UNSOLICITED APPLICATION FOR AN OUTER CONTINENTAL SHELF RENEWABLE ENERGY COMMERCIAL LEASE UNDER 30 CFR 585.230

Lease Application for OCS-A-0503

Submitted To:

U.S. Department of the Interior Bureau of Ocean Energy Management (BOEM)

45600 Woodland Road, Sterling, VA 20166

Dec 30, 2016

Submitted By:

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1.0 Executive Summary

PROJECT

The OCS-A-0503 Project (herein referred to as the "Proposed Project") is an offshore wind project with a capacity of at least 400MW located 76 nautical miles southeast from the Brayton Point Power Station in Somerset, Massachusetts. This is an unsolicited application for an area that was identified previously by BOEM, which remains un-sold from a previous lease auction, and in which an Environmental Assessment (EA) exists. This Proposed Project has been identified previously by the Bureau of Ocean Energy Management (BOEM) under lease number OCS-A-0503.

PROPONENT

PNE Wind ("PNE") is an international project developer of onshore and offshore wind farms, with a presence in more than fourteen countries. Since 1990, the PNE WIND Group has successfully realized more than 200 onshore wind farms with a total nominal capacity of more than 2400MW.[1] PNE is active in the offshore space and continues to implement successful projects in various waters across Europe.. In Germany, PNE has an offshore wind pipeline of just over 2800MW with nearly 900MW having achieved operation to date.[2]

Additionally, PNE actively develops wind farms across the United States and Canada from its North American headquarters in Chicago, Illinois. Documentation of PNE's leaseholder qualifications (legal, technical and financial) are provided in Section 9.

COLLABORATIVE PROCESS

PNE will continue to examine the various aspects of the proposed site for the development of an offshore wind project per Massachusetts's policy with respect to wind power development in federal waters and adjacent state waters. Studies and analysis will be performed in compliance with National Environmental Policy Act

(NEPA) and other applicable regulations including, but not limited to, environmental, economic, social, and other factors with potential impact on project viability.

ASSIGNMENT OF COMMERCIAL RIGHTS

If PNE is awarded a commercial lease, it will move forward on the preparation of a Site Assessment Plan (SAP) in accordance with the applicable provisions under 30 CFR 585. PNE will also commission further studies to determine environmental, interconnection and offtake options.

AREA REQUESTED FOR LEASE

141,028acres are requested for lease under OCS-A-0503 (see Section 3).

GENERAL DESCRIPTION OF OBJECTIVES AND FACILITIES

The ca. 400MW Proposed Project could potentially require 40-50 turbine locations, assuming the use of 8-10MW WTGs on fixed-bottom foundations as described in Section 4. The detailed array and interconnect design will be provided based on collaboration with BOEM under the SAP and COP process to define detailed environmental issues. The output of the Proposed Project will interconnect from an offshore substation to an onshore receiving station via 230 kV submarine cables. The exact point of interconnection is yet to be determined and subject to future analysis, however a number of options have been highlighted in existing studies performed previously by Massachusetts Clean Energy Center (MassCEC) and ISO New England (ISO-NE).

GENERAL SCHEDULE OF PROPOSED ACTIVITIES

The anticipated project schedule foresees lease award at some point in 2017-18 with a Commercial Operation Date (COD) of the first phase by no later than 2027. This coincides with the current state legislation. A more detailed scheduled is contained in Section 5.

RENEWABLE ENERGY RESOURCE AND ENVIRONMENTAL SITE CONDITIONS

Based on NREL mapping, the energy resource is expected to be in the range of 9.2-9.4 meters per second (m/s) at a hub height of 90 meters. Further resource validation will occur in subsequent stages of the development process through the use of an offshore hub height meteorological mast and/or wave buoy. Environmental resources in the proposed area have been set out under Section 6 and include considerable analysis performed previously by BOEM, NREL, and other entities.

CONFORMANCE WITH STATE AND LOCAL ENERGY PLANNING

PNE will support the BOEM Task Force with outreach activities to develop a public outreach communications plan and will engage local agencies, communities, industries, and other parties to determine immediate and overarching concerns with the Proposed Project area and solicit inputs from stakeholders as described in Section 7. If BOEM determines that there is no competitive interest and PNE is ultimately awarded a project on the basis of this unsolicited request, PNE will move forward per 30 CFR 585.231 to submit any consistency certification and necessary information to the applicable State Coastal Zone Management Act (CZMA) agency or agencies as well as BOEM.

