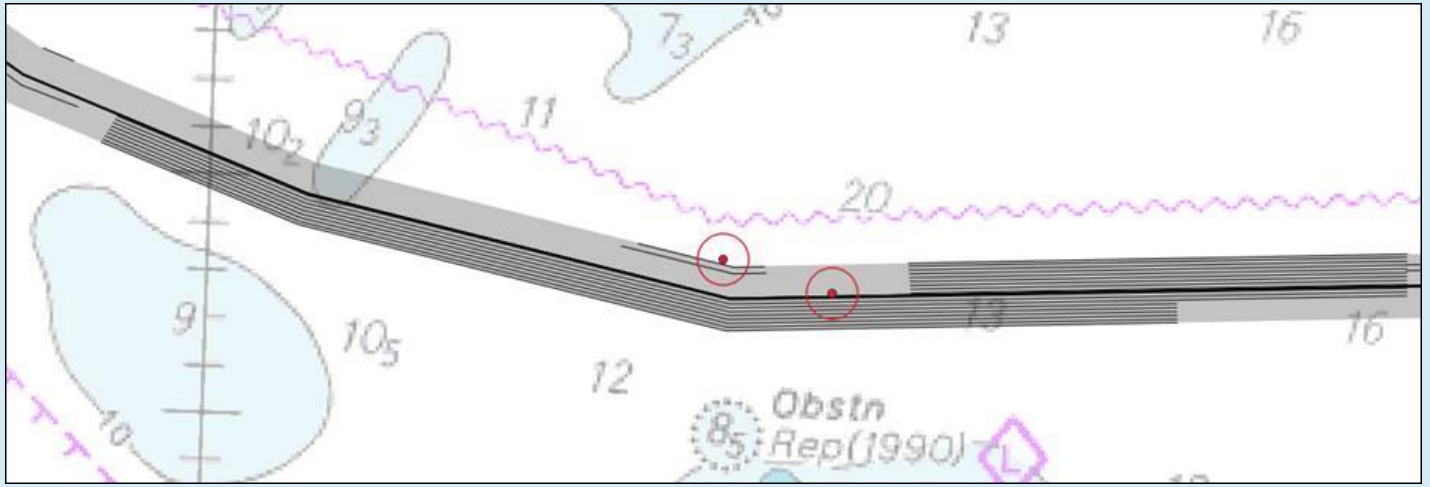
- August 2020 - Beacon Wind Lease Area Geophysical and Geotechnical Survey Commencement
- July 2021-February 2022 - Export cable route surveys conducted
- 6 G&G vessels
- 2 fishing vessels as scout vessels (lease area & ECR)
- 12 FLOs ( NJ, RI, MA & ME) onboard survey vessels
- **NO gear conflicts or gear claims**



# Beacon Wind | ECR LIS Scouting





# Beacon Wind | Current G&G Vessels

**Dina Polaris**
Beacon Wind Lease
FLO: Clint Baker


**Geoquip Saentis**
Beacon Wind Lease
PSO monitoring fishing gear and activity and maintains regular communications with FLOs.

**Estimated survey completion: May 2022**

equinor

# SHAPING THE FUTURE OF ENERGY

Thank you for your attention. Questions?

Elizabeth Marchetti
EMARC@equinor.com

MAYFLOWER WIND

# Project Update

*Presented to*

MA EEA Fisheries Working Group on Offshore Wind Energy

*Presented by*

Joel Southall, Fisheries Liaison Officer, Mayflower Wind

March 2, 2022

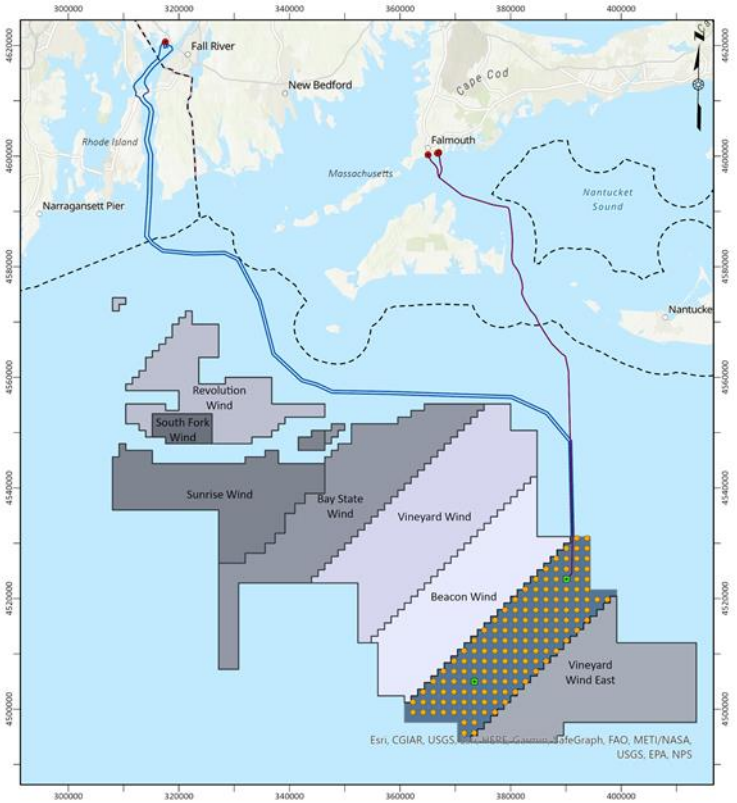
# Mayflower Wind Project Overview

## Points of Interconnection

- Falmouth, MA
- Brayton Point, Somerset MA

## Lease OCS-A 0521

- 127,388 acres
- Up to 149 positions with up to 147 wind turbine generators (WTG)/ and 5 offshore substation platform (OSP) positions within the lease area
- 1nm x 1nm spacing



# Project Progress

MAYFLOWER WIND

PROJECT OVERVIEW ABOUT US OUR COMMITMENT NEWS & EVENTS WORK WITH US STAY UPDATED

## Mayflower Wind Awarded 400 Megawatts in Massachusetts' Offshore Wind Energy Procurement

Dec 17, 2021

***Offshore wind developer's win will bring workforce, supply chain, and economic development as well as deliver low cost clean energy to thousands of electricity customers***

**BOSTON and FALL RIVER, MA – DECEMBER 17, 2021** – Mayflower Wind, the developer of an offshore wind energy project, today announced it was awarded a 400 megawatt (MW) power purchase agreement by the Commonwealth of Massachusetts and its three biggest utilities as part of Massachusetts' 83C III offshore wind energy procurement. Combined with its 804MW PPA from 83C II, the project will now provide more than 1200MW of clean energy to electricity customers throughout Massachusetts and New England.

NEWS & EVENTS

News

Events

Newsletters

News Coverage

MEDIA CONTACT

Joyce McMahon
McMahon Communications
joyce@mcmahoncomm.com
(978) 430-8847

# Upcoming Events


Upcoming events


**Monthly Port Hours – Narragansett**

March 4, 2022
9:00 AM – 12:00 PM
Read More


**Monthly Port Hours – New Bedford**

March 3, 2022
9:00 AM – 12:00 PM
Read More


**March 3 Virtual Open House**

Thursday, March 3
6:30 – 7:30 PM
Read More

# Upcoming Surveys

## mayflowerwind.com > Our Commitment > Mariners

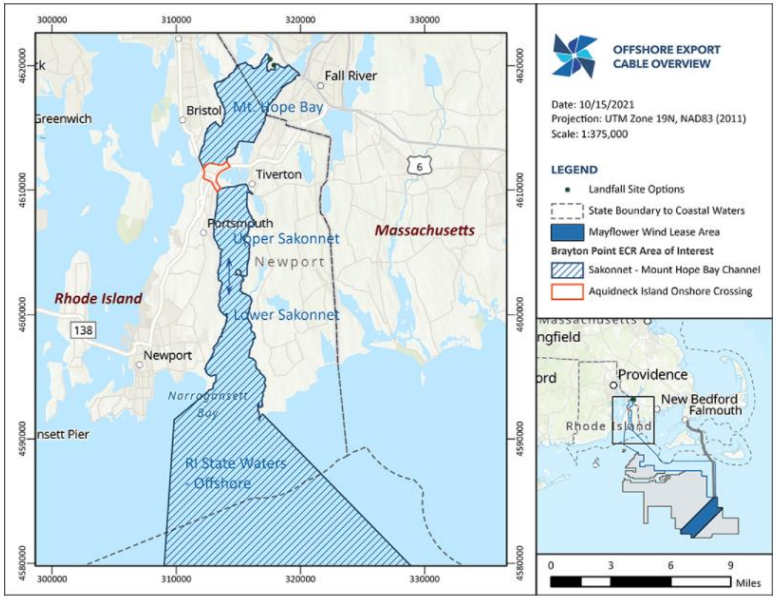
Mayflower Wind G&G Surveys – Vessel Operating Schedule

| | Feb 27-Mar 5 | Mar 6-12 | Mar 13-19 |
|---|---|---|---|
| Mt. Hope Bay | *N/A* | *N/A* | *N/A* |
| Upper Sakonnet | *N/A* | *N/A* | *Warren Jr* |
| Lower Sakonnet | *N/A* | *N/A* | *Warren Jr* |
| Offshore - RI State Waters | *N/A* | *N/A* | *Warren Jr* |
| Offshore - Federal Waters | *N/A* | *N/A* | *Warren Jr* |
| Mayflower Wind Lease Area | *N/A* | *N/A* | *N/A* |

**VESSEL: WARREN JR.**


| |
|---|
| Mobilization: approx. March 16, 2022 |
| 24-hour operations, benthic |
| Water depths: > 20’ |
| LOA: 150’ |
| Call Sign: WDH4232 |
| Phone: +1-254-381-5471 |
| Monitoring VHF Channels 13 & 16 |

Mayflower Wind G&G Surveys – Offshore, Sakonnet River and Mt. Hope Bay



# Thank You

**Questions and Comments?**

joel.southall@mayflowerwind.com
(617) 817-4682

# Ørsted Offshore North America

Northeast Program Update

Ørsted

**MA Fisheries Working Group Meeting on Offshore Wind**
March, 2022

# Orsted Northeast Program
# 50/50 JV with Eversource

**South Fork Wind**

- Lease Area OCS-A 0517
- Deliver power to the East Hampton, NY
- NY Article VII approved March 2021
- COP Approval received January 18, 2022
- Onshore construction commenced

**Revolution Wind**

- Lease Area OCS-A 0486
- Interconnect to the existing Davisville Substation, RI
- RI EFSB Hearings underway
- RI CRMC and RI DEM permit applications under review
- DEIS July 2022, FEIS March 2023

**Sunrise Wind**

- Lease Area OCS-A 0487
- Proposed interconnection at Holbrook Substation, NY
- NY Article VII Settlement meetings underway
- DEIS October 2022, FEIS July 2023

# Northeast fisheries monitoring activities

# Project specific activities

## South Fork Wind

- Monthly beam trawl survey: ongoing
- Bi-monthly gillnet survey: resumes April 2022
- Bi-monthly ventless lobster pot survey: resumes May 2022
- Monthly fish pot survey: resumes June 2022
- Benthic surveys at foundations and inter-array cable route: August 2022
- Export Cable Trawl Survey: 2 seasonal surveys have been completed, next survey planned for March 2022
- Export Cable Telemetry: 159 transmitters were deployed in 2021. First receiver download planned for March 2022.

## Revolution Wind

- Trawl survey: start date TBD
- Ventless lobster pot survey: start date TBD
- Benthic surveys at foundations and inter-array cable route: TBD – within 12 months prior to seabed preparation

# Project specific activities (cont'd)

## Sunrise Wind

- Trawl survey: start date TBD
- Optical surveys for scallops and benthic fauna: start date TBD
- Acoustic telemetry around the cable landing: beginning June/July 2022
- Benthic surveys at the foundation locations: TBD – within 6 months prior to seabed preparation

## Cross-Project

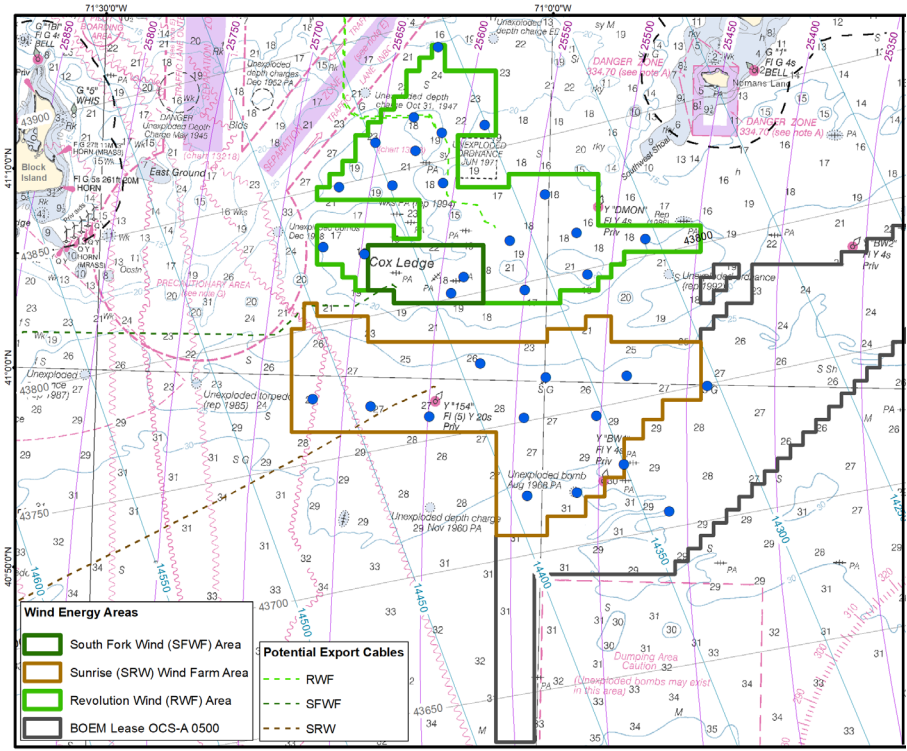
- Highly Migratory Species acoustic telemetry study: beginning May/June 2022



Ørsted

# Highly Migratory Species acoustic telemetry study

- Orsted is funding researchers from the New England Aquarium and Inspire Environmental
- Research focused on Highly Migratory Species, particularly blue sharks, shortfin mako sharks and bluefin tuna
- Study designed to investigate the affects of offshore wind development on the behavior, residency and movement of tagged animals
- 32 receivers will be deployed in Orsted's lease areas
- The study will begin in May/June 2022 and continue through 2026

