Fisheries Technical Working Group (F-TWG) Meeting

October 15, 2024

NEW YORK STATE | NYSERDA

Ground Rules

- Contribute – your perspectives are important
- Share time – lots to cover and many people around the table
- Integrate ideas and pose questions
- Stay focused on the agenda
- Avoid multitasking and other distractions
- We all have our unique challenges in a hybrid environment – it will take all of us being mindful to make this work

Cooling Water Use at Offshore Converter Stations

Source: TenneT, SylWin alpha, North Sea

Brian Dresser

15 October 2024

TETRA TECH

Leading with Science®

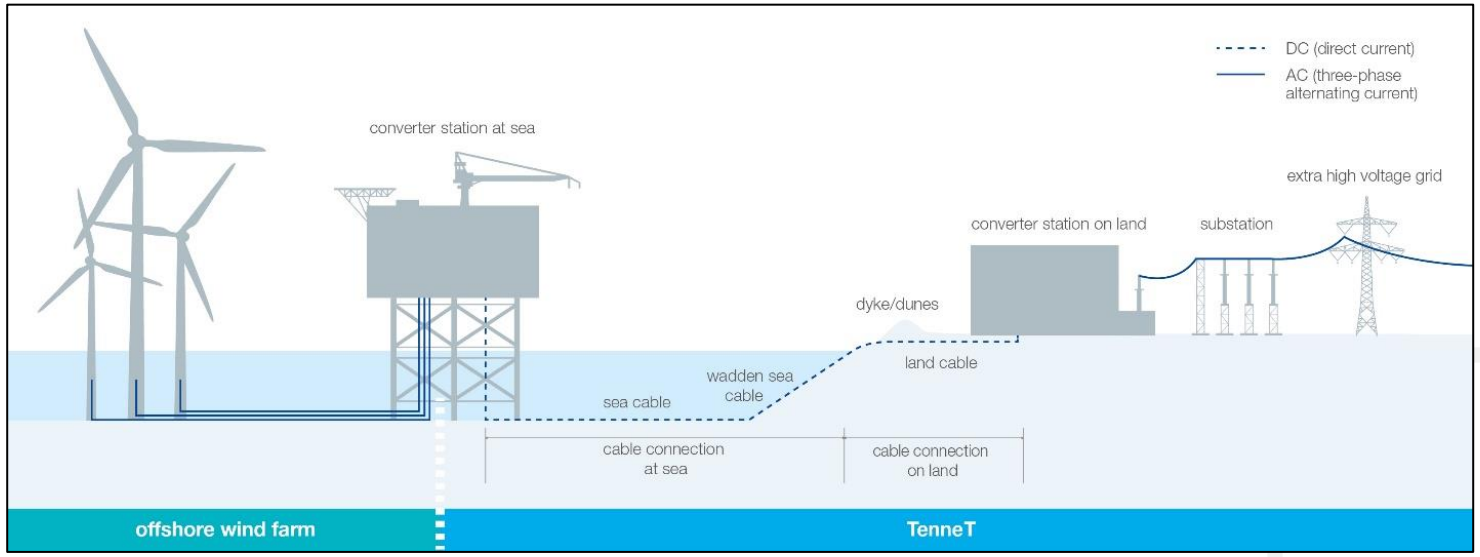
Report Outline

- Introduce the general concepts of an offshore converter station and the use of cooling water
- Overview of the regulatory setting
- Comparison with other facilities, including;
  - offshore oil & gas platforms,
  - offshore LNG ports,
  - onshore conventional power generation, and
  - other sources of cooling water in the ocean environment
- Overview of the risks and impacts
- “Best Technology Available” (BTA) to minimize impacts to fish populations
- Mitigation and monitoring

Objective:

Provide an overview of the use of cooling water for offshore wind projects, as a tool to inform stakeholders, agencies, and developers.

Source: TenneT



What is an Offshore Converter Station?

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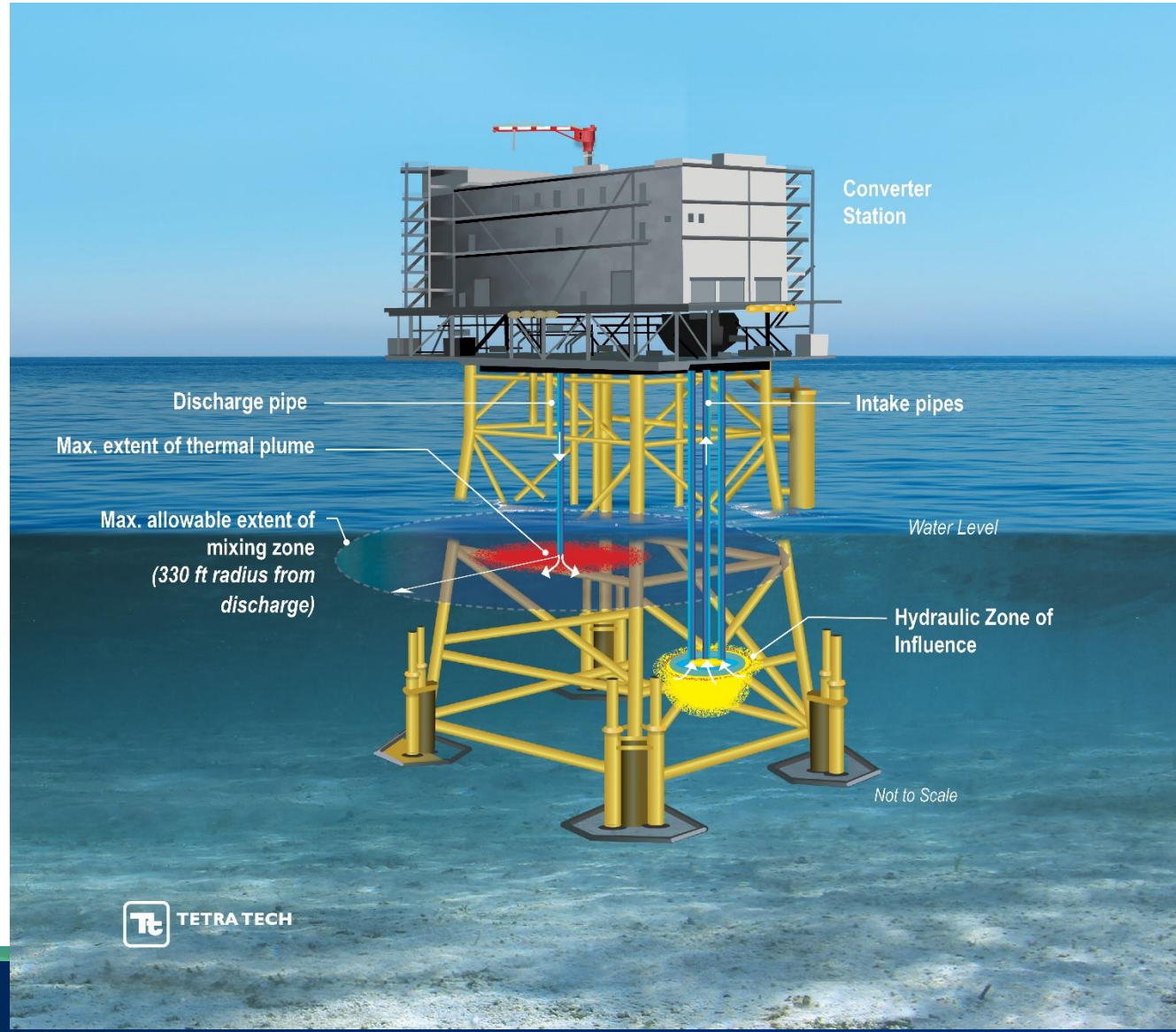
Source: Tetra Tech

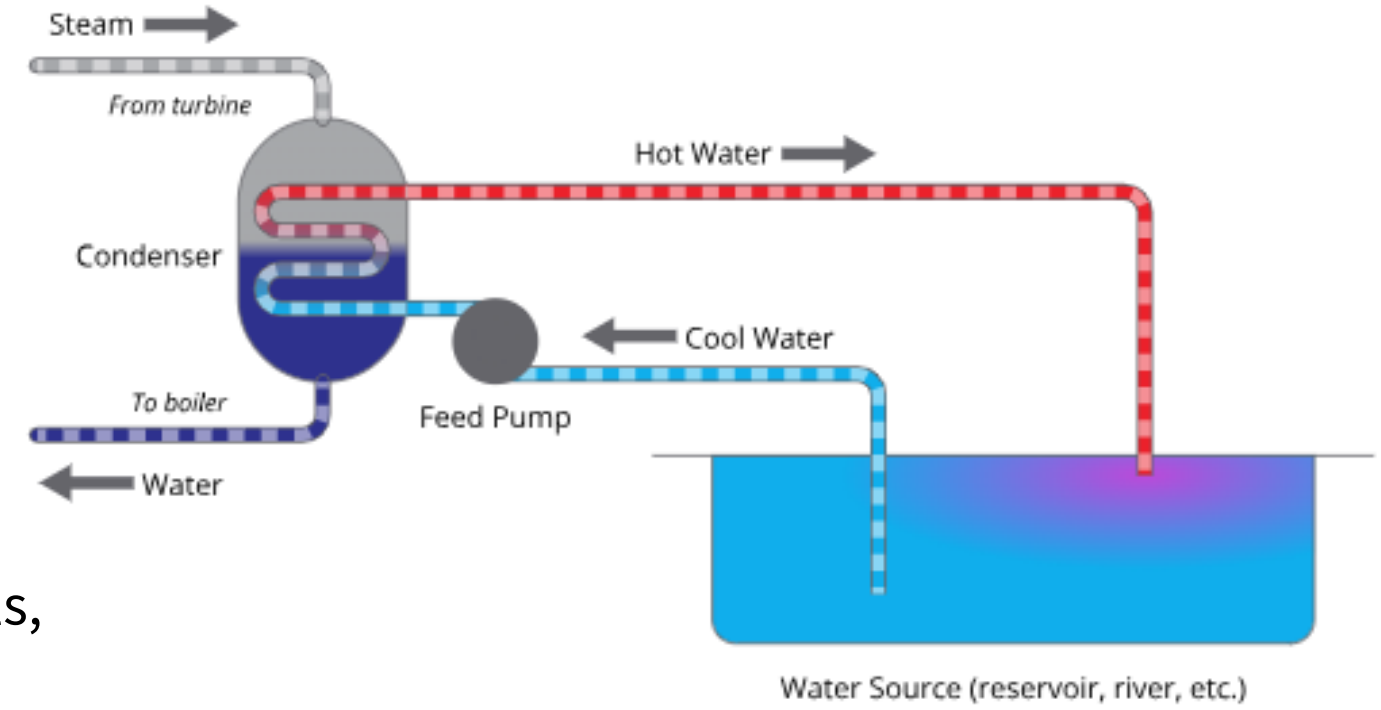
- Specialized substation that converts the AC power generated by the windfarm, into DC power for transmission via HVDC export cables
- Typically only needed for projects with long export cables > 50 km (27 nm)
- Conversion process generates heat, which requires cooling
  - Once-through cooling
  - Closed-cycle cooling
  - Other technologies/alternatives
- Concept first presented by Sunrise Wind to the F-TWG in Nov. 2021 (Final NPDES Permit issued, June 2024)
- As projects get further away from shore, converter stations may be increasingly necessary



What is Once-Through (Open-Loop) Cooling?

- Non-contact once-through cooling water removes waste heat by passing through a heat exchanger.
- Heated water is then discharged back into the source water.
  - The temperature difference between the intake and discharge is referred to as the delta-T or ΔT.
- The source of once-through cooling water is typically a lake/reservoir, river, or ocean.
- Similar in-principle to how the heat exchanger of a marine engine works.
- Used to cool many types of coastal power generating facilities, oil/gas platforms, offshore LNG ports, vessels, etc.

Source: Webber Energy Group

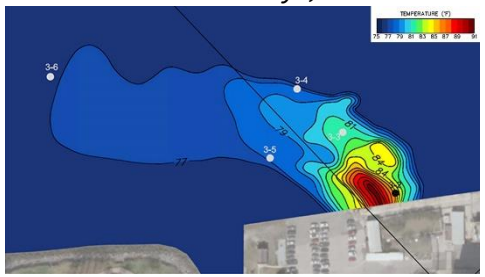


Regulatory Setting

- Cooling water intakes are regulated by the 1972 Clean Water Act (CWA):
  - §402 – National Pollutant Discharge Elimination System (NPDES) Permits,
  - §403 – Ocean Discharge Criteria
  - §316(a) – thermal impacts
  - §316(b) – impingement & entrainment impacts
- Informed by 50+ years of NPDES permitting and entrainment/thermal assessments at onshore and offshore facilities
- Offshore Wind is a new industry for cooling water intakes in the U.S.

Source: NOAA Fisheries

Source: Ocean Surveys, Inc.



Source: Recharge News

Example Facilities – OSW Converter Stations

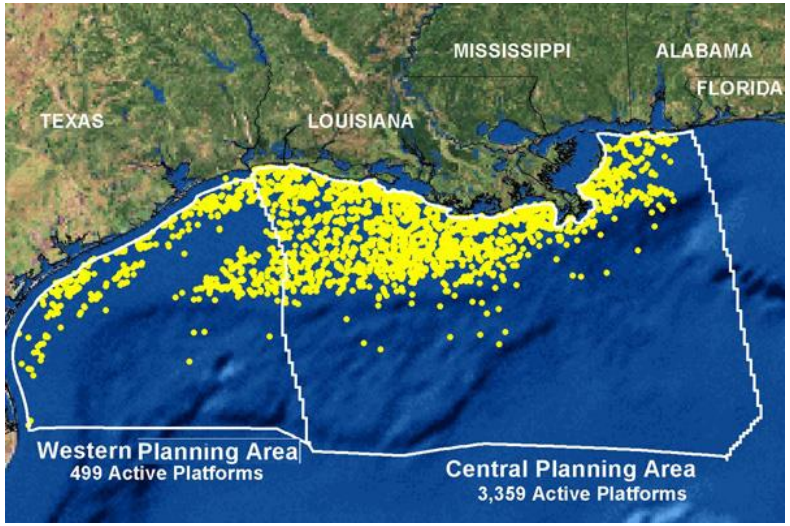
- ~10 operational converter stations in the North Sea, each using once-through cooling (400 to 900 MW capacity each)
  - 5 to 10 million gallons per day (MGD) of once-through cooling water
- One air-cooled converter station (DolWin epsilon) is expected to be operational in 2025 (900+ MW capacity)
- Additional air-cooled converter stations (2,000+ MW capacity) are in-development, expected to be operational ~2030
- Most converter stations using once-through cooling water can be un-manned, but air-cooled converter stations are typically larger, manned facilities

Source: TenneT

Example Facilities – Offshore Oil & Gas Platforms

- Thousands of active facilities in the Gulf of Mexico
- < 50 MGD of once-through cooling, under a programmatic NPDES Permit

Source: BOEM

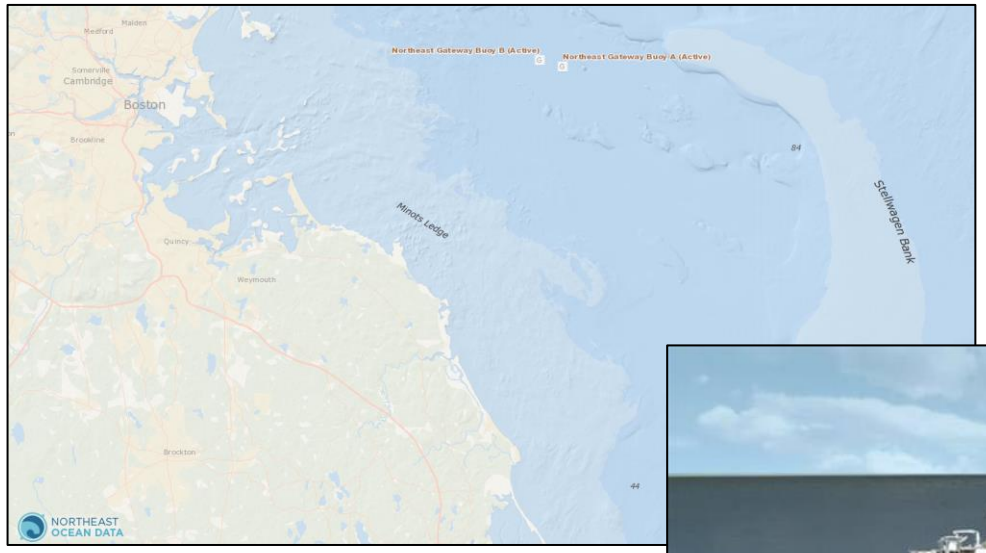


Source: Shell

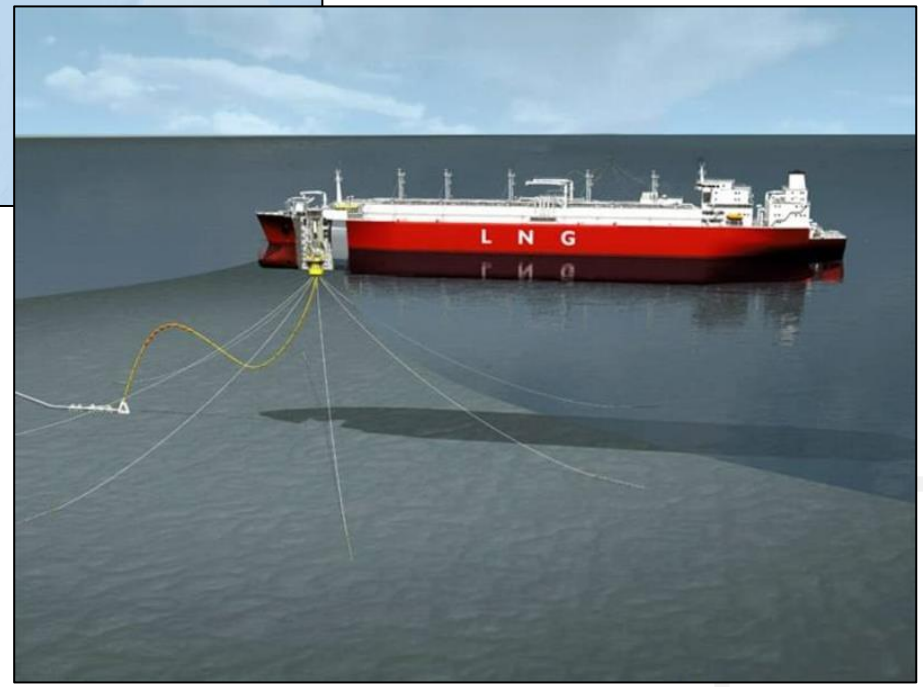
Example Facilities – Offshore LNG Ports

- Northeast Gateway in operation offshore of Massachusetts since ~2011
- > 50 MGD of once-through cooling
- Ongoing seasonal entrainment and water quality monitoring required during operations