ACQUISITION FEE

As specified in 30 CFR 585.502(a), an acquisition fee of $35,257.00 has been submitted on the pay.gov website for this unsolicited lease request, based on an acquisition of 141,028 acres at $0.25 per acre. (See Attachment 1)

ENVIRONMENTAL IMPACT COMPLIANCE

An Environmental Assessment (EA) was prepared for the Massachusetts Wind Energy Area (MA WEA), an area that includes the Proposed Project. A Notice of Availability (NOA) was issued for the revised EA on June 10, 2014 along with a *Finding of No Significant Impact* (FONSI)[3], which "concluded

that reasonably foreseeable environmental effects associated with the commercial wind lease issuance and related activities would not significantly impact the environment."[4] Moving forward additional studies and analysis will be performed and approvals will be in compliance with National Environmental Policy Act (NEPA).

Lastly, in the course of reviewing this application, readers should be aware that it constitutes a preliminary analysis of the Proposed Project and marks the first step in an extensive process involving the engagement of federal, state, and local stakeholders to determine the Proposed Project's potential impact and viability going forward.

Table of Contents

ABBREVIATIONS & ACRONYMS

ACHP Advisory Council on Historic Preservation

BOEM Bureau of Ocean Energy Management

COD Commercial Operation Date

COP Construction & Operation Plan

DOD Department of Defense

ESA Endangered Species Act

EPA Environmental Protection Agency

EA Environmental Assessment

EPCI Engineering, Procurement, Construction & Installation

FAA Federal Aviation Administration

FONSI Finding of No Significant Impact

GIS Geographic Information System

GWh Gigawatt hour

HVDC High-Voltage Direct Current

ISO-NE Independent System Operator New England

MA WEA Massachusetts Wind Energy Area

MMPA Marine Mammal Protection Act

MPA Marine Protected Area

MWh Megawatt hour

NM Nautical Mile

NMFS National Marine Fisheries Service

NOA Notice of Availability

NOAA National Oceanic and Atmospheric Administration

NOP National Ocean Policy

NPS National Park Service

NREL National Renewable Energy Laboratory

O&M Operations & Maintenance

OCS Outer Continental Shelf

OCSLA Outer Continental Shelf Lands Act

OFTO Offshore Transmission Owners

OPAREA Operating Area

POI Point of Interconnect

RFI Request for Information

RPS Renewable Portfolio Standard

RICRMC Rhode Island Coastal Resources Management Council

SAP Site Assessment Plan

SHPO State Historic Preservation Office

SPUE Sightings-per-unit-Effort

TSO Transmission System Operator

TSS Traffic Separation Scheme

USACE United States Army Corps of Engineers

USCG United States Coast Guard

USFWS United States Fish and Wildlife Service

WEA Wind Energy Area

WTG Wind Turbine Generator

2. Introduction

2.1. Overview, Objective

PNE is pleased to submit this unsolicited lease request in accordance with 30 CFR 585.230 for a Proposed Project, which is part of the existing Massachusetts Wind Energy Area (MA WEA). Located 52 nautical miles (nm) south of Martha's Vineyard and 76 nm from the proposed point of interconnection (POI) the Proposed Project offers the lease potential visual impacts.

Offshore wind is an emerging technology in the United States. Its prospects are currently driven political-economic considerations in predominantly Northeastern states that share the following characteristics:

1. Land and capacity constraints that inhibit the deployment of other forms of power generation;

2. Close proximity to high-density demand centers, thus lessening the dependence of overland transmission;

3. ISO New England (ISO-NE) has some of the highest locational marginal pricing (LMP) in the country;

4. Several coal-fired and nuclear power plants that have retired or are scheduled to retire in coming years, and;

5. Strong public policy: solid Renewable Portfolio Standards (RPS) and offshore-specific legislation in 2016 mandating the procurement of 1600MW by 2027.

Additionally, PNE views offshore wind as a core element of its overall global strategy. In Europe, PNE has several projects that have reached commercial operational and numerous others in various stages of development. First hand experience in Europe, provides PNE considerable insights and expertise in this field

and can furthermore leverage its network in the offshore supply chain to create value in the emerging U.S. market.

Lastly, with the recent completion of the nation's first offshore wind farm at Block Island (30MW) PNE hopes that such a milestone marks a turning point for the U.S. offshore industry.