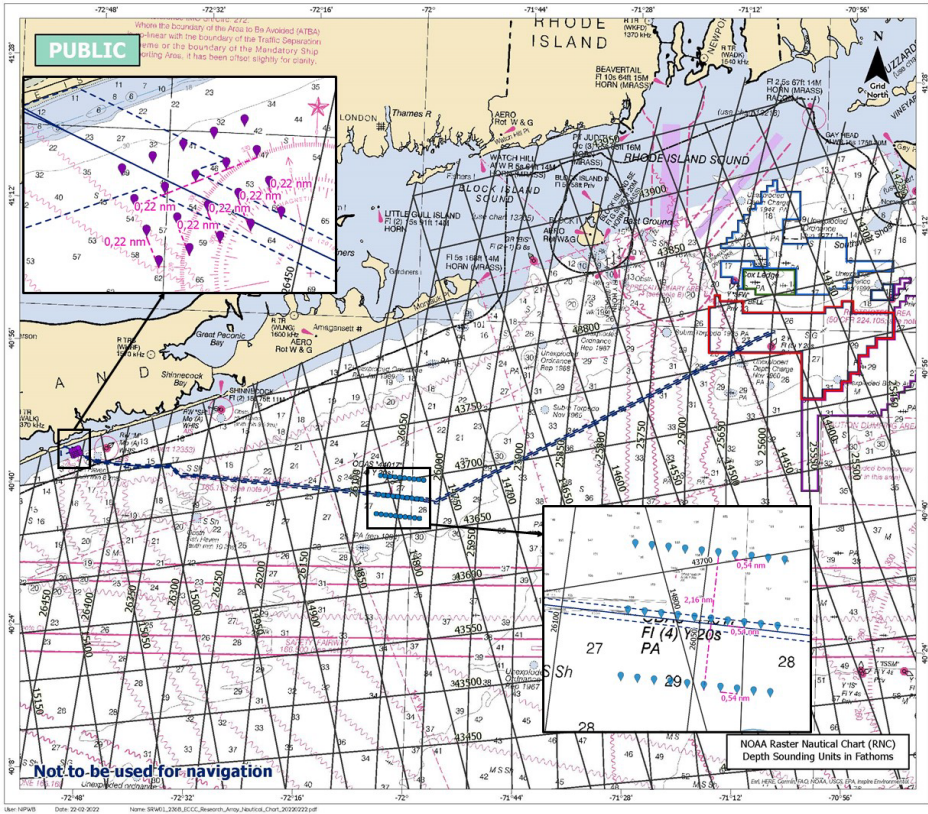



Data: NOAA NOS Chart 12300

Document Name: Orsted_proposed_receiver_locations_20220211

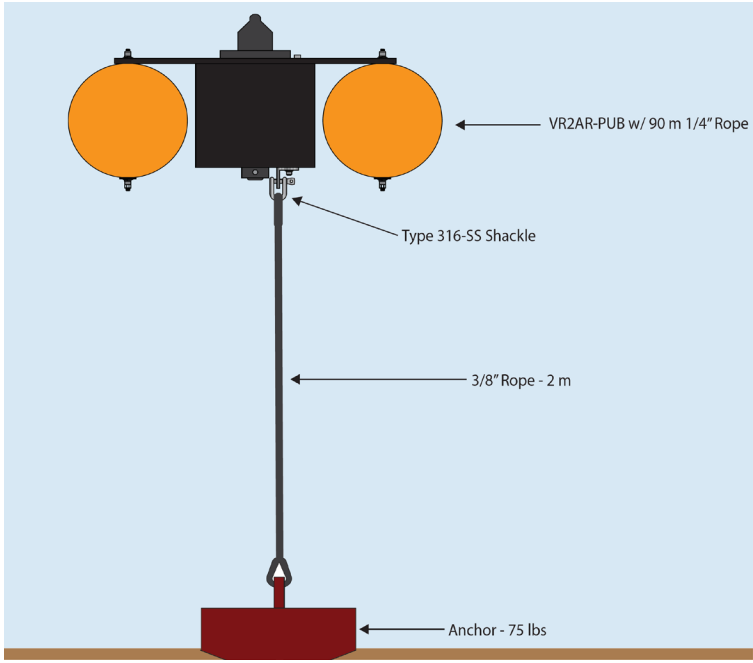
# Sunrise Wind Export Cable acoustic telemetry study

- Orsted is funding researchers from Stony Brook University and Cornell Cooperative Extension
- Research focused on sandbar, dusky and sand tiger sharks, winter skate, smooth dogfish, lobster and horseshoe crabs
- Study designed to investigate the affects of Sunrise Wind Export Cable on the behavior, residency and movement of tagged animals
- 2 arrays are proposed along the cable route
- The study will begin in June/July 2022 and continue through 2027



# Acoustic receivers

- Researchers will place the receivers to avoid interactions with commercial fishing gear, particularly mobile gear
- Receivers will be retrieved and redeployed 2-3 times a year to download data and change batteries
- Ropeless technology used to avoid entanglement with marine mammals and other protected species
- Receivers will be held in place with 75 lbs pyramid anchors and float ~ 6 feet off the bottom
- All gear will be removed at the end of the study



# Site Investigation and cable surveys

# Geophysical: 3D UHRS Survey

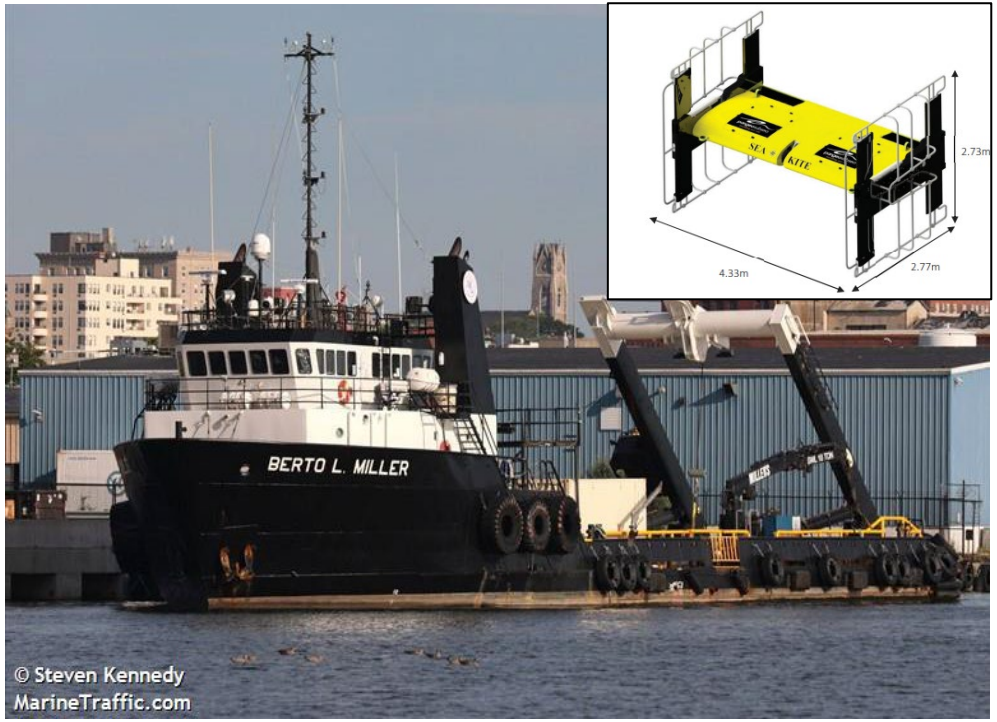
- **Vessel**: Deep Helder
- **Purpose**: Subsurface boulder survey
- **Area**: Primarily REV and SFW with small scope in SRW
- **Est start date**: 5/1/22
- **Duration**: 6-10 weeks, 24-hour operations
- **Equipment**: 3 sparkers and 4 receivers towed ~ 110 m behind the vessel with a ~ 20 m gear spread. Survey equipment towed ~ 2 m below the surface
- **FLO**: Yes

# Geotechnical: pMEC Survey

- **Vessel**: Shelia Bordelon
- **Purpose**: Inspect possible unexploded ordinance
- **Area**: REVECR, REV with small scope in SRW and potentially OCW
- **Est start date**: 6/1/22 ± 14 days
- **Duration**: 6-10 weeks, 24-hour operations
- **Equipment**: ROV equipped with lights, cameras, a magnetometer and suction dredge
- **FLO**: Yes

# Geophysical: boulder survey

- **Vessel**: Berto L Miller
- **Area**: SFW and SFWECR
- **Purpose**: Identify surface and subsurface boulders along the cable route
- **Est start date**: 5/1/22
- **Duration**: 10 days, 24-hour operations
- **Equipment**:
    - Towed sea kite system fitted with pangeo sub bottom profiler
    - Magnetometer (towed with sea kite)
    - MBES (Multibeam Echo Sounder) fitted to survey pole below vessel
- **FLO**: Space requested

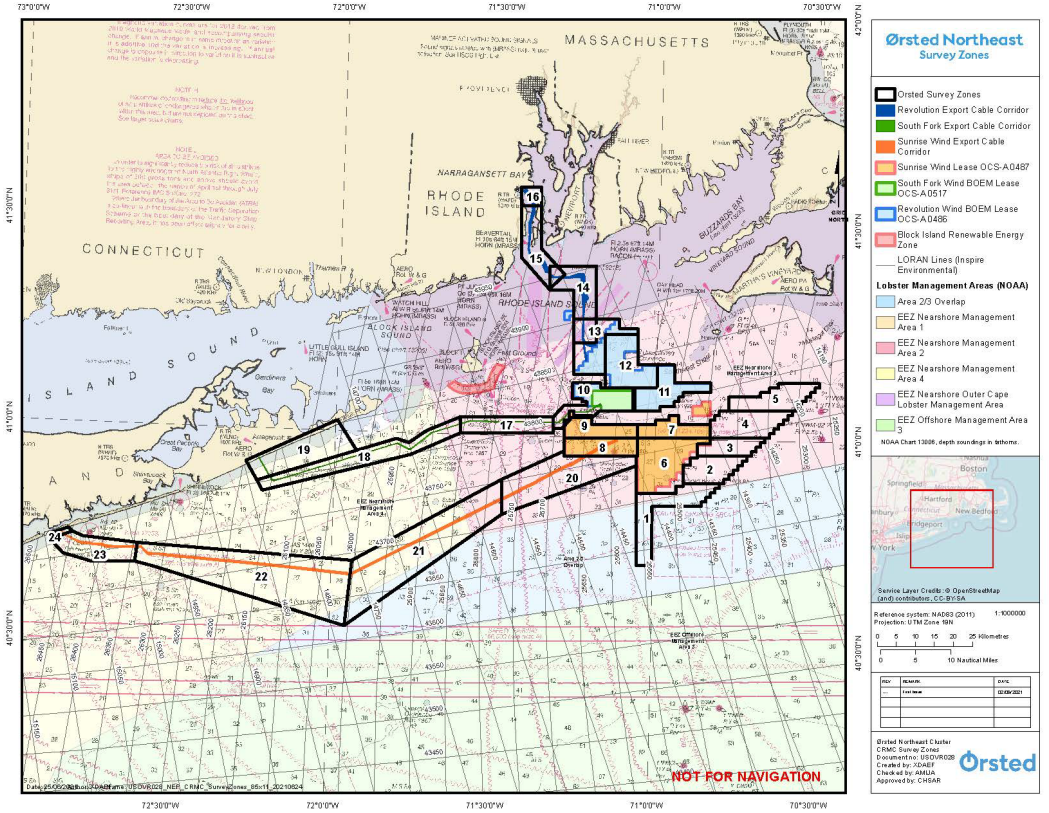


# Scout Vessel

- **Vessel**: Provider
- **Purpose**: Locate fishing gear ahead of survey vessels; primarily the Deep Helder but can assist other survey vessels
- **Area**: Primarily REV and SFW with small scope in SRW
- **Est start date**: 5/1/22
- **Duration**: 6-10 weeks, 24-hour operations
- **Equipment**: NA
- **FLO**: NA

# Survey zone update

- Survey zones were created to help keep fishermen and other mariners aware of where survey vessels would be operating
- Originally implemented in the fall of 2019 and updated in 2020
- Survey zones will be updated for the 2022 survey season
- The survey zones are included in our Mariners Briefings
    - Mariners Briefings are sent Mondays and Thursdays while vessels are active
    - Email CHSAR@orsted.com to be added to our distribution list



# Questions?

**Rodney Avila**
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**Chris Sarro**
MA & RI
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**Greg DeCelles**
Senior Environmental & Permitting Specialist
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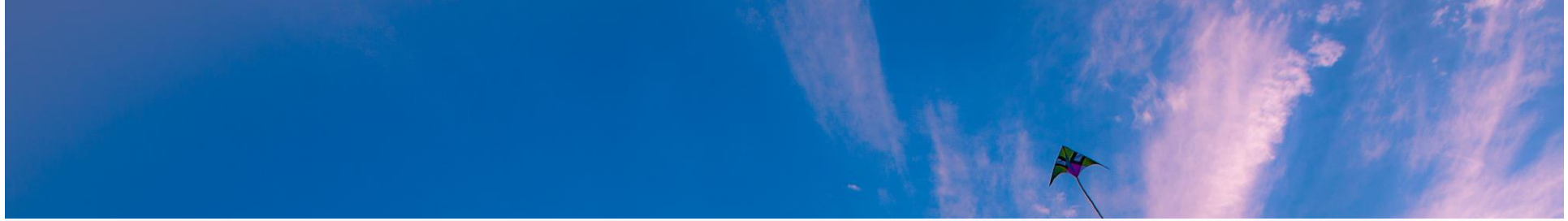
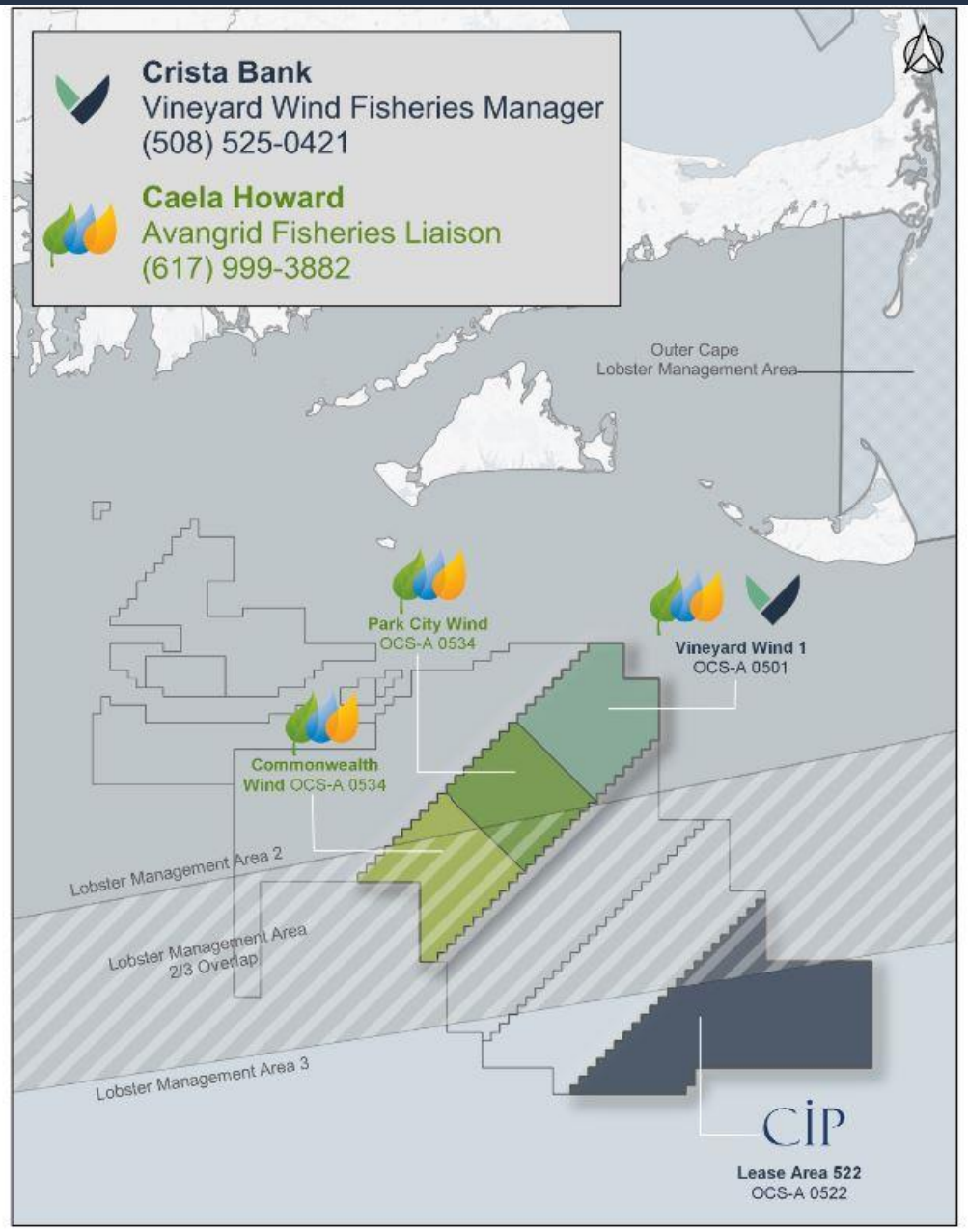


