



**BOEM** Bureau of  
Ocean Energy Management

# Revolution Wind Offshore Wind Project Draft Environmental Impact Statement

## Virtual Meeting Room

Trevis Olivier, Environmental Coordinator

# Resources and Publications

- How to Comment
- Project Overview
- Proposed Action and Alternatives
- National Historic Preservation Act  
Section 106 Review
- Commercial Fishing Intensity, Impacts  
and Mitigation
- Avian Information
- Project Design and Construction
- The Impacts of Underwater Sound on  
Protected Species
- Visual Impacts and Simulations
- Planned Activities Scenario
- Marine Mammal and Sea Turtle Sightings  
Information
- Electromagnetic Frequency Information

<https://www.boem.gov/revolution-wind-deis-virtual-room>



# National Environmental Policy Act (NEPA)

- **NEPA** requires Federal agencies to assess the environmental effects of their proposed action(s), and reasonable alternatives, prior to making decisions.
- The **NEPA** process collects relevant information for the decision maker to either approve, approve with conditions, or disapprove the plan.
- An **Environmental Impact Statement** must be prepared for proposed major federal actions “*significantly affecting the quality of the human environment*”
  - Public scoping required and public comment period required for DEIS
  - Discussion of the impacts of a proposed project on its surrounding environment including a cumulative effects analysis
  - Evaluation of reasonable alternatives, and discussion of the impacts of the alternatives



# Notice of Intent (NOI)

- NOI originally published in the Federal Register on April 30, 2021, with a 30-day comment period ending June 1, 2021
- A correction published on June 4, 2021, reopening the comment period through June 11, 2021
- BOEM held three virtual public scoping meetings on May 13, May 18, and May 20, 2021.
- Scoping Report available on project website: <https://www.boem.gov/renewable-energy/state-activities/rwfscoping-summary>



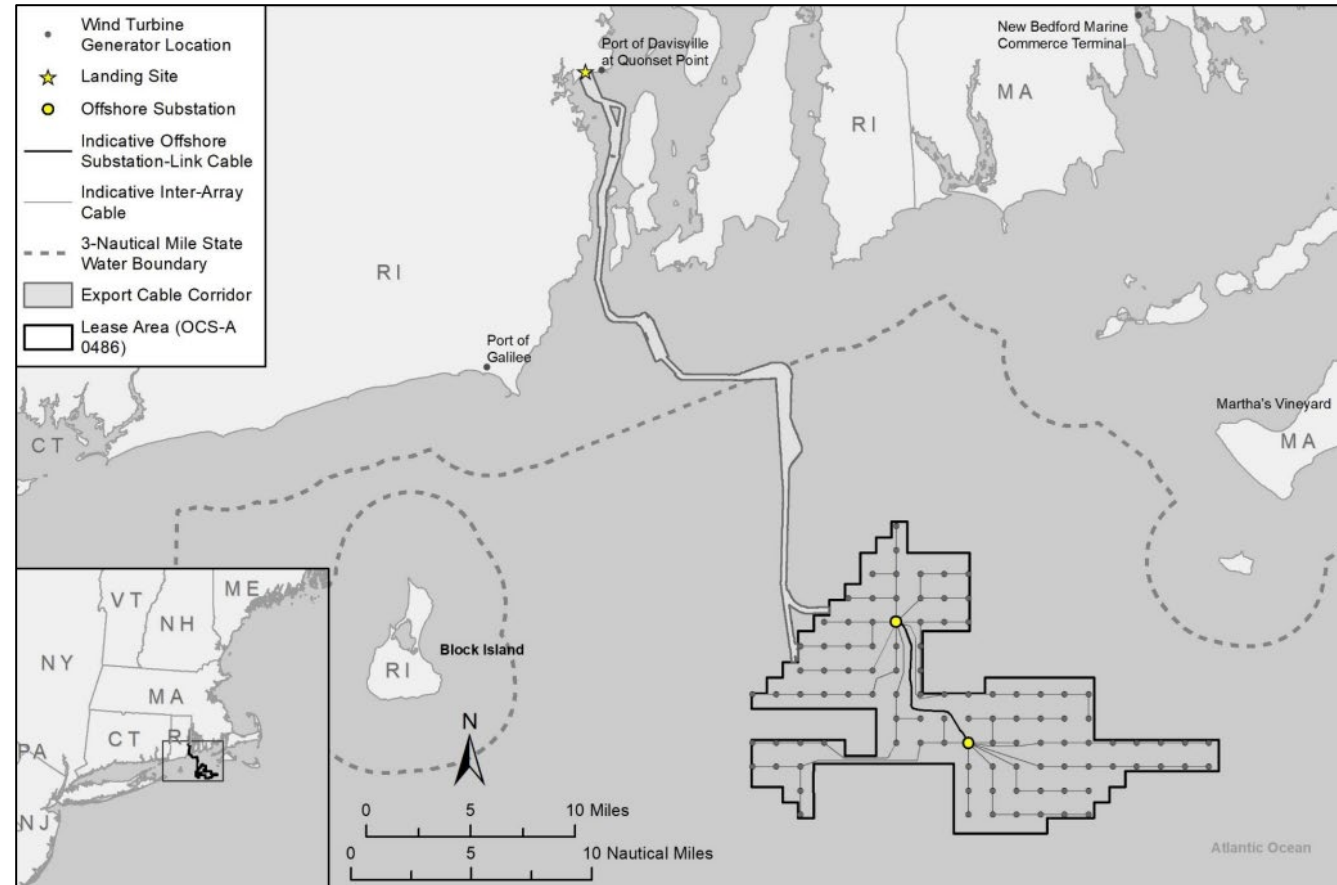
# Notice of Availability (NOA) of DEIS

- NOA published in *Federal Register* September 2, 2022
- Five Public Hearings (eastern daylight time)
  - Thursday, September 29, 2022 | 1:00 pm | Virtual
  - Tuesday, October 4, 2022 | 5:00 pm | In-person (Martha's Vineyard, MA)
  - Wednesday, October 5, 2022 | 5:00 pm | In-person (East Greenwich, RI)
  - Thursday, October 6, 2022 | 5:00 pm | In-person (New Bedford, MA)
  - Tuesday, October 11, 2022 | 5:00 pm | Virtual
- 45-day public comment period ends October 17, 2022
- Additional information can be found at: <https://www.boem.gov/renewable-energy/state-activities/revolution-wind>

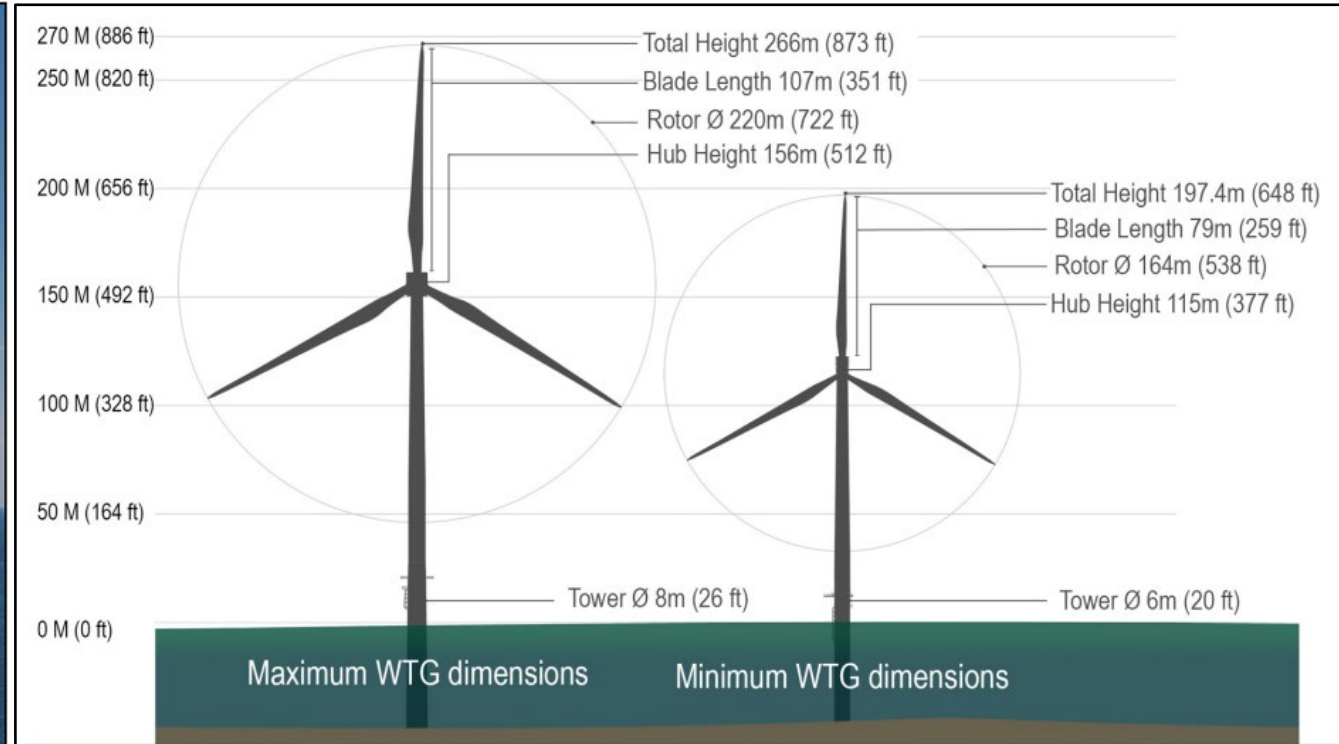
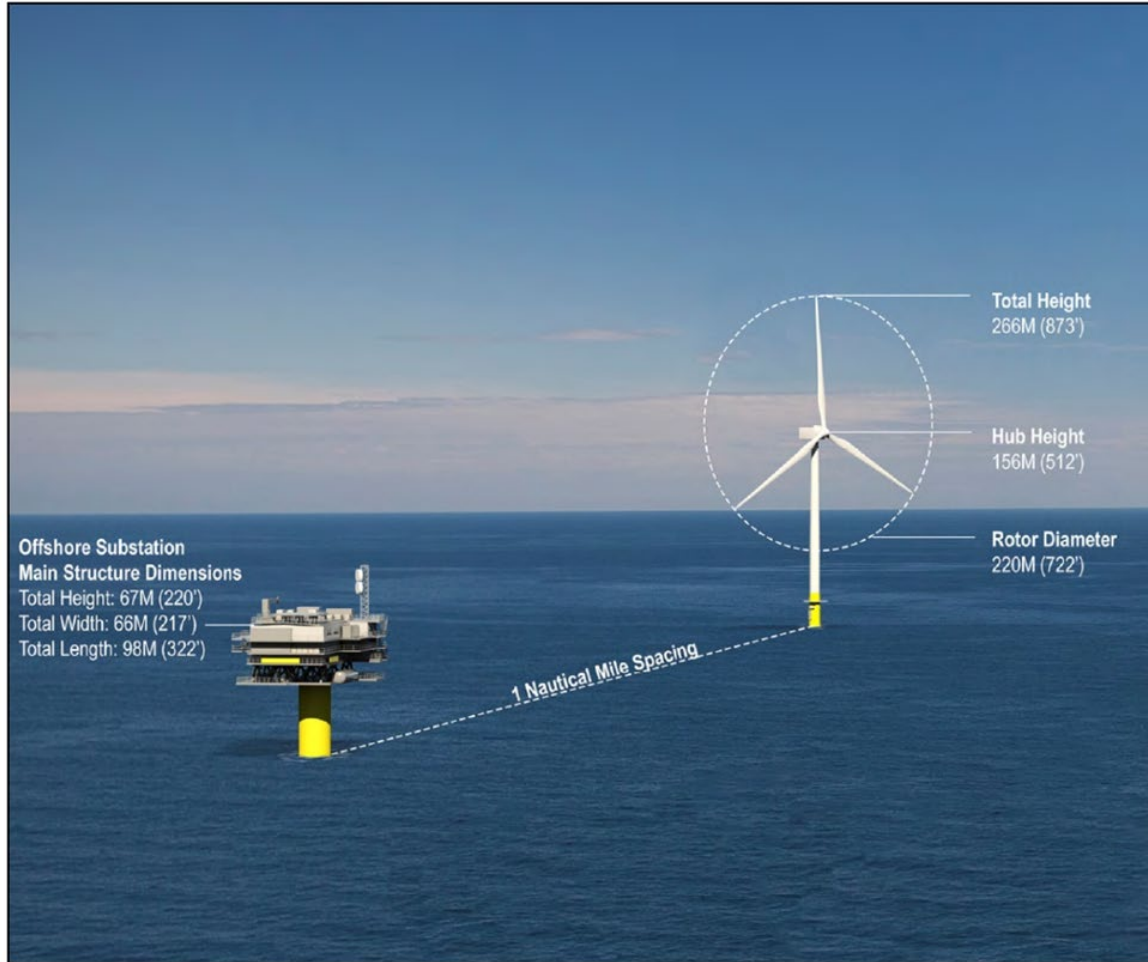