2.2. Public Policy

Massachusetts is at present one of only a select number of states that has an offshore-specific target and associated procurement mechanism. On July 31 – August 1, 2016 the Massachusetts legislature approved Bill H.4568 calling for 1600MW of offshore wind by 2027, which was signed by Governor Charlie Baker on August 8, 2016. Under the new policy distribution companies would award 15-20 year contracts for projects of at least 400MW in capacity, with the first solicitation occurring not later than July 31, 2017, and with subsequent solicitations occurring within 24 months of each other. The policy has a whole presents a strong commitment from the Commonwealth of Massachusetts to establish an in-state offshore industry and could over the long-term promote job creation and economic development in local communities.

2.3. Qualifications

PNE is an international project developer of onshore and offshore wind farms, with a presence more than fourteen countries. Since 1990, the PNE WIND Group has successfully realized more than 200 onshore wind farms with a total nominal capacity of more than 2400MW.[5] PNE is active in the offshore space and considers it to be a core part of its business. In Germany, PNE has an offshore wind pipeline of just over 2800MW with nearly 900MW having achieved operation to date.[6]

It is on this basis of PNE's existing offshore experience in Europe, combined with its access to the entire global offshore supply chain that it is seeking to enter and create value in the emerging U.S. market. The map below illustrates PNE

offshore track record to date, based primarily on its German projects, that to date have either been sold or are under development.

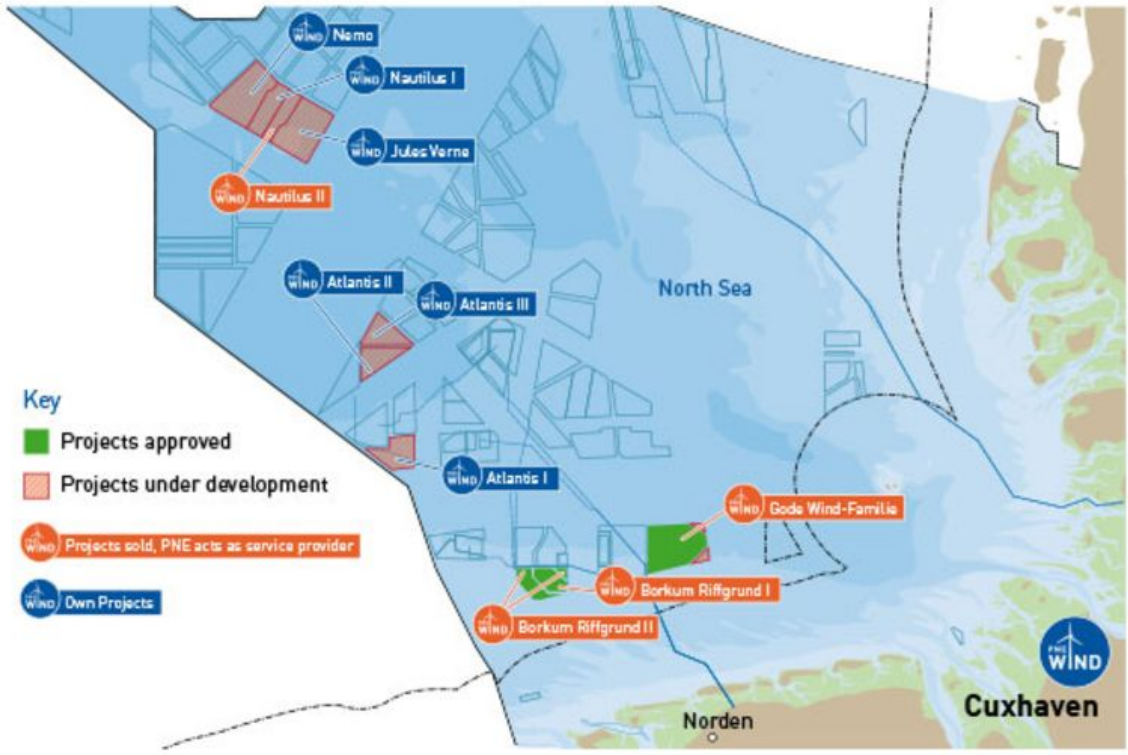

Figure 1 PNE Offshore Wind Track Record[7]

PNE is established in the U.S. with a portfolio of onshore projects and operates from its North American headquarters based in Chicago, Illinois. Documentation of PNE's leaseholder qualifications (legal, technical and financial) are provided in Section 9 and a company report (Annual Report 2015) has also been enclosed as part of this application under Attachment 1.