# MA Fisheries Working Group

March 2, 2022

# JOINT VENTURE SPLIT



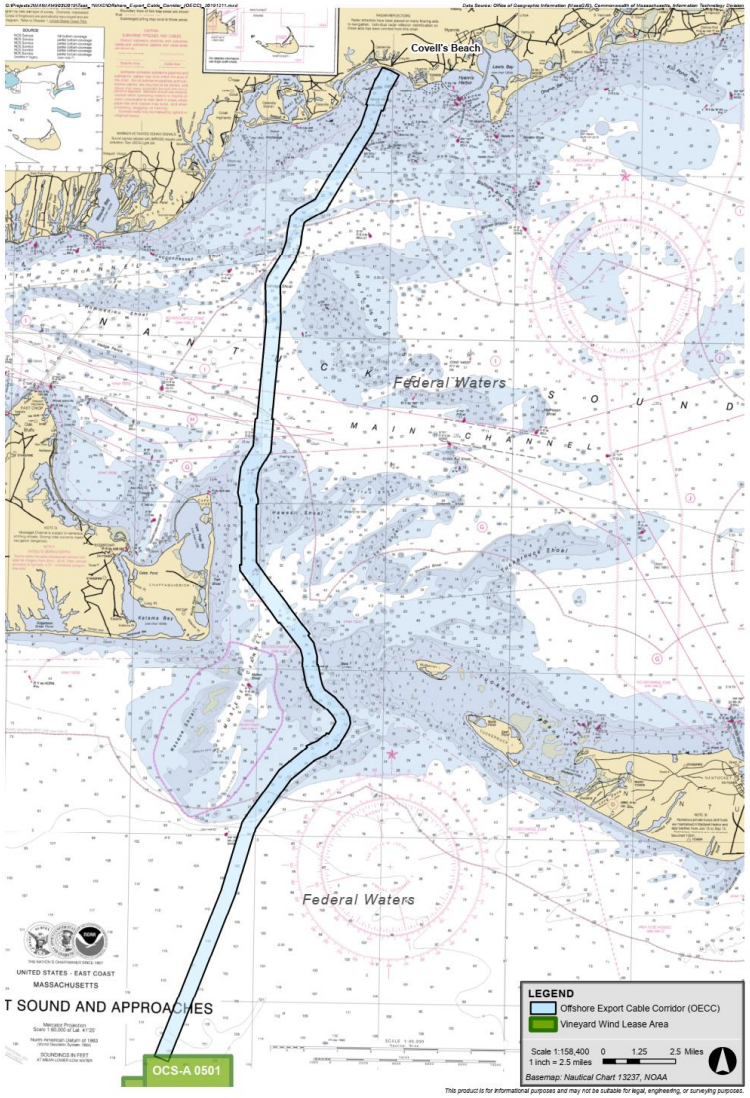
# Compensation Funds Update

- Mass. Innovation Fund – initial $1 million paid to the state

- Compensatory mitigation funds are being held in third-party escrow accounts pending implementation of the program

- Process and mechanism for fishermen to submit claims under development
  - Direct compensation to fishermen for economic losses
  - Eligibility details will be available in coming months
  - Supporting documentation will be required

- Gear loss compensation process and forms on Vineyard Wind website: https://www.vineyardwind.com/fisheries-documents




Vineyard Wind Project

VINEYARD WIND

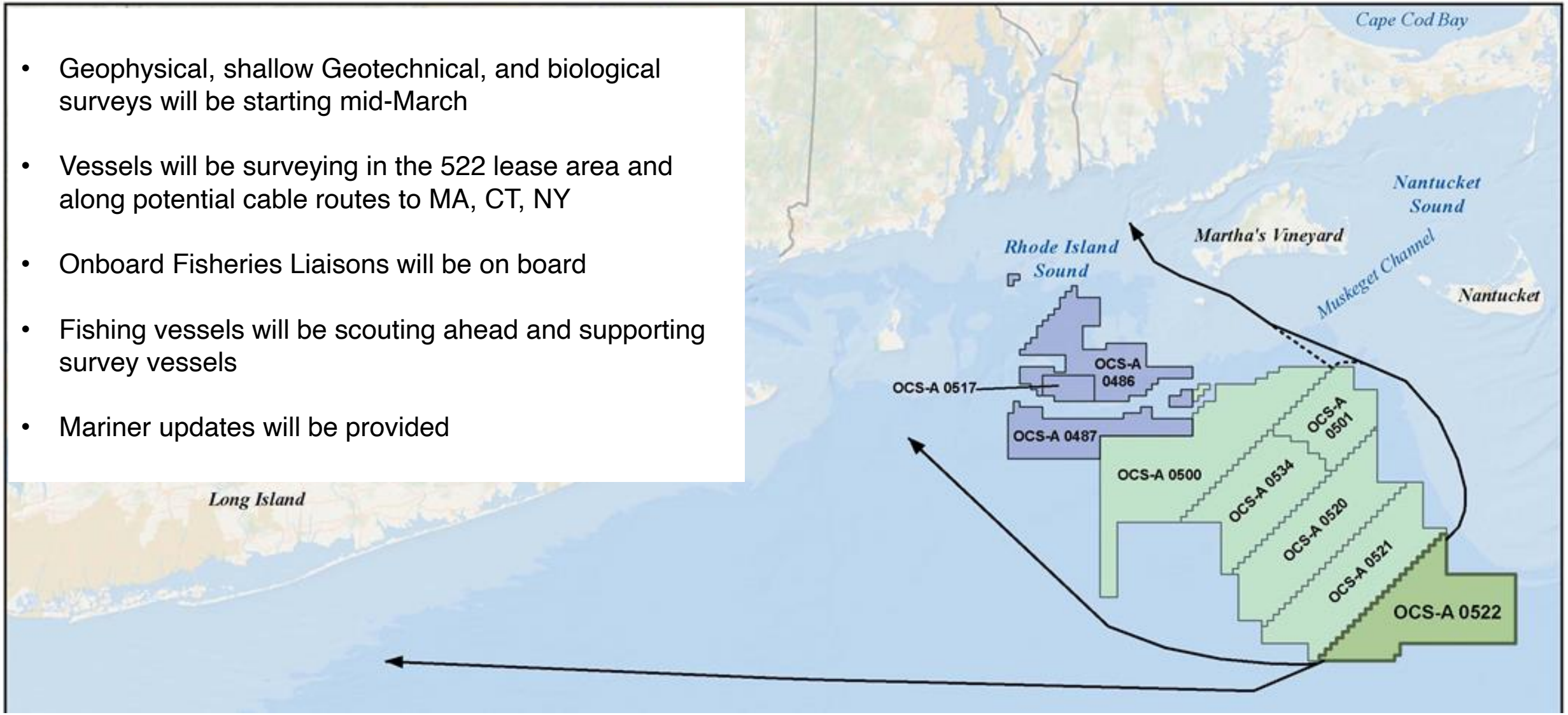
Figure 1
*Vineyard Wind Offshore Export Cable Corridor (OECC)*

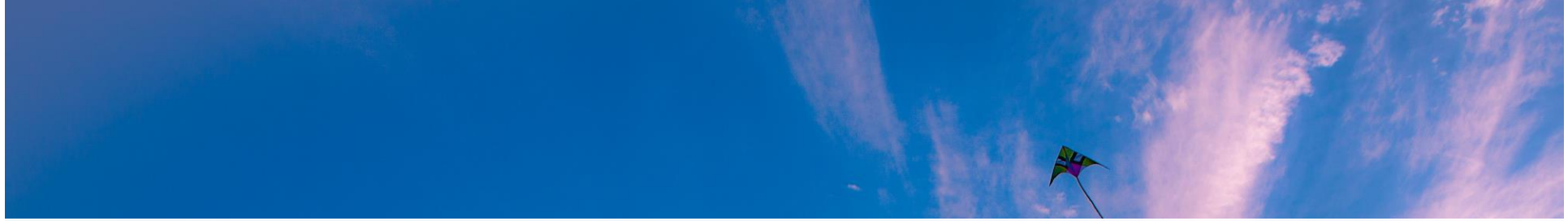
# Vineyard Northeast Lease Area OCS-A 0522

# Vineyard Northeast - 522

## G&G Survey Update

- Geophysical, shallow Geotechnical, and biological surveys will be starting mid-March
- Vessels will be surveying in the 522 lease area and along potential cable routes to MA, CT, NY
- Onboard Fisheries Liaisons will be on board
- Fishing vessels will be scouting ahead and supporting survey vessels
- Mariner updates will be provided





**Questions?**

**Crista Bank**

cbank@vineyardwind.com

508-525-0421

BOEM
Bureau of Ocean Energy Management

# Renewable Energy Planning & Leasing: Next Steps for the Gulf of Maine

*Office of Renewable Energy Programs*

March 2, 2022

# Gulf of Maine Intergovernmental Renewable Energy Task Force

## Gulf of Maine Task Force

Requested by Governor Sununu in 2019, and last met in December 2019.

- Who is on it?
  - Members include federal officials and elected officers of state, local, and Tribal governments.
  - Members of the public can attend meetings, and there is always an opportunity to provide input.
- What is it?
  - Mechanism for coordination and information exchange with governmental partners. Not a decision-making nor approval body.

# Gulf of Maine Intergovernmental Renewable Energy Task Force

## What are the goals of the Task Force?

1. **educate** members about the renewable energy program, processes, and requirements;
2. **exchange** data and information;
3. **discuss** issues of concern; and
4. **assist government decision-making** within the established BOEM regulatory framework regarding renewable energy activity on the OCS in the Gulf of Maine

## What did we cover in 2019?

- Task Force Structure/Purpose
- Renewable Energy Leasing Process
- State perspectives
- Jurisdictional Authorities (DoD, USCG, NMFS)
- Data, Information Sources, Ocean Users
  - BOEM, NROC, NEFMC, RODA, DOE
- Public Input/Concerns

**Link to the 2019 Gulf of Maine Task Force Meeting Materials**:
https://www.boem.gov/renewable-energy/state-activities/gulf-maine-intergovernmental-renewable-energy-task-force-meeting

# Gulf of Maine Intergovernmental Renewable Energy Task Force

## Next Steps?

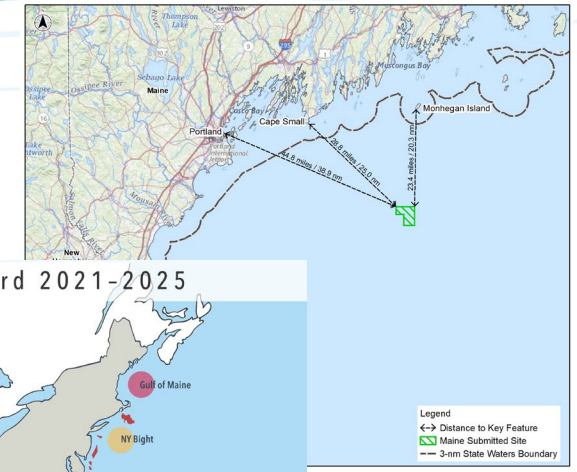
Reconvene the Task Force for a meeting in **Spring 2022** to build upon the progress made in 2019.

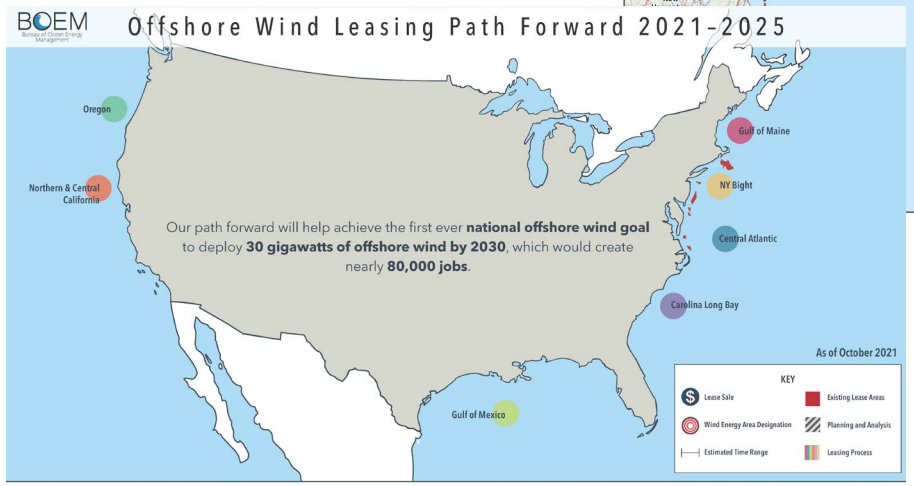
## State of Maine Research Array

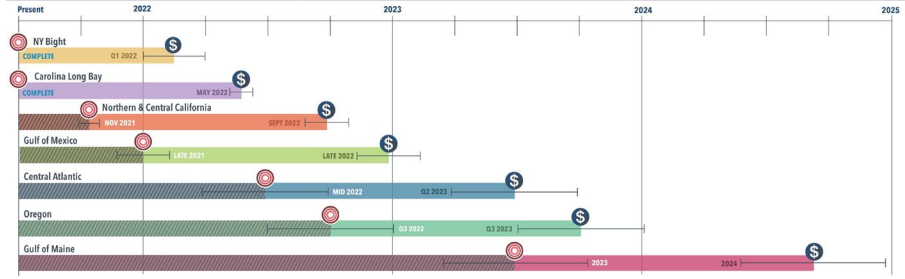
Maine submitted a research lease application (Oct. 2021) for a floating research array in Federal Waters

- ~25 mi offshore
- ≤ 12 Floating Turbines (up to 144 MW)
- 15 Square Miles (~10,000 acres)
- BOEM currently reviewing and processing application

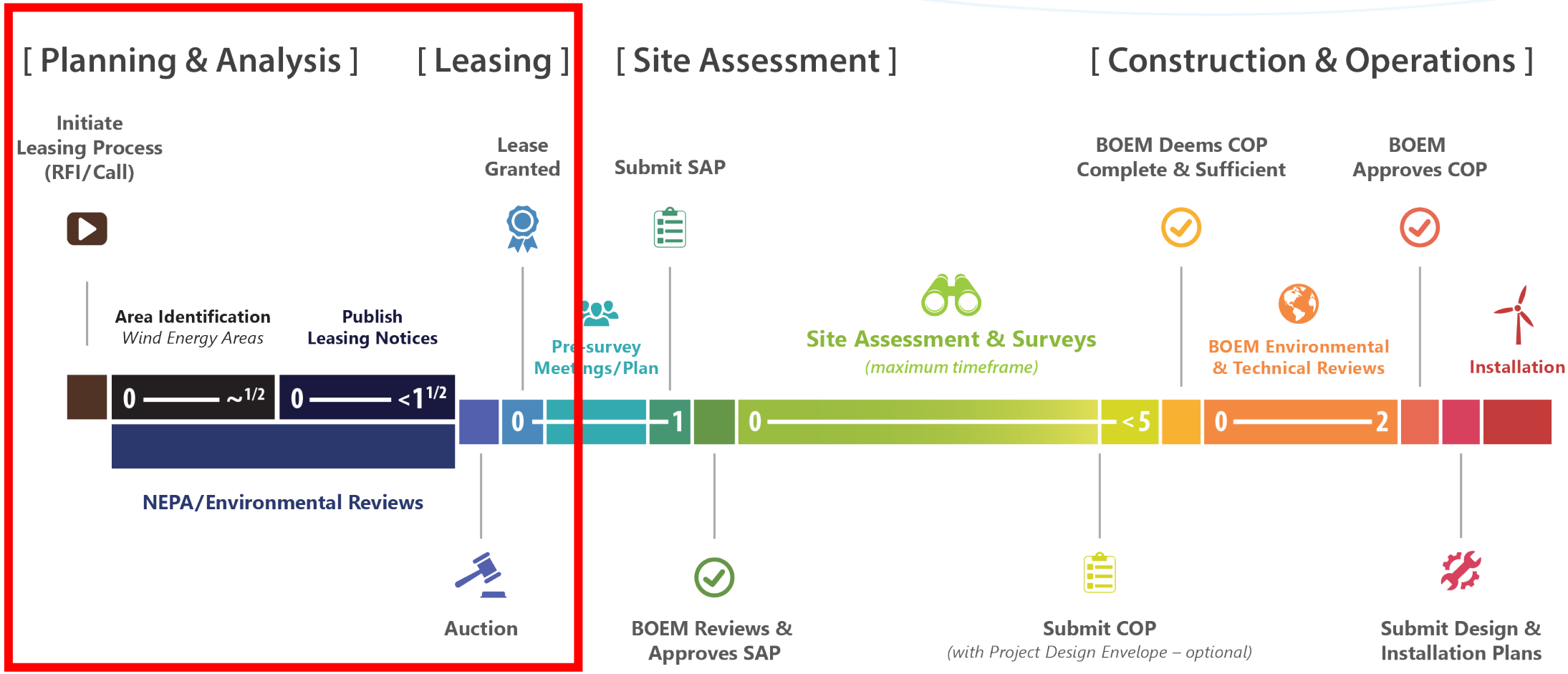
10/13/21 Announcement:
https://www.doi.gov/pressreleases/secretary-haaland-outlines-ambitious-offshore-wind-leasing-strategy