Source: Northeast Ocean Data Portal



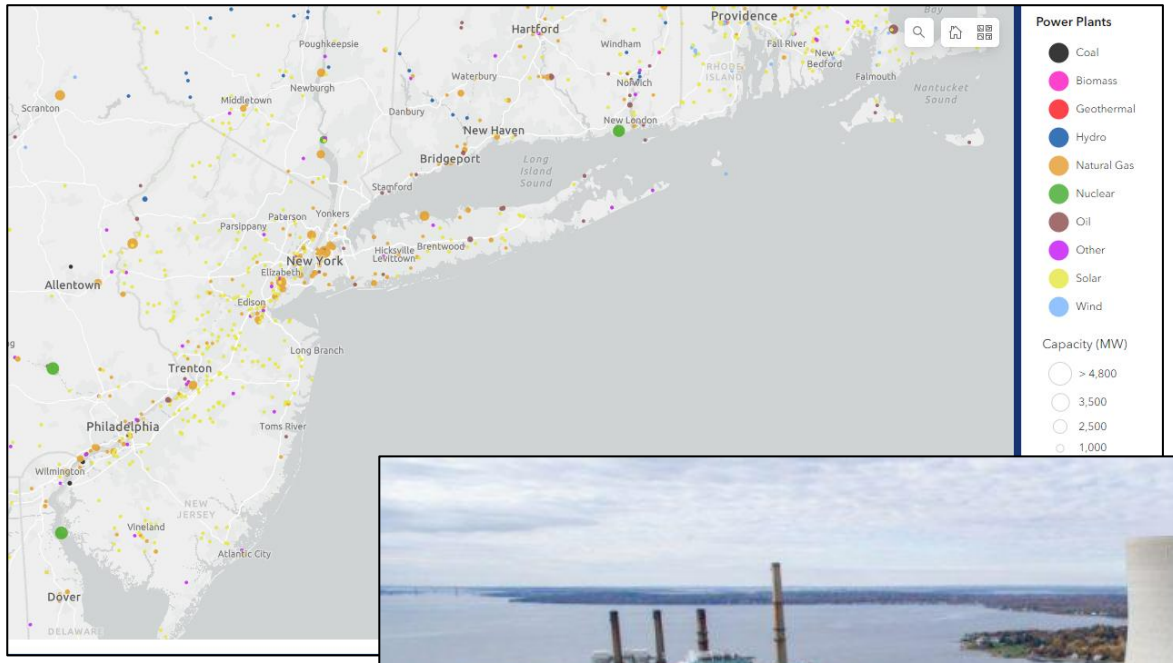
Source: Excelerate



Example Facilities – Onshore Power Generation and Industrial Facilities

- Hundreds of conventional power generating facilities throughout the US, many in the northeast
- ~500+ MGD, with some more than 3 billion gallons per day (Ravenswood, Millstone, etc.)
- Once-through cooling is primary source of cooling, but many utilize closed-cycle (closed-loop) cooling

Source: Synapse Energy



Source: Fall River Reporter

Other Sources of Cooling Water in the Ocean

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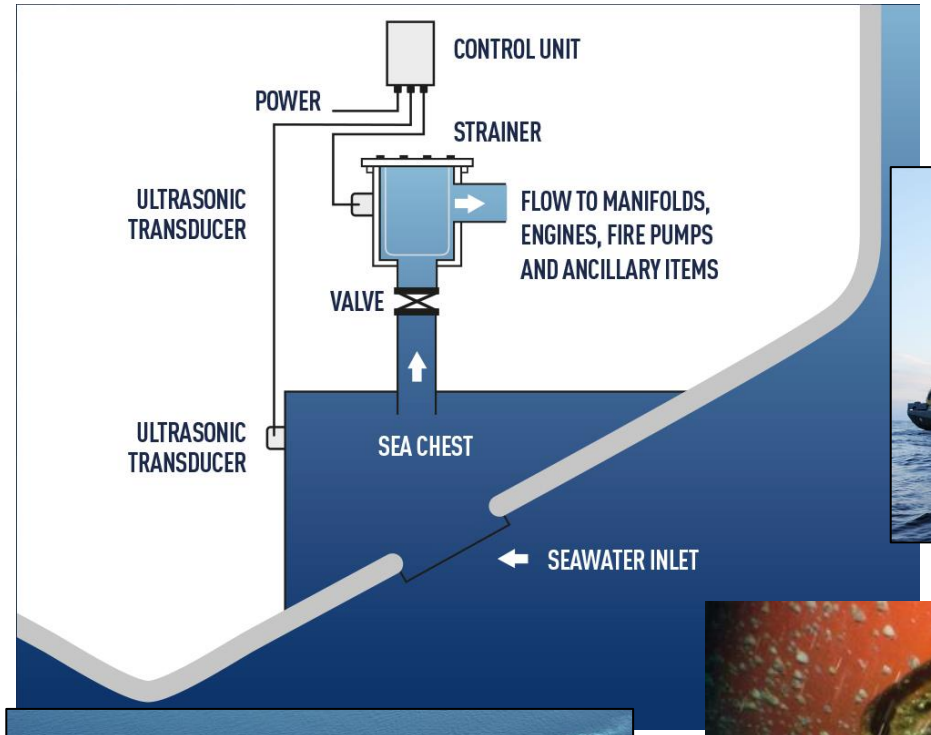
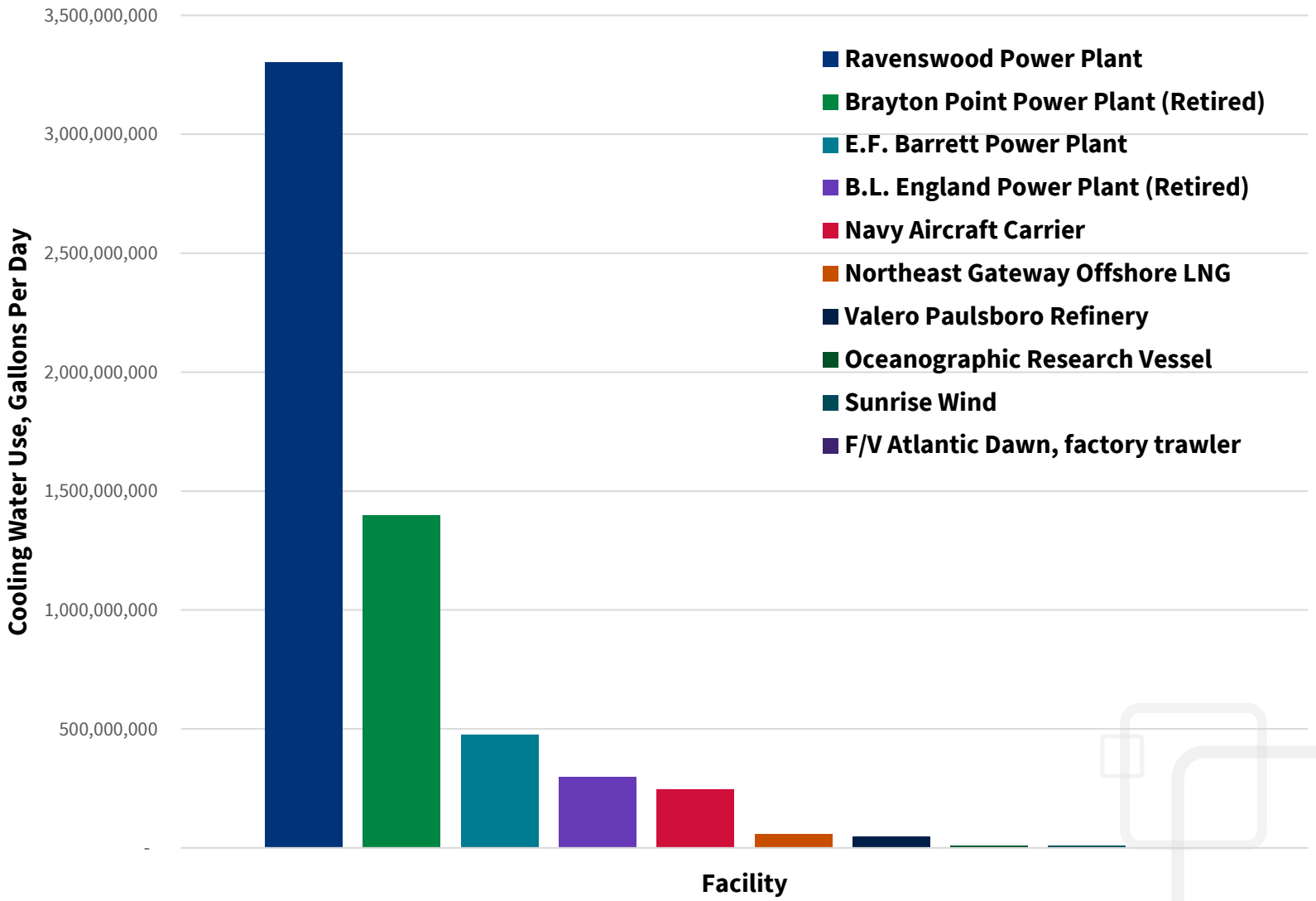
- Vessels of all sizes utilize some form of cooling water
- Large ships, tankers, and cargo vessels have sea chest intakes to supply once-through cooling and other water uses
  - 10 MGD for global-class (AGOR) oceanographic research vessels
  - 50+ MGD for tankers
  - 4 to 245 MGD for Navy ships
- EPA Vessel General Permit for some commercial vessel types

Source: Ultrasonic Antifouling, Commercial Diving Services, WHOI, U.S. Navy



Scaling-up Cooling Water Uses in the Ocean/Coastal Habitats

Source	Volume of Cooling Water (gallons per day)
Coastal/Onshore Power Plants	250,000,000 to 3,300,000,000
Coastal/Onshore Refineries	45,000,000 to 300,000,000
Navy Vessels, in-transit	4,000,000 to 245,000,000
Offshore LNG Ports (Northeast Gateway)	up to 56,000,000
Offshore Oil & Gas Platforms	up to 50,000,000
Oceanographic Research Vessel	up to 10,000,000
Offshore Wind Converter Stations*	**5,000,000 to 10,000,000**
Other Commercial Vessels, in-transit (tug, ferry, fishing, etc.)	100,000 to 3,000,000



*Sunrise Wind max. cooling water flow = 7,800,000

Risks & Impacts of Once-Through Cooling Water

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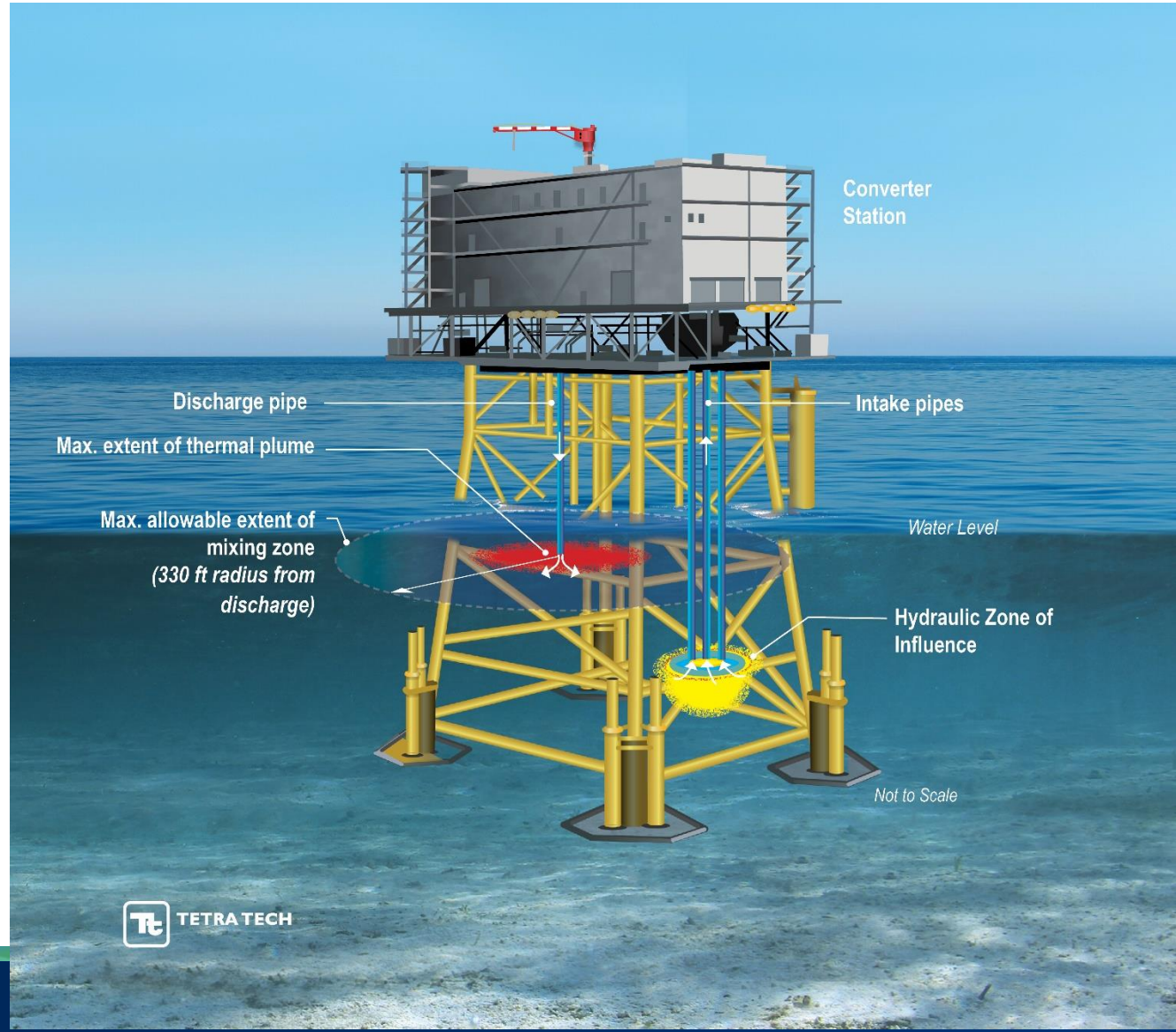
- Hydraulic Zone of Influence (HZI)
  - Portion of water column partially-influenced by intake, relative to ambient currents
- Impingement
  - Not a concern if intake velocity does not exceed 0.5 fps
- Entrainment
  - Eggs/larvae withdrawn into cooling water intake
- Chlorination
  - Electrochlorination system used to minimize biofouling
  - Total residual oxidants must be below compliance level (30 µg/L) at point of discharge
- Thermal Discharge*
  - Mixing zone
  - Must return to within 1.8°F (1°C) of ambient seawater, within 100 m (330 ft) radius of discharge

Source: Tetra Tech



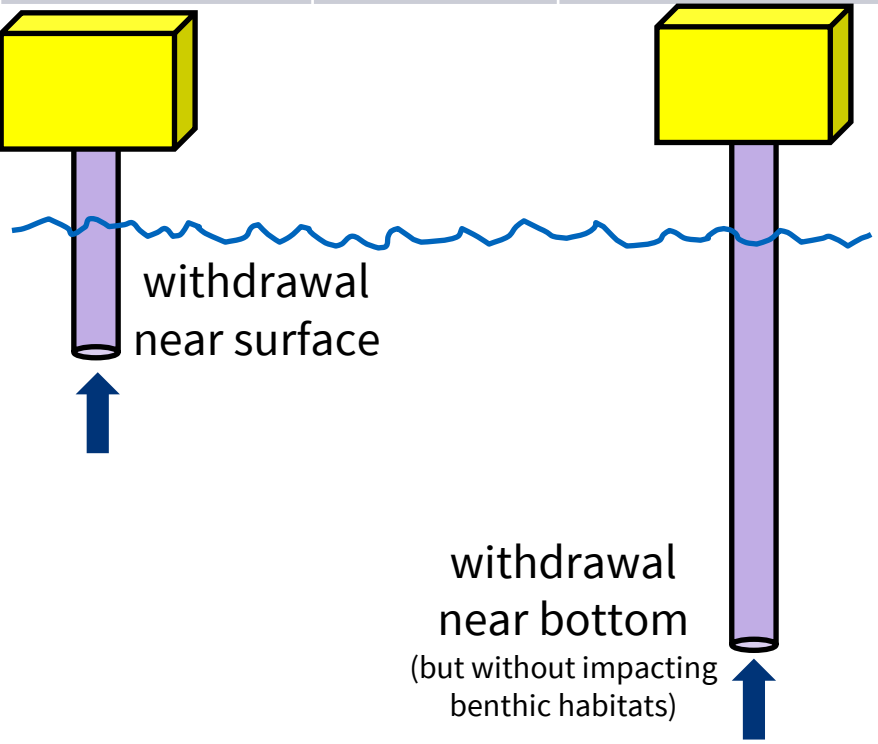
*Sunrise Wind end-of-pipe max. discharge temp. = 90°F