3. Area Requested for Lease

3.1. Requested Area

The requested area of the Proposed Project sits on 141,028 acres and is part of the Massachusetts Wind Energy Area (MA WEA), which has been previously identified by BOEM as being suitable to offshore development. Previously, leases (OCS-A-0500 and OCS-A-0501) were awarded in 2015 to Dong Energy and Offshore Megawatt respectively. The Proposed Project is located 76nm from the proposed point of interconnection (POI).

On December 29, 2010 BOEM published a Request for Information (RFI) in the Federal Register to solicit interest and feedback, thus initiating a multi-year process to identify an area in Massachusetts that would be suitable for future offshore wind development. This was part of a larger initiative called *Smart-from-the-Start* in which state and federal stakeholders examined the offshore wind suitability of several areas along the east coast. The responses received from the RFI, and subsequent actions, resulted in the delineation of the following area:

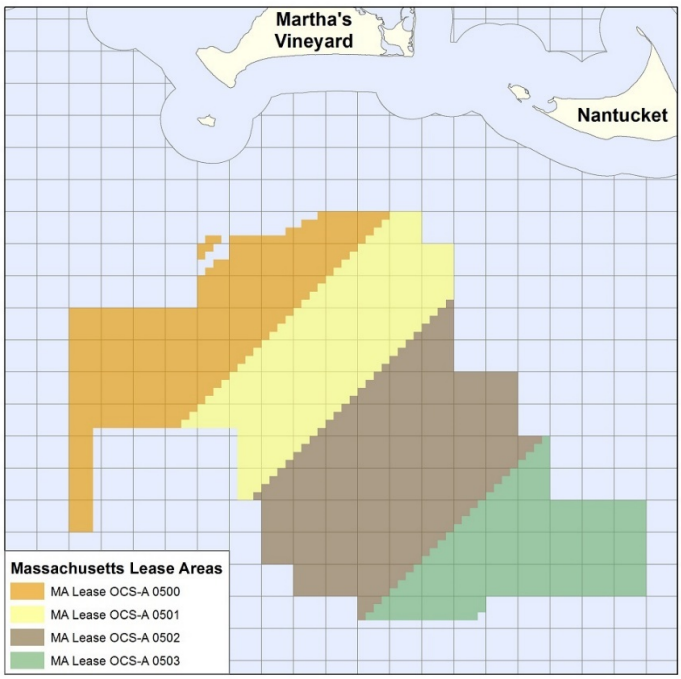

Figure 2 Massachusetts Lease Areas (MA WEA) [8]