# Project Overview

- Lease OCS-A 0486 issued on 10/1/2013
- Construction and Operations Plan (COP) initially submitted on April 29, 2021
  - Most recent COP dated July 21, 2022, and is the proposed action being evaluated in the DEIS.
- Up to 100 Wind Turbine Generators (WTGs) on monopile foundations, ranging from 8-12 megawatts (MW) in capacity, in 1x1 nm grid layout.
  - Total capacity = 704 to 880 MW
- Up to 155 miles of inter-array cables
- Up to two Offshore Substations (OSSs)
- Up to two export cables (each ~42 miles long) in a single corridor through OCS and Rhode Island (RI) state waters to shore at Quonset Point, RI

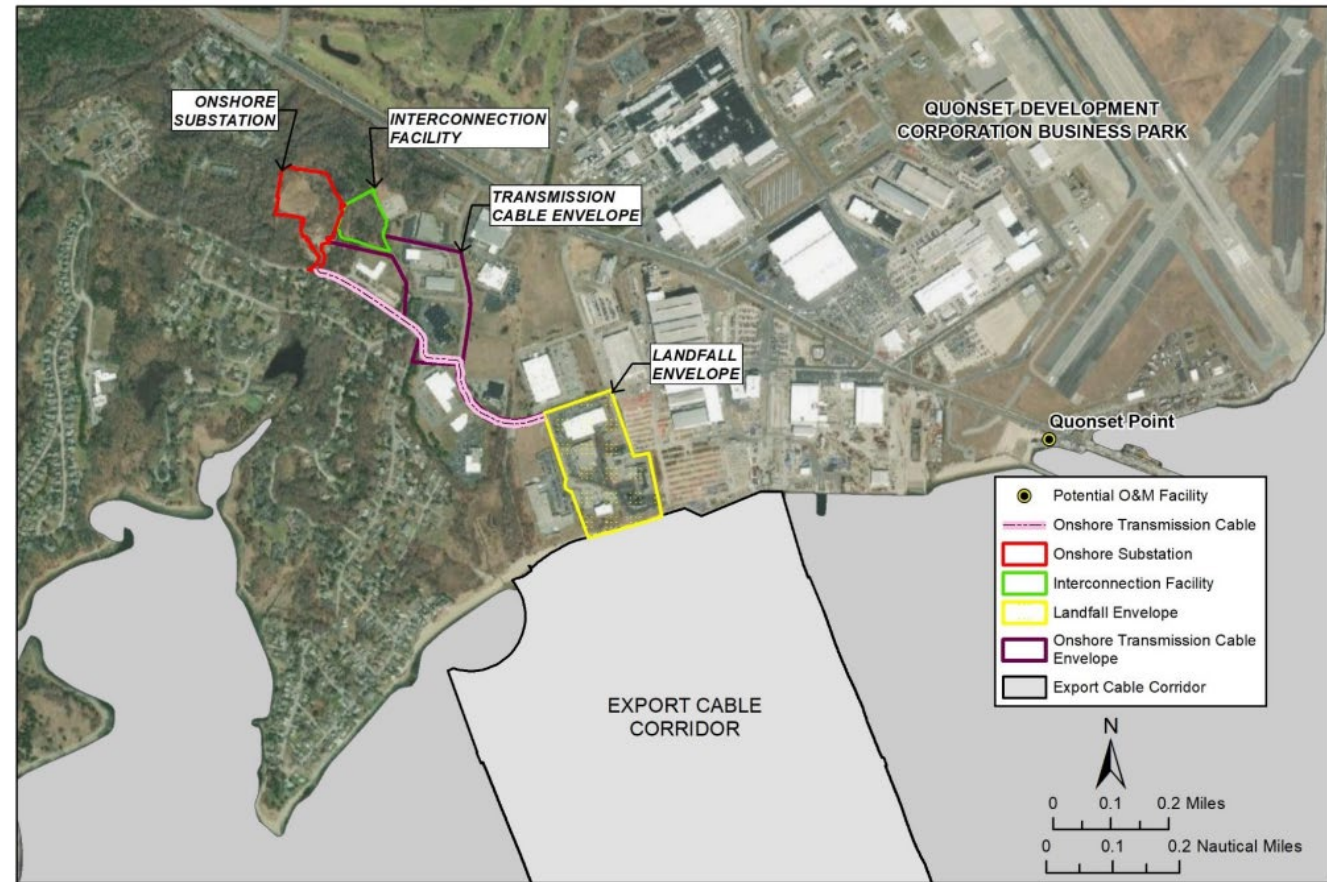


# Project Overview Continued



# Project Overview Continued

- Landfall Work Area measuring up to 3.1 acres located at Quonset Point in North Kingstown, RI
- Up to two underground transmission circuits co-located within a single corridor
- An Onshore Substation (OnSS) and Interconnection Facility located adjacent to the existing Davisville Substation in RI
- An underground right-of-way (ROW) connecting the OnSS to the Interconnection ROW
- An overhead ROW connecting the new interconnection facility (ICF) to existing Davisville substation





# Nation-to-Nation Meetings and Consultation

- August 2, 2021: Wampanoag Tribe of Gay Head (Aquinnah) to discuss visual effects from the South Fork Wind Farm and Revolution Wind Farm.
- August 13, 2021: Mashpee Wampanoag Tribe, Mashantucket Pequot Tribal Nation, Wampanoag Tribe of Gay Head (Aquinnah), Delaware Tribe of Indians, and Delaware Nation to discuss Revolution Wind and Vineyard Wind South
- February 3, 2022: Mashpee Wampanoag Tribe, Mashantucket Pequot Tribal Nation, and Wampanoag Tribe of Gay Head (Aquinnah)
- May 2, 2022: Wampanoag Tribe of Gay Head (Aquinnah)
- June 1, 2022: Wampanoag Tribe of Gay Head (Aquinnah)
- June 2, 2022: Mashpee Wampanoag Tribe
- September 12, 2022: Wampanoag Tribe of Gay Head (Aquinnah)



# National Historic Preservation Act (NHPA) Section 106 Review

- BOEM elected to use NEPA substitution to fulfill the agency's Section 106 obligations pursuant to 36 CFR 800.8(c)
- 48 Consulting Parties, including tribal nations, federal agencies, state agencies, local governments, and nongovernmental organizations or groups
- Section 106 consultation meetings were held on December 17, 2021; March 8, 2022; and September 27, 2022
- Consulting parties are actively reviewing the Section 106 technical reports, BOEM's Finding of Effect, and draft Memorandum of Agreement (MOA) through October 17, 2022
  - The draft MOA included in Appendix J of the DEIS is subject to change as a result of ongoing Section 106 consultation with consulting parties and Tribal Nations.
  - A final MOA is targeted for signature and inclusion with the Final EIS
- Additional consultation meetings are expected later in 2022 and early 2023



# Notable Sections of the DEIS

ES

## Executive Summary

A high-level summary of the proposed Project, alternatives, and the potential impacts of the project for each resource and alternative

1

## Chapter 1

The purpose and need statement, an introduction to the project, and a summary of the regulatory and analysis framework

2

## Chapter 2

Description of alternatives considered for further analysis and alternatives considered but not analyzed in detail

3

## Chapter 3

Analysis of the environmental consequences of the Proposed Action, Action Alternatives, and the No Action Alternative

D

## Appendix D

Project Design Envelope and maximum case scenario

E

## Appendix E

Planned Activities Scenario and Assessment of Resources with Minor (or less) impact determinations

F

## Appendix F

Environmental Protection Measures, Mitigation, and Monitoring

J

## Appendix J

Finding of Adverse Effect, Draft Section 106 MOA

K

## Appendix K

Additional detail on BOEM's screening criteria and additional background on the layouts carried forward for Alternatives C1, C2, E1, and E2