Risks & Impacts of Once-Through Cooling Water

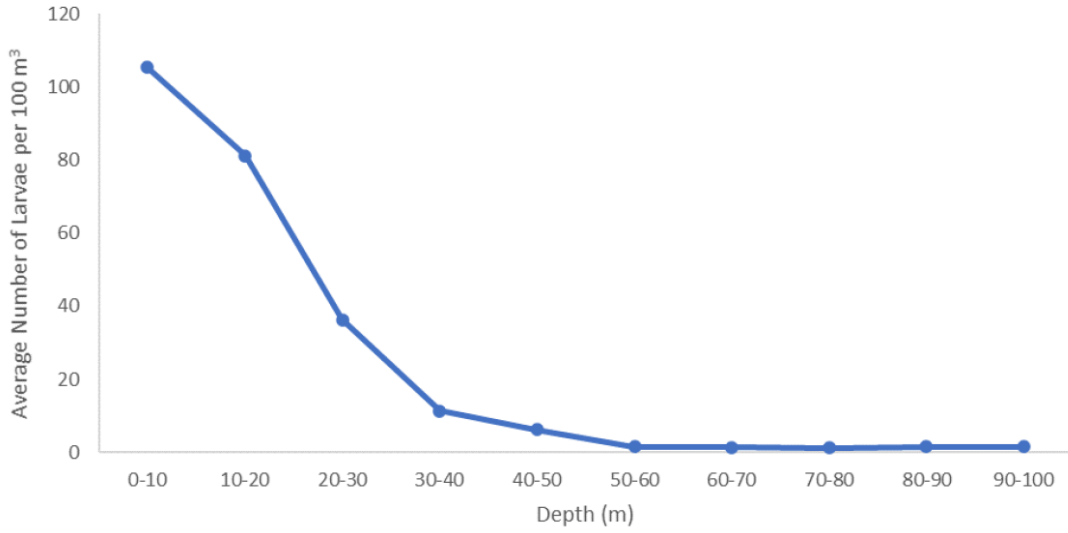
Risk/Impact	Data/Modeling Inputs	Avoidance/Minimization/Mitigation Options	Anticipated Monitoring Requirements for Compliance with NPDES Permit
Hydraulic Zone of Influence (HZI)	Calculation of HZI radius surrounding the intake caisson/pipe	• Intake sited in a manner that avoids or minimizes the extent of the HZI, particularly within complex habitats, spawning locations, or other features.	• None
Impingement	Calculation of anticipated intake velocity	• If applicable, the facility must maintain a maximum intake velocity of 0.5 ft/s to comply with impingement mortality standards	• Calculation/verification of actual intake velocity during operations
Entrainment	Calculation of entrainment densities based on MARMAP/EcoMon data	• Depth of withdrawal from the lower portion of the water column, where larval densities are lowest • Flow reductions, where feasible • Consideration, and evaluation, of emerging technologies, such as closed-cycle cooling (e.g., air cooling, closed-loop subsea cooler, etc.)	• Seasonal ichthyoplankton sampling during operations • Data will be used to calculate site-specific entrainment densities during project operations.
Chlorination	Electrochlorination system parameters	• Maintain concentrations of Total Residual Oxidants (TRO) within compliance levels	• Direct-measure of residual chlorine (as TRO) with either inline meter, or laboratory analysis of grab-sample.
Thermal Discharge	CORMIX modeling to predict the size/extent of thermal plume	• Ensure that the thermal plume will dissipate within a mixing zone (radius of 330 ft [100 m]) such that the average monthly water temperature at the edge of that mixing zone is within 1.8°F (1.0 °C) of the ambient ocean temperature	• Conduct seasonal thermal and water quality monitoring during project operations to verify the assumptions of the thermal model and document the extent of the thermal plume.

Alternatives & Best Technology Available Examples – Depth of Withdrawal

Technology, Operation, or Design Feature	Typically Implemented?	Potential for Fish Protection?	Feasibility for Implementation
Depth of withdrawal (intake caisson depth)	Sometimes part of the design	Yes, for some species/ lifestages	POTENTIALLY FEASIBLE – Configuration of the intake and discharge locations in the water column can be effective at mitigating adverse environmental impacts for both water withdrawal and discharge.

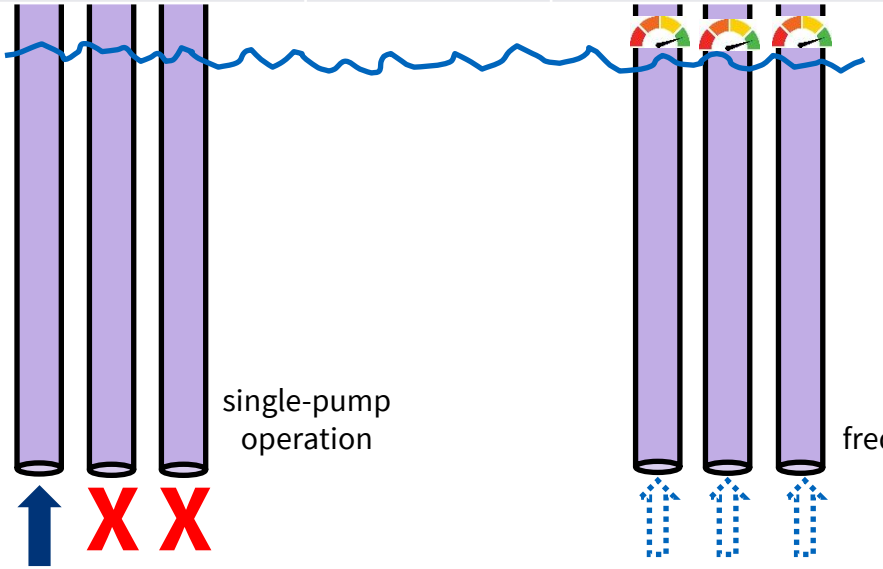


Source: EPA



Alternatives & Best Technology Available Examples – Flow Reductions

Technology, Operation, or Design Feature	Typically Implemented?	Potential for Fish Protection?	Feasibility for Implementation
Single pump operation	Sometimes part of the design	Yes – flow reduction → proportional entrainment reduction	POTENTIALLY FEASIBLE – if design flow is based on two-pump (or more) operation, then a flow reduction may be achieved during times when the facility can safely operate using only one pump, with proportional entrainment reductions expected.
Seawater lift pumps with variable frequency drives (VFDs)	Sometimes part of the design	Yes – flow reduction → proportional entrainment reduction	POTENTIALLY FEASIBLE – VFDs can be used to optimize minimum flows needed to meet cooling needs, and resulting proportional entrainment reductions, compared to design flow. However, this is not part of the design for all facilities, and therefore needs to be incorporated early in the design stage of the project. Included in the Sunrise Wind Final NPDES Permit.



Alternatives & Best Technology Available Examples – Closed Cycle Cooling

Technology, Operation, or Design Feature	Typically Implemented?	Potential for Fish Protection?	Feasibility for Implementation
Closed cycle re-circulating cooling (closed-loop) – cooling towers	Not part of the design	Yes – flow reduction → proportional entrainment reduction	NOT FEASIBLE – Cooling towers for use in unmanned offshore applications are not commercially viable, and based on current evaluations, would not be commercially feasible for an unmanned offshore wind converter station, based on existing supplier and engineering capabilities for HVDC converter stations of this type (Middleton and Barnhart 2022).
Closed cycle re-circulating cooling (closed-loop) – Subsea coolers	Not part of the design - emerging technology	Yes – flow reduction → proportional entrainment reduction	POTENTIALLY FEASIBLE – Subsea heat exchangers are not an available technology for unmanned offshore facilities, based on existing supplier and engineering capabilities for HVDC converter stations of this type. As discussed in the New York Bight Draft PEIS, subsea coolers are an emerging technology only for offshore converter station applications (Middleton and Barnhart 2022; BOEM 2024).
Closed cycle re-circulating cooling (closed-loop) – air cooling	Not part of the design - emerging technology	Yes – flow reduction → proportional entrainment reduction	POTENTIALLY FEASIBLE – Air cooling with fan arrays may be theoretically implemented on an unmanned offshore converter station but would require substantial additional design/engineering beyond current standards to become feasible (DNV 2021; Middleton and Barnhart 2022). As discussed in the New York Bight Draft PEIS, air cooling is an emerging technology only for offshore converter station applications (BOEM 2024).

Mechanical-Draft Cooling Tower. Source: Tetra Tech

Subsea Cooler. Source: Bronswerk

Air Cooling Fan-Array. Source: EvapCo

Depending on site-specific characterization and design specifications, closed-cycle cooling has the potential to substantially reduce (or eliminate) cooling water needs, compared to conventional once-through cooling systems. However, some are not feasible for offshore applications, or still emerging technologies in-development

Next Steps

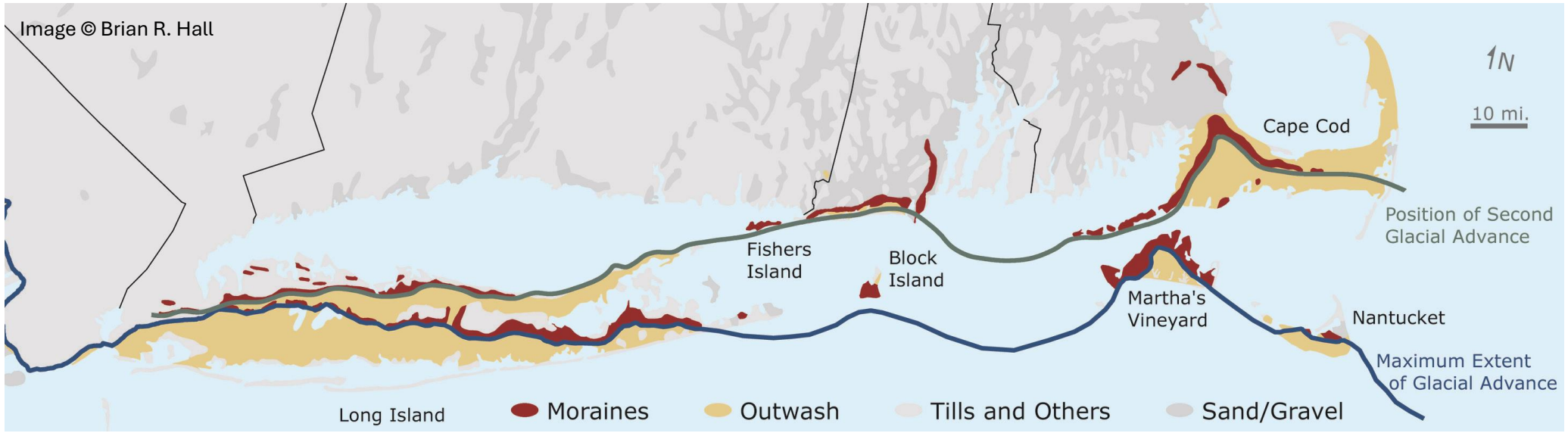
- Draft Report (now through fall 2024) – currently under NYSERDA review
- F-TWG review/feedback (fall 2024) – pending
- Final Report (winter 2025) – pending

Questions?

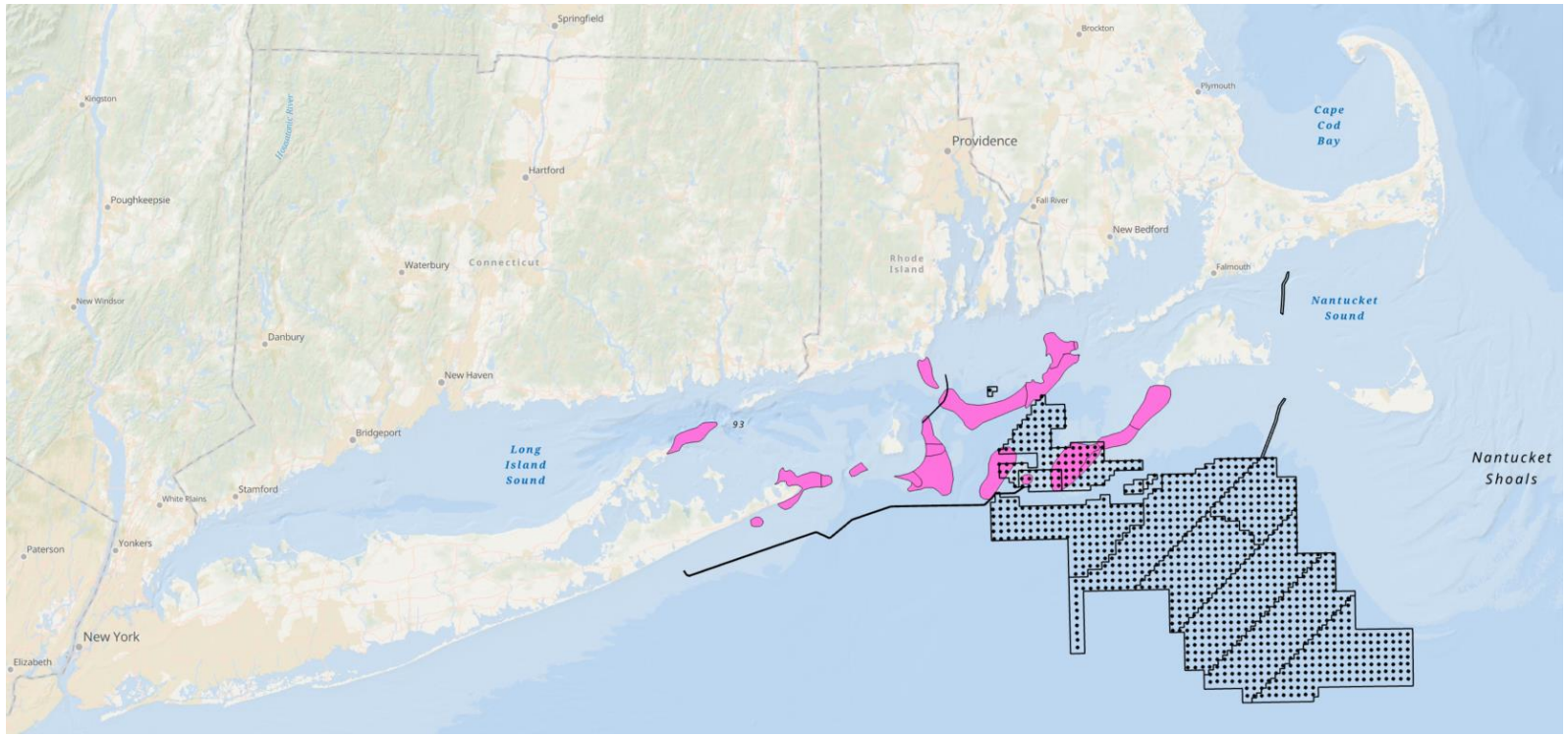
Boulder Relocation: Developing Management