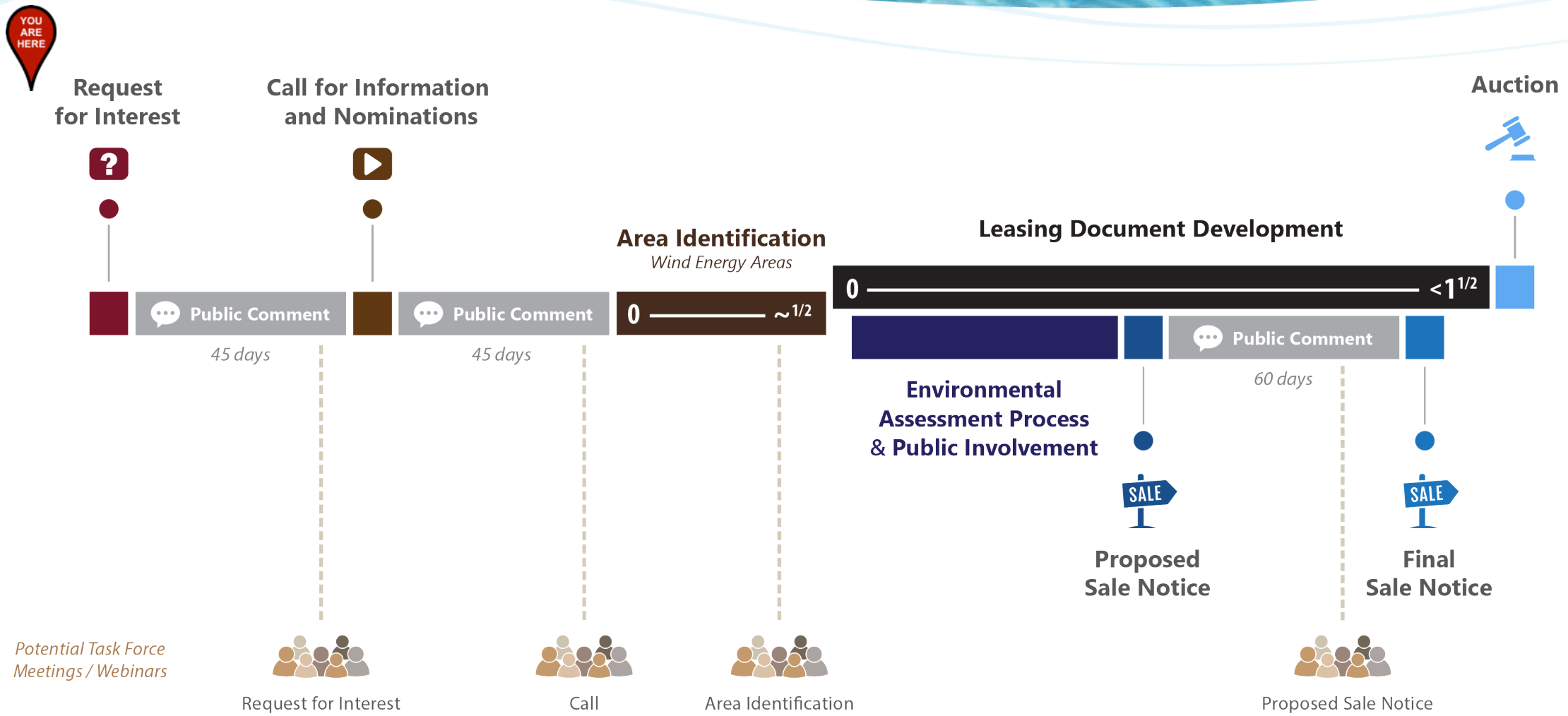



# Renewable Energy Process: From RFI/Call to Operation



# Request for Interest to Lease Sale



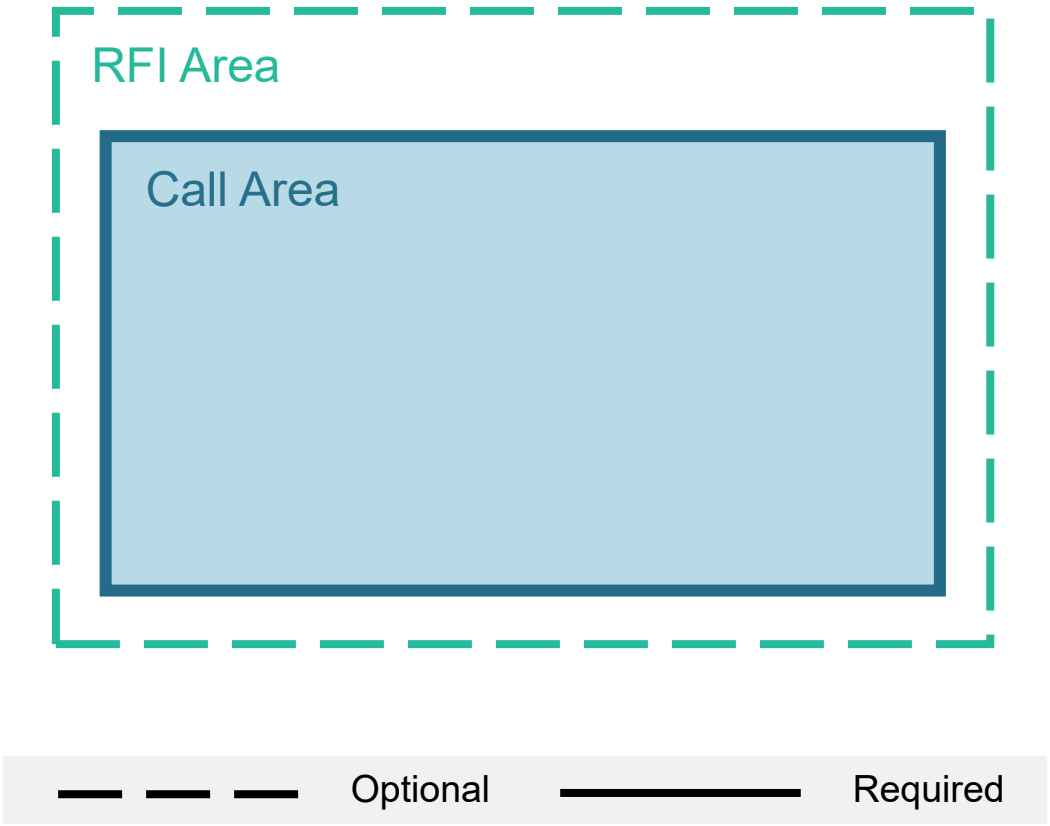
# Request for Interest (RFI) Area

- Collect information to determine the level of interest in offshore wind leasing
- Shed more light on suitability of area for wind development

# Call for Information and Nominations - Area

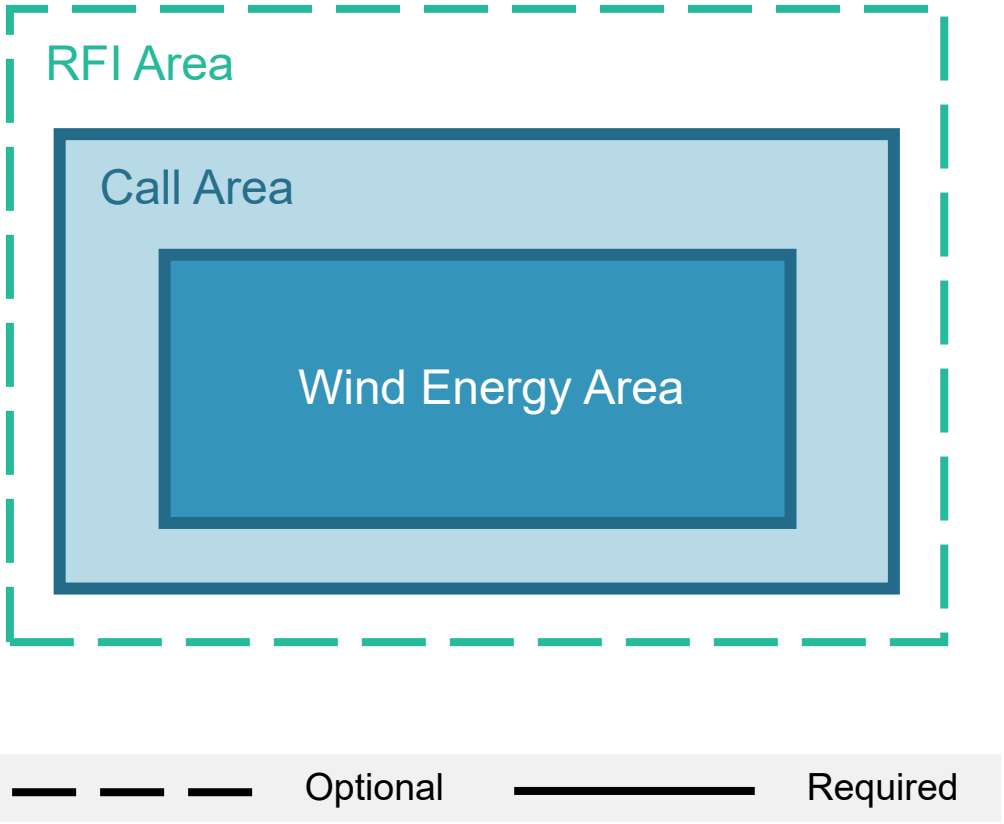
## Request comments on:

- Areas for special consideration and analysis
- Conditions in the Call Area
- Areas to be considered for leasing



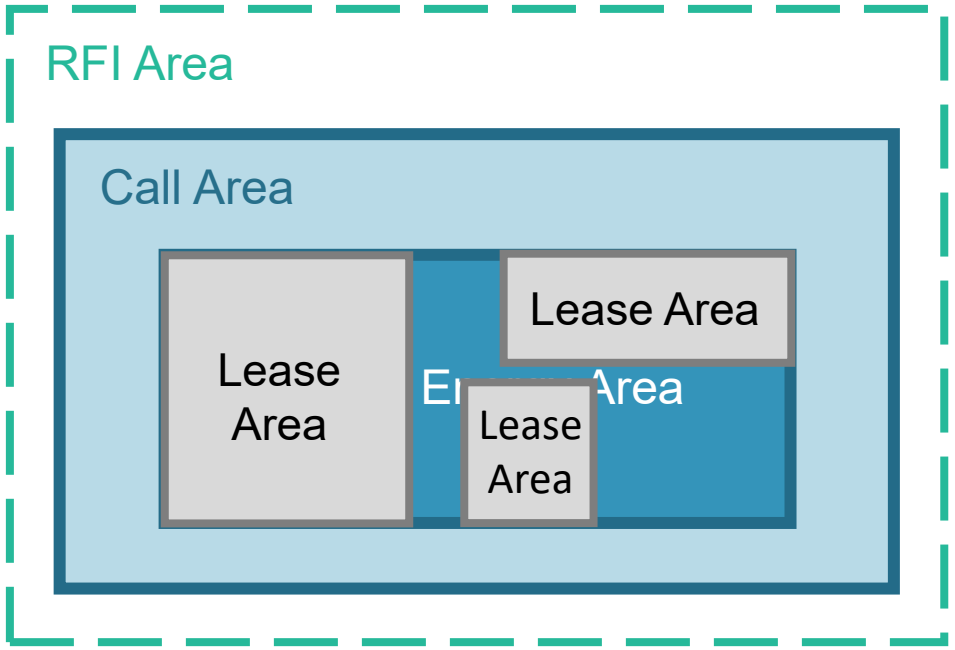
# Wind Energy Area

- A portion of the Outer Continental Shelf (OCS) identified by BOEM for NEPA analysis (Environmental Assessment)
- The basis for a Lease Area



# Lease Areas

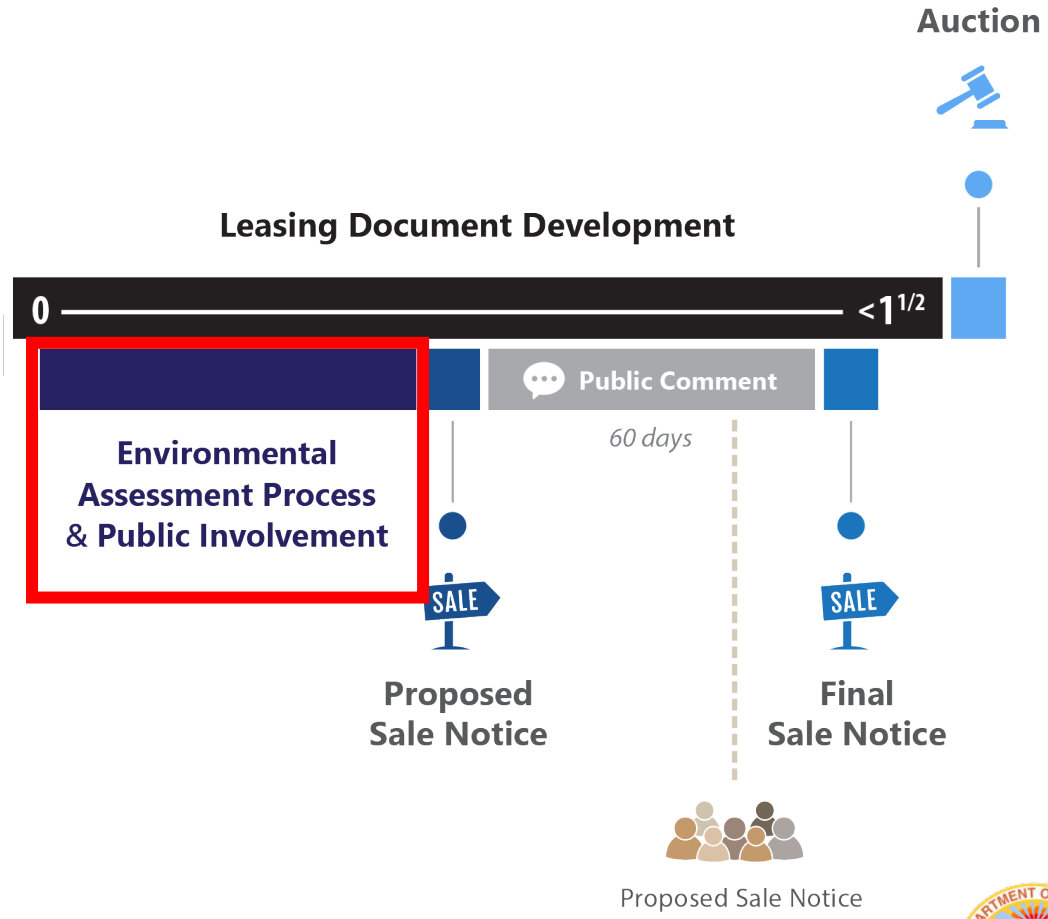
- Wind Energy Areas have the potential for further division into Lease Areas



# Environmental Assessment

## Assesses Environmental Effects Associated with Leasing

- Site Characterization Activities
  - biological, geological, geotechnical, and archaeological surveys
- Site Assessment Activities
  - meteorological and oceanographic buoy deployment



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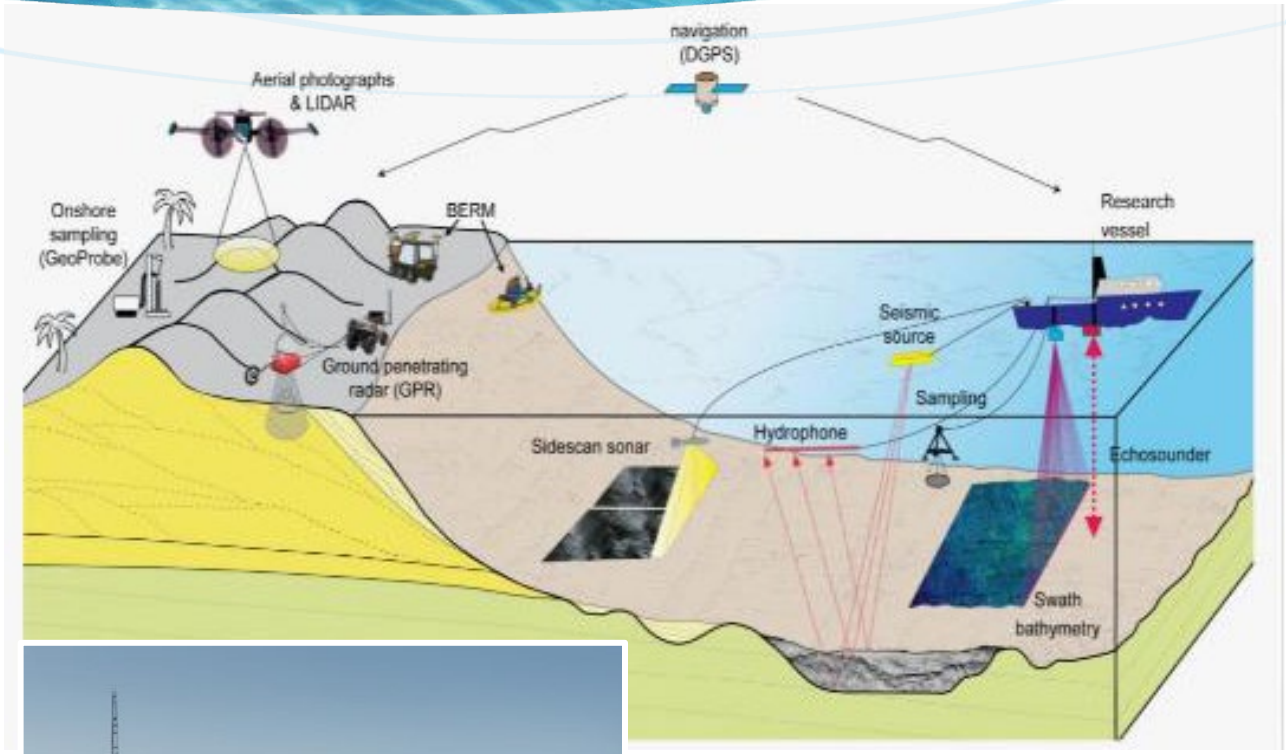