# Proposed Action and Alternatives

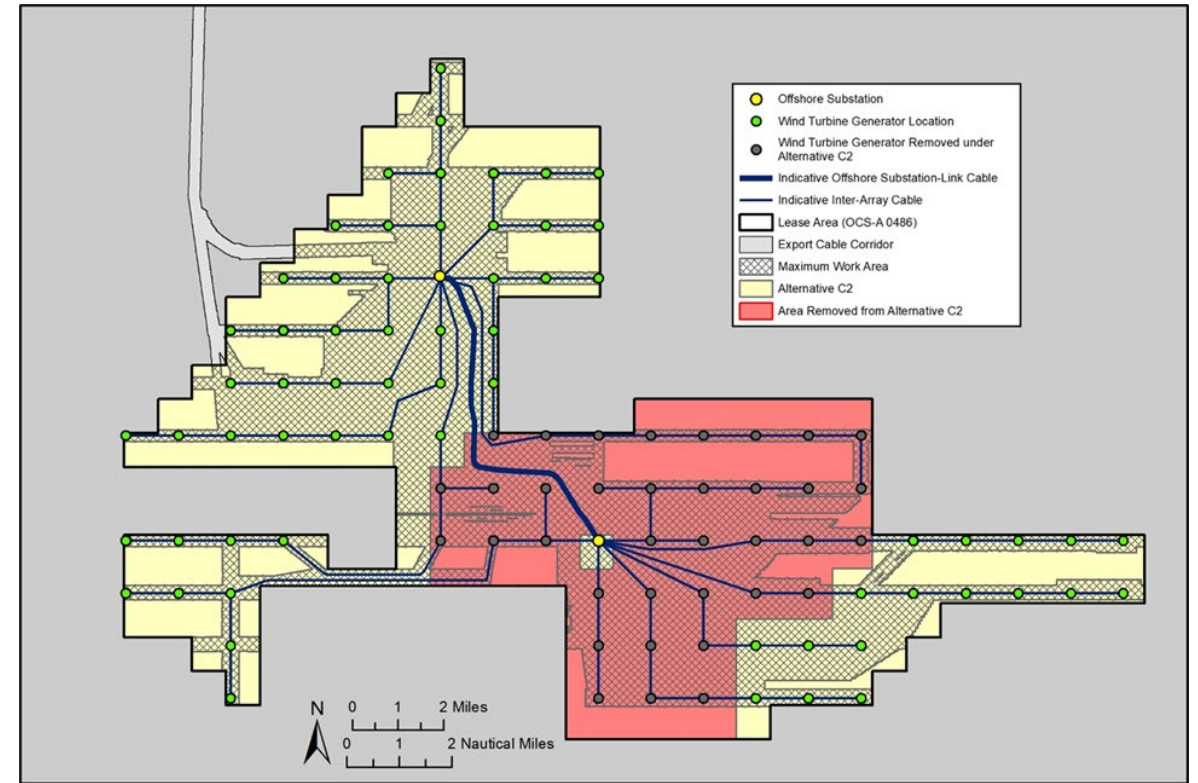
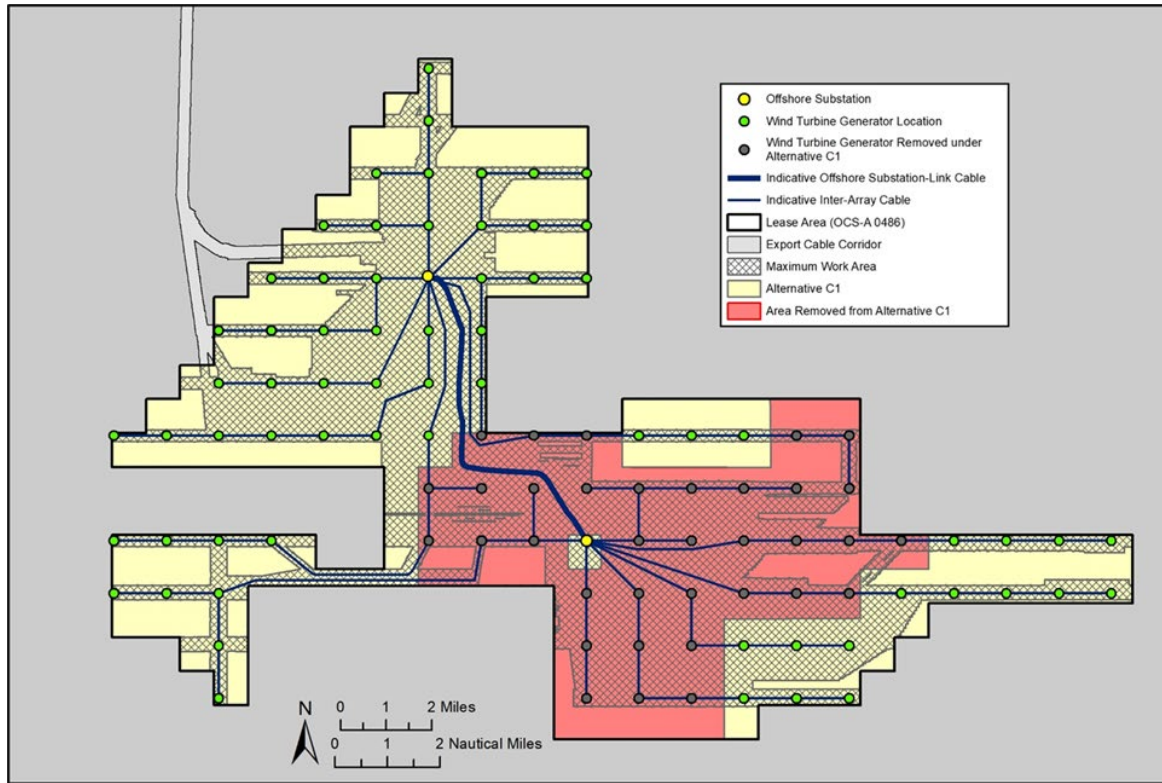
- Alternative A – No Action
- **Alternative B – Proposed Action:** Up to 100 WTGs and up to 2 offshore substations in Lease Area OCS-A 0498, two export cables within a single shared corridor making landfall at the Port of Davisville in Quonset Point, RI
- Alternative C – Habitat Impact Minimization
- Alternative D – No Surface Occupancy in One or More Outermost Portions of the Project Area
- Alternative E – Reduction of Surface Occupancy to Reduce Impacts to Culturally Significant Resources
- Alternative F – Selection of a Higher Capacity Wind Turbine Generator



# Alternative C: Habitat Impact Minimization

- **C-1:** removal of 35 positions in or adjacent to known or likely areas of contiguous complex benthic habitat

- **C-2:** removal of 36 positions in or adjacent to known or likely areas of Atlantic cod spawning