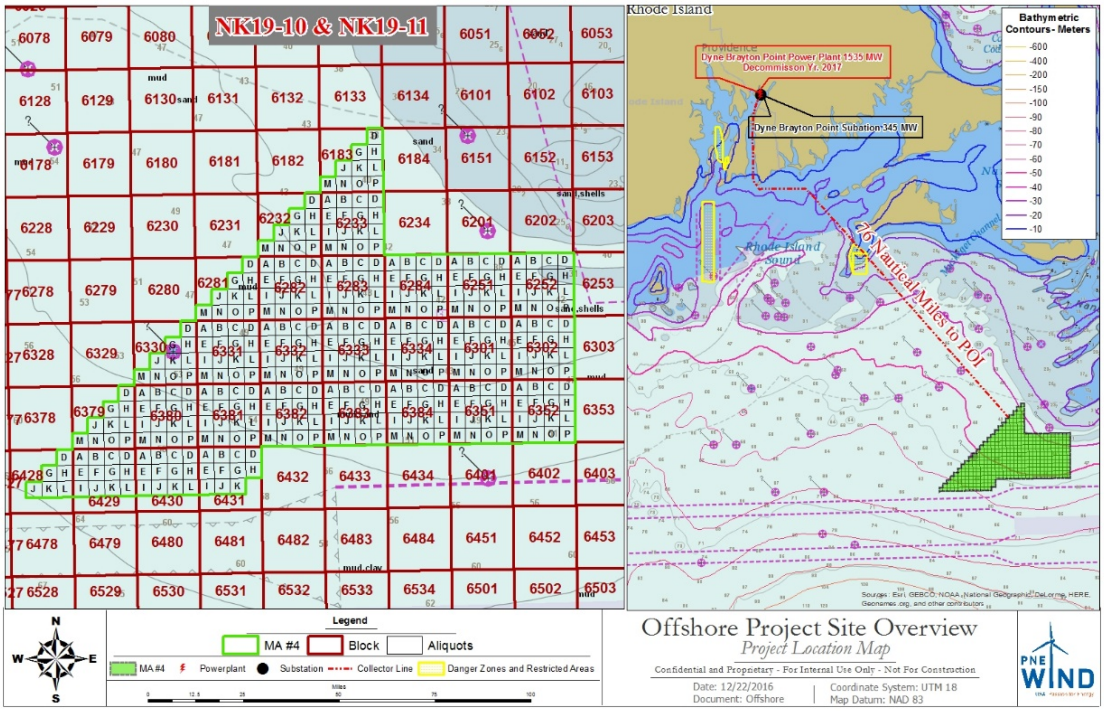

Figure 3-Proposed Lease Area OCS-A-503.

Below are the requested Blocks, or portions of Blocks, lying within the following Official Protraction Diagrams: NK19-10 and NK19-11.

#	Official Protraction	Entire Blocks	Partial Blocks	Sub-Blocks
1	NK19-10		6183	D,G,H,J,K,L,M,N,O,P
2	NK19-10		6232	D,G,H,J,K,L,M,N,O,P
3	NK19-10	6233		
4	NK19-10		6281	D,G,H,J,K,L,M,N,O,P
5	NK19-10	6282		
6	NK19-10	6283		
7	NK19-10	6284		
8	NK19-11	6251		
9	NK19-11	6252		
10	NK19-10		6330	D,G,H,J,K,L,M,N,O,P
11	NK19-10	6331		
12	NK19-10	6332		
13	NK19-10	6333		
14	NK19-10	6334		
15	NK19-11	6301		
16	NK19-11	6302		
17	NK19-10		6379	D,G,H,J,K,L,M,N,O,P
18	NK19-10	6380		
19	NK19-10	6381		

20	NK19-10	6382		
21	NK19-10	6383		
22	NK19-10	6384		
23	NK19-11	6351		
24	NK19-11	6352		
25	NK19-10	6428		
26	NK19-10	6429		D,G,H,J,K,L
27	NK19-10	6430		A,B,C,D,E,F,G,H,I,J,K,L
28	NK19-10	6431		A,B,C,D,E,F,G,H,I,J,K,

Table 1: Blocks Requested for Lease.

3.2. Site Selection Process

PNE's selection of this site is based on several factors including, but not limited to, the following:

1. The Proposed Project is part of an area that was identified and delineated previously for offshore wind development. In addition, based on an existing EA a FONSI was issued for the immediate project area.

2. Political support in Massachusetts (and neighboring states) for offshore wind, as evidenced by recent legislation in Massachusetts mandating the procurement 1600MW from offshore wind by 2027;

3. Power plants that have retired, or are scheduled to retire, in Massachusetts and neighboring states;

4. Availability of interconnection studies performed by the Massachusetts Clean Energy Center (MassCEC) and ISO-NE analyzing interconnection options;

5. The findings of a National Renewable Energy Laboratory (NREL) report[9] that was performed on the immediate project area, highlighting wind speeds and water depth, and;

6. Proposed Project is far removed from inhabitants, which is a key stipulation of the current Massachusetts legislation stating that no turbine be located within 10 miles of any inhabited area, and out of due consideration for residents/stakeholders who could potential oppose the Proposed Project on such basis.

3.3. Consultation with Stakeholders

Over the course of 2010-14, the entire WEA underwent a formal consultation process as part of BOEM's area identification process. Approximately 260 public comments were received in response to the RFI and input was solicited from the Massachusetts Renewable Energy Task Force.[10]

A subsequent EA was performed and made available for public comment on November 2, 2012, a revised version of which was issued on June 10, 2014 along with a FONSI. BOEM regularly coordinated with the Federal and State agencies including the EOEEA, the Rhode Island Coastal Resources Management Council (RICRMC), the State Historic Preservation Offices (SHPOs) of Rhode Island and Massachusetts, the Advisory Council on Historic Preservation (ACHP), the Mashpee Wampanoag Tribe, the Wampanoag Tribe of Gayhead (Aquinnah), Shinnecock Indian Nation, the Narragansett Indian Tribe, NMFS, USFWS, DOD, FAA, USACE, USCG, EPA, and NPS.[11]

PNE has furthermore had initial correspondence with DOD in regards to the potential impact on military operations. DOD conducted an informal review, indicating that the Proposed Project could potentially impact military training, operations, and testing in the area and has requested consultation on the project going forward. Through the BOEM stakeholder and interagency coordination process, PNE looks forward to working with DOD to determine potential areas that are affected and to work towards identifying a solution.