# Pre-Lease Sale Process: Proposed Sale Notice

## What is in a PSN?

- Area for leasing
- Fiscal terms
- Auction details and format
- Proposed lease terms
- Last opportunity to submit company qualification materials
  - Legal
  - Technical
  - Financial
- Nonmonetary factors

## Auction Seminar for potential bidders

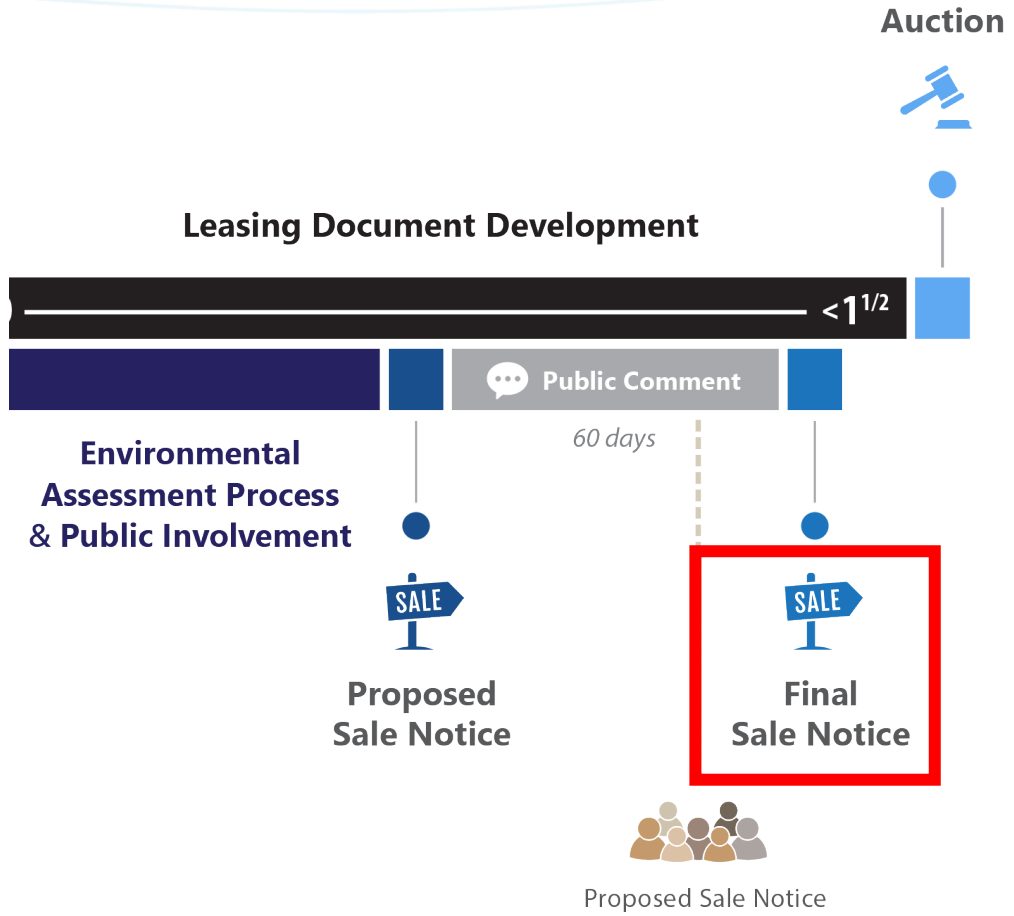
# Pre-Lease Sale Process: Final Sale Notice