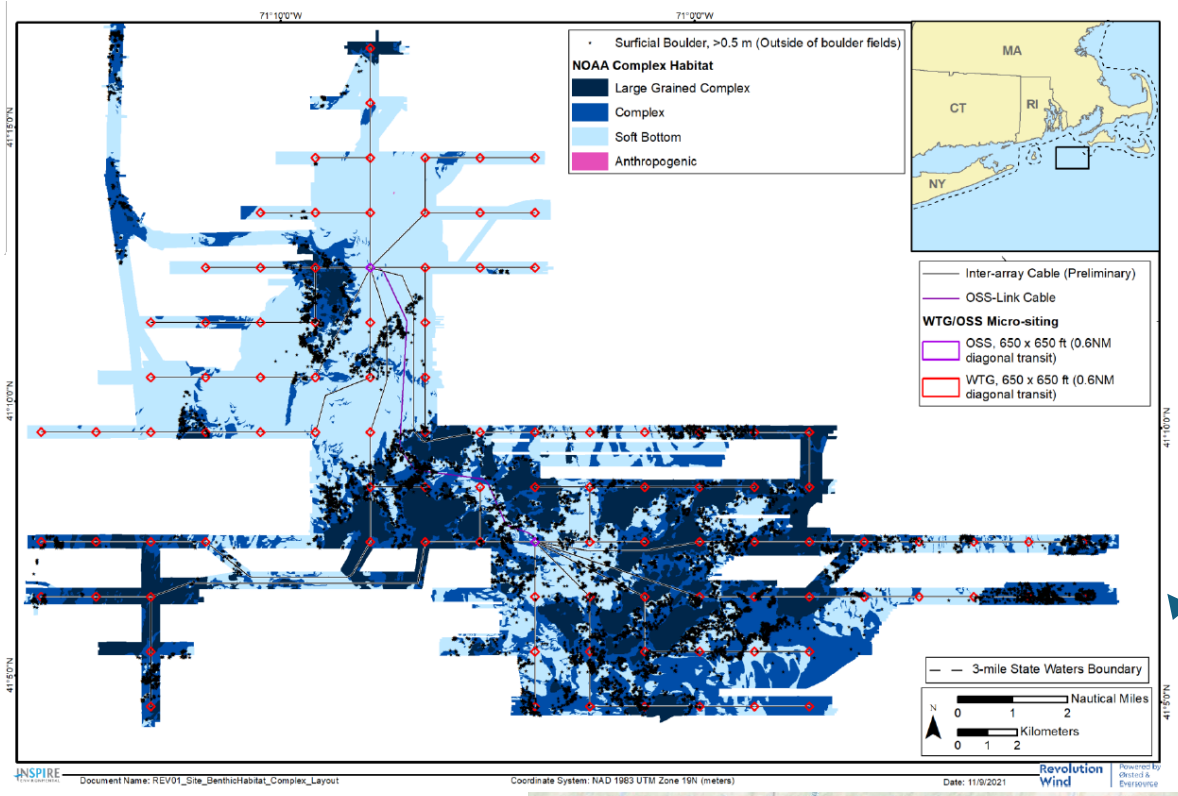
Hollie Emery

Massachusetts Office of Coastal Zone Management

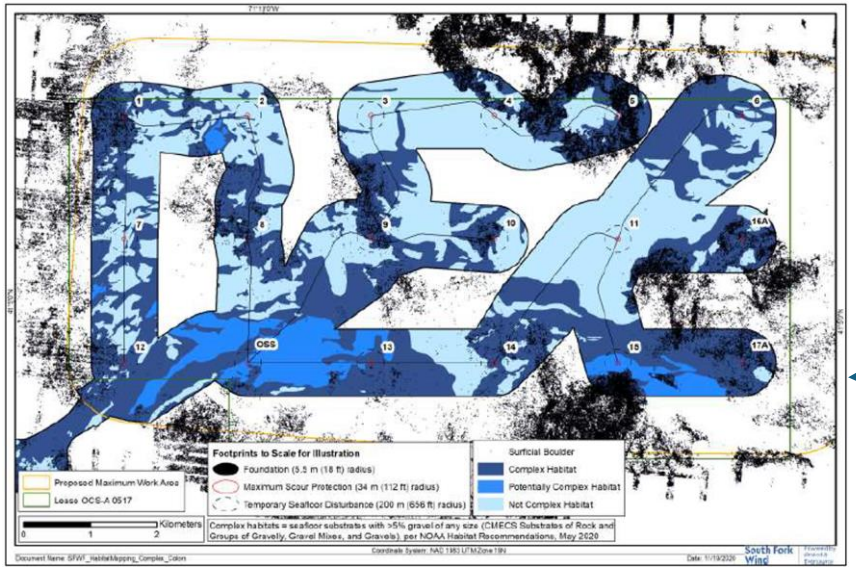


Geological Context

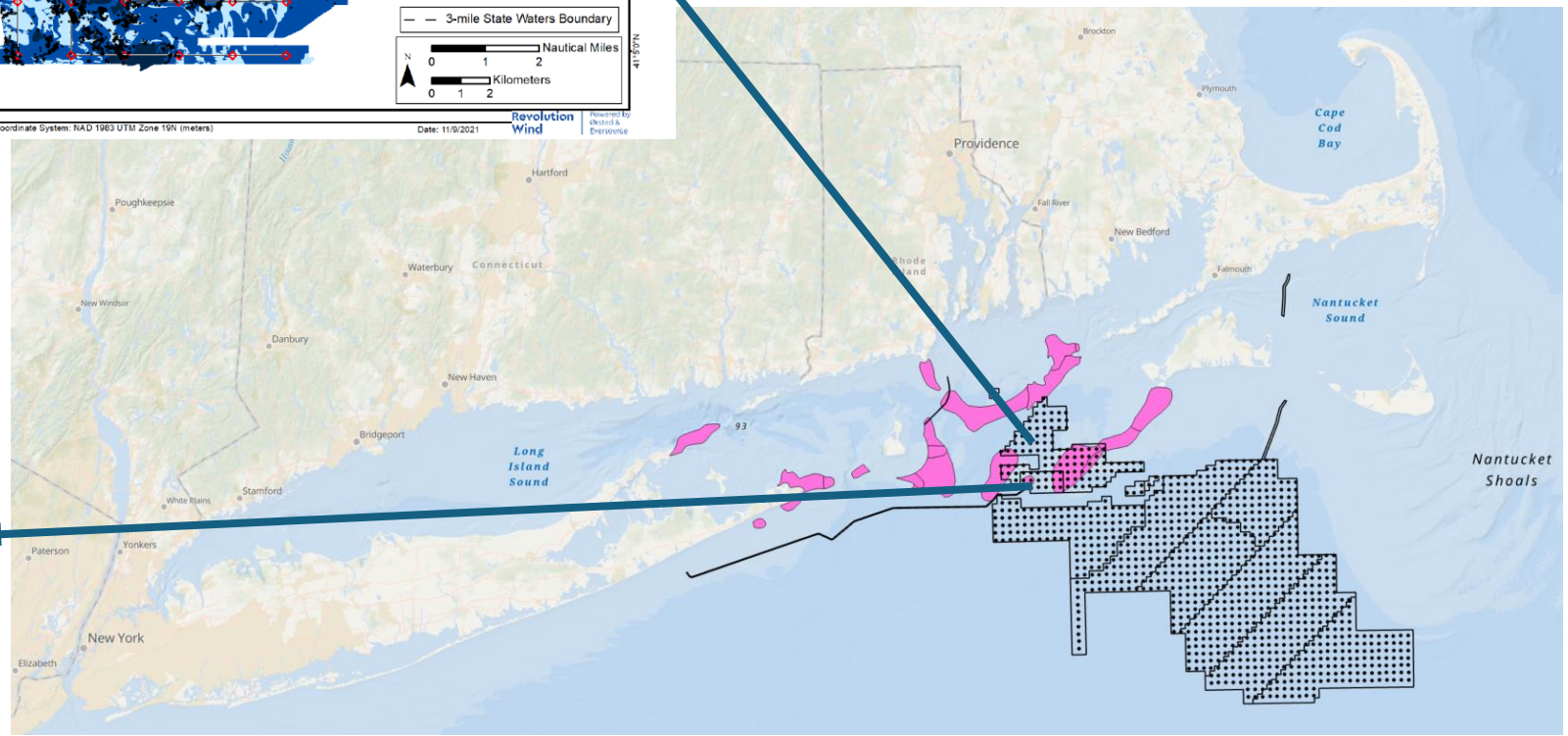




Revolution Wind DEIS
Figure 3.6-2



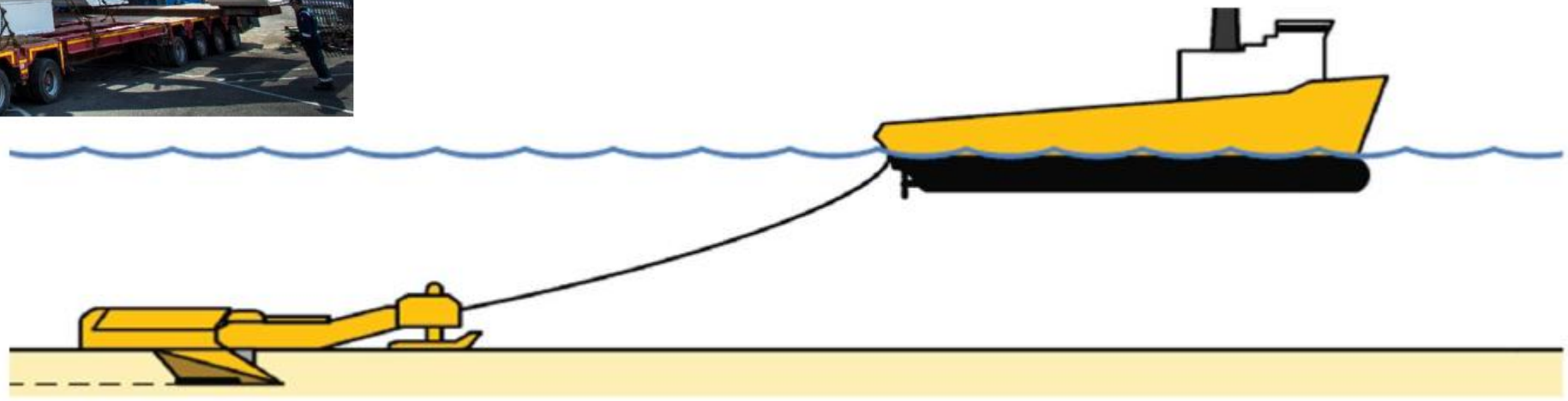
South Fork Wind DEIS Figure 3.4.2-1



Boulder relocation

Grab lift

Boulder plow

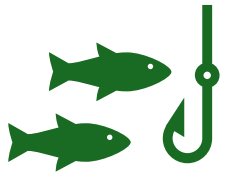


Figures from SouthCoast Wind COP and Sunrise Wind COP

Concerns raised by MA Fisheries Working Group

Safety

Creating new hangs



Fishing industry impacts

Gear damage

Loss of access

Habitat and stock impacts

Direct physical damage

Habitat conversion

Ecological changes

CZM developed a guidance document in response

Key Questions

For fishermen:

- What size boulder is a problem for what gear in what situations?
- How can impacts be minimized/mitigated?

For Offshore Wind developers:

- How/when/where are boulder moved?
- What options exist for beneficial reuse?

For fisheries managers and scientists:

- What studies have been done to understand impacts?

For regulators:

- What regulatory tools exist to address the above and are they working?

Potential boulder relocation impacts

Safety:

- New hangs pose a hazard to mobile gear

Other impacts to fisheries:

- Revenue loss due to reduction in fishable area
- Increased costs (e.g., gear damage or loss)
- Changes in stock levels due to displaced fishing
- Changes in stock levels due to habitat impacts

Potential boulder relocation impacts

Impacts to habitat and species (not limited to fisheries):

- Direct harm (e.g., crushing)
- Habitat conversion (sandy ←→ complex)
- Changes in predator/prey due to creation/loss of structure
- Invasive species spread (direct or indirect)
- Changes in habitat impacts from fisheries (e.g., if fishing is displaced)
- General impacts from seabed disturbance (not unique to boulders):
  - Sediment resuspension
  - Construction noise
  - Vessel strikes

Potential boulder relocation impacts

Location of impacts:

- Clearance area around foundations/scour protection (lease)
- Receiving areas distant from foundations (lease)
- Cleared/plowed cable corridors (easement)

Related impact producing factors:

- Scour protection
- Cable protection (e.g., concrete mattresses)
- Seabed disturbance (anchoring, jack-up, etc.)

Potential AMM

Avoid boulder relocation:

- Route cables away from boulder fields (sufficient surveys in the planning phase)
- Microsite cables around boulders

Minimize impacts when relocation is unavoidable:

- Minimize distance moved (habitat)
- Place boulders in groups or in existing boulder fields (safety and access)
- Individual relocation with grab vs plowing

Mitigate impacts when relocation is unavoidable:

- Beneficial reuse (scour protection, artificial reefs, etc.)
- Communication of final locations
- Consider boulder impacts when negotiating financial compensation agreements
- Note: Restoration not typically an option

Monitoring

- Before, during and after
- The right sampling modalities (photo/video/grab/DNA)
- Able to detect the key questions (e.g., presence of commercially important species, invasive species, etc.)
- MA CZM has guidance on best practices for monitoring, research, and mitigation: https://www.mass.gov/info-details/czm-offshore-wind-publications

Regulatory framework

Safety | Habitat

- BOEM COP approval Terms and Conditions
- NMFS Essential Fish Habitat consultation
- USACE
- State (e.g., MassDEP)

COP Terms & Conditions for Boulders and Berms

Avoid the relocation

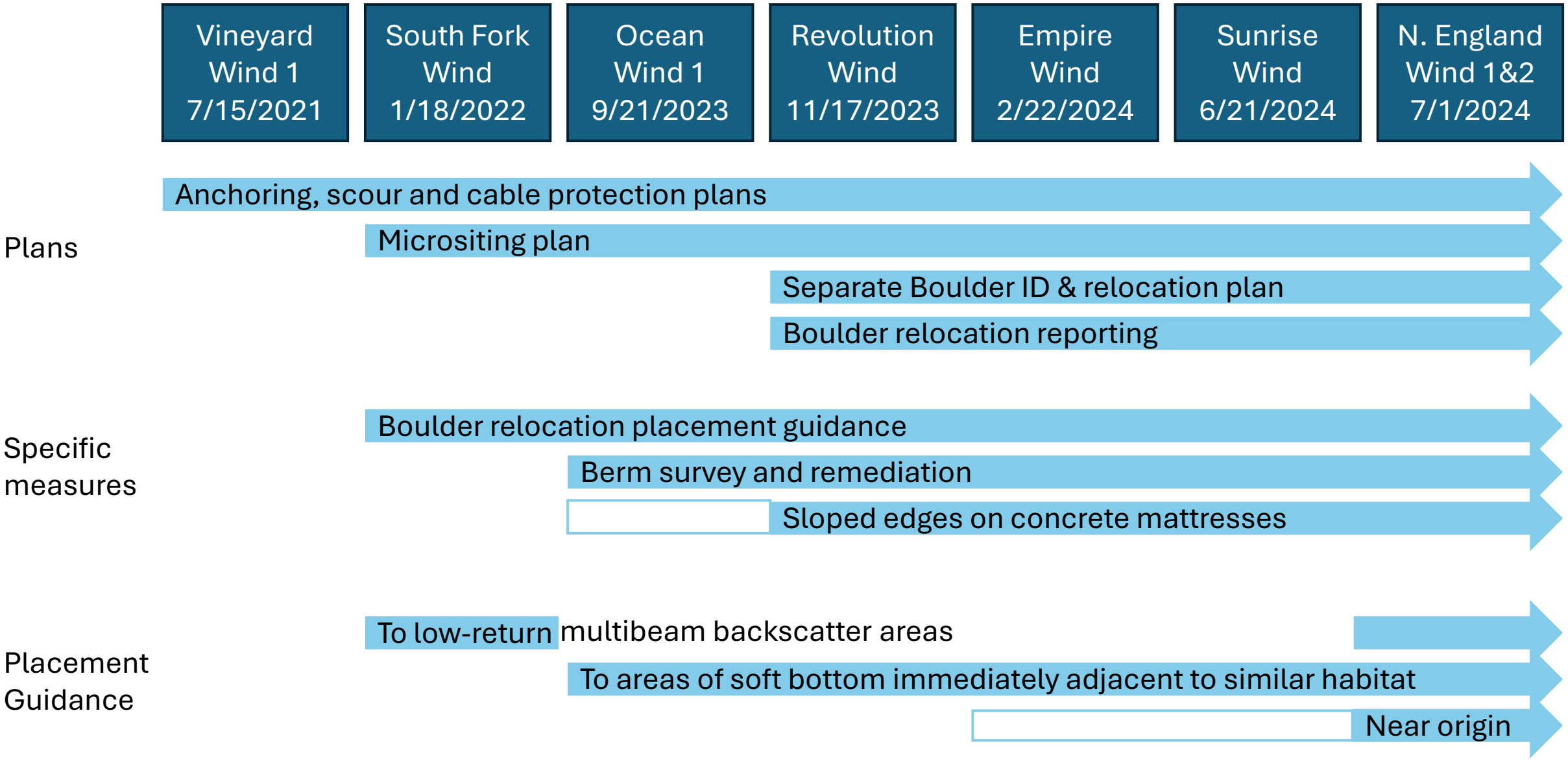
- Anchors, jack-ups, etc (must map boulders and try to avoid them)
- Cables, monopiles, etc (must try to microsite around boulders)

Minimize the impact if there is relocation

- Boulders required to stay inside lease/cable corridor
- Distance limits or “as close as practicable”
- Guidance on bottom type receiving the boulder
  - “in areas of soft bottom immediately adjacent to similar habitat”

Mitigate the impact that remains

- Berms remediated if they do not resolve
- Communicate new locations to agencies


Vineyard Wind 1 7/15/2021
South Fork Wind 1/18/2022
Ocean Wind 1 9/21/2023
Revolution Wind 11/17/2023
Empire Wind 2/22/2024
Sunrise Wind 6/21/2024
N. England Wind 1&2 7/1/2024
Plans
Anchoring, scour and cable protection plans
Micrositing plan
Separate Boulder ID & relocation plan
Boulder relocation reporting
Specific measures
Boulder relocation placement guidance
Berm survey and remediation
Sloped edges on concrete mattresses
Placement Guidance
To low-return multibeam backscatter areas
To areas of soft bottom immediately adjacent to similar habitat
Near origin

Boulder Reporting Requirements

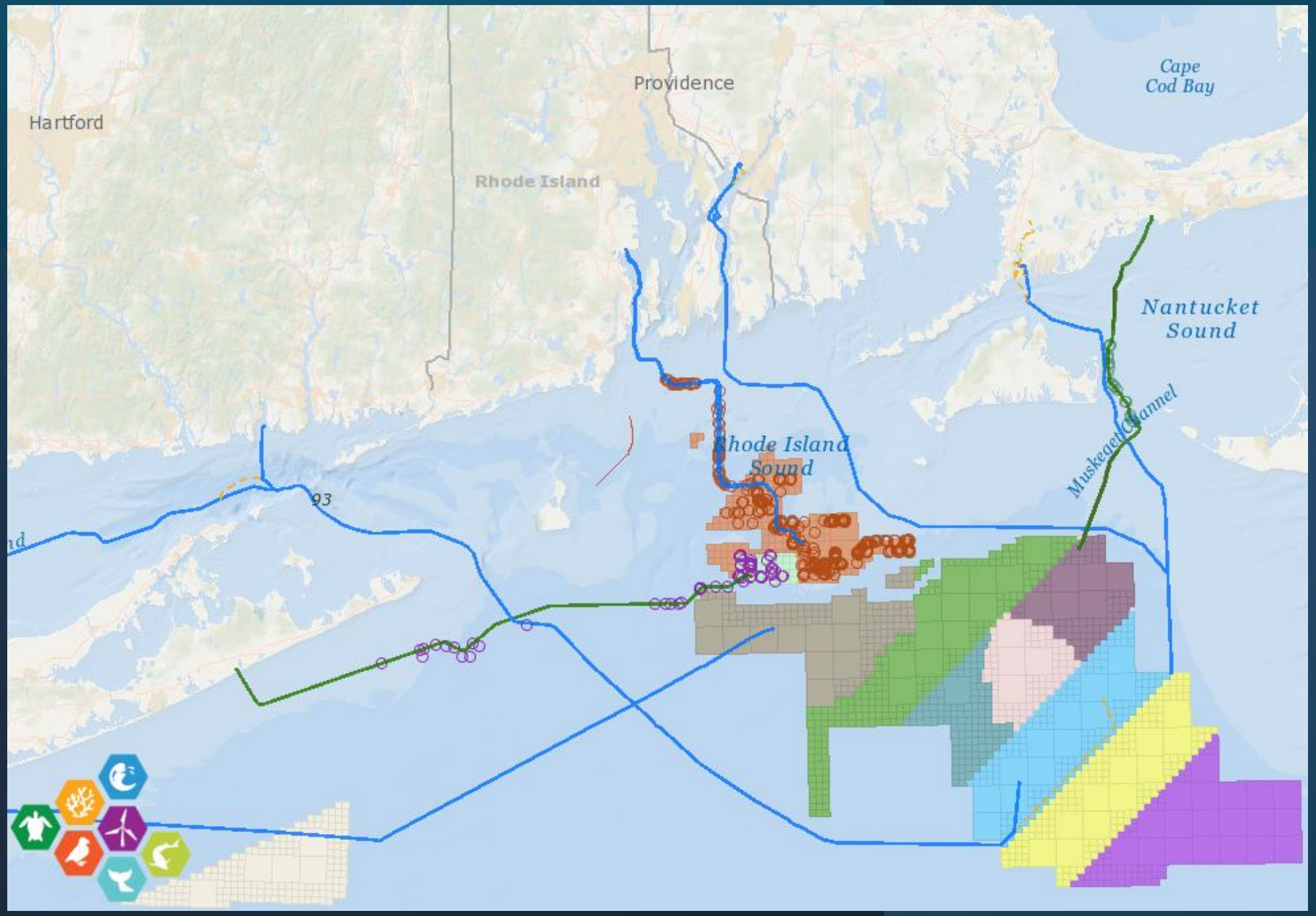
Boulder relocation report must be made to BOEM and BSEE at conclusion of boulder relocation: includes coordinates and dimensions of boulders as a shapefile