In conclusion, PNE anticipates moving forward with an expanded stakeholder engagement and consultation process coordinating with BOEM, as well as other state and local agencies.

4. General Description of Objectives and Facilities

4.1. Objectives

PNE's objective is driven by the public policy dynamic in Massachusetts, namely the Renewable Portfolio Standard (RPS) and specifically recent legislation that was passed mandating the procurement of 1600MW of offshore wind by 2027. The offshore legislation further stipulates that projects should be no less than 400MW in capacity and should be a minimum of 10 miles from the nearest inhabitant. Beyond Massachusetts, it is also possible that a more inter-regional market develops in the Northeast in the coming years, which would provide other power purchase options as well. On a more general level, the Proposed Project's potential design will be driven by technological advancements that are occurring in the global offshore supply chain which would over time yield a positive influence on project economics.

4.2. Offshore Production Facilities and Substations

The design of the Proposed Project will be contingent upon a number of factors going forward including, but not limited to: local and federal regulations (including Jones Act), public acceptance, usable area, technological availability, and economic viability. In either case, the project will likely have an operating life of 25 years from COD, after which the project would be decommissioned and structures removed inclusive of, the requirements under 30 CFR 585.900 - 913.

The Proposed Project will have a capacity of *at least* 400MW using wind turbine generators (WTGs) with a capacity of at least 8-10MW, thus resulting in 40-50 turbine locations in total. Several manufacturers have made announcements that they are developing "next generation" WTGs exceeding 10MW in capacity. Although, it ultimately remains to be seen what technology is commercially available in the coming years. What can be said based on historical precedent, is that the WTG sizes deployed 10 years ago were primarily in the 3-3.6MW range, whereas today projects are being built and contracted using WTGs in the 6-8MW range, thus a doubling of WTG size in the span of a decade. The use of a larger WTG would have the benefit of reducing the total number of locations (and potentially project footprint), increased energy yield, shorter installation time, and all of which when combined could deliver a lower LCOE.

Projects that are being constructed today in Europe and North America have been done so primarily on the basis of monopile, jacket, and gravity-base foundations. The particular characteristics of such foundations are described below.

- Monopile: consists of a single pile driven into the seabed. Can be used on water depths of up to 30m or deeper based on site-specific conditions.

- Jacket: consisting of four legs and piles that are driven into the seabed. Typically used on water depths of 20-50m, but going forward a number of projects worldwide are planning to use jacket foundations on water depths of up to 70m.

- Gravity-Base: large base constructed from either concrete or steel which rests on the seabed. The turbine is dependent on gravity to remain erect.

Foundation selection will depend largely on the seabed conditions, namely the particular water depth, metocean conditions, as well as the associated soil and geotechnical composition at each of those locations. It will also depend on the nature of the supply chain, namely access to suppliers that have the procurement, financial, and logistical resources to manufacture foundations in mass quantities.

In its simplest form, the electrical configuration will likely involve infield cables that are connected to an offshore substation, which then collects and converts power before being transmitted to shore via an export cable (distance to POI is 76nm). In Europe, offshore wind is subject to various transmission regimes where interconnection is managed and/or financed via third parties (public and/or private). In the UK, the Offshore Transmission Owners (OFTO) system involves the project owner building its own transmission asset and then selling to a third party that in turn manages its operation. In Germany, a "hub-and-spoke" system exists whereby offshore projects are, via statutory legislation, developed in several clusters and where each cluster has a HVDC substation that is built, owned, and operated by a Transmission System Operators (TSO). The interconnection regime that is ultimately adopted in the U.S. remains to be seen, although the current default assumption for the Proposed Project is that project owners are responsibility for delivering and transmitting power up to the point of interconnection.

Currently the use of installation vessels, whether they are jack-up barges or other vessels, are subject to the Jones Act which "requires the use of US- built vessels owned and operated by US citizens and manned by US citizens in certain circumstances."[12] Such vessels are to be used for the installation of wind turbines, foundations, and substations. With respect to cable installation, cable laying vessels are to be used.

Offshore technology is constantly evolving. The ultimate project configuration that PNE pursues will be contingent upon several factors including but not limited to: the physical area that is ultimately usable for the purposes of offshore wind, commercially available technology at the time of construction, availability of local supply chain, seabed conditions, metocean, impact on military operations, and logistical set up to name a few. Such factors will be determined in subsequent stages of the process and through stakeholder / inter-agency engagement as headed by BOEM.