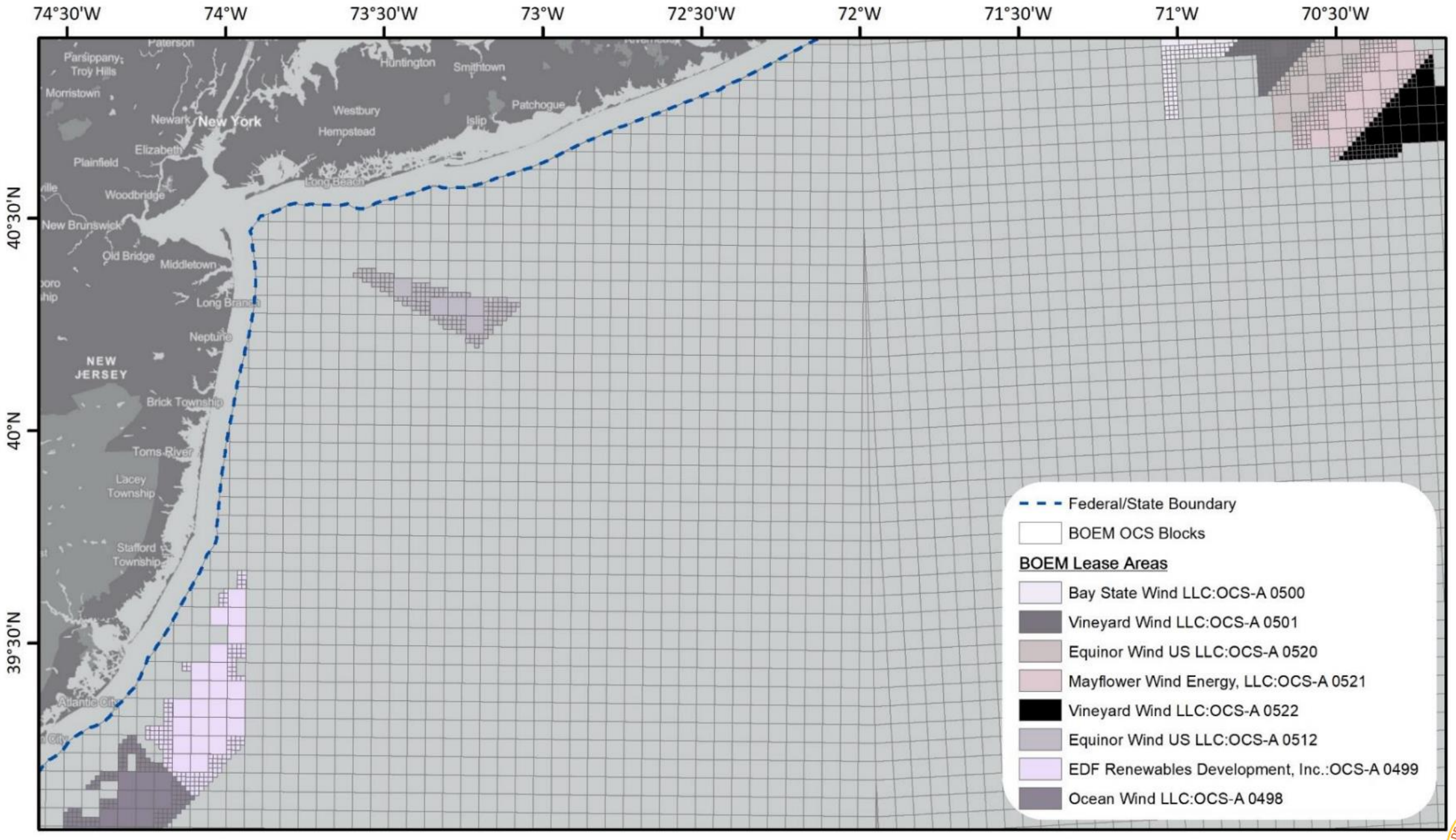
## Final Sale Notice

- Bid deposit required to participate in auction
- List of qualified bidders

## Mock Auction

## Auction

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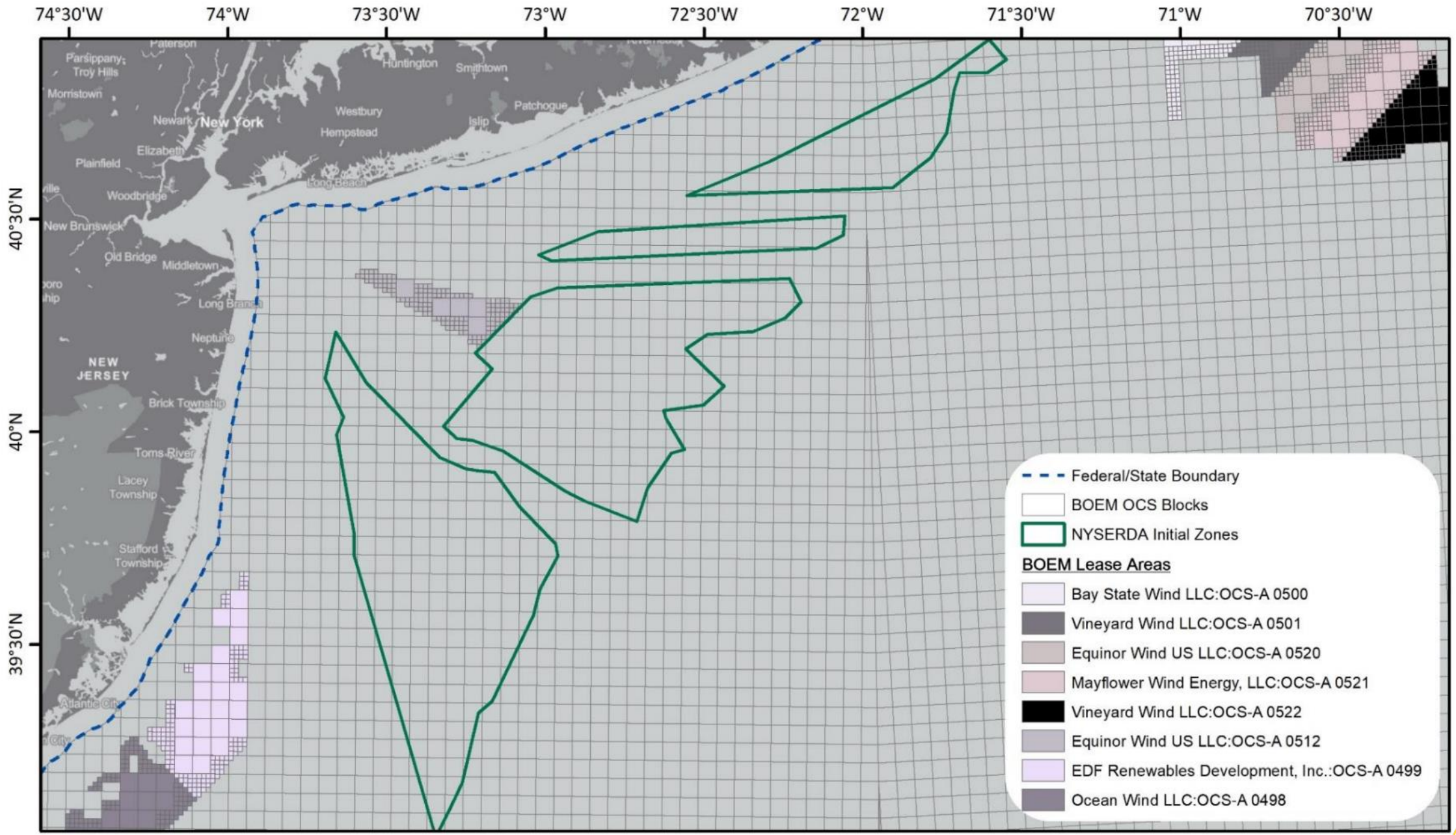
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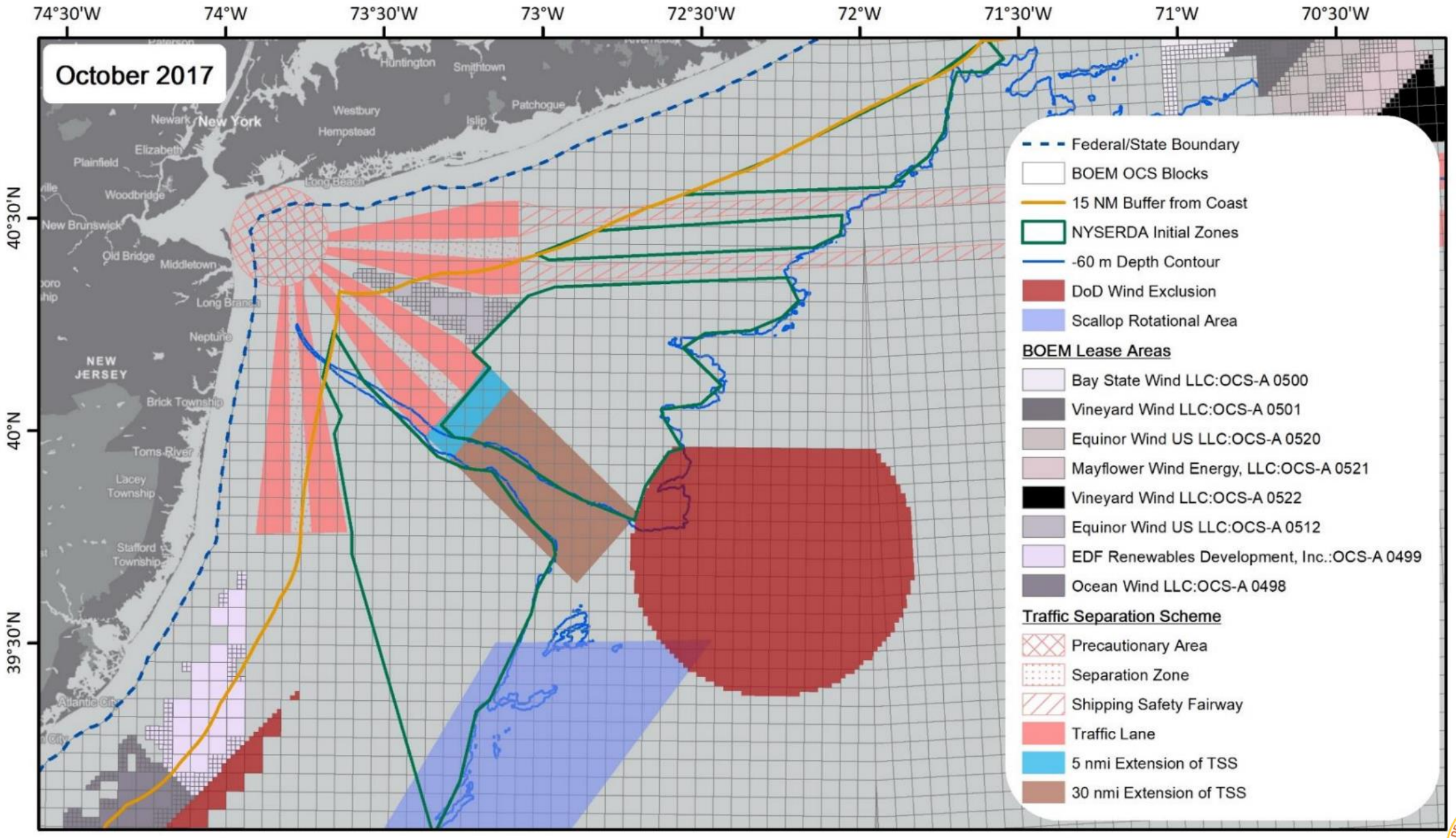
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Atlantic City
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BOEM OCS Blocks
15 NM Buffer from Coast
NYSERDA Initial Zones
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Separation Zone
Shipping Safety Fairway
Traffic Lane
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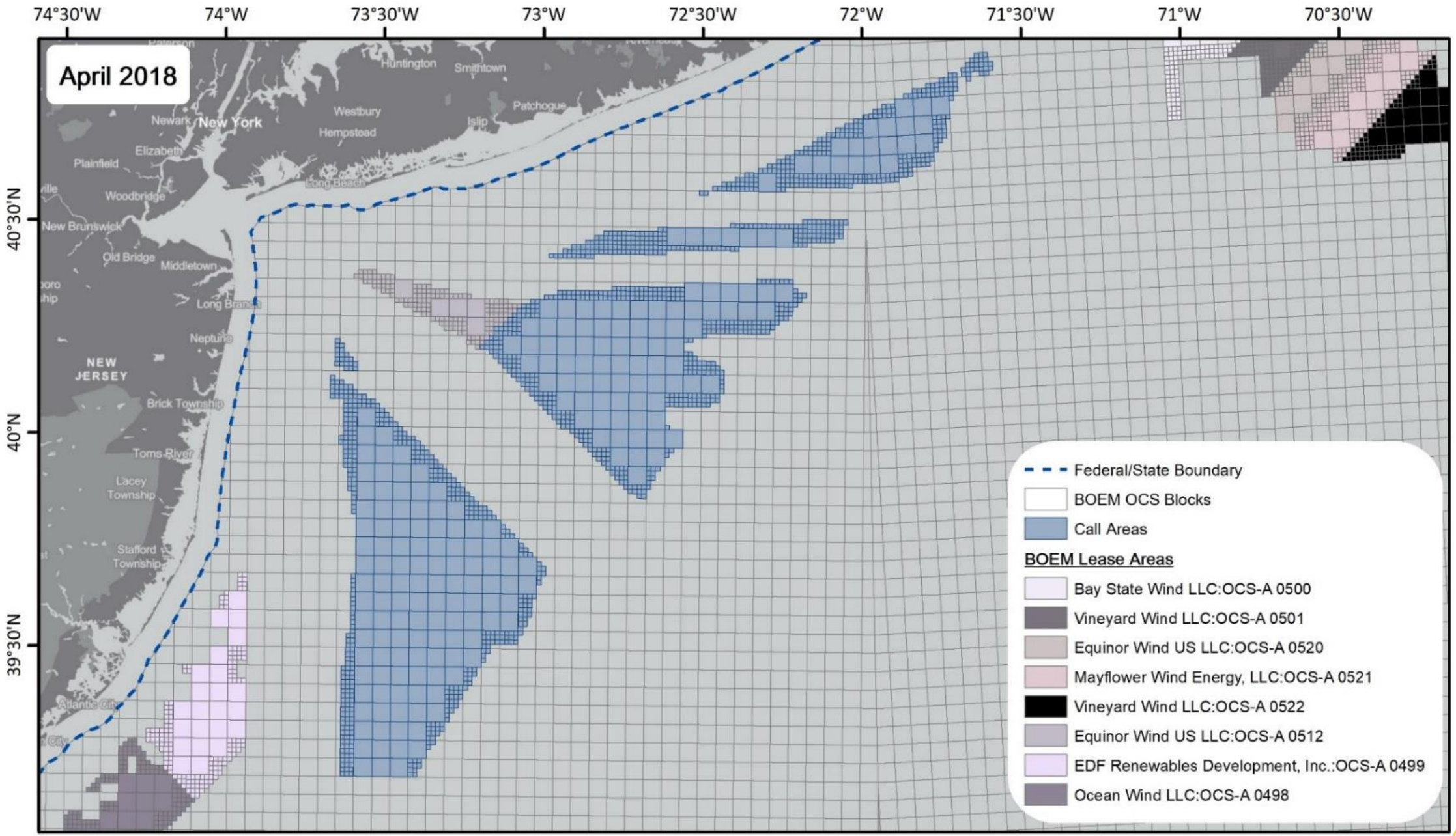