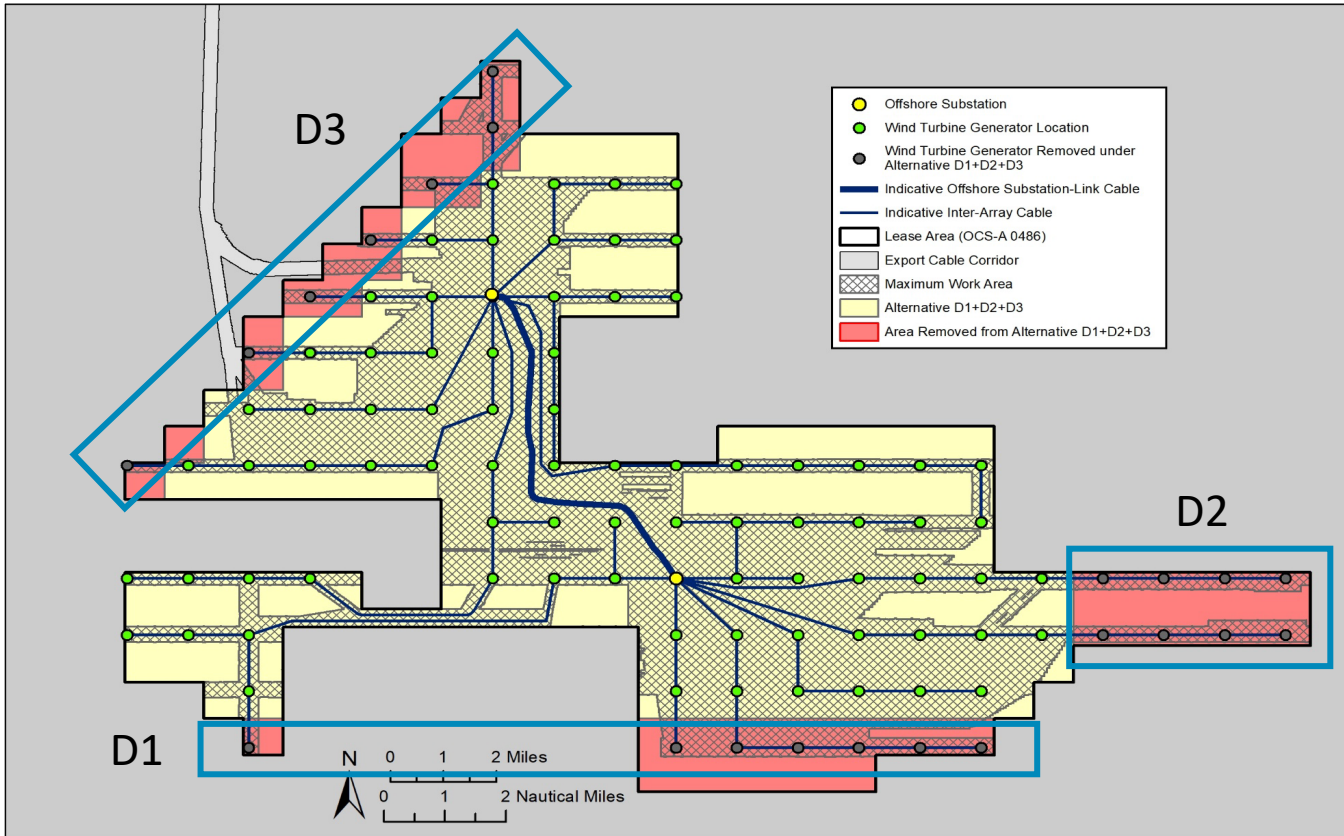


See **Chapter 3.6** for maps and analyses of these habitats



# Alternative D: No Surface Occupancy in One or More Outermost Portions of the Project Area

- Alternative D – There are seven possible combinations analyzed in the DEIS



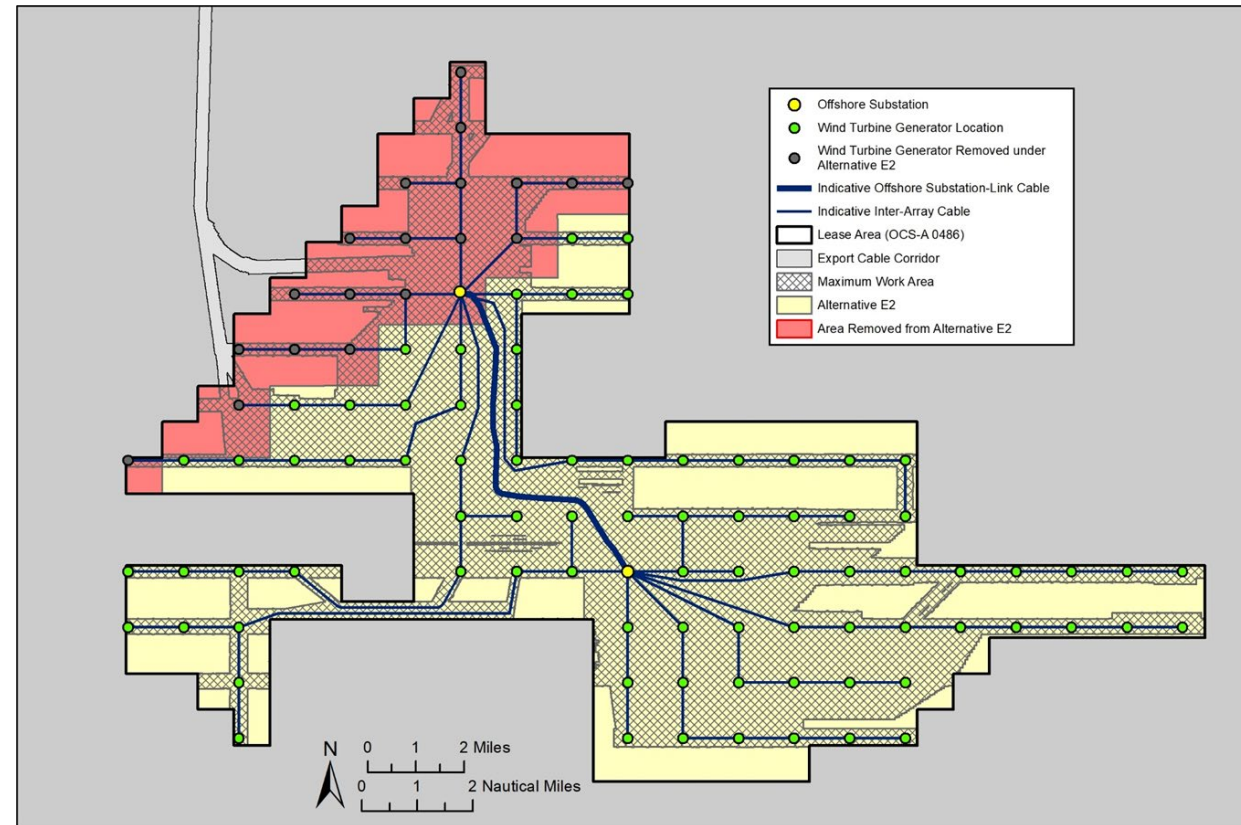
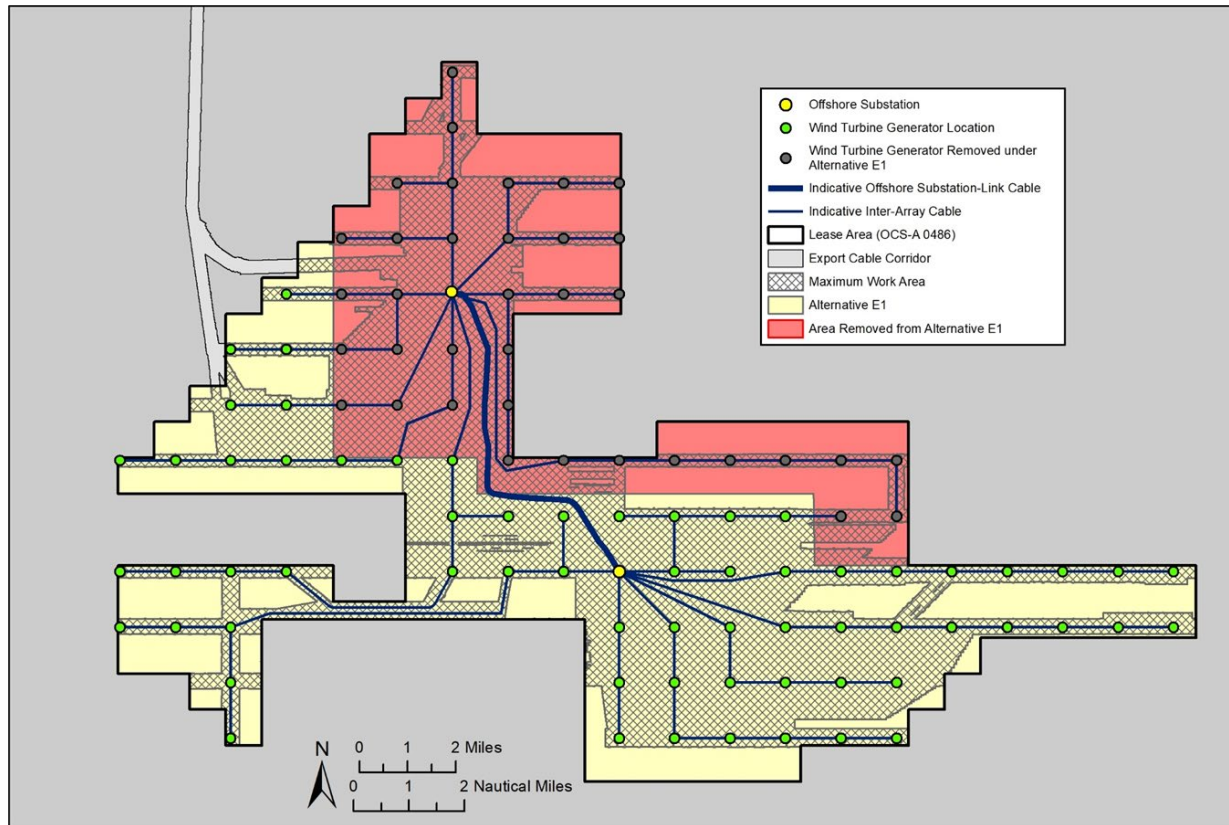
Alternative Combinations	Descriptions
D1	Removal of up to seven WTGs and associated IACs
D2	Removal of up to eight WTGs and associated IACs
D3	Removal of up to seven WTGs and associated IACs
D1+D2	Removal of up to 15 WTGs and associated IACs
D1+D3	Removal of up to 14 WTGs and associated IACs
D2+D3	Removal of up to 15 WTGs and the associated IACs
D1+D2+D3	Removal of up to 22 WTGs and associated IACs



# Alternative E: Reduction of Surface Occupancy to Reduce Impacts to Culturally Significant Resources

○ E-1: removal of 36 positions

○ E-2: removal of 19 positions



# Alternative F: Selection of a Higher Capacity Wind Turbine Generator

- Implementation of a higher nameplate capacity WTG (up to 14 MW) than what is proposed in the COP. This higher capacity WTG must:
  - fall within the physical design parameters of the PDE
  - be commercially available to the Project proponent within a reasonable time frame of the construction and installation schedule proposed in the COP
- This alternative evaluated whether using a higher capacity WTG to reduce the number of foundations constructed to meet the purpose and need could further reduce impacts when applied to any of the other action alternatives





# Resource Categories

## Socioeconomic

- Commercial Fisheries and For-hire Recreational Fishing
- Cultural Resources
- Demographics, Employment, Economics
- Environmental Justice
- Land Use and Coastal Infrastructure
- Navigation and Vessel Traffic
- Other Uses: Aviation, Land-Based Radar, Military Uses, Scientific Research and Surveys, Undersea Cables
- Recreation and Tourism
- Scenic and Visual Resources



## Physical

- Air Quality
- Water Quality

## Biological

- Bats
- Benthic Habitat and Invertebrates
- Birds
- Coastal Habitat and Fauna
- Finfish and Essential Fish Habitat
- Marine Mammals
- Sea Turtles
- Wetlands and Waters of the U.S.



# Impact Analysis

Impact Classifications
Negligible
Minor
Moderate
Major

Duration Term
Long-term
Short-term
Temporary

Incremental Impact Terms
Undetectable
Noticeable
Appreciable

- Chapter 3.3 defines the impact level, duration, and incremental impact terms used throughout the analysis
- Example usage from Commercial and For-Hire Fisheries Section:

“The port utilization impacts of the Proposed Action on commercial and for-hire recreational fisheries would be noticeable. When combined with the impacts of present and other reasonably foreseeable activities, the impacts are expected to be long term minor to moderate adverse.”



# Resource Categories with Minor or Less Impacts

## Socioeconomic

- Commercial Fisheries and For-hire Recreational Fishing
- Cultural Resources
- Demographics, Employment, Economics
- Environmental Justice
- **Land Use and Coastal Infrastructure**
- Navigation and Vessel Traffic
- Other Uses: **Aviation, Land-Based Radar, Military Uses**, Scientific Research and Surveys, **Undersea Cables**
- **Recreation and Tourism**
- Scenic and Visual Resources



## Physical

- **Air Quality**
- **Water Quality**

## Biological

- **Bats**
- Benthic Habitat and Invertebrates
- **Birds**
- **Coastal Habitat and Fauna**
- Finfish and Essential Fish Habitat
- Marine Mammals
- **Sea Turtles**
- **Wetlands and Waters of the U.S.**



# Resource Categories with Potential Moderate Impacts

## Socioeconomic

- Commercial Fisheries and For-hire Recreational Fishing
- Cultural Resources
- Demographics, Employment, Economics
- **Environmental Justice**
- Land Use and Coastal Infrastructure
- **Navigation and Vessel Traffic**
- Other Uses: Aviation, Land-Based Radar, Military Uses, Scientific Research and Surveys, Undersea Cables
- Recreation and Tourism
- Scenic and Visual Resources



## Physical

- Air Quality
- Water Quality

## Biological

- Bats
- **Benthic Habitat and Invertebrates**
- Birds
- Coastal Habitat and Fauna
- **Finfish and Essential Fish Habitat**
- **Marine Mammals**
- Sea Turtles
- Wetlands and Waters of the U.S.



# Resource Categories with Potential Major Impacts

## Socioeconomic

- **Commercial Fisheries and For-hire Recreational Fishing**
- **Cultural Resources**
- Demographics, Employment, Economics
- Environmental Justice
- Land Use and Coastal Infrastructure
- Navigation and Vessel Traffic
- Other Uses: Aviation, Land-Based Radar, Military Uses, **Scientific Research and Surveys**, Undersea Cables
- Recreation and Tourism
- **Scenic and Visual Resources** (moderate under the No Action)



## Physical

- Air Quality
- Water Quality

## Biological

- Bats
- Benthic Habitat and Invertebrates
- Birds
- Coastal Habitat and Fauna
- Finfish and Essential Fish Habitat
- Marine Mammals
- Sea Turtles
- Wetlands and Waters of the U.S.



# Resource Categories with Potential Beneficial Impacts

## Socioeconomic

- Commercial Fisheries and **For-hire Recreational Fishing**
- Cultural Resources
- **Demographics, Employment, Economics**
- **Environmental Justice**
- **Land Use and Coastal Infrastructure**
- Navigation and Vessel Traffic
- Other Uses: Aviation, Land-Based Radar, Military Uses, Scientific Research and Surveys, Undersea Cables
- **Recreation and Tourism**
- Scenic and Visual Resources



## Physical

- **Air Quality**
- Water Quality

## Biological

- Bats
- **Benthic Habitat and Invertebrates**
- Birds
- Coastal Habitat and Fauna
- **Finfish and Essential Fish Habitat**
- **Marine Mammals**
- **Sea Turtles**
- Wetlands and Waters of the U.S.



# Summary and Comparison of Impacts Among Alternatives

- DEIS Tables ES-2 and 2.3-1 compare Incremental and Cumulative Impacts by Alternative (see example below for Visual Resources):

Resource	Alternative A (No Action Alternative)	Alternative B (Proposed Action)	Alternative C (Habitat Alternative)	Alternative D (Transit Alternative)	Alternative E (Viewshed Alternative)	Alternative F (Higher Capacity Turbine Alternative)
<b>Visual resources</b>	Continuation of impacts to viewshed from past and current activities.  The overall cumulative impact to visual resources would be <b>moderate</b> adverse.	This alternative's incremental impact to visual resources would be <b>moderate</b> to <b>major</b> adverse.  The overall cumulative impact to visual resources would be <b>negligible</b> to <b>major</b> adverse.	This alternative's incremental impact to visual resources would be <b>moderate</b> to <b>major</b> adverse.  The overall cumulative impact to visual resources would be <b>negligible</b> to <b>major</b> adverse.	This alternative's incremental impact to visual resources would be <b>moderate</b> to <b>major</b> adverse.  The overall cumulative impact to visual resources would be <b>negligible</b> to <b>major</b> adverse.	This alternative's incremental impact to visual resources would be <b>moderate</b> to <b>major</b> adverse.  The overall cumulative impact to visual resources would be <b>negligible</b> to <b>major</b> adverse.	This alternative's incremental impact to visual resources would be <b>moderate</b> to <b>major</b> adverse.  The overall cumulative impact to visual resources would be <b>negligible</b> to <b>major</b> adverse.