4.3. Power Transmission and Grid Interconnection

Two transmission and interconnection studies exist for the MA WEA to the benefit of the Proposed Project. The first is a transmission study prepared for MassCEC by ESS Group in 2014 that provides a solid overview of the existing transmission and interconnection infrastructure in ISO New England (ISO-NE). The MassCEC study analyzed seven possible interconnection points for projects in the Massachusetts Wind Energy Area (MAWEA) as well as the neighboring Rhode Island – Massachusetts Wind Energy Area (RIMA). The second study was prepared by ISO-NE and assesses the general economic impact of offshore wind being connected to three POIs in Southeastern Massachusetts / Rhode Island (SEMA/RI).

Of the seven principle POIs assessed in the MassCEC study, the top three rated as being "the most likely targets for both near-term and long-term integration of offshore wind energy from the MAWEA and RIMA WEA" were: Brayton Point (MA), Canal (MA), and Kent County (RI).[13] Four buildout scenarios were assessed ranging from 500MW (highly conservative) to 3000MW (ambitious). The ISO-NE study[14] was performed on the basis of the same three aforementioned POIs, although in the ISO-NE study the location referred to as "Barnstable" is known in the MassCEC study as "Canal" (both points are more or less in the same general area). Below is a map of the three interconnection points that received "Tier 1" ratings in the MassCEC report and in which an economic assessment was performed in the ISO-NE report:

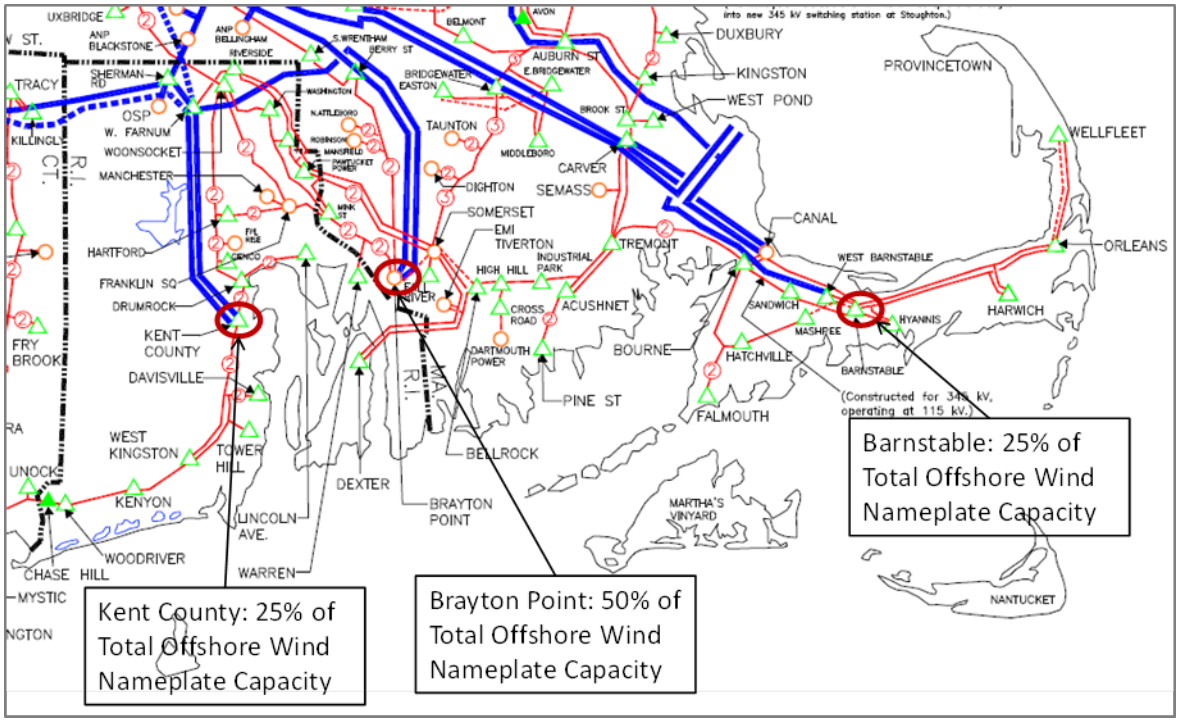

Figure 4- ISO-NE Offshore Wind Interconnection Map (blue lines 345kV, redlines 115kV)[15]