Coordinates (not dimensions) of largest boulders (> 2m) are to be reported to other federal and state agencies (and usually to the public) within 30 days of moving them

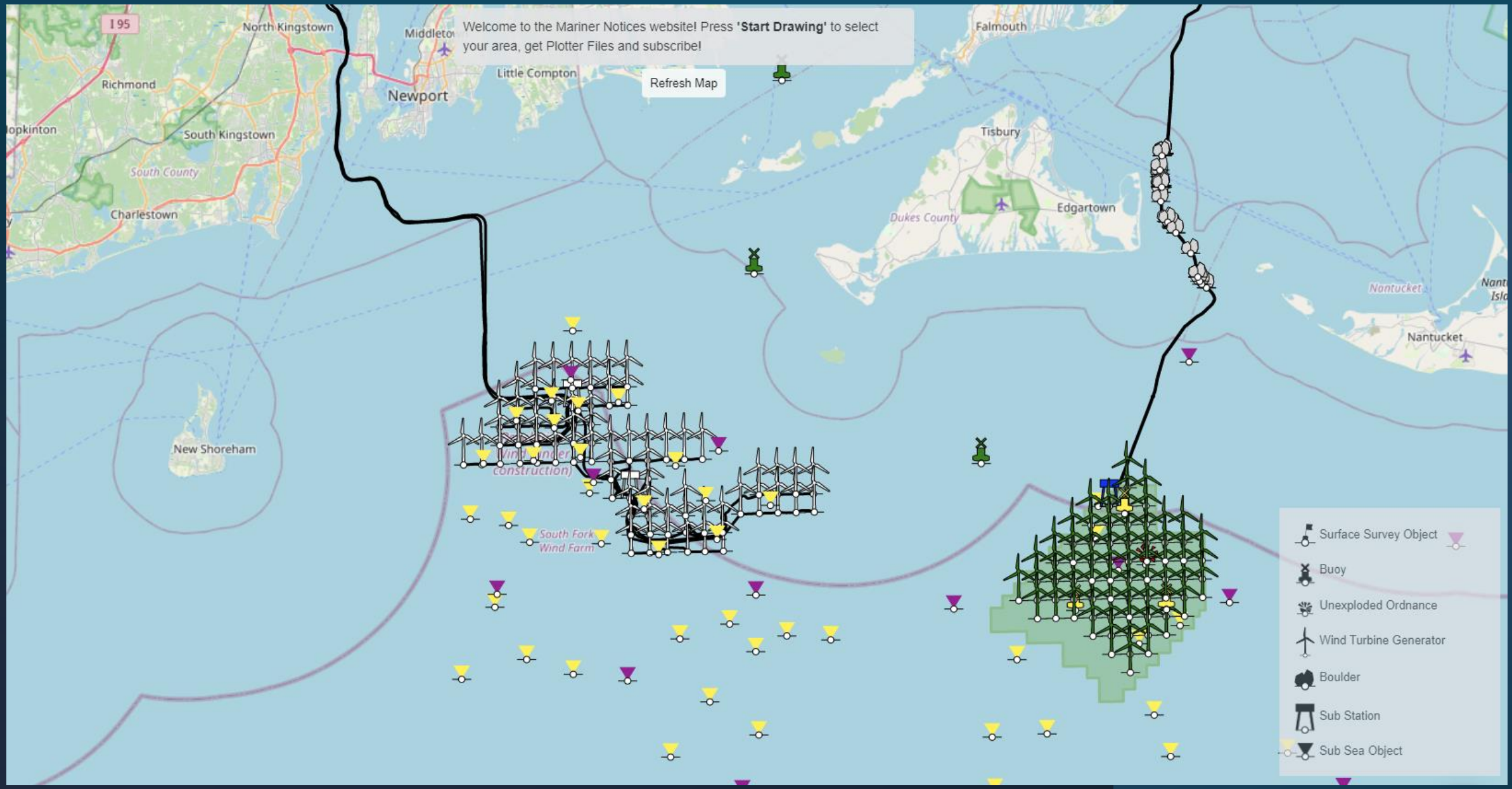
Boulder coordinates from Notices to Mariners

GIS layer available:

- RWSC Research Planning Map
- Northeast Ocean Data Portal



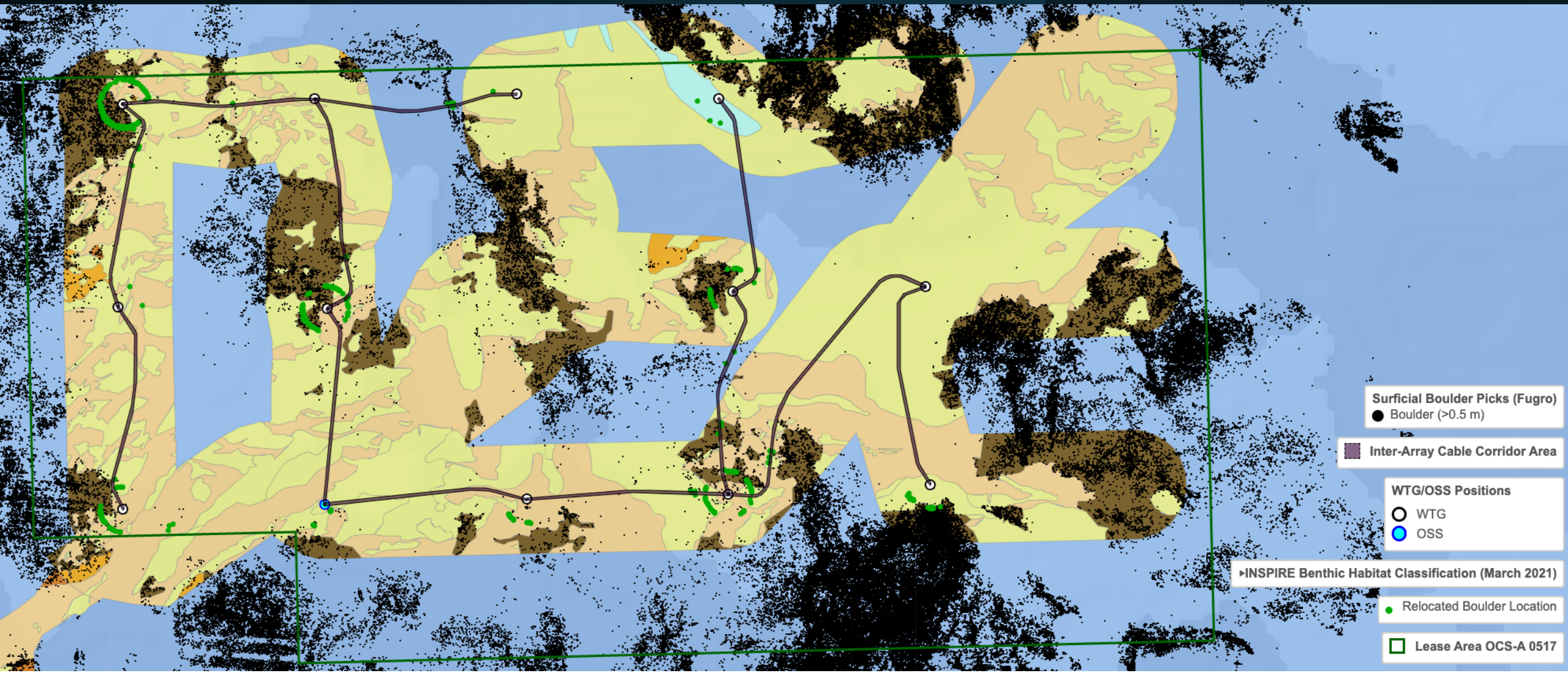
Quintham – provides plotter files



Boulder relocation

Image courtesy Annie Murphy

Black: original boulders
Green: relocated boulders



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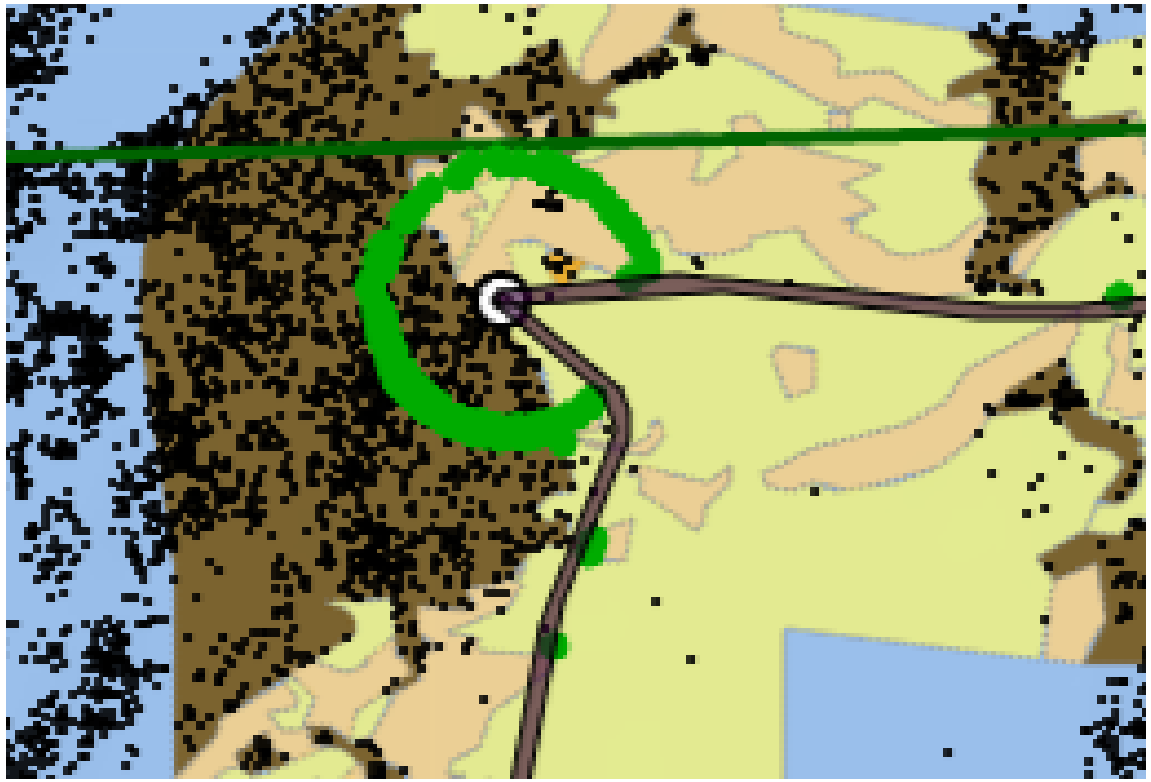
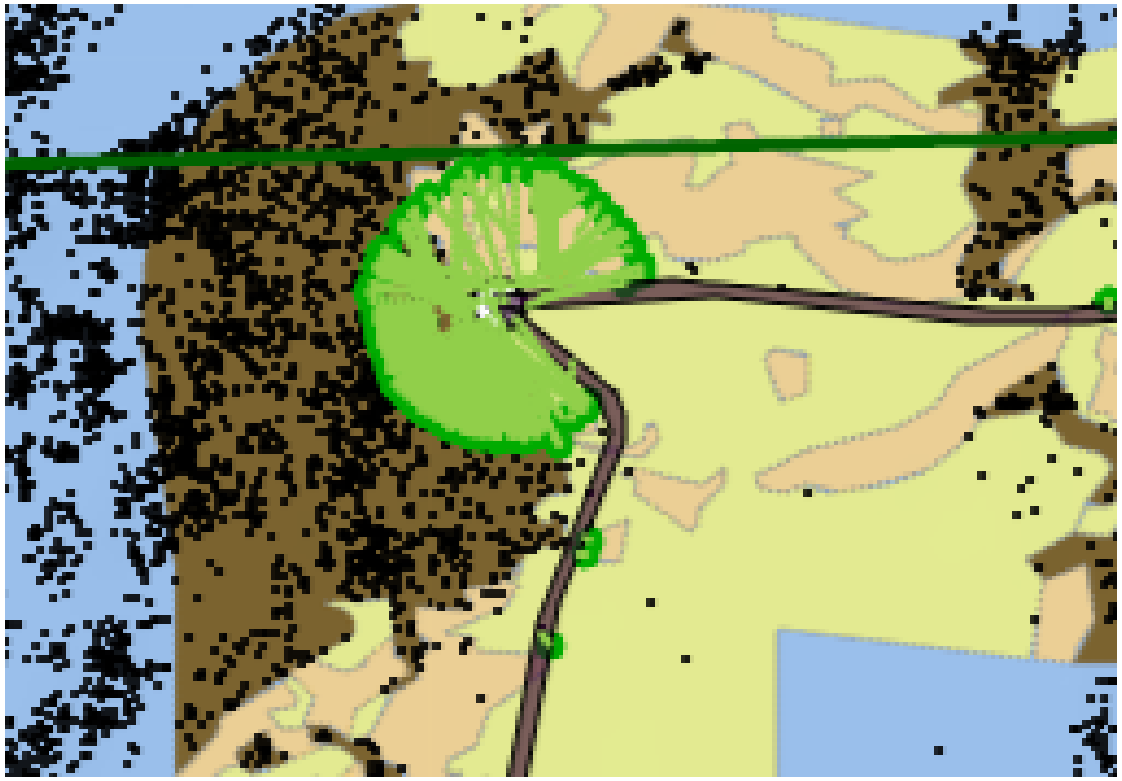




Future Directions

Actual impacts to habitat from boulder relocation are uncertain

- Studies are underway

Actual impacts to fishing from offshore wind are uncertain

- Study is needed

Can communication of boulder locations be improved? How?

Options for beneficial reuse should be explored

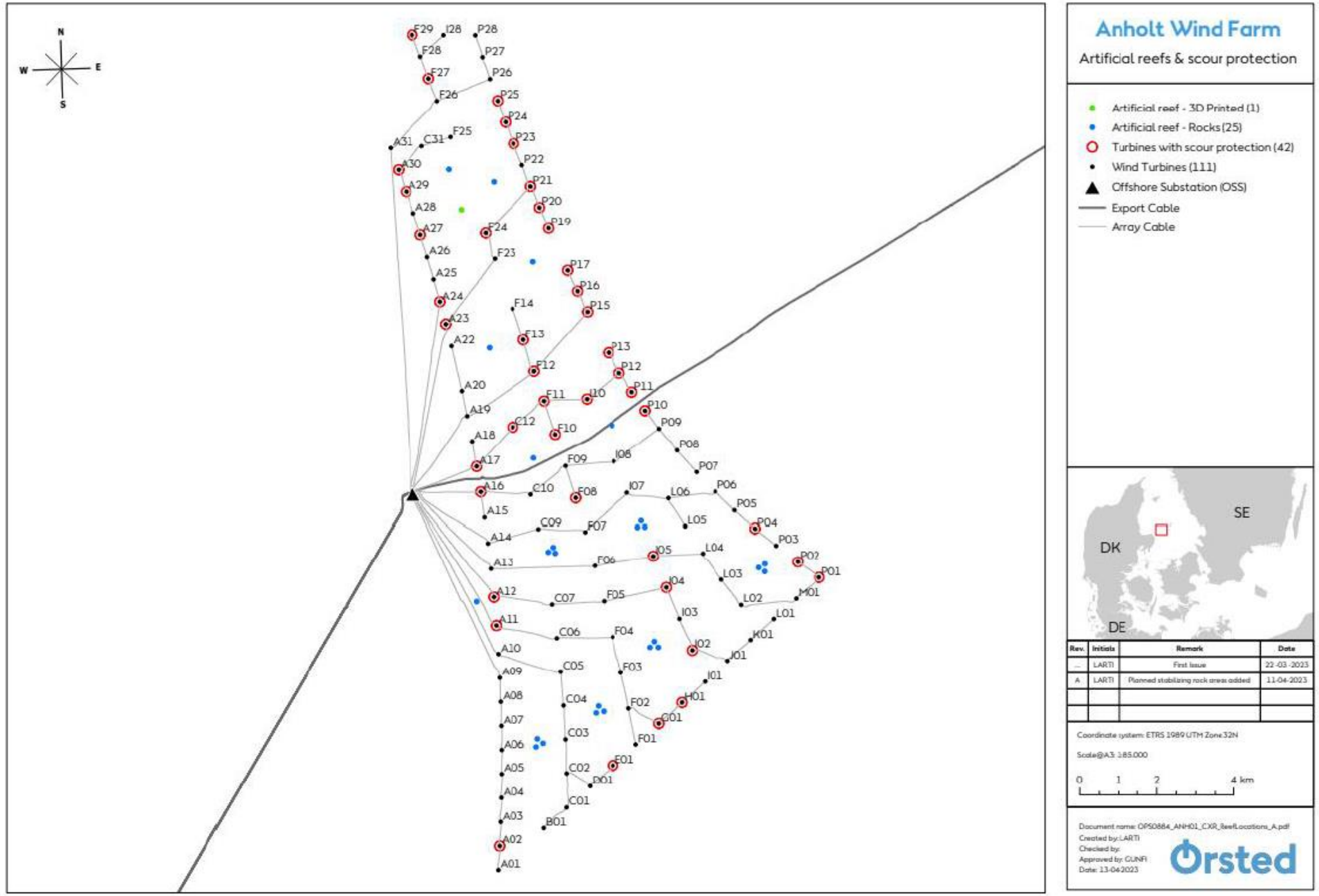


Figure 2: Location of boulder reefs in Anholt Offshore Windfarm

Thanks!