- Overall impact levels from the action alternatives are generally similar to the Proposed Action (Alternative B), with reductions to targeted resource areas
  - Alternative C reduces impacts to complex benthic habitat, Cox Ledge, and areas of Atlantic cod spawning
  - Alternative D reduces navigation risks near the Buzzard's Bay Traffic Separation Scheme Inbound Lane and reduces competing space-use in and around Cox Ledge
  - Alternative E reduces visual impacts to culturally important resources on and near Martha's Vineyard and other National Historic Landmarks in Rhode Island and Massachusetts
  - Alternative F could result in further impact reductions when combined with other alternatives, but not to a degree that changed overall impact level determinations



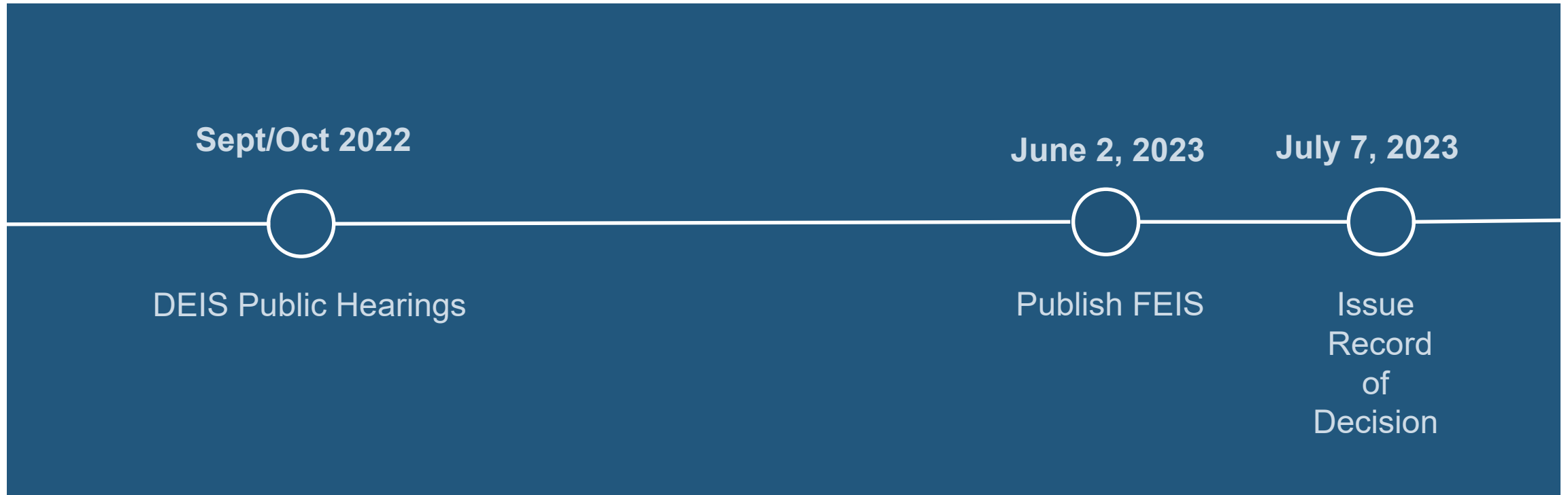
# Final Environmental Impact Statement

- DEIS comments will be assessed and considered by BOEM and the cooperating agencies during preparation of the FEIS
  - Necessary changes will be made in response to comments and/or new information
  - Responses to comments will be appended to the FEIS
- Preferred alternative will be identified in the FEIS





# Remaining EIS Schedule



DEIS comment period ends **October 17, 2022**



# How to Comment by October 17, 2022



**At the public hearings** through verbal testimony or in writing.



**In writing to:**

Program Manager, Office of Renewable Energy Programs, Bureau of Ocean Energy Management, 45600 Woodland Road, VAM-OREP, Sterling, VA 20166



**Online at [www.regulations.gov](http://www.regulations.gov):** Search for Docket No. BOEM-2022-0045. Click on the “Comment” button. Enter your information and comment, then click “Submit Comment.”

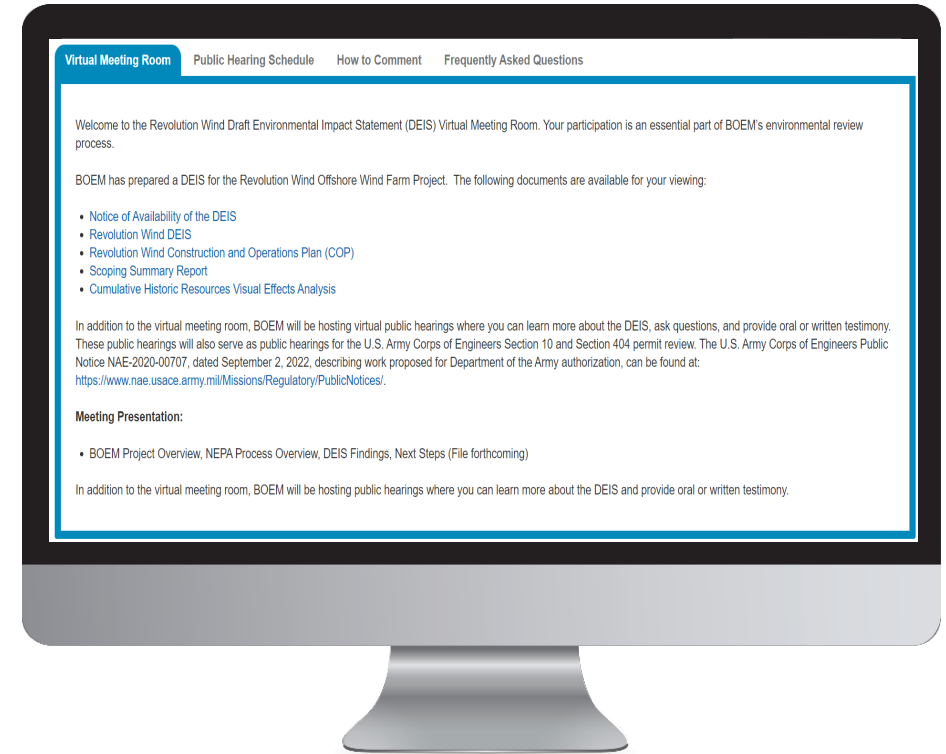


- Types of comments BOEM is looking for:
  - Accuracy of information
  - Adequacy of methodology or assumptions used in the analysis
  - New information relevant to the analysis or that would change the conclusions
  - Different source of credible research
  - Where clarification is needed



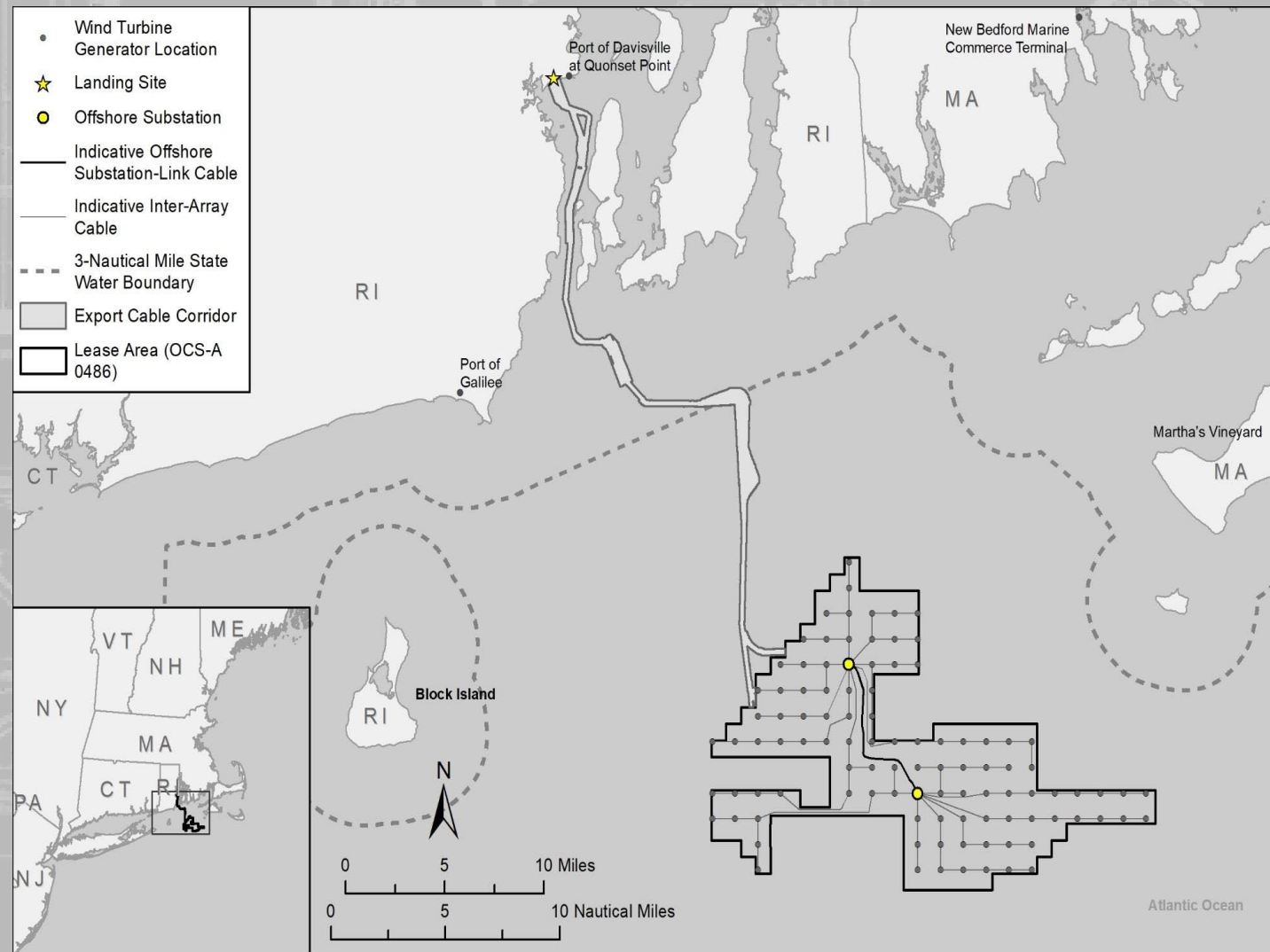
# Where Can I Find More Information?

- <https://www.boem.gov/renewable-energy/state-activities/revolution-wind>
  - Revolution Wind's Construction and Operations Plan
  - Draft EIS
  - Scoping Summary Report
  - Virtual Meeting Room Page
    - Posters
    - Presentation
    - Lease and Project History
    - Registration Links
    - FAQs



# REVOLUTION WIND FARM OFFSHORE WIND PROJECT

Tammy R. Turley  
Chief, Regulatory Division  
New England District



US Army Corps  
of Engineers®

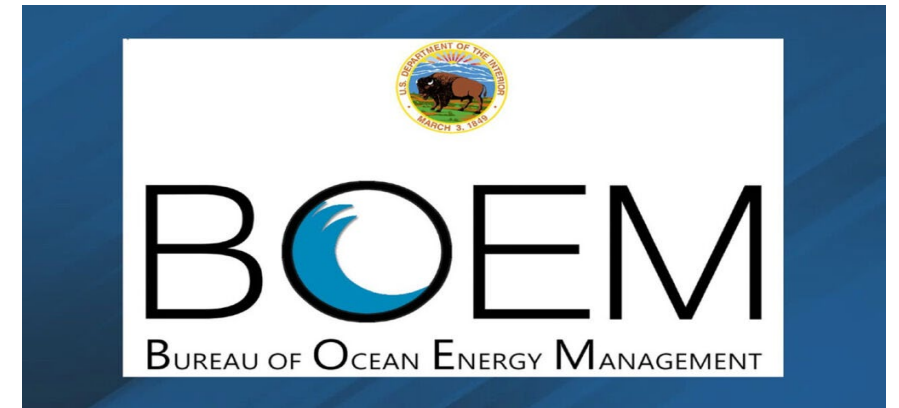
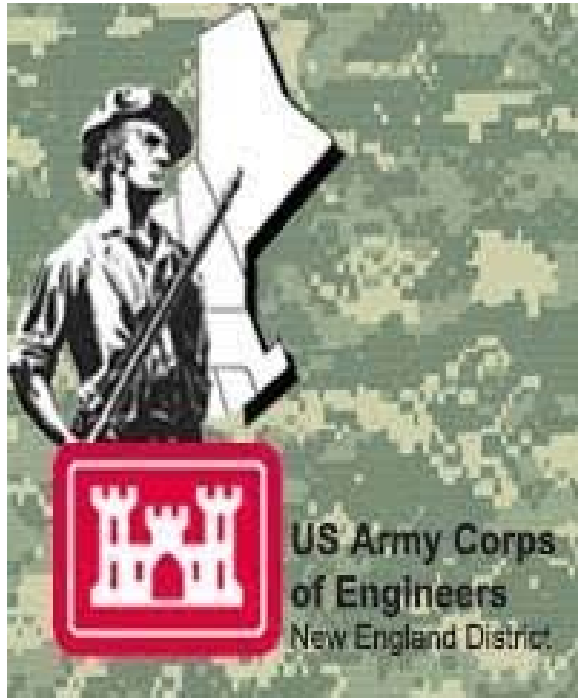


# NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)



BOEM is the lead federal agency for the NEPA review.