30 nmi Extension of TSS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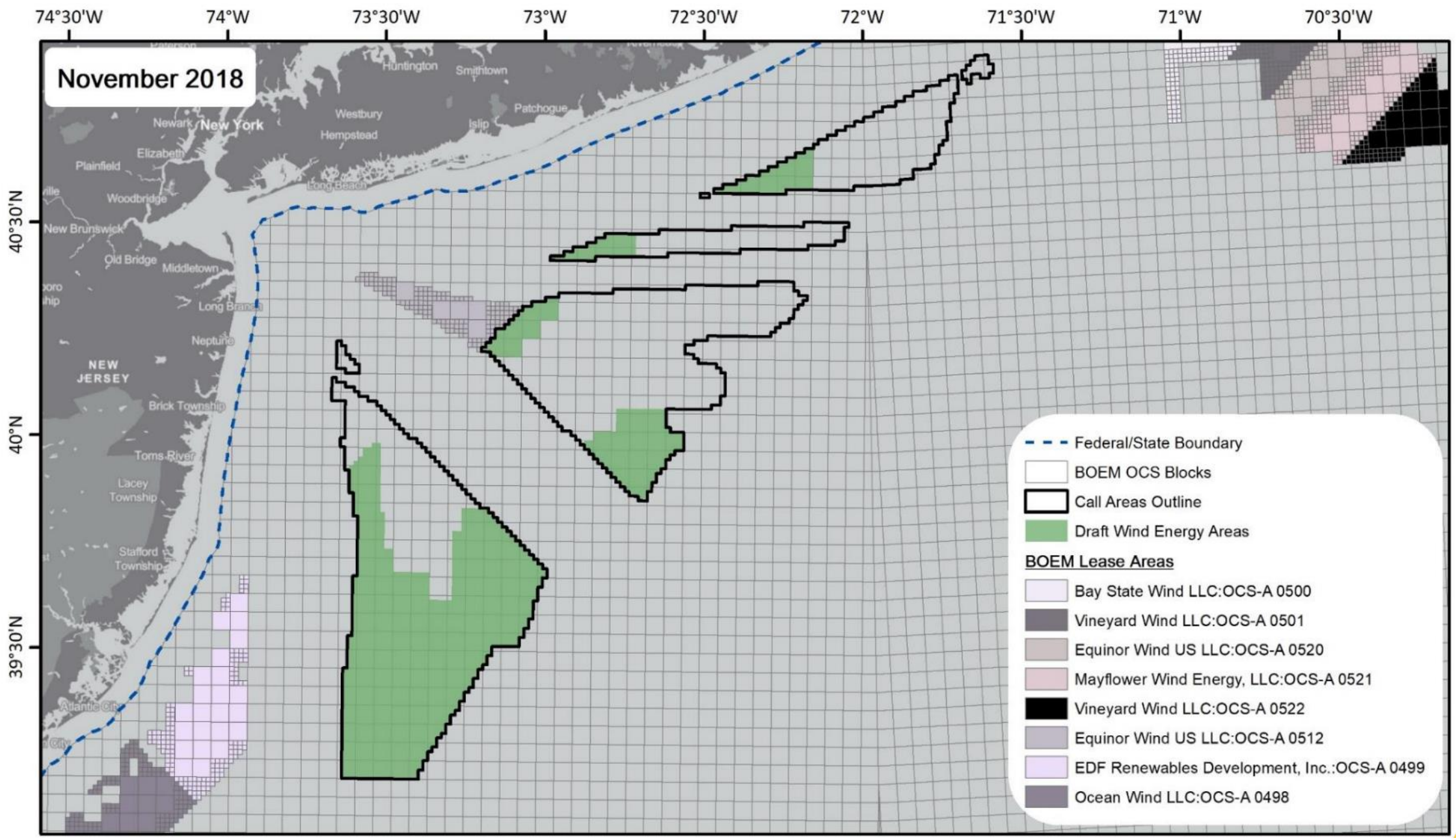
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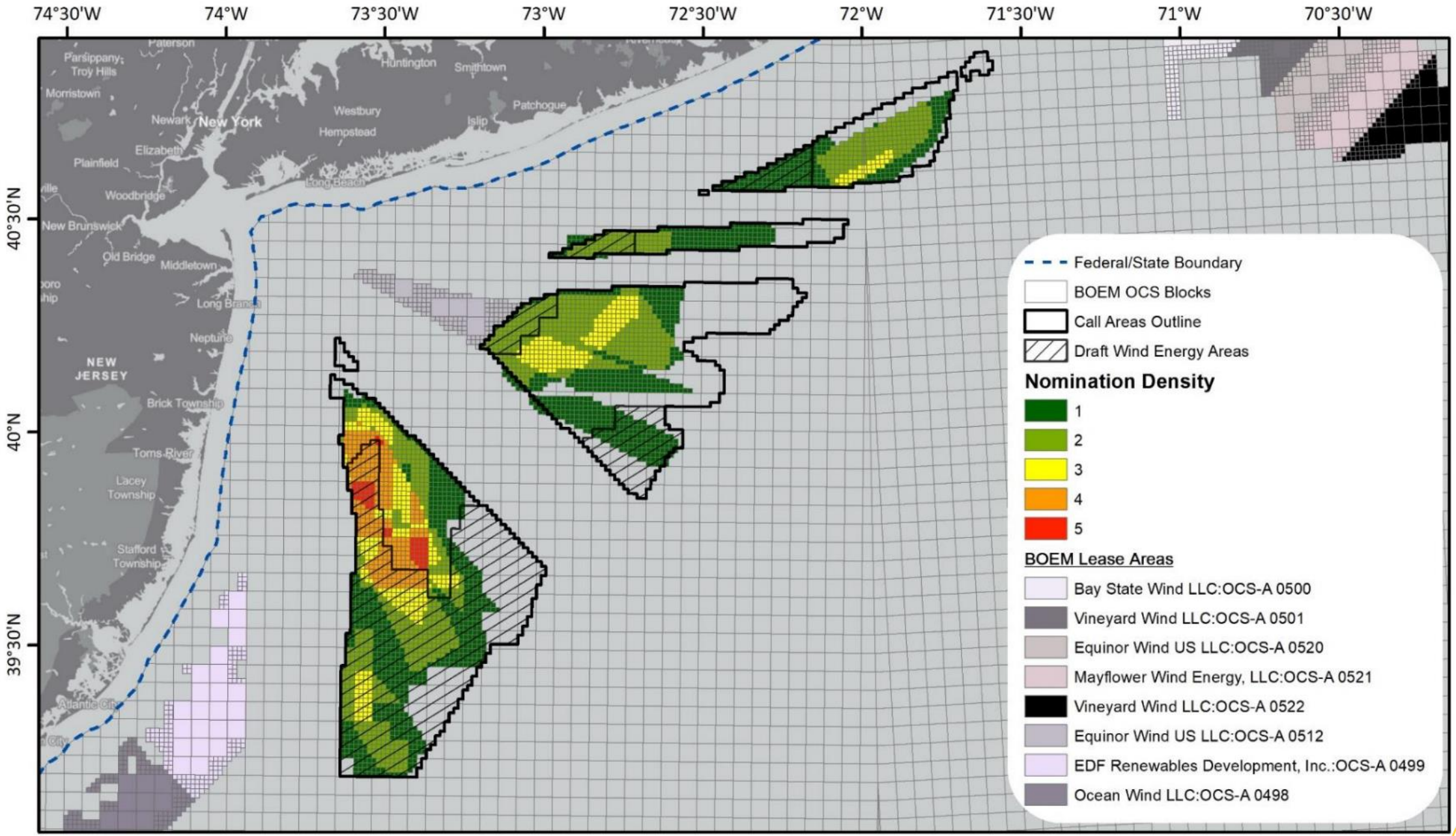
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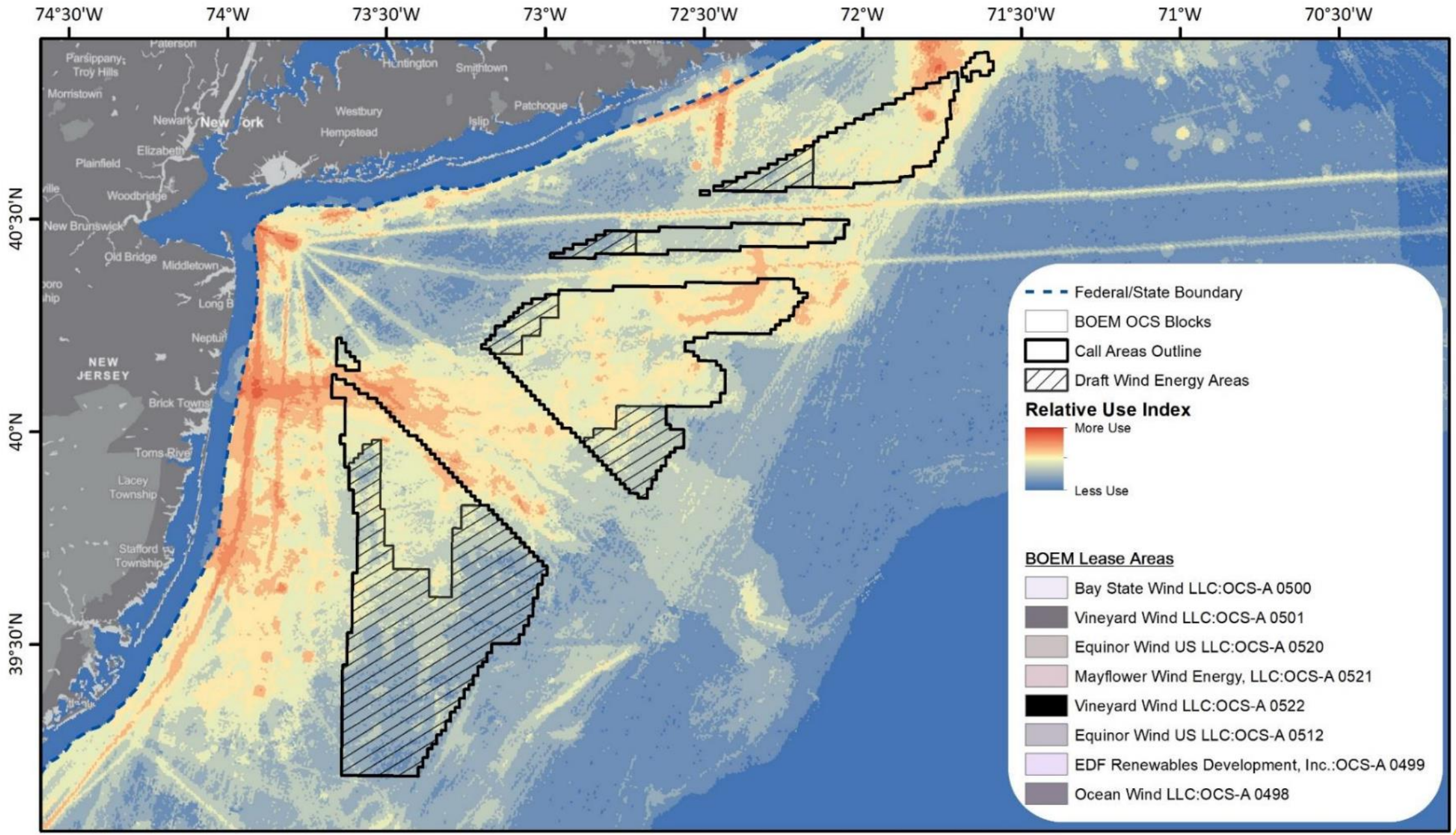
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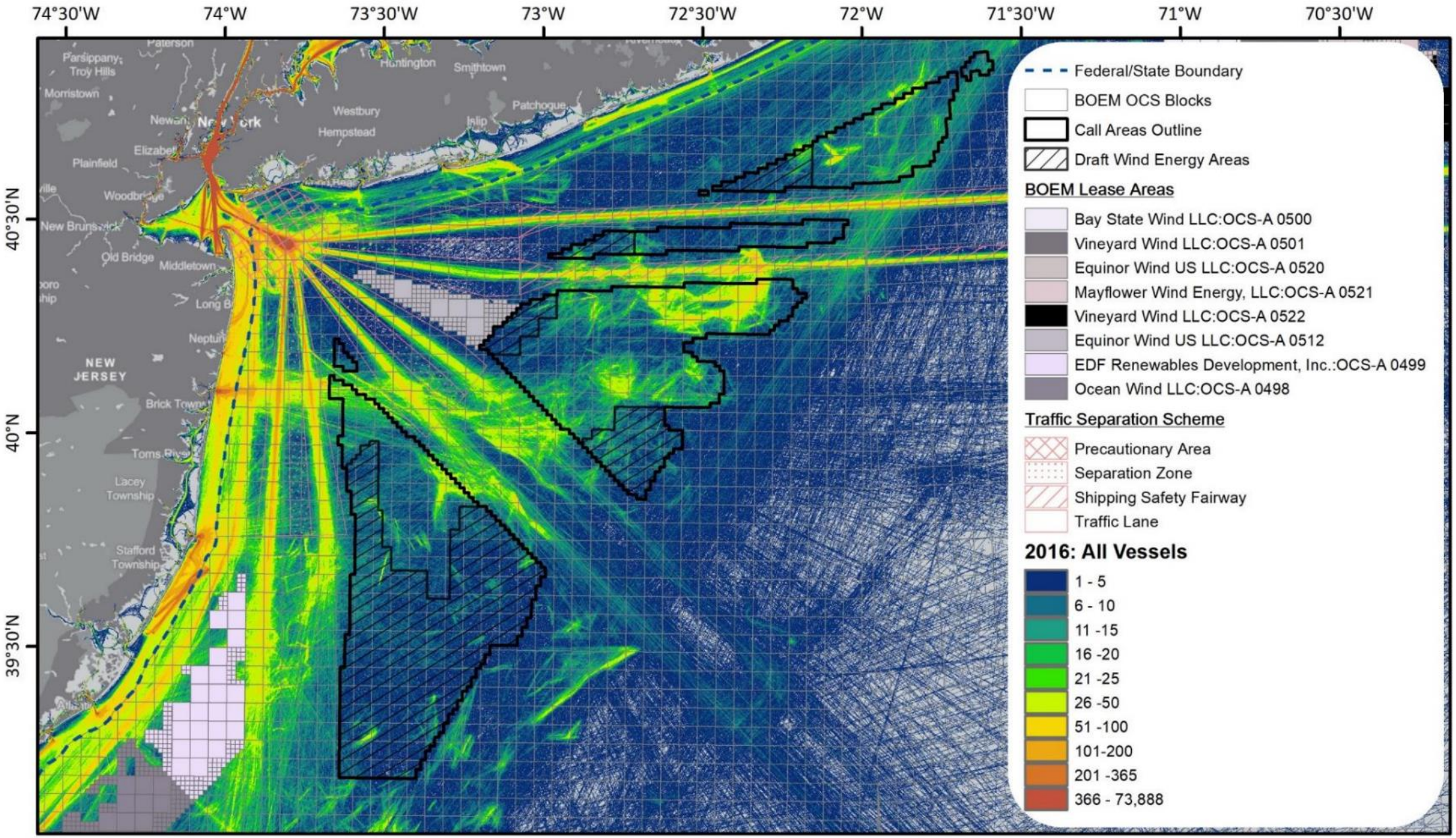
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2016: All Vessels
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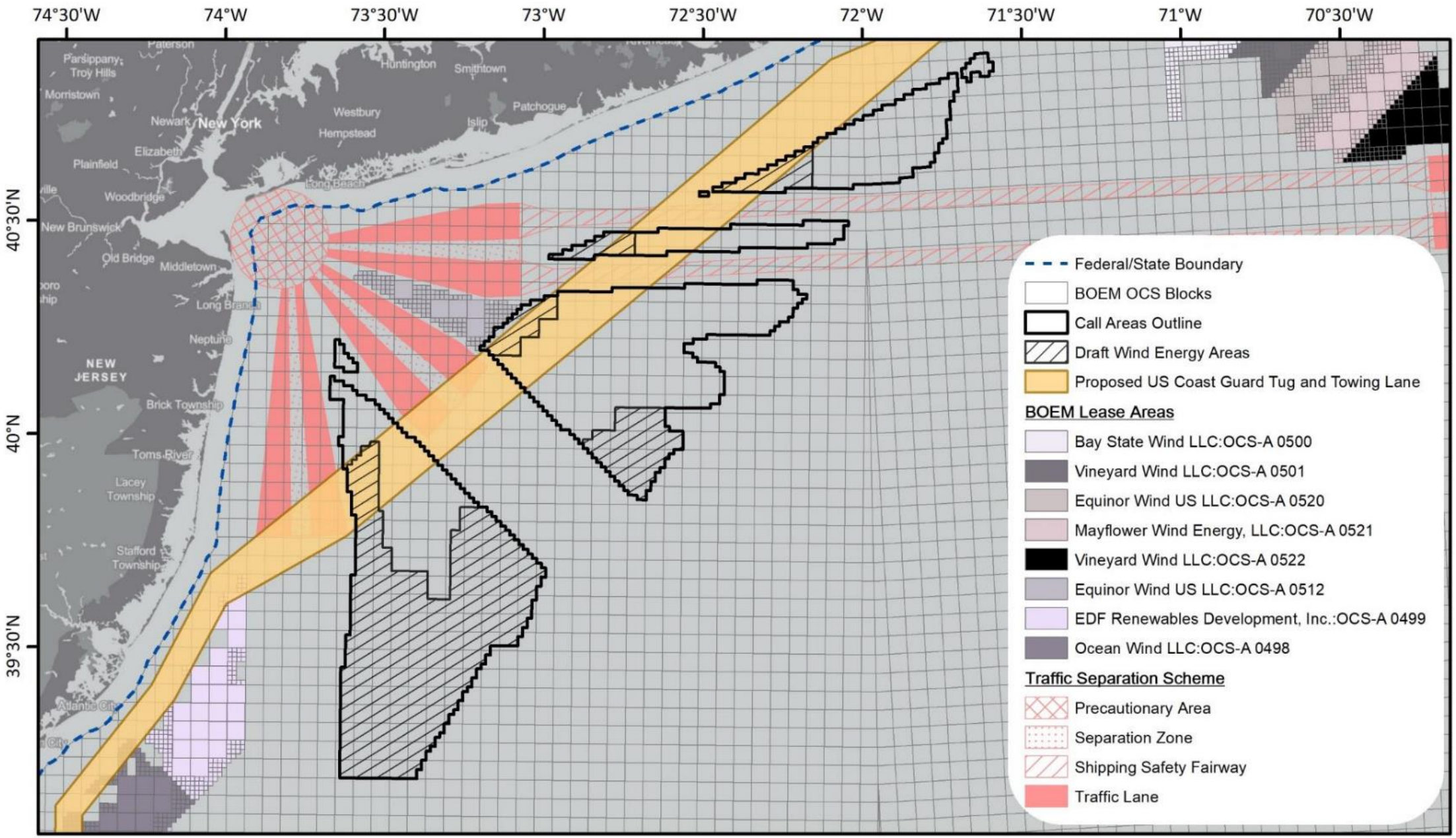
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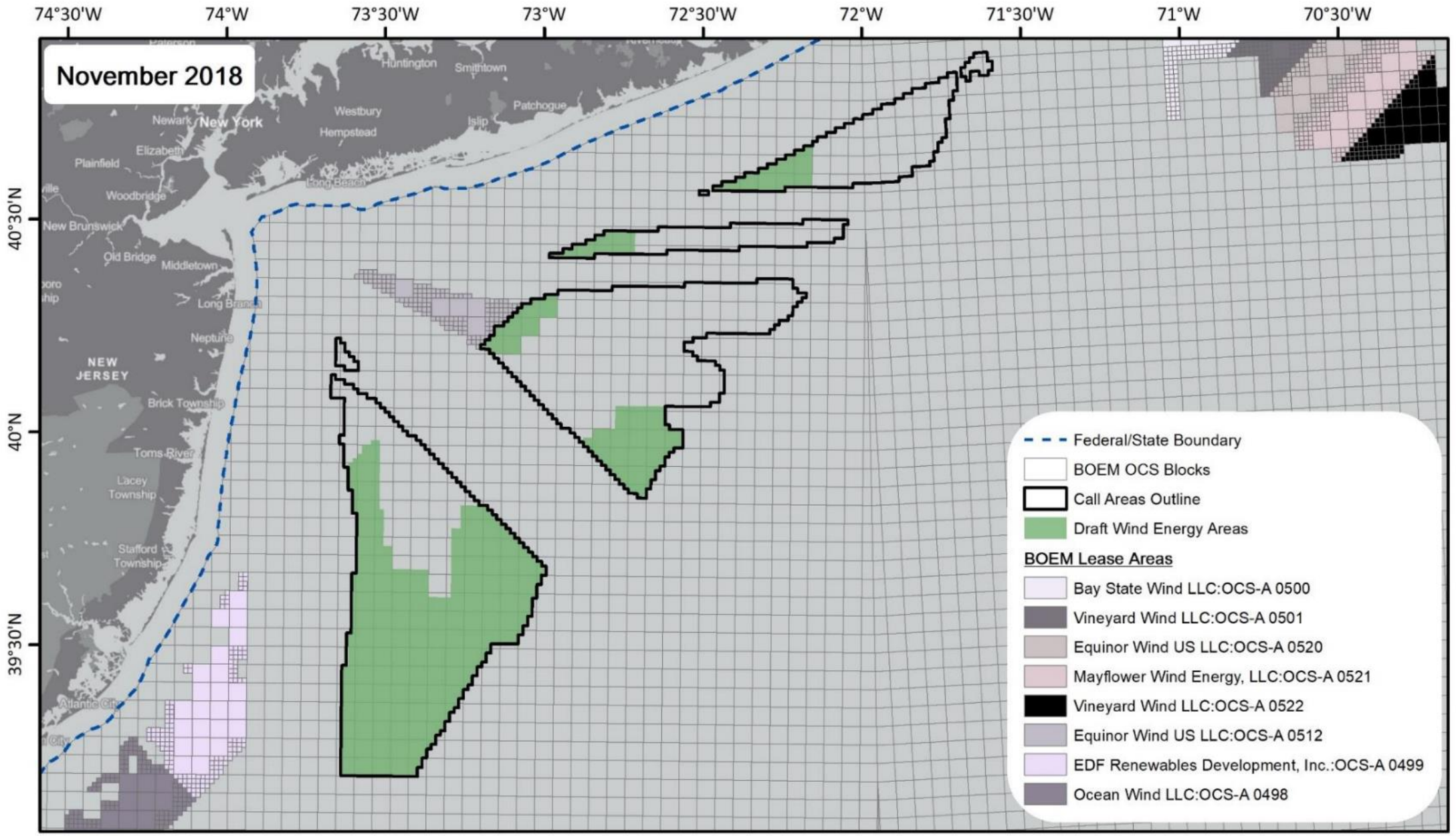
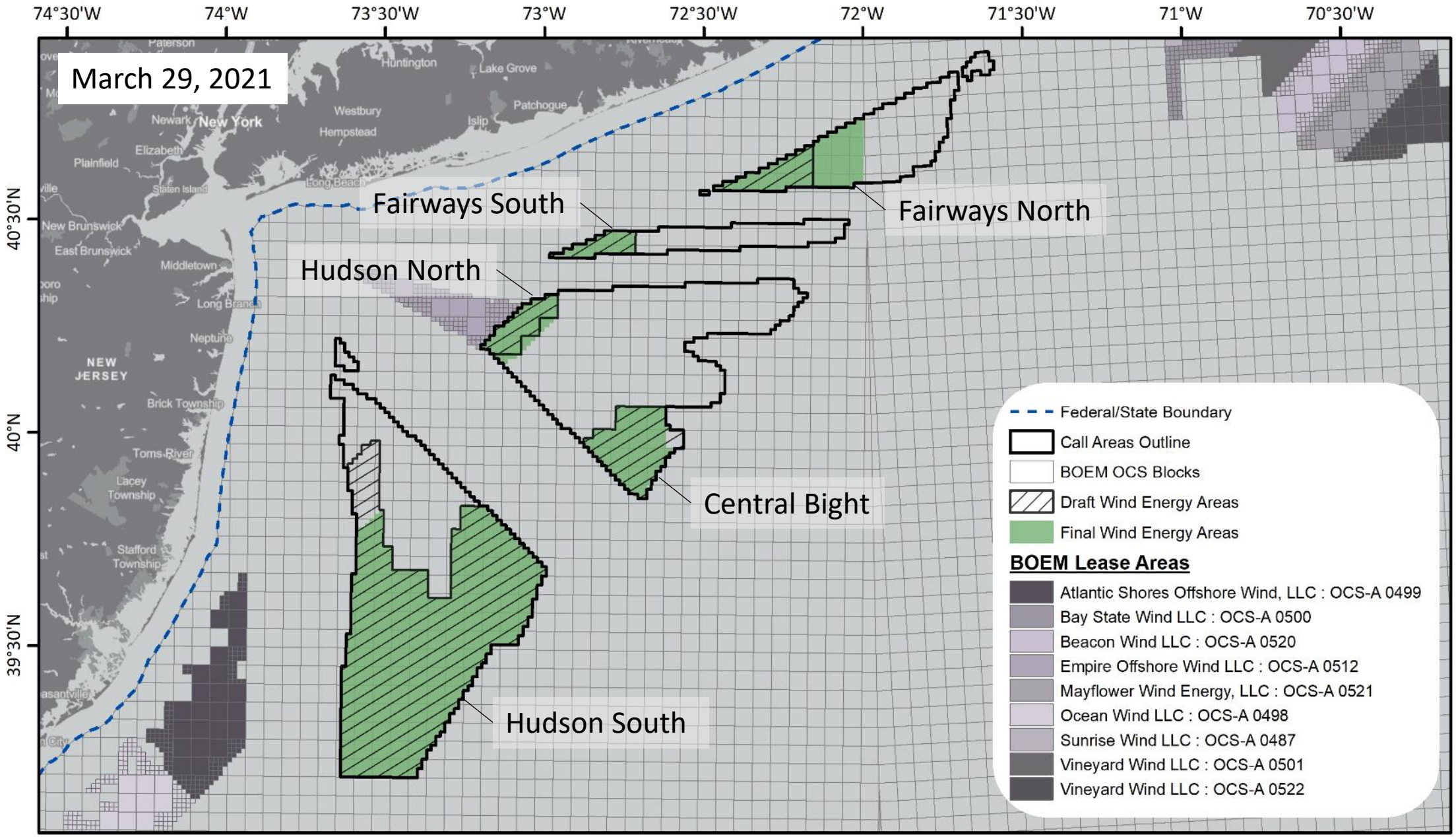
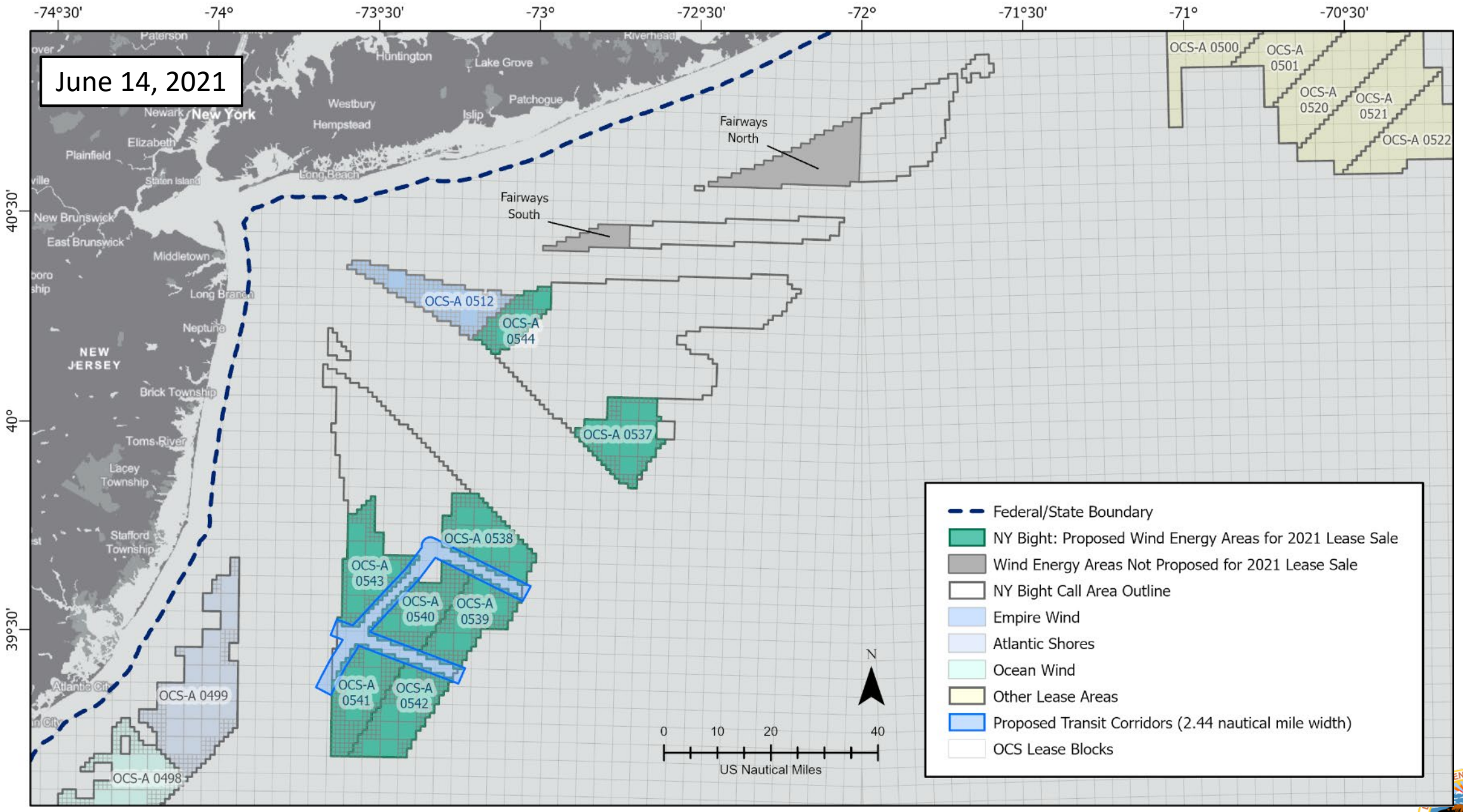
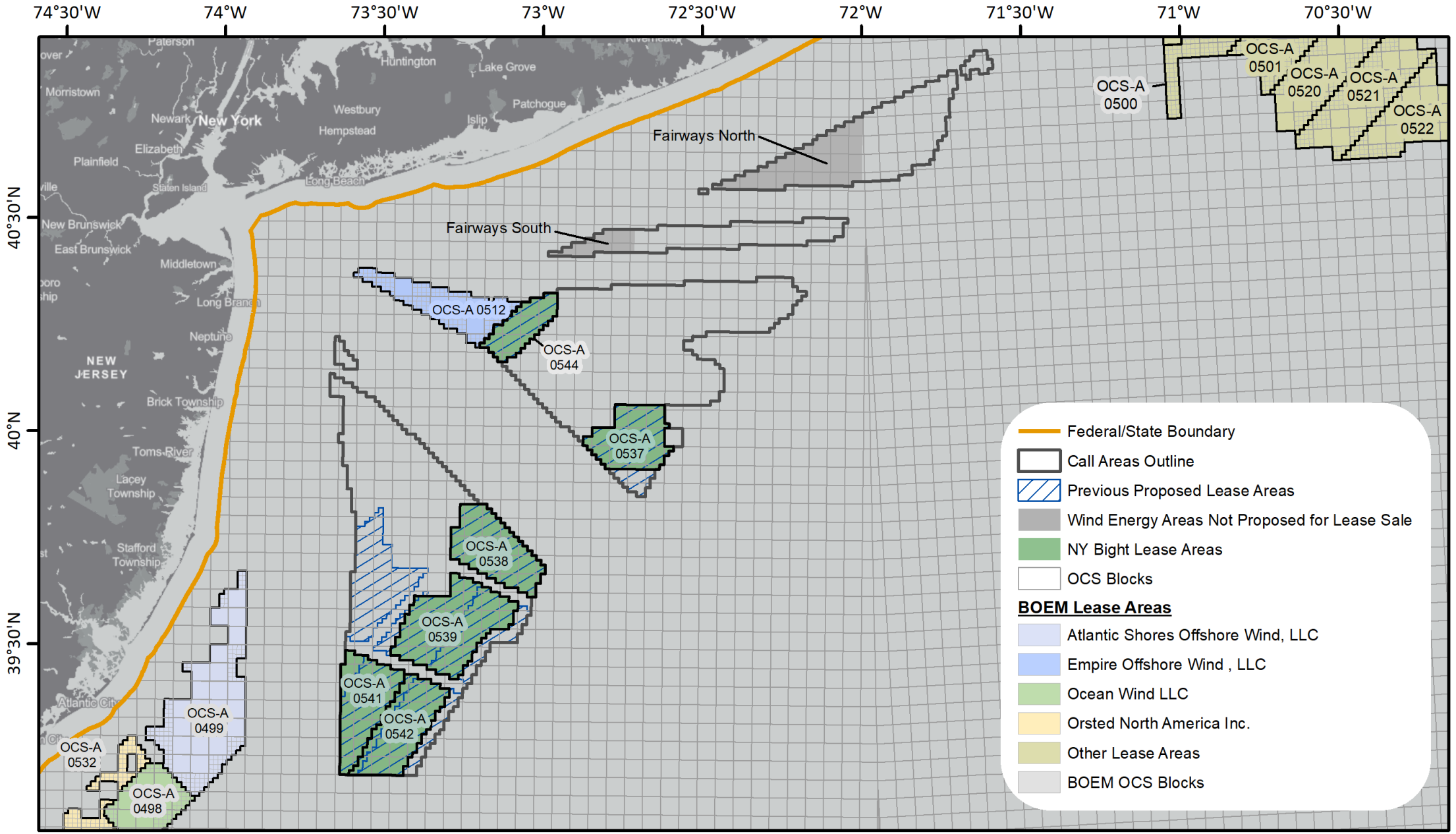
Shipping Safety Fairway
Traffic Lane