https://www.mass.gov/info-details/czms-role-in-offshore-wind

hollie.e.emery@mass.gov

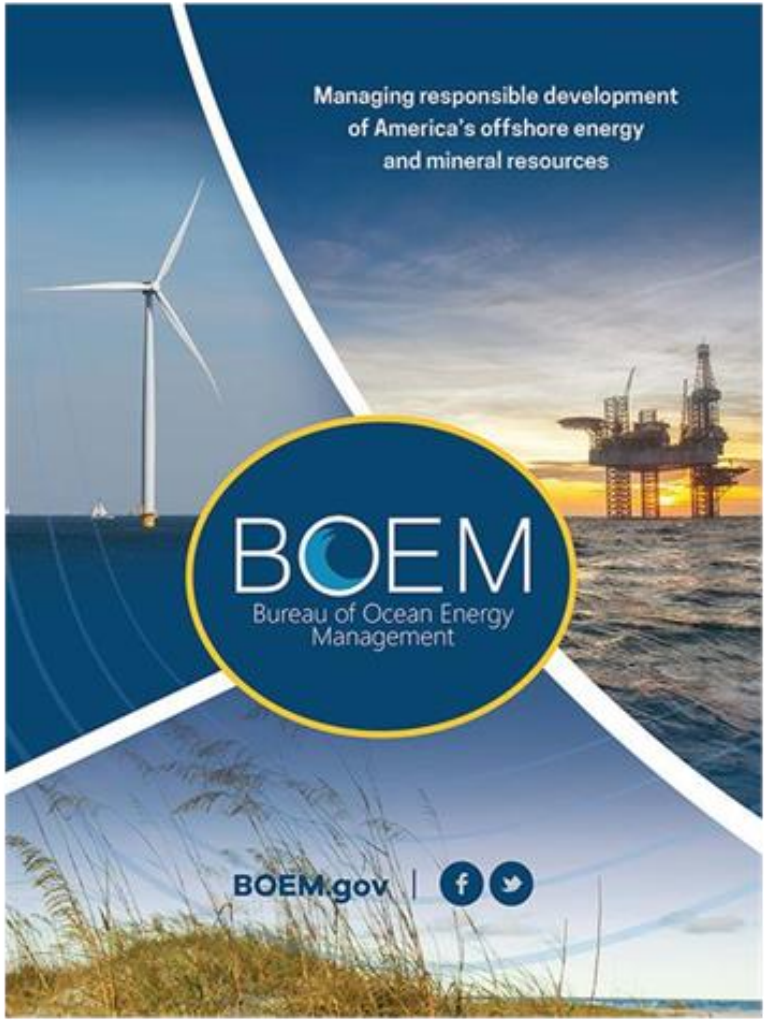
BOEM BUREAU OF OCEAN ENERGY MANAGEMENT

BOEM Activity Update to the NYSERDA Fisheries Technical Working Group

October 15, 2024

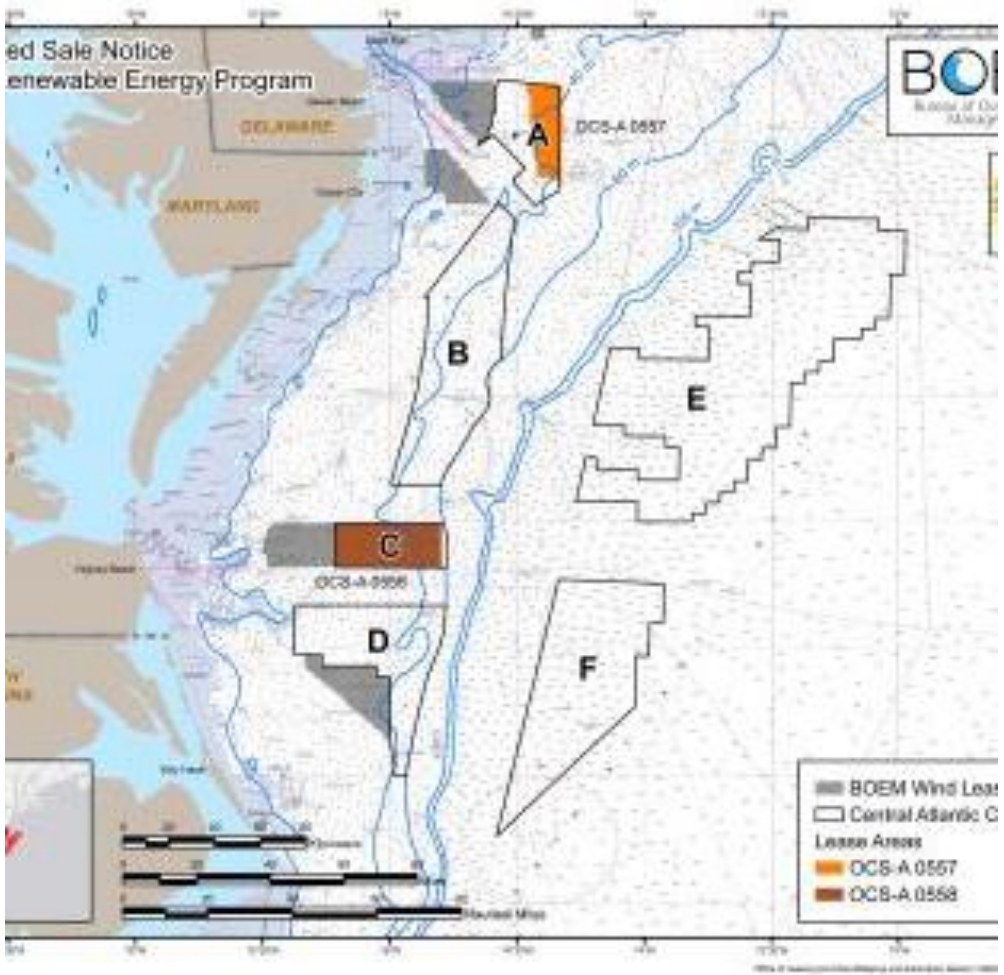
Topics to be Covered

- Central Atlantic: Lease Auctions and Call for Information & Nominations
- Specific Project Updates
  - Empire Wind
  - Maryland Wind Project
  - Atlantic Shores P1&2
- BOEM Studies
- Questions and Requests



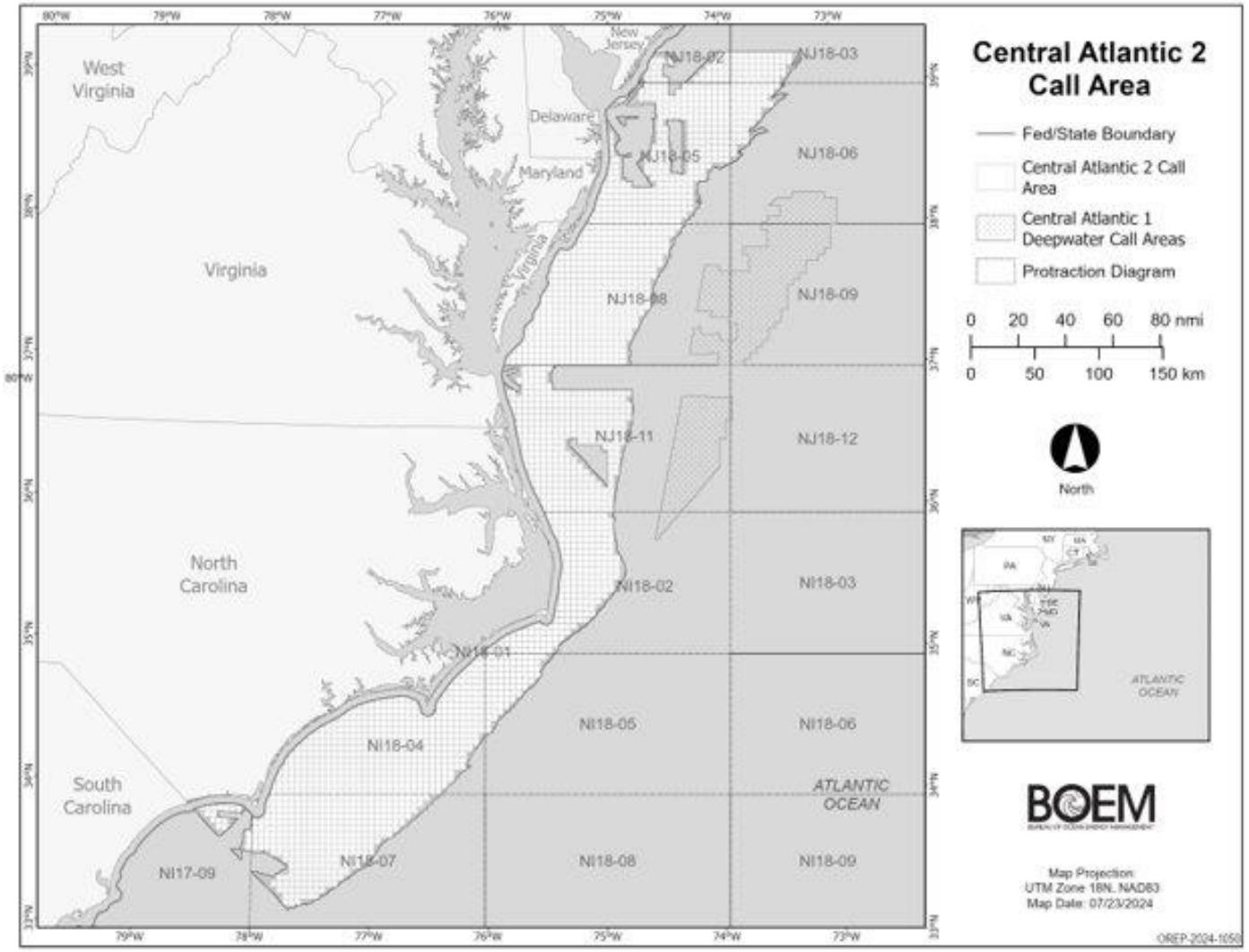
Central Atlantic 1: Recent Lease Auction

- Auction: August 14, 2024
  - Six companies participated; 7 rounds
- OCS-A 0557 (Equinor Wind)
  - 26 nmi from Delaware Bay
  - 101,443 acres
  - ~$75 million
- OCS-A 0558 (Virginia Electric and Power Co)
  - 35 nmi from Chesapeake Bay
  - 176,505 acres
  - ~$17.6 million

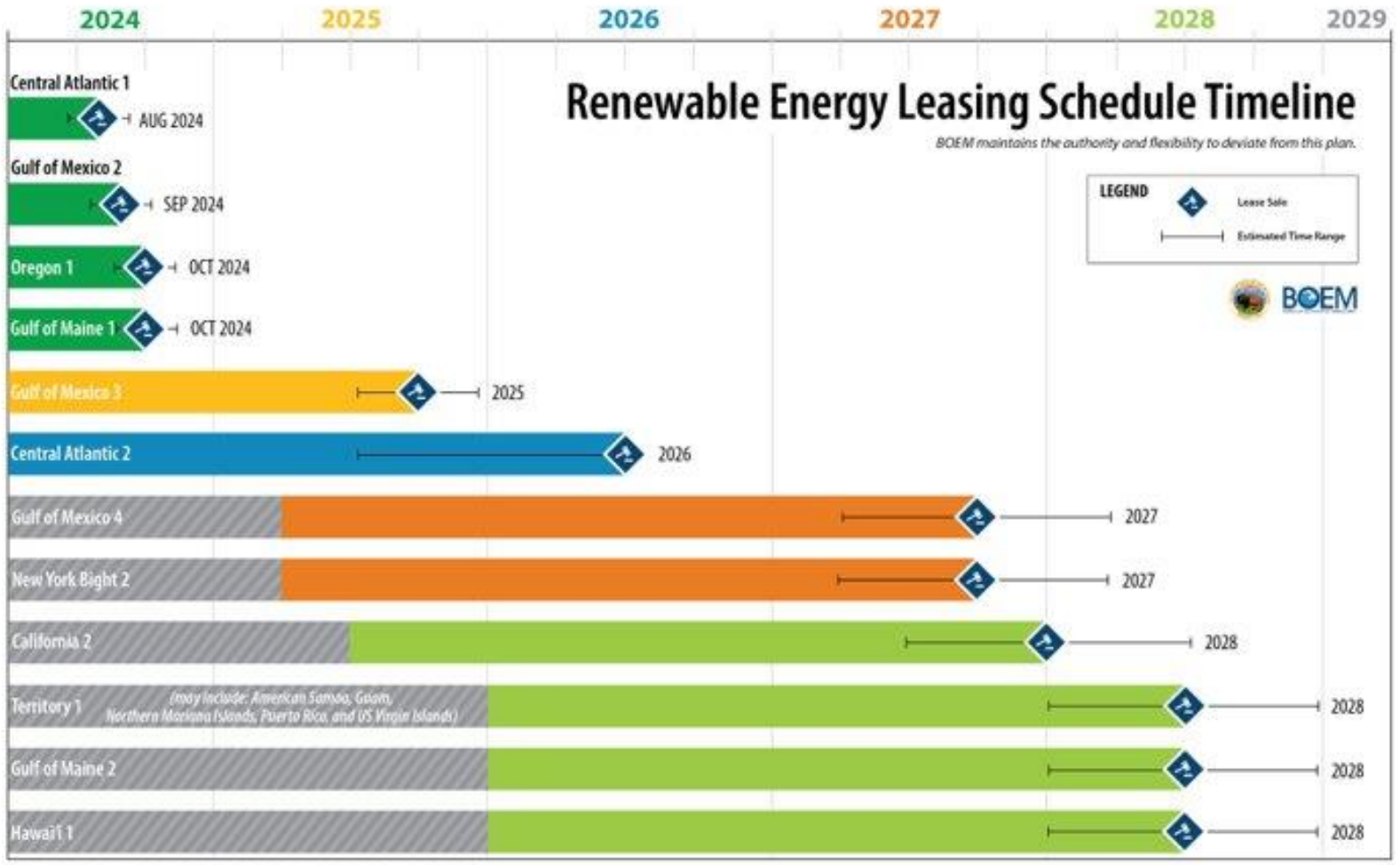


Central Atlantic 2 Call for Information & Nominations

- Overview
  - Leasing Schedule
  - Drivers
- Recent Activities
  - Outreach Events
- Next Steps
  - Leasing Milestones



BOEM Five-Year Offshore Wind Leasing Schedule



Central Atlantic 2 Drivers (State OSW Goals)

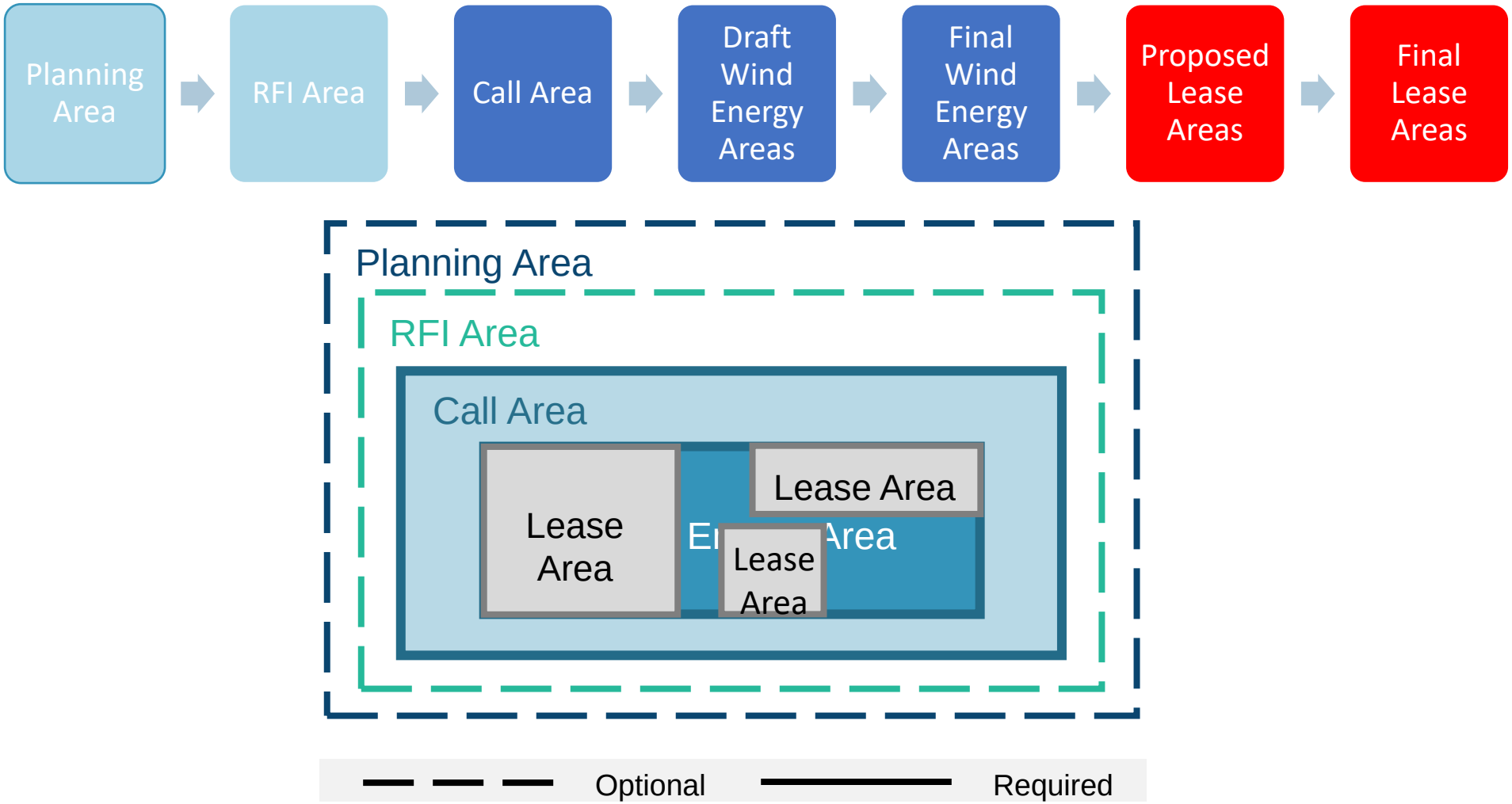
State	Overall Goal	Remaining Goal	Required Acreage*
North Carolina	8 GW by 2040	3 GW	185,000 ac
Virginia	5.2 GW by 2034	0 GW	0 acres
Maryland	8.5 GW by 2031	1.5 – 4GW	95,000 – 250,000 ac
Delaware		1.2 GW	75,000 ac
Total		5.7 – 8.2 GW	355,000 – 510,000 ac

Additional expressed interest:

- State of Maryland interested in areas further north of Central Atlantic 1 Call Area and the deepwater portions of the Central Atlantic 1 Call Area
- State of North Carolina interested in areas further south of Cape Hatteras

*Acreage estimates are based upon power density estimates of 4.0 megawatts (MW) per square kilometer, as described in the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy's Offshore Wind Market Report: 2023 Edition, available at: https://www.energy.gov/sites/default/files/2023-09/doe-offshore-wind-market-report-2023-edition.pdf.