USACE is a cooperating agency and is planning to use BOEM's environmental impact statement for our NEPA review.





# USACE REGULATORY AUTHORITIES

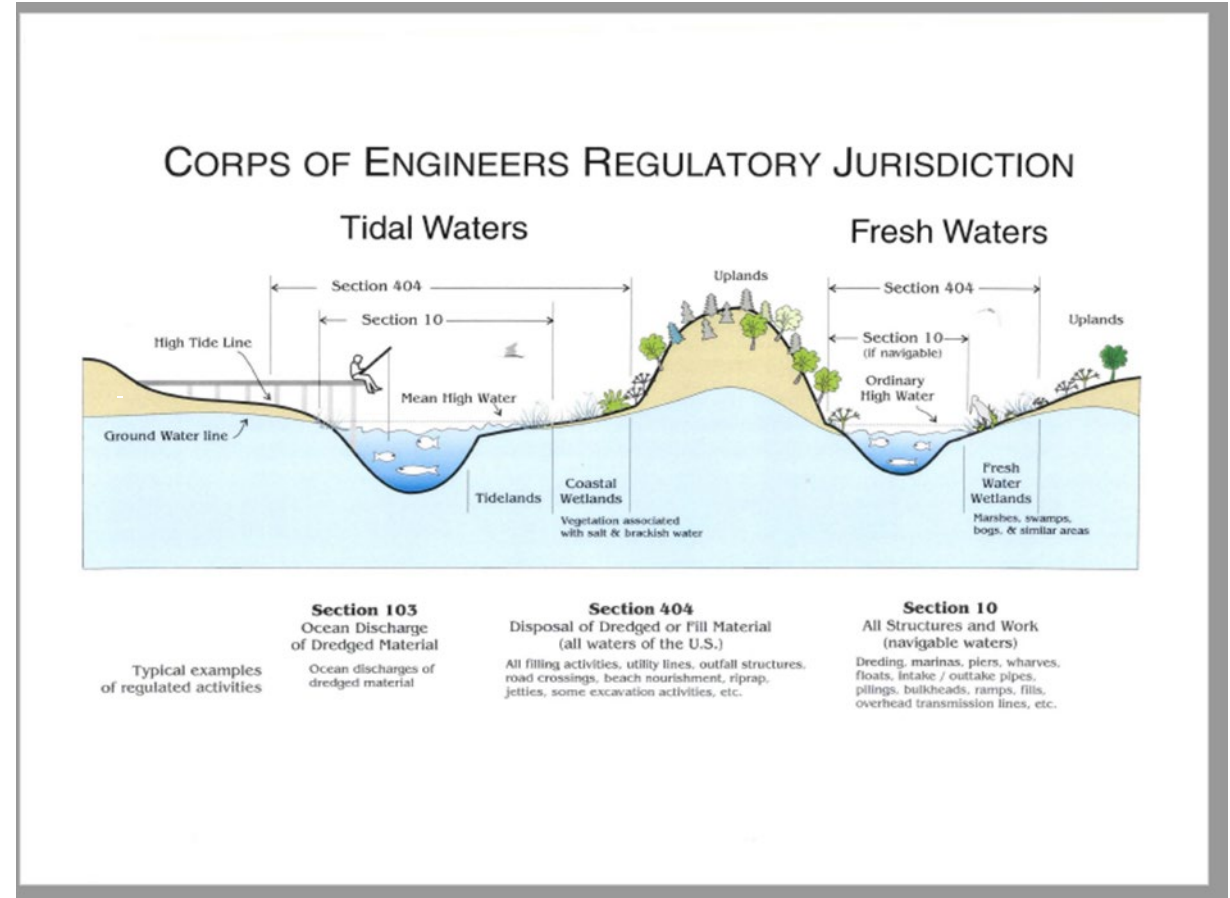


## Section 10:

- Navigable waters
- U.S. Outer Continental Shelf

## Section 404:

- Wetlands of the U.S.





# USACE REGULATORY AUTHORITIES

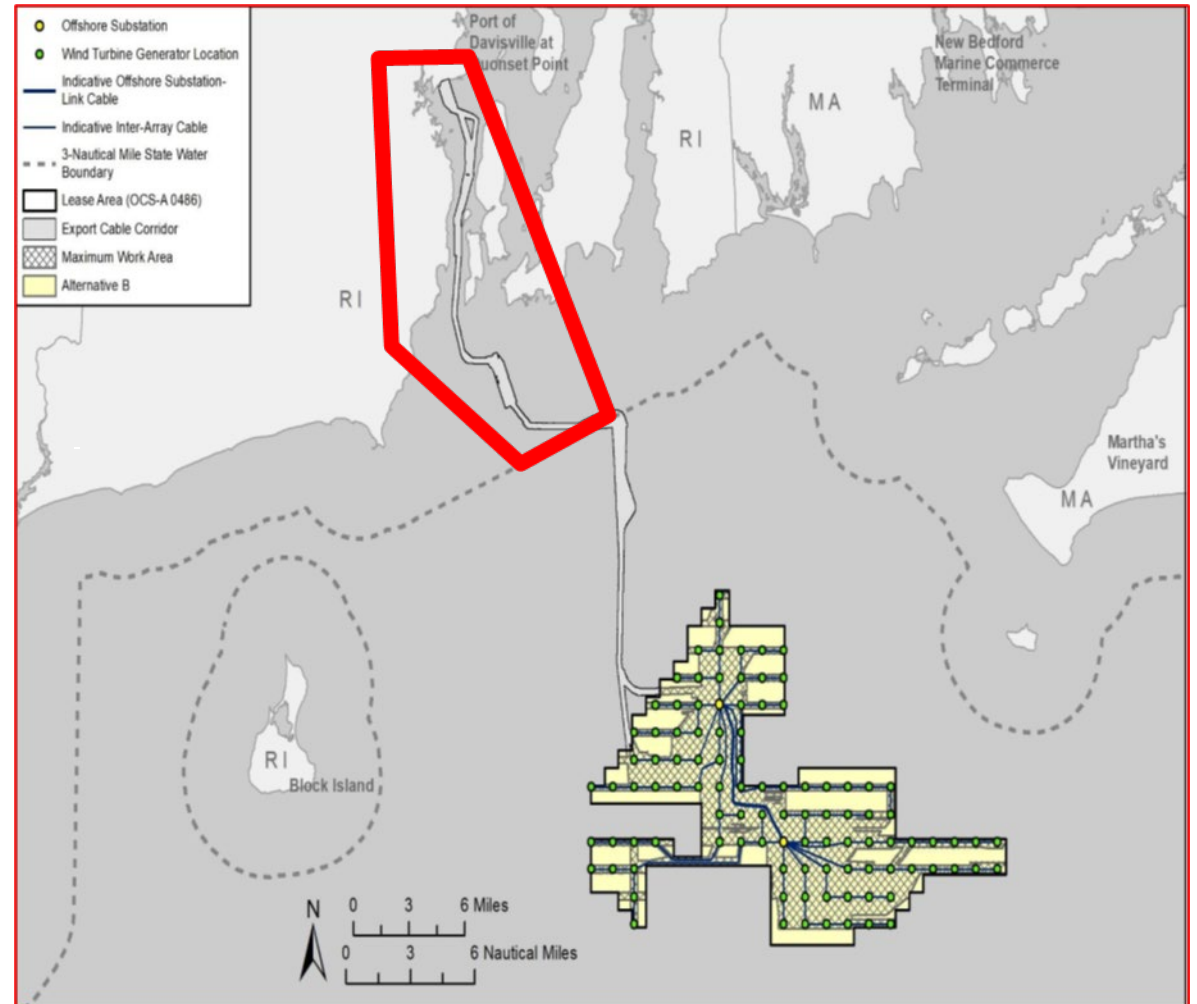


Section 10 of the Rivers and Harbors Act

Navigable Waters for this project:

- Shoreward limit: mean high water line
- Seaward limit: 3 nautical miles\*
- Regulate structures & work including:
  - 2 export cables
  - Dredging & fill for cable installation, horizontal directional drilling (HDD) and exit pits, hard armoring