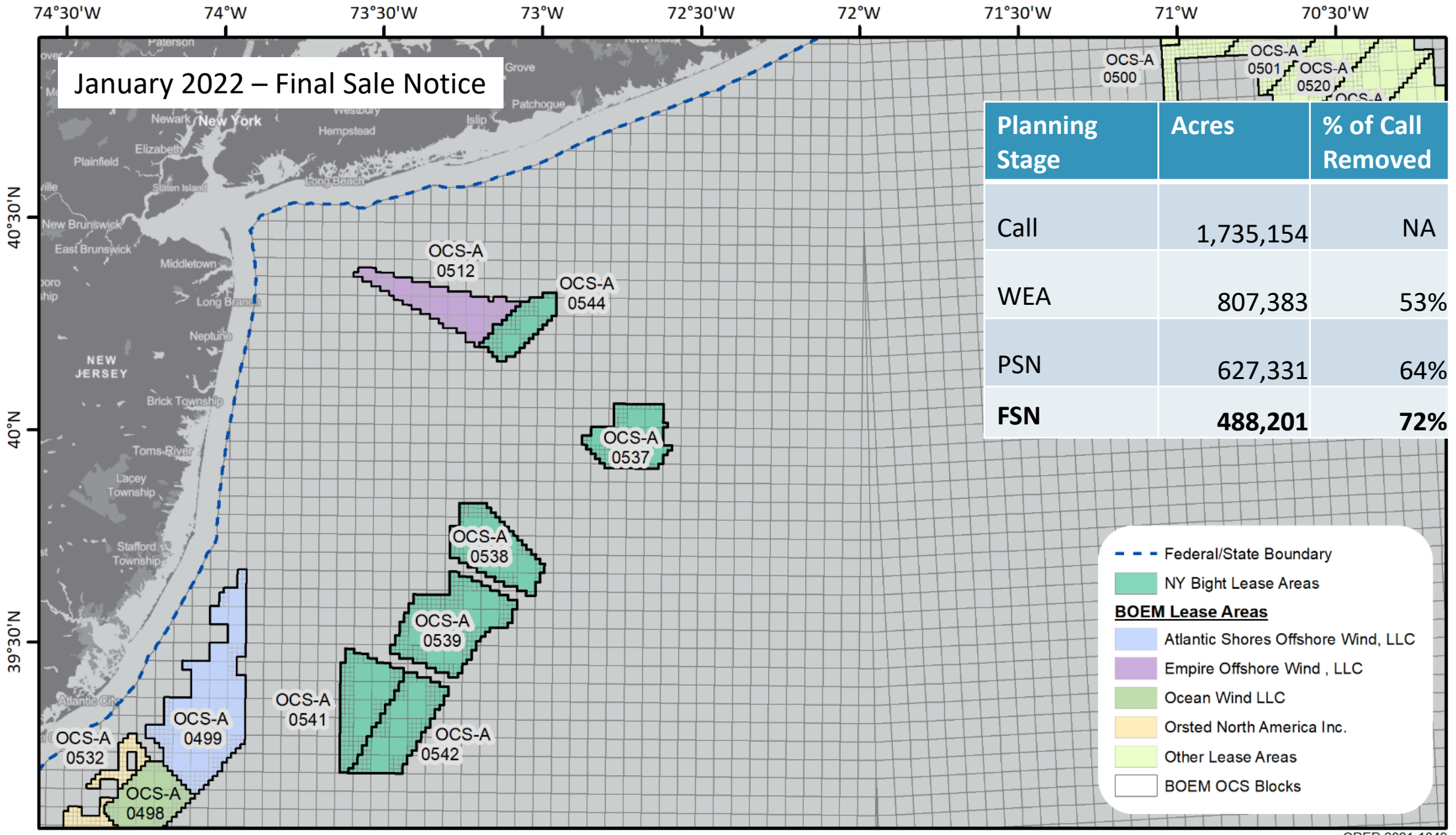

November 2018
74°30'W
74°W
73°30'W
73°W
72°30'W
72°W
71°30'W
71°W
70°30'W
40°30'N
40°N
39°30'N
Huntington
Smithtown
Westbury
Patchogue
Newark
New York
Hempstead
Islip
Elizabeth
Plainfield
Long Beach
Woodbridge
New Brunswick
Old Bridge
Middletown
Neptune
NEW JERSEY
Brick Township
Toms River
Lacey Township
Stafford Township
Atlantic City
Federal/State Boundary
BOEM OCS Blocks
Call Areas Outline
Draft Wind Energy Areas
BOEM Lease Areas
Bay State Wind LLC:OCS-A 0500
Vineyard Wind LLC:OCS-A 0501
Equinor Wind US LLC:OCS-A 0520
Mayflower Wind Energy, LLC:OCS-A 0521
Vineyard Wind LLC:OCS-A 0522
Equinor Wind US LLC:OCS-A 0512
EDF Renewables Development, Inc.:OCS-A 0499
Ocean Wind LLC:OCS-A 0498


March 29, 2021
74°30'W
74°W
73°30'W
73°W
72°30'W
72°W
71°30'W
71°W
70°30'W
40°30'N
40°N
39°30'N
Fairways South
Fairways North
Hudson North
Central Bight
Hudson South
Federal/State Boundary
Call Areas Outline
BOEM OCS Blocks
Draft Wind Energy Areas
Final Wind Energy Areas
BOEM Lease Areas
Atlantic Shores Offshore Wind, LLC : OCS-A 0499
Bay State Wind LLC : OCS-A 0500
Beacon Wind LLC : OCS-A 0520
Empire Offshore Wind LLC : OCS-A 0512
Mayflower Wind Energy, LLC : OCS-A 0521
Ocean Wind LLC : OCS-A 0498
Sunrise Wind LLC : OCS-A 0487
Vineyard Wind LLC : OCS-A 0501
Vineyard Wind LLC : OCS-A 0522
NEW JERSEY
New York
Newark
Huntington
Lake Grove
Westbury
Hempstead
Islip
Patchogue
Elizabeth
Plainfield
Staten Island
Long Beach
New Brunswick
East Brunswick
Middletown
Long Branch
Neptune
Brick Township
Toms River
Lacey Township
Stafford Township


June 14, 2021
-74°30'
-74°
-73°30'
-73°
-72°30'
-72°
-71°30'
-71°
-70°30'
40°30'
40°
39°30'
Paterson
Huntington
Lake Grove
Riverhead
Newark
New York
Westbury
Hempstead
Islip
Patchogue
Elizabeth
Plainfield
Staten Island
Long Beach
New Brunswick
East Brunswick
Middletown
Long Branch
Neptune
NEW JERSEY
Brick Township
Toms River
Lacey Township
Stafford Township
Atlantic City
Fairways North
Fairways South
OCS-A 0500
OCS-A 0501
OCS-A 0520
OCS-A 0521
OCS-A 0522
OCS-A 0512
OCS-A 0544
OCS-A 0537
OCS-A 0538
OCS-A 0543
OCS-A 0540
OCS-A 0539
OCS-A 0541
OCS-A 0542
OCS-A 0499
OCS-A 0498
N
0
10
20
40
US Nautical Miles
Federal/State Boundary
NY Bight: Proposed Wind Energy Areas for 2021 Lease Sale
Wind Energy Areas Not Proposed for 2021 Lease Sale
NY Bight Call Area Outline
Empire Wind
Atlantic Shores
Ocean Wind
Other Lease Areas
Proposed Transit Corridors (2.44 nautical mile width)
OCS Lease Blocks


74°30'W
74°W
73°30'W
73°W
72°30'W
72°W
71°30'W
71°W
70°30'W
40°30'N
40°N
39°30'N
Fairways North
Fairways South
OCS-A 0500
OCS-A 0501
OCS-A 0520
OCS-A 0521
OCS-A 0522
OCS-A 0512
OCS-A 0544
OCS-A 0537
OCS-A 0538
OCS-A 0539
OCS-A 0541
OCS-A 0542
OCS-A 0499
OCS-A 0532
OCS-A 0498
Federal/State Boundary
Call Areas Outline
Previous Proposed Lease Areas
Wind Energy Areas Not Proposed for Lease Sale
NY Bight Lease Areas
OCS Blocks
BOEM Lease Areas
Atlantic Shores Offshore Wind, LLC
Empire Offshore Wind , LLC
Ocean Wind LLC
Orsted North America Inc.
Other Lease Areas
BOEM OCS Blocks
OREP-2021-1049

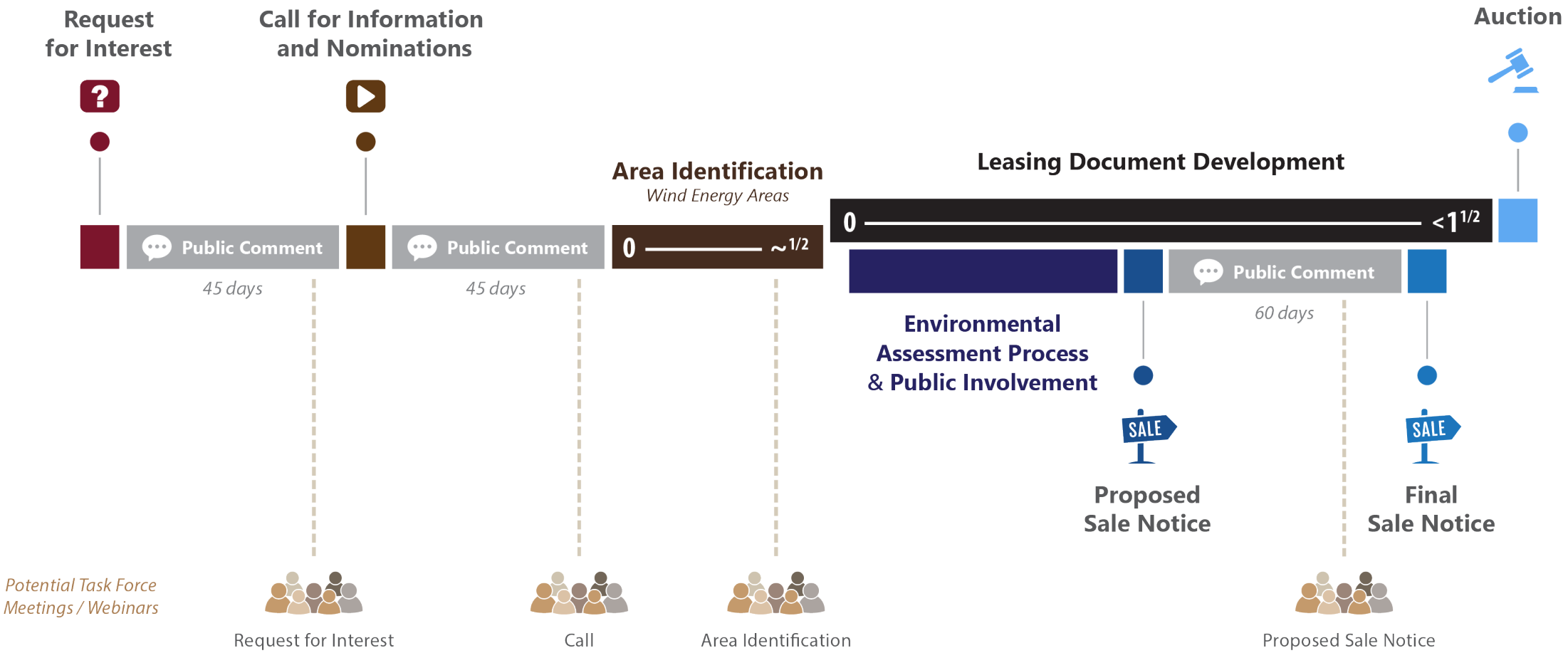
# January 2022 – Final Sale Notice




| Planning Stage | Acres | % of Call Removed |
|---|---|---|
| Call | 1,735,154 | NA |
| WEA | 807,383 | 53% |
| PSN | 627,331 | 64% |
| **FSN** | **488,201** | **72%** |

OREP-2021-1049

# Pre-Lease Sale Process



BOEM

Bureau of Ocean Energy Management

BOEM.gov

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