BOEM Renewable Energy Planning Process: *Lease Areas*



Identifying Draft Wind Energy Areas

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

- BOEM has partnered with NOAA NCCOS to utilize best available science and data through spatial modeling to inform WEA identification.
- Public input will inform spatial modeling and decisions on draft WEAs.
- BOEM is committed to ensuring draft WEAs will be made available for public review.

NCCOS | NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

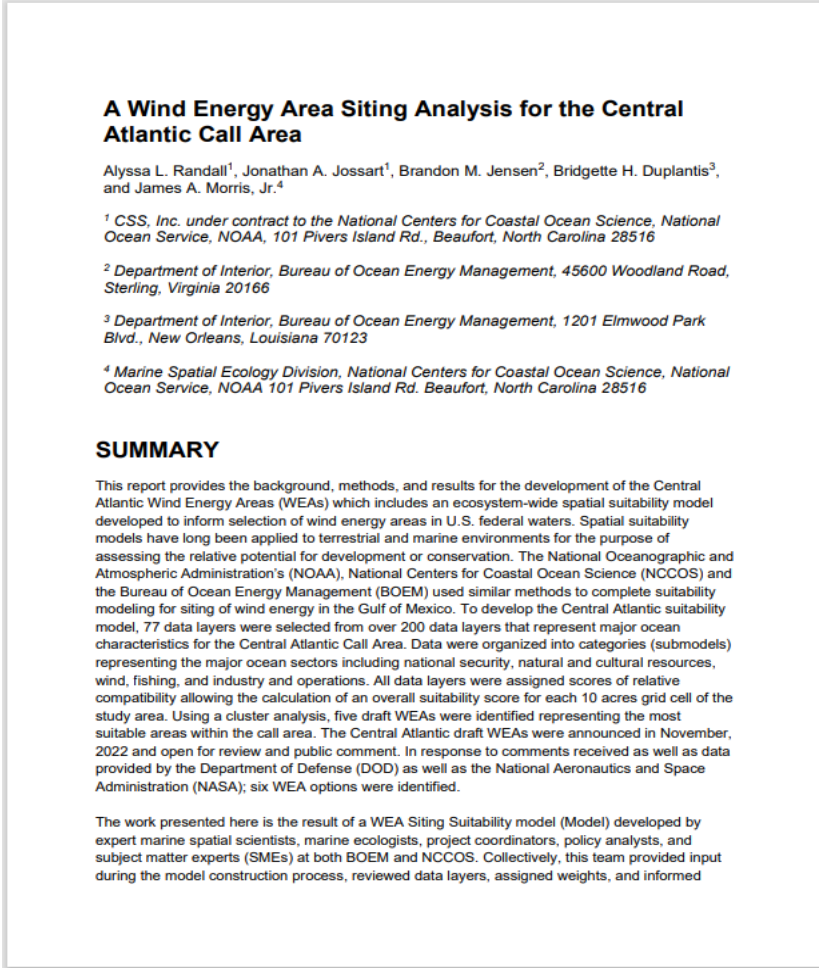
BOEM Bureau of Ocean Energy Management

MARCO Mid-Atlantic Ocean Data Portal

What's in the Call?:

Overview of Feedback from Central Atlantic 1

- Review of input from Central Atlantic 1:
  - Recreational and Commercial Fisheries
  - Marine Habitats
  - Protected Species
  - Industry and Navigation
- The currently open comment period provides an opportunity for new feedback and/or updates, revision, or expansion of past feedback



A Wind Energy Area Siting Analysis for the Central Atlantic Call Area

Alyssa L. Randall[1], Jonathan A. Jossart[1], Brandon M. Jensen[2], Bridgette H. Duplantis[3], and James A. Morris, Jr.[4]

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[2] Department of Interior, Bureau of Ocean Energy Management, 45600 Woodland Road, Sterling, Virginia 20166

[3] Department of Interior, Bureau of Ocean Energy Management, 1201 Elmwood Park Blvd., New Orleans, Louisiana 70123

[4] Marine Spatial Ecology Division, National Centers for Coastal Ocean Science, National Ocean Service, NOAA 101 Pivers Island Rd. Beaufort, North Carolina 28516

SUMMARY

This report provides the background, methods, and results for the development of the Central Atlantic Wind Energy Areas (WEAs) which includes an ecosystem-wide spatial suitability model developed to inform selection of wind energy areas in U.S. federal waters. Spatial suitability models have long been applied to terrestrial and marine environments for the purpose of assessing the relative potential for development or conservation. The National Oceanographic and Atmospheric Administration's (NOAA), National Centers for Coastal Ocean Science (NCCOS) and the Bureau of Ocean Energy Management (BOEM) used similar methods to complete suitability modeling for siting of wind energy in the Gulf of Mexico. To develop the Central Atlantic suitability model, 77 data layers were selected from over 200 data layers that represent major ocean characteristics for the Central Atlantic Call Area. Data were organized into categories (submodels) representing the major ocean sectors including national security, natural and cultural resources, wind, fishing, and industry and operations. All data layers were assigned scores of relative compatibility allowing the calculation of an overall suitability score for each 10 acres grid cell of the study area. Using a cluster analysis, five draft WEAs were identified representing the most suitable areas within the call area. The Central Atlantic draft WEAs were announced in November, 2022 and open for review and public comment. In response to comments received as well as data provided by the Department of Defense (DOD) as well as the National Aeronautics and Space Administration (NASA); six WEA options were identified.

The work presented here is the result of a WEA Siting Suitability model (Model) developed by expert marine spatial scientists, marine ecologists, project coordinators, policy analysts, and subject matter experts (SMEs) at both BOEM and NCCOS. Collectively, this team provided input during the model construction process, reviewed data layers, assigned weights, and informed

https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Central%20Atlantic%20Appendix%20B%20WEA%20Final%20Report%20NCCOS.pdf

Central Atlantic 2 Call for Information & Nominations

- Recent Activities
  - September 2024
    - Task Force Meeting (September 10-11)
    - Public Meetings in North Carolina – New Jersey (September 17-26)
  - October 2024
    - Virtual Meeting (Oct 2)
    - Upcoming: Data Workshop (October 16-17; Columbia, MD)

Leasing Milestones

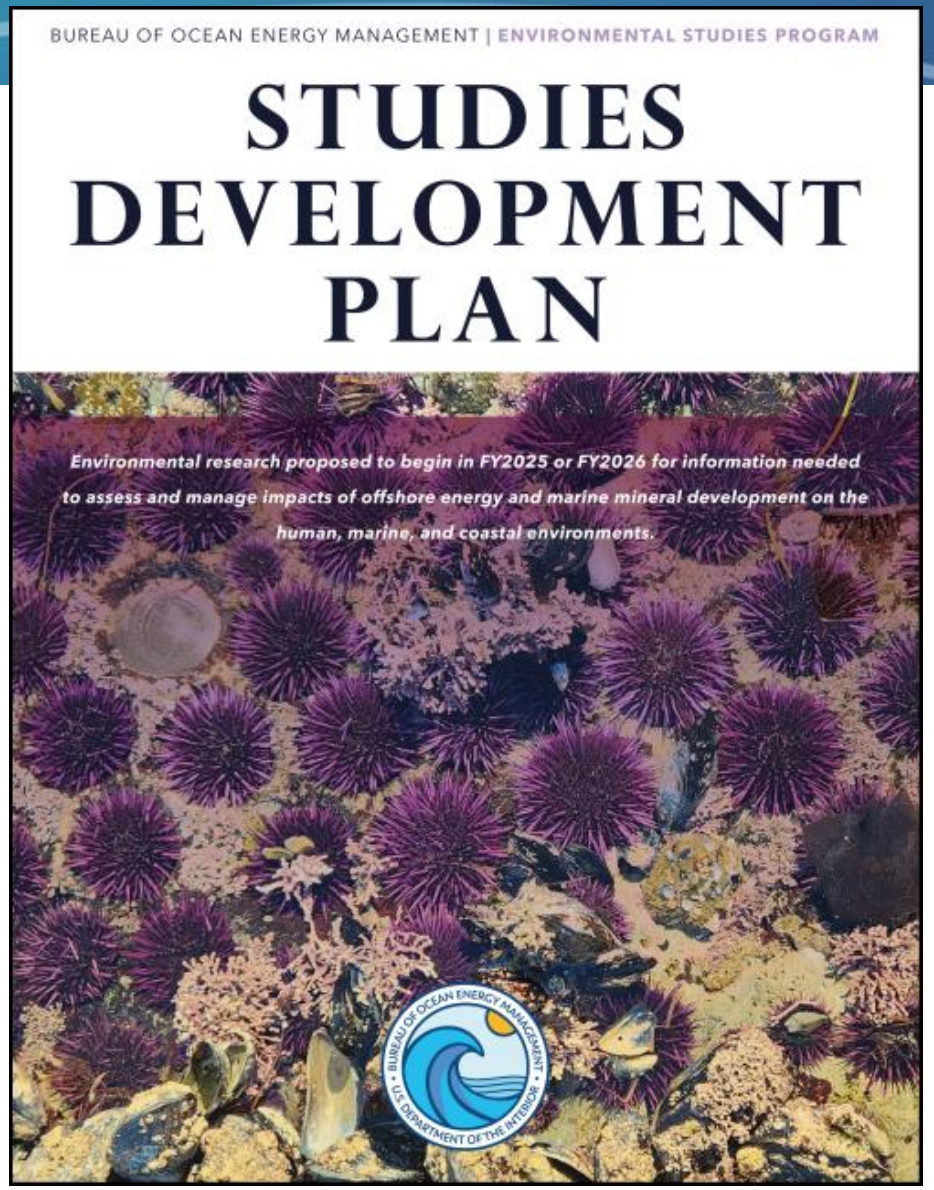
Milestone*	Action	Target Date**
Publish Call for Information & Nominations	**Publish Call** *60-Day Comment Period*	**August 22, 2024**
Area Identification	**Draft Wind Energy Areas (WEAs)**	**Q1 2025**
	Designate Final Wind Energy Areas	**Q3 2025**
Lease Sale	**Proposed Sale Notice (PSN)** *60-Day Comment Period*	**Q4 2025**
	Final Sale Notice (FSN)	**Q1 2026**
	Hold auction	**Q2 2026**

* Task Forces are incredibly valuable tools in the leasing process and **additional meetings** can be expected, likely to be scheduled around significant process milestones.

** Dates of planning/leasing milestones are all tentative.

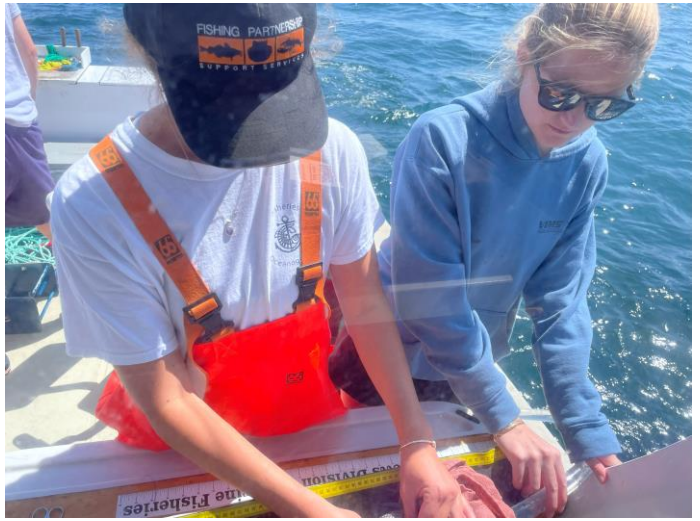
BOEM Studies

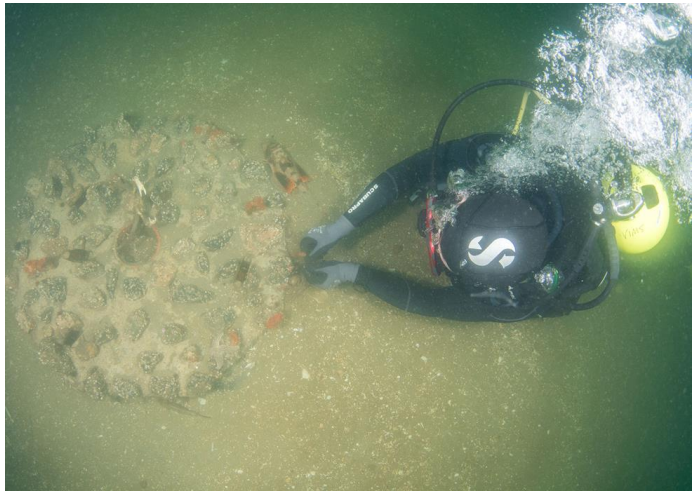
- Recently Completed Studies
  - Electromagnetic Fields: Background and Potential Impacts of Offshore Wind Farms on Marine Organisms (BOEM, 2024)
  - Using Advanced Population Genomics to Better Understand the Relationship Between Offshore and Spawning Habitat Use for Atlantic Sturgeon (White et. al, 2024)
  - Impulsive pile driving sound does not induce hearing loss in the longfin squid (*Doryteuthis pealeii)* (Jézéquel & Mooney 2024)



BOEM Studies

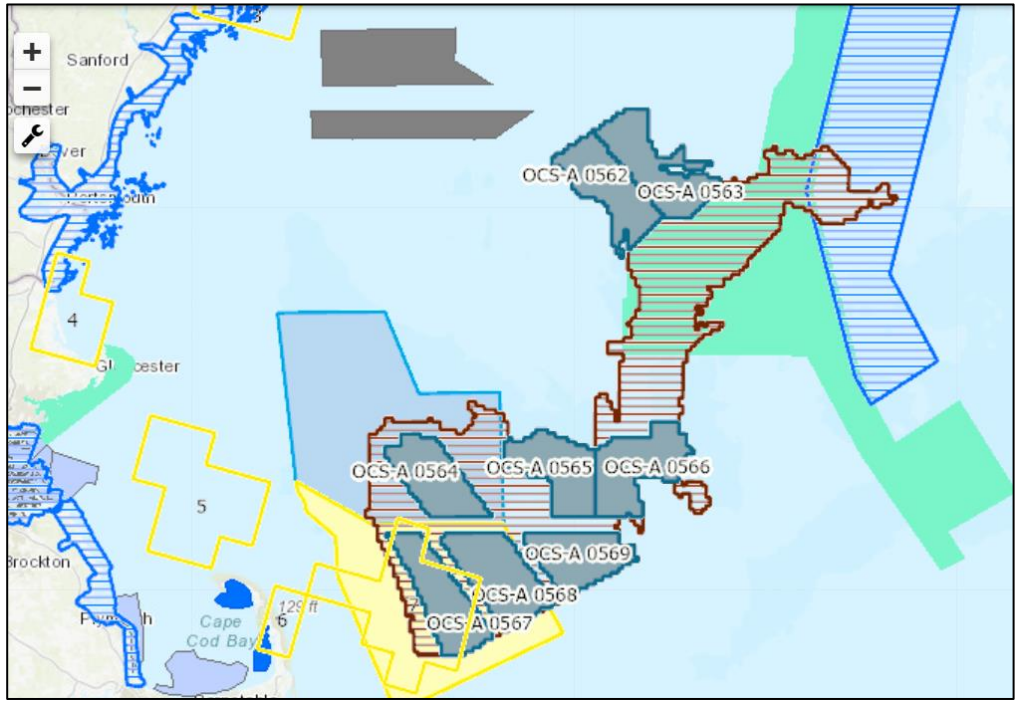
- Ongoing studies
  - Understanding Atlantic Sturgeon Migratory Patterns – Integrating Telemetry and Genetics (AT-19-06): *Final Report end of 2024*
  - Movement Patterns of Fish in Southern New England (AT-19-08): *Final Report end of 2025*
  - Development of a Strategy to Evaluate Impacts of Offshore Wind Energy on the NOAA NMFS NEFSC Multi-Species Bottom Trawl Survey (AT-20-07): *Final Report end of 2024*
  - Exploring the Connectivity Among Offshore Wind Turbines (AT-22-07): *Final Report end of 2024*
  - Evaluating Effectiveness of Nature Inclusive Design Materials (AT-22-09): *Final Report Sept 2025*