\*As measured from the baseline of the territorial seas







# USACE REGULATORY AUTHORITIES

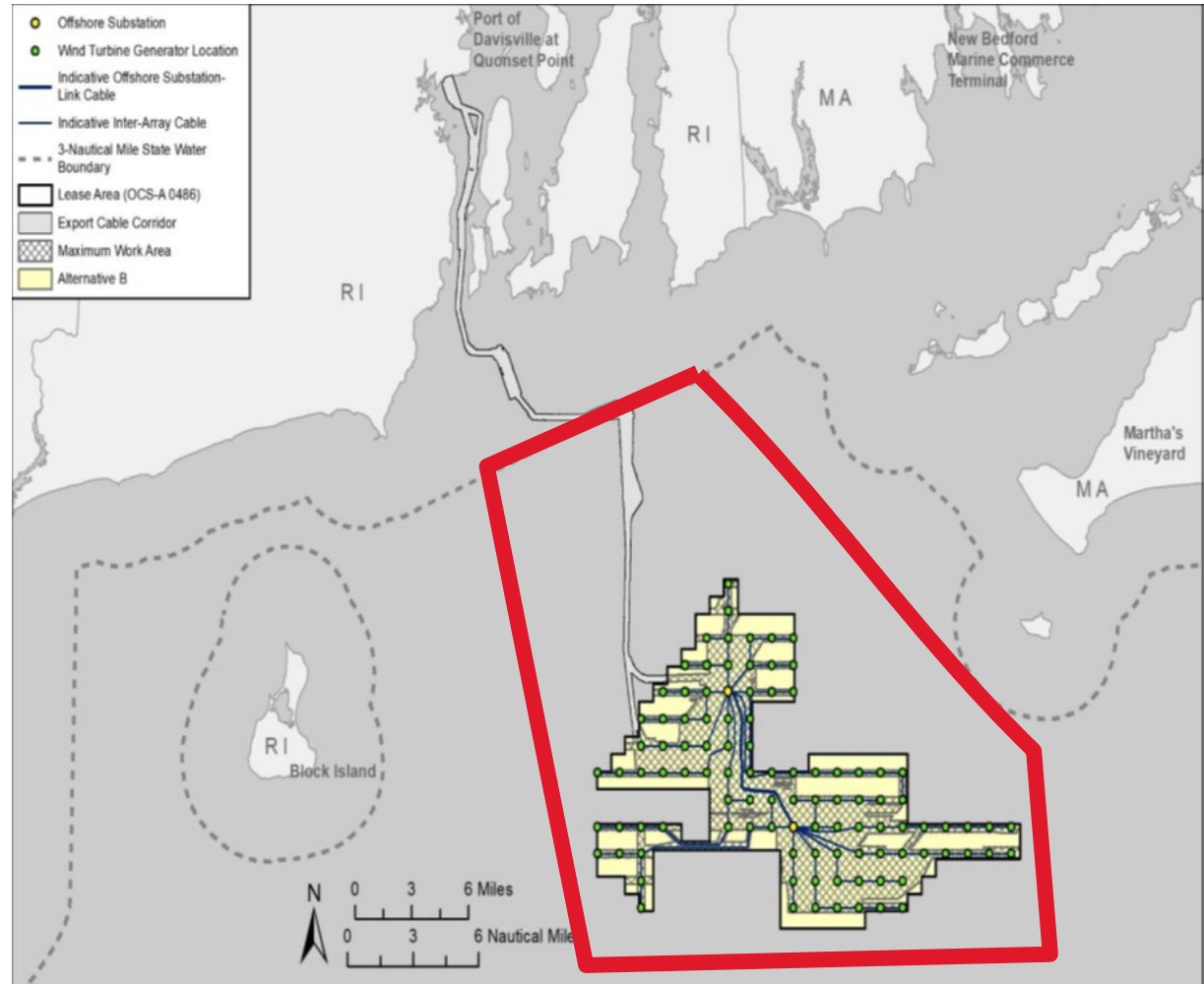


## Section 10 of the Rivers and Harbors Act

### Outer Continental Shelf (OCS):

- Shoreward limit: 3 nautical miles\*
- Seaward limit: Approximately 200 nautical miles
- Regulate structures including:
  - 100 turbines
  - 2 offshore substations
  - Offshore substation link cable
  - Inter-array cables
  - 2 export cables

\*As measured from the baseline of the territorial seas





# USACE REGULATORY AUTHORITIES

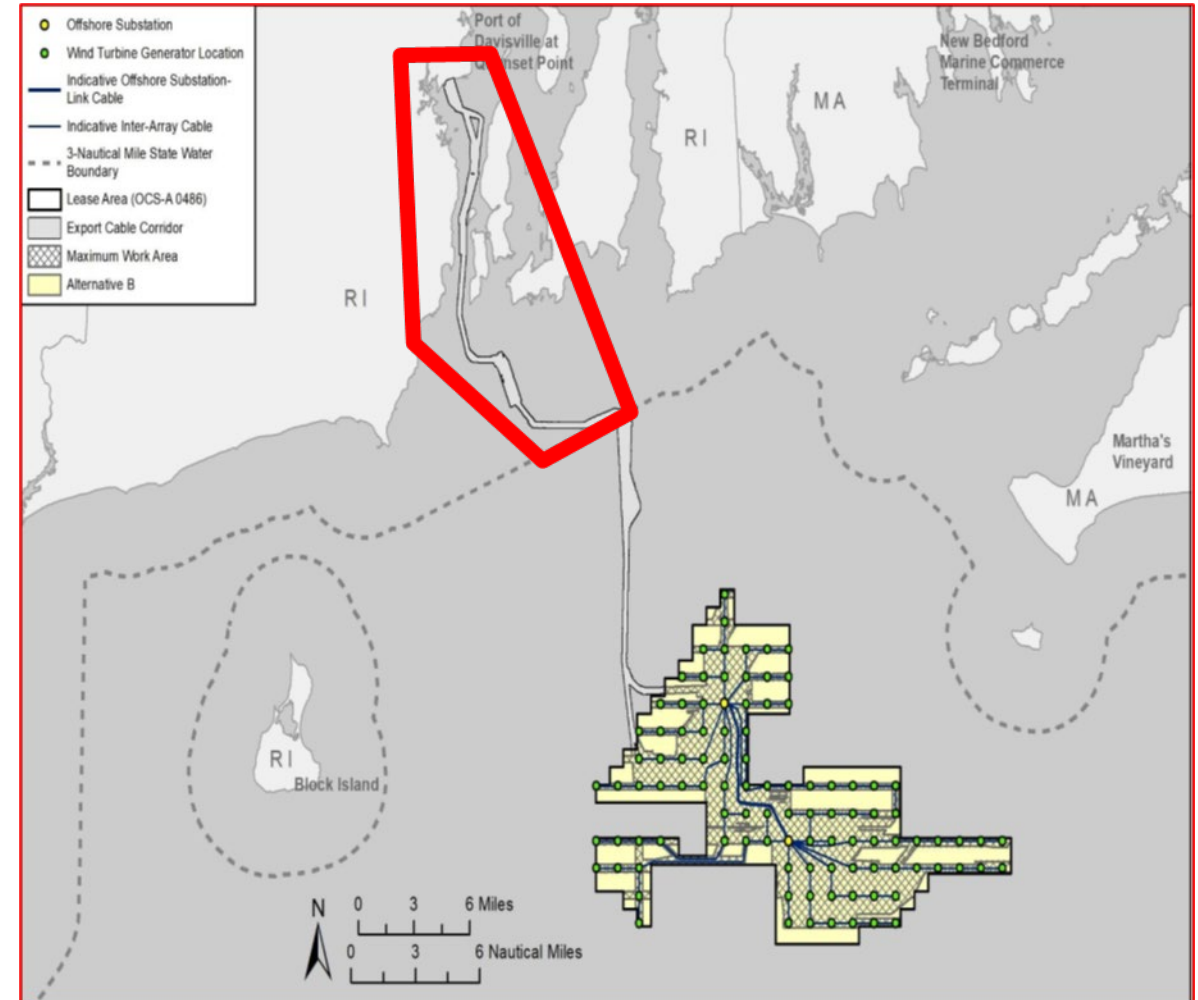


Section 404 of the Clean Water Act:

Regulate activities that constitute the discharge of dredged or fill material within waters of the United States (WOTUS).

- The shoreward limit of WOTUS is the high tide line of Narragansett Bay.
- The seaward limit of WOTUS extends 3 nautical miles.\*
- The applicant has not proposed impacts to non-tidal waters or wetlands

\*As measured from the baseline of the territorial seas



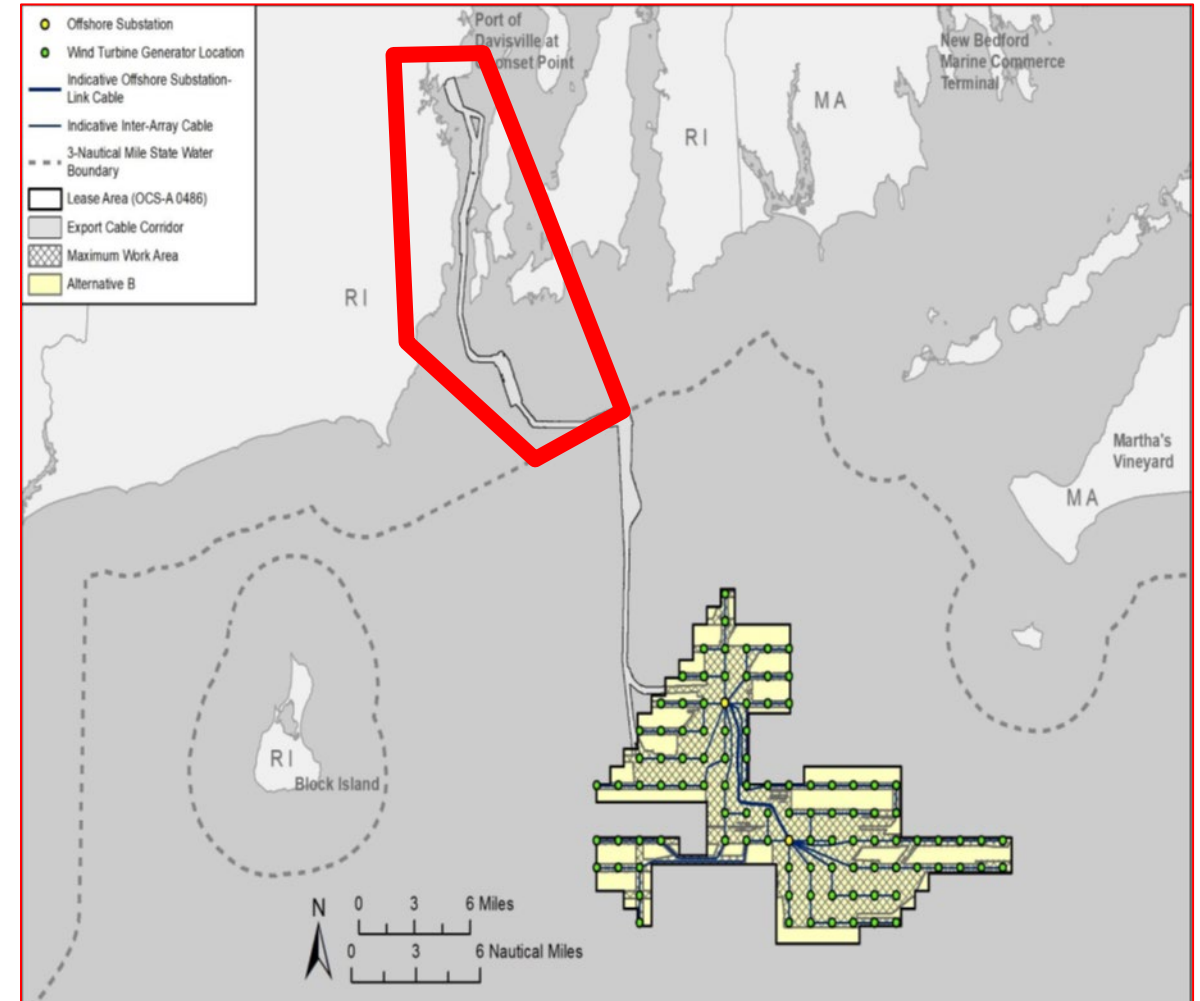


# USACE REGULATORY AUTHORITIES



Proposed activities subject to Section 404 authority include:

- Installing the 2 export cables
- Backfilling of the trench during cable laying
- Placing hard armor as needed for cable protection
- Redepositing the dredged material within the 2 HDD exit pits once the work is complete.





# USACE PUBLIC NOTICE



USACE received a complete application from the project proponent on 08/18/22 and published a public notice on 09/02/22. The USACE project # is NAE-2020-00707.

The comment period is 45 days.