BOEM Studies

- Upcoming Opportunities
  - Gulf of Maine Fishery Physical Habitat and Epibenthic Invertebrate Baseline Data Collection (AT-23-05): *Recent IAA USGS*
  - Collecting Fisheries Ecological Knowledge (FEK) for Use in Gulf of Maine Offshore Wind Planning (AT-24-04): *In Procurement*
  - **Environmental Studies Plan solicitation for FY2026-2027 coming this winter.**



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Establishing a Regional Compensatory Mitigation Claims Process for Offshore Wind Impacts on Fishing

Fisheries Compensatory Mitigation

- Maine
- New Hampshire
- Massachusetts
- Rhode Island
- Connecticut
- New York
- New Jersey
- Delaware
- Maryland
- Virginia
- North Carolina

Objective: to establish a credible regional administrator for managing and distributing fisheries compensatory mitigation funds for impacts from offshore wind for the US eastern seaboard

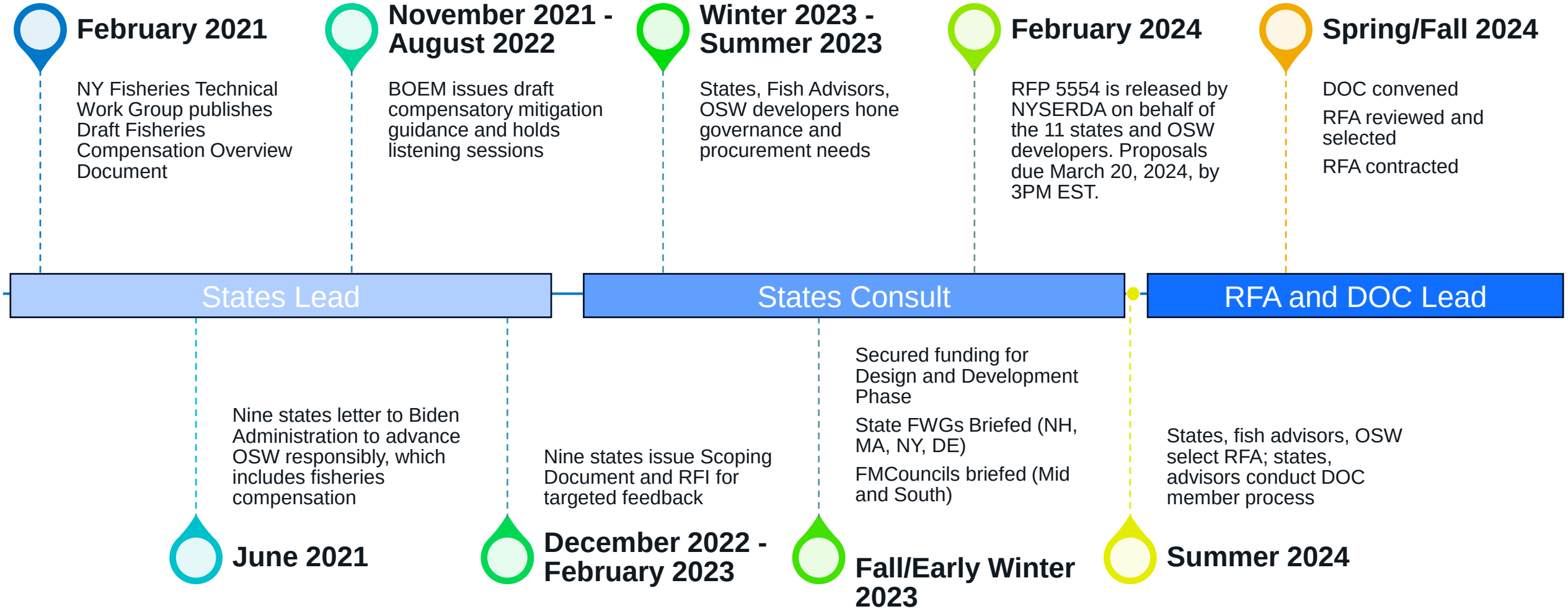
- Consistency across projects and developers
- Fairness for fisheries across home and landing port
- Administrator with the same processes and procedures so that fishermen fishing in or near many projects can have a “one stop shop”
- Scale large enough for building expertise and efficiencies of scale
- Gain efficiencies of scale, avoid duplication and re-creation, and ensure fishermen have access to compensation regardless of the homeport, where they fish, or which state has contracted with the OSW developer

Avoid → Minimize → Mitigate

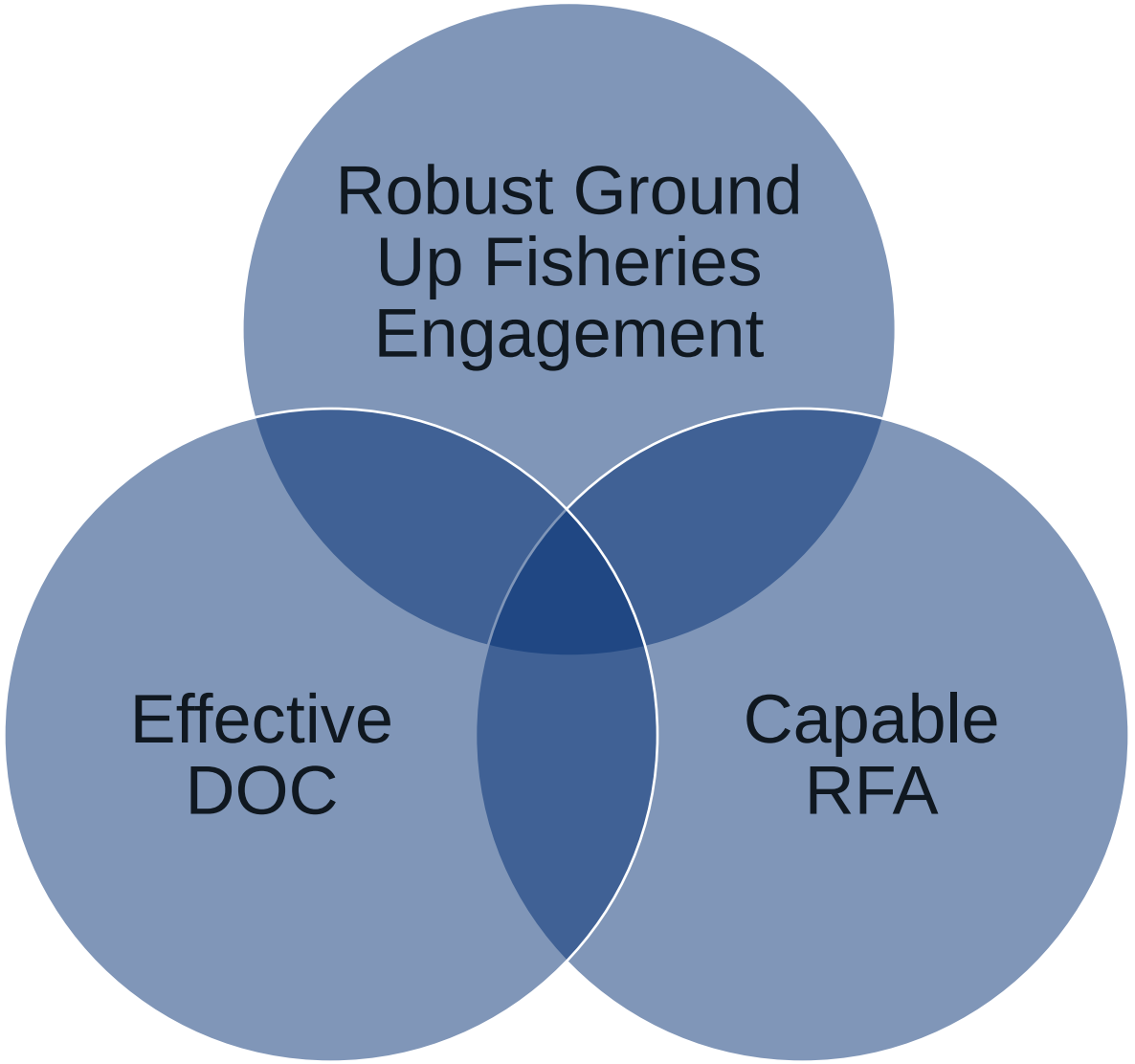
What is the Design Oversight Committee (DOC)?

- The Design Oversight Committee will be comprised of commercial fishermen, state, and OSW developer representatives
- The DOC's purpose is to guide and advise the Regional Fund Administrator on the design and development of the claims process to maximize its effectiveness and comprehensiveness for ensuring individual claims by commercial fishermen are paid fairly, consistently and in a timely manner
- NO claims process design decisions have been made!

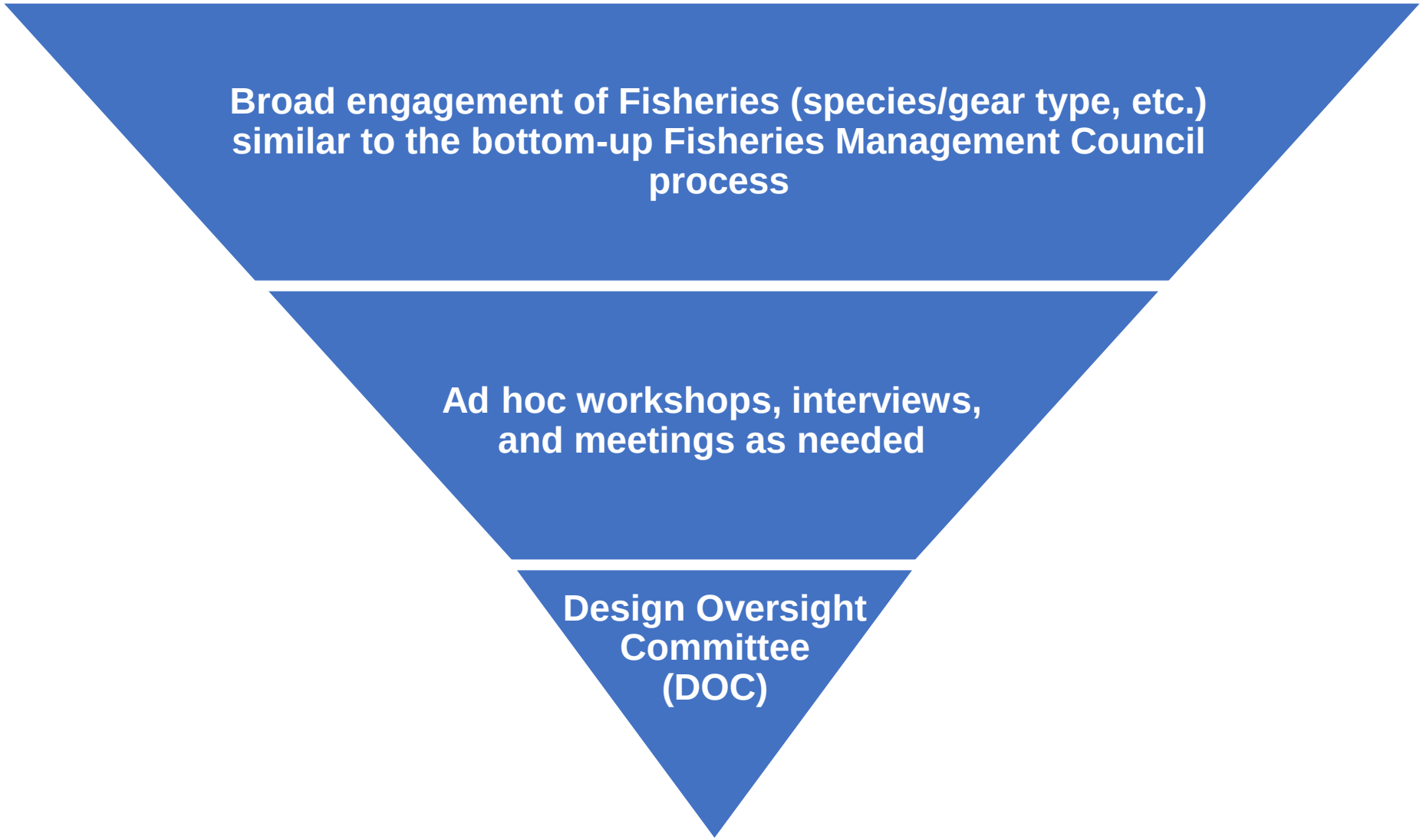
How did we get here...



The Three-Legged Stool for Design Success



From the Bottom-up Design and Development Stakeholder Approach



DOC Composition as Concurred with by States, OSW Developers, and Fish Advisors

DOC Commercial Fishermen Members will be compensated for time and travel similar to the FM Councils

A. 6 Commercial Fishermen (6 alternates)

- By region and gear type of fishery (scallops, clams, lobster/fixed gear, groundfish/mixed trawl, HMS & other, trade association, shore side) – type of operator, diversity of industry, not just gear (processers)?

B. 3 States (3 alternates)

- By region (NE, Mid, Southern Mid)
- Across CZM, fisheries, energy offices

C. 3 Developers with One or More Leases (3 alternates)

- By region (NE, Mid, Southern Mid)
- Some other criteria?

D. Ex-Officio Members(non-voting)

- NMFS
- ASFMC
- BOEM

E. Liaison

- RFA Procurement State (role in RFA performance only, not an ex-officio, and if state is in this role, cannot also be a DOC member above)

Approach to Make-Up of the DOC

To the extent possible, the there will be approximately four seats per region (2 members, 2 alternates) with regions defined as the States have defined them: New England (ME, NH, MA, RI); Mid-Atlantic (CT, NY, NJ). Southern Mid-Atlantic (DE, MD, VA, NC)

Member Seats Allocated by Major Fisheries + (based on NMFS Fishery Footprint data)

- Scallops
- Groundfish
- Squid/Mixed Trawl
- Lobster
- Clams
- Small Scale Fisheries

Applications for member seats who can credibly claim broader experience across other fisheries and/or shore-side will be prioritized

Alternates Seats Allocated by diverse criteria

- Geography
- Scale
- Shore side
- Other fisheries such as herring, tuna, HMS, other

Please apply if interested regardless of your fishery!

Participation in the DOC does not preclude members from later filing an individual claim in any future claims process.

Criteria for Fishing Industry Representatives

Required:

- Have current direct financial stake in commercial fishing (if retired, previous direct stake).
- Able and willing to dedicate sufficient time to the RFA effort over 2 years, estimated at 5 to 10 hours per month, plus additional time to confer with participants in a fishery or sector.
- Proven ability to work in collaborative processes with others with differing views, such as on fishery management councils, wind energy stakeholder groups, town committees or other.
- Ability to conduct outreach and network with others in your fishery, gear type, and region.
- Duty to disclose any potential conflicts of interest, including direct or indirect work for an offshore wind developer.

Desired but not required:

- Knowledge of or experience with past claims processes of any kind (disaster relief, etc.)
- Applications for member seats who can credibly claim broader experience across other fisheries and/or shore-side will be prioritized.

Because of the diverse industry the fishing industry DOC members are attempting to cover, alternates will have a very important role. Alternates receive all materials that members receive and may observe all DOC proceedings.

If an issue arises that requires regional expertise, the two alternates from a sub-region could “tap-in” to replace members of another region who do not have the necessary expertise.

Rationale

The goal is a broad regional claims process done regionally

The goals is to ensure there is reasonably equitable representation across subregions

- However, many fisheries and fishing enterprises have multiple permits and boats in multiple states/regions with port of origin & landing variable
- Major fisheries landings are concentrated to the north and not equitably divided by sub-region

Membership will be related to overall estimated impact of OSW on fisheries by landing/value

Alternates and “small scale seat” allow for diverse applications regardless of scale, location, and fishery

Application & Selection Process

- Application was available on-line and via mail or email
- Applications were due by July 19, 2024
- A group of states and commercial fishing advisors/volunteers reviewed applications and the criteria set forth
- A selection was made by early September 2024
- Selected applicants were notified and confirmed in later September 2024
- RFA expected to be contracted in October 2024

Commercial Fishing Industry Members and Alternates Selected

Member
Hank Soule
Vince Balzano
Joe Gilbert
Roy Diehl
Sam Martin
Spencer Headley

Alternate
Jerry Leeman
Beth Casoni
Bonnie Brady
Jeff Kaelin
Lane Johnston
Pending*

State and OSW Industry Members and Alternates Selected

State Member
Dan McKiernan - MA
Joe Cimino - NJ
Todd Janeski - VA
State Alternate
Erin Wilkinson - ME
Laura McLean - NY
Carri Kennedy - MD

OSW Member
Brian Krevor - ACP
Emily Rochon - VW
Rick Robbins - RWS
OSW Alternate
Ruth Perry - Shell
Doug Copeland – Atlantic Shores
TBF

For Hire Recreational Fishing Advisory Group

- A separate and distinct for-hire recreational fishing group is being established
- It will be separate and distinct from the DOC
- It will include 3 recreational fishing members and 2 to 3 alternates
- This effort will be commensurate with the estimated impact
- This group will be announced soon

2024 Engagement Opportunities

Northeast Cooperative Research Summit, February 2024

World Fisheries Congress, March 2024

State of the Science Workshop, July 2024

American Fisheries Society Annual Meeting, September 2024

Mid-Atlantic Fishery Management Council Meeting, October 2024

New England Fisheries Management Council Meeting, December 2024

NEW YORK STATE | NYSERDA

Next Steps

- *Cooling Water Use at Offshore Converter Stations* report is expected to be available for review in November
- Questionnaire on the structure of future F-TWG Meetings will be available sometime this fall

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