The public notice and plans can be accessed by following the link below and then looking under “Regulatory/Permitting Public Notices:

<https://www.nae.usace.army.mil/Missions/Regulatory/PublicNotices/>



**US Army Corps  
of Engineers**  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

## PUBLIC NOTICE

**Comment Period Begins:** September 2, 2022  
**Comment Period Ends:** October 17, 2022  
**File Number:** NAE-2020-00707  
**In Reply Refer To:** Ruth A. Brien  
**Phone:** (978) 318-8054  
**E-mail:** [Ruthann.A.Brien@usace.army.mil](mailto:Ruthann.A.Brien@usace.army.mil)

## ANNOUNCEMENT OF PUBLIC MEETINGS AND REQUEST FOR PUBLIC COMMENT

The District Engineer has received a permit application to conduct work in waters of the United States, navigable waters, and the Outer Continental Shelf from Kellen Ingalls representing Ørsted/Revolution Wind, LLC at 56 Exchange Terrace, Suite 300, Providence, RI 02903. The majority of the proposed work would be located in the Atlantic Ocean in the Bureau of Ocean Energy Management’s (BOEM) Renewable Energy Lease Area OCS-A 0486, which is approximately 15 nautical miles (nm) southeast of Point Judith, Rhode Island (RI), approximately 13 nm east of Block Island, RI, approximately 7.5 nm south of Nomans Land Island National Wildlife Refuge (NWR), and between approximately 10.0 and 12.5 nm south-southwest of varying points of the RI and Massachusetts (MA) coastlines 15.0 miles east of Block Island, RI. Work would also occur within the Narragansett Bay- West Passage, terminating near Quonset Point in North Kingstown, RI.

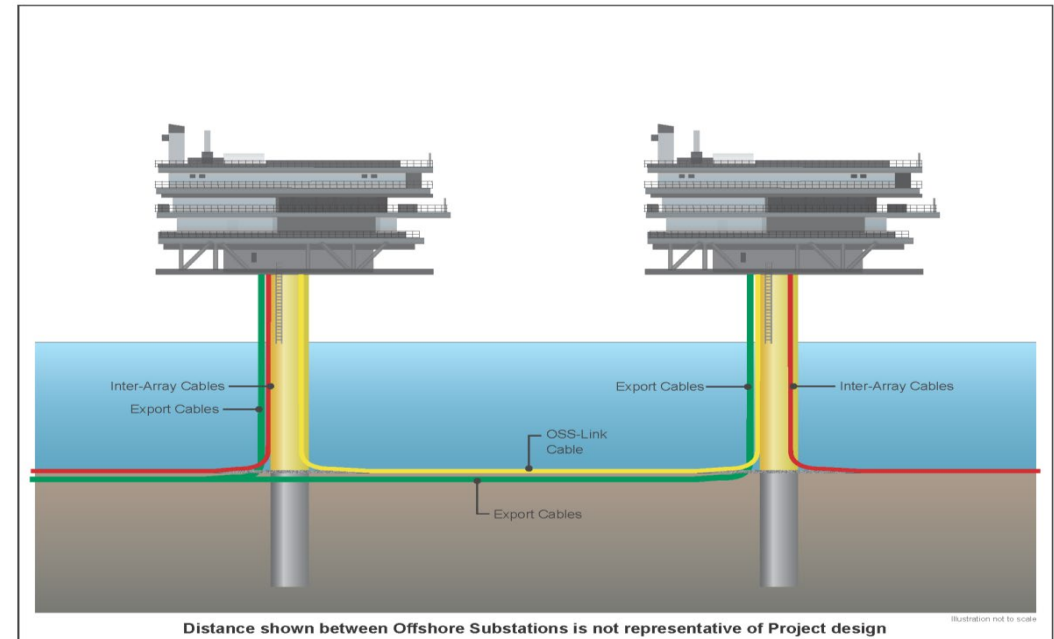
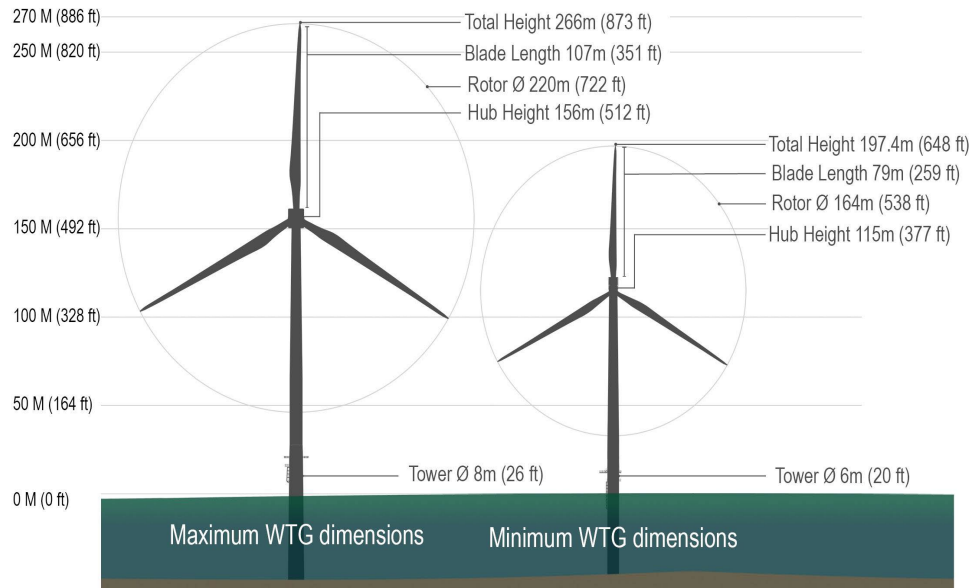
The overall proposal involves the construction, operations and maintenance, and eventual decommissioning of the Revolution Wind Farm (RWF) and associated Revolution Wind Export Cable (RWEC). The RWF would include the installation of up to 100 wind turbine generators (WTGs or turbines) connected by a network of inter-array cables (IACs), up to two offshore substations (OSSs) connected by one offshore substation link cable (OSS-link cable), and one onshore logistics or O&M facility. The RWEC would include up to two alternating current (AC) electric cables (export cables) generally co-located within a single corridor; one onshore substation (OnSS); and one interconnection facility (ICF) that would connect the RWF to the existing onshore regional electric transmission grid at The Narragansett Electric Company d/b/a National Grid (TNEC) Davisville Substation in North Kingstown, Rhode Island.



# PROPOSED PROJECT IMPACTS



<u>Activity</u>	<u>Temporary/Installation</u>	<u>Permanent</u>	<u>Authority</u>
Turbines & Offshore Substations	734.4 acres subtidal	71.4 acres subtidal	Sec 10
Offshore Substation Link Cable	148 acres subtidal	4.4 acres subtidal (armor)	Sec 10
Inter-array Cables	2,471 acres subtidal	74.1 acres subtidal (armor)	Sec 10
Export Cables (OCS)	593.1 acres subtidal	17.8 acres subtidal (armor)	Sec 10
Export Cables (within 3 miles)	731.4 acres subtidal	42.7 acres subtidal (armor)	Sec 10/404
HDD & Exit Pits	0.94 acre subtidal	N/A	Sec 10/404





# USACE PERMIT DECISION



## Public Interest Review:

Evaluate probable impact of activity on public interest.

Factors include:

- Aesthetics
- Conservation
- Economics
- Energy needs
- Fish & wildlife values
- Flood hazards
- Flood plain value
- Food production
- Consideration of property ownership
- General environmental concerns
- Historic properties/cultural value
- Needs and welfare of the people
- Shoreline erosion and accretion
- Water supply and conservation
- Land use
- Mineral needs
- Navigation
- Recreation
- Safety
- Water quality
- Wetlands



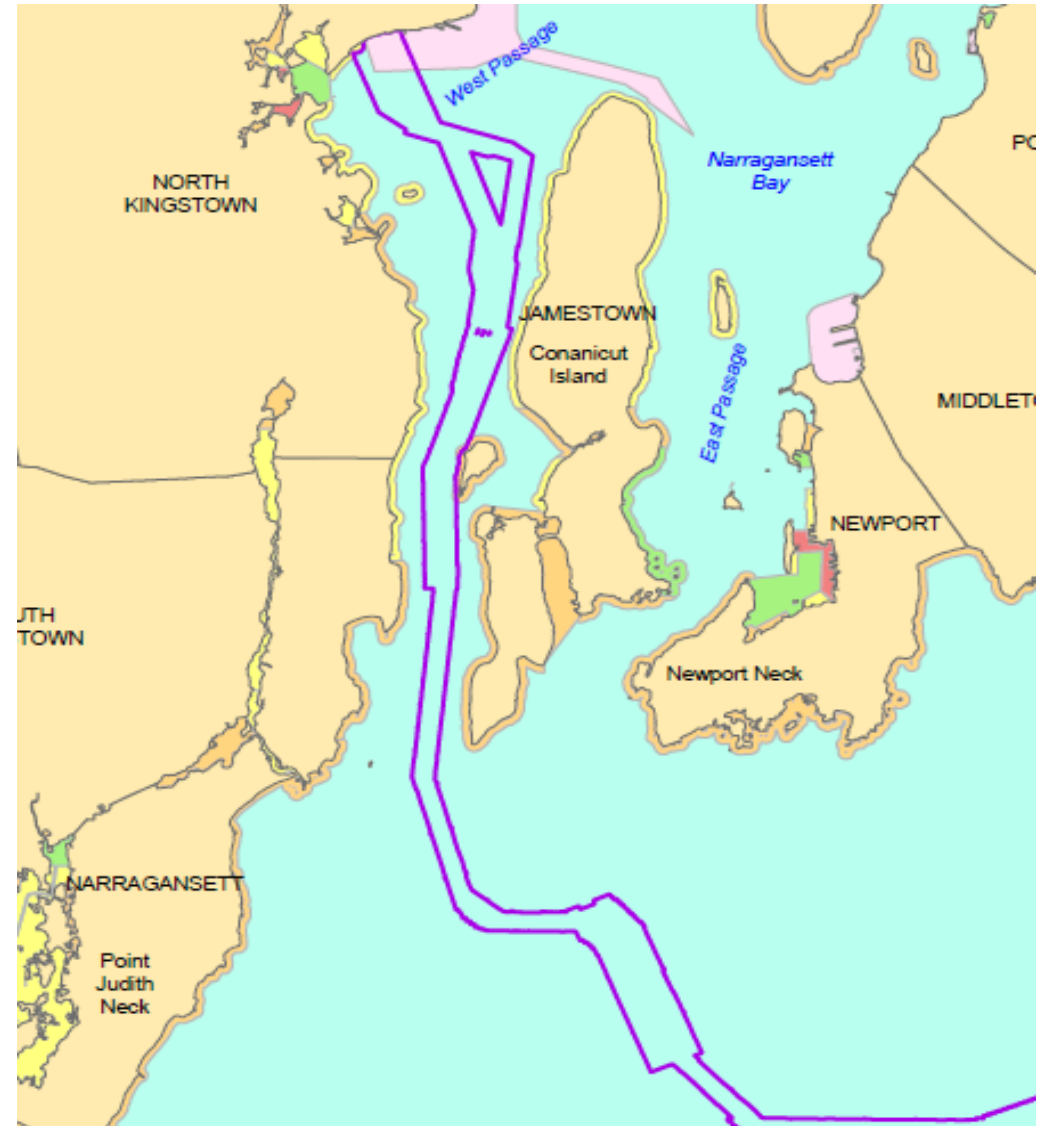


# USACE PERMIT DECISION



404 (b)(1) Guidelines (apply to work within Section 404 jurisdiction):

- Except as provided under Section 404(b)(2), no discharge shall be permitted if, “There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences.”
- Practicable alternative: Available & capable of being done when considering cost, technology, & logistics
- USACE must identify the Least Environmentally Damaging Practicable Alternative (LEDPA)





# USACE PERMIT DECISION



Compliance with other federal laws including but not limited to:

- National Historic Preservation Act
- Endangered Species Act
- Magnuson-Stevens Fisheries Management Act

Tribal Consultation and Tribal Trust Responsibilities

State actions required for a decision:

- 401 water quality certification
- Coastal zone management consistency determination



Green Sea Turtle



Atlantic Cod



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