The ISO-NE study reached a number of conclusions including the following:

- Brayton Point, with 50% of total offshore wind capacity interconnected, Kent County, with 25% of total offshore wind capacity interconnected, and Barnstable, with 25% of total offshore wind capacity interconnected;

- "Across all cases studied, the production cost savings for the addition of 1,000 MW of offshore wind ranged from a low of $104 million/yr under the Most Unfavorable to OSW scenario to a high of $407 million/yr under the Most Favorable to OSW scenario. The addition of 2,000 MW of offshore wind showed a range of production cost savings from $205 million/yr under the Most Unfavorable to OSW scenario to $807 million/yr under the Most Favorable to OSW scenario."[16]

- "The addition of 1,000 MW of offshore wind reduced the New England-wide load-serving entity (LSE) energy expenses, ranging from a reduction of $56 million/yr under the Most Unfavorable to OSW scenario to a reduction of $241 million/yr under the Most Favorable to OSW scenario. With the addition of

2,000 MW of offshore wind, the total reduction of LSE energy expenses ranged from $128 million/yr under the Most Unfavorable to OSW scenario to $491 million/yr under the Most Favorable to OSW scenario."[17]

- "The primary environmental metric for this study was CO2 emissions. For the cases considered, a 1,000 MW addition of offshore wind resulted in a reduction in system-wide CO2 emissions, ranging from 1,518 kilotons (kton/yr) under the Most Unfavorable to OSW scenario to 2,132 kton/yr under the Favorable to OSW scenario. Adding 2,000 MW of offshore wind, also reduced system-wide CO2 emissions, ranging from 3,034 kton/yr under the Most Unfavorable to OSW scenario to 4,230 kton/yr under the Favorable to OSW scenario."[18]

- "The regional New England locational marginal price (LMP) decreased with the addition of offshore wind. Wind energy was modeled as having a $0/MWh production cost. Each megawatt generated by offshore wind replaced more expensive marginal generation somewhere within the New England region and therefore reduced the regional LMP."[19]

- "Adding offshore wind resulted in two major interfaces being less constrained. The SEMA/RI import interface and the North–South interface experienced fewer constrained hours over the course of the simulated year, 2021. No transmission constraints were seen on the SEMA/RI Export and East–West interfaces."[20]

PNE will perform further analysis to determine interconnection feasibility as well as potential configuration options.

4.4. Onshore Support Facilities and Staging Areas (Ports)

Having a staging and O&M port with adequate infrastructure, road & rail access, and sufficient technical capabilities is an essential factor in selecting an offshore location. In this case, the New Bedford Marine Terminal is an ideal port location given its

proximity to the Proposed Project and purpose-built facilities. Other developers with projects in RIMA and MA WEA have recently signed Letters of Intent[21] to lease the port area in connection with future offshore wind staging and construction. "Operated by MassCEC, the New Bedford Marine Commerce Terminal is a multi-purpose, 26-acre facility designed to support the construction, assembly and deployment of offshore wind projects, as well as handle bulk, break-bulk, container and large specialty marine cargo."[22] Below is a summary of New Bedford's existing capabilities.

Capability Area	Criteria (units)	
Potential Use	Staging Port	Yes
	Operation & Maintenance (O&M) Port	Yes
Access	Port Access Channel Width (m)	36.6
	Port Access Water Depths (m)	9.1
	Overhead Draft (m)	Unlimited
	Number of Berths	1
Quayside Capabilities	Quayside Bearing Capacity (t/m^2)	20
	Quayside Length (m)	305
	Quayside Seabed Suitable for Jacking	Yes

Capability Area	Criteria (units)	
Storage Capabilities	Haul Route Bearing Capacity (t/m^2)	20
	Storage Area Bearing Capacity (t/m^2)	20
	Size of Storage Area (m^2)	114,323
Roll-On, Roll-Off (Ro-Ro)	Ro-Ro Capability (Yes/No)	No
	Width of Ro-Ro Berth (m)	N/A
	Bearing Capacity of Ro-Ro Berth & Ramps (t/m^2)	N/A
Cranes	On-site Cranes' Capabilities (t)	No
	Crane Height Restrictions (m)	51.8
Transportation	Onshore Transportation Infrastructure (rail, highway, etc.)	Rail; highway

Table 2: Existing Capabilities of New Bedford.[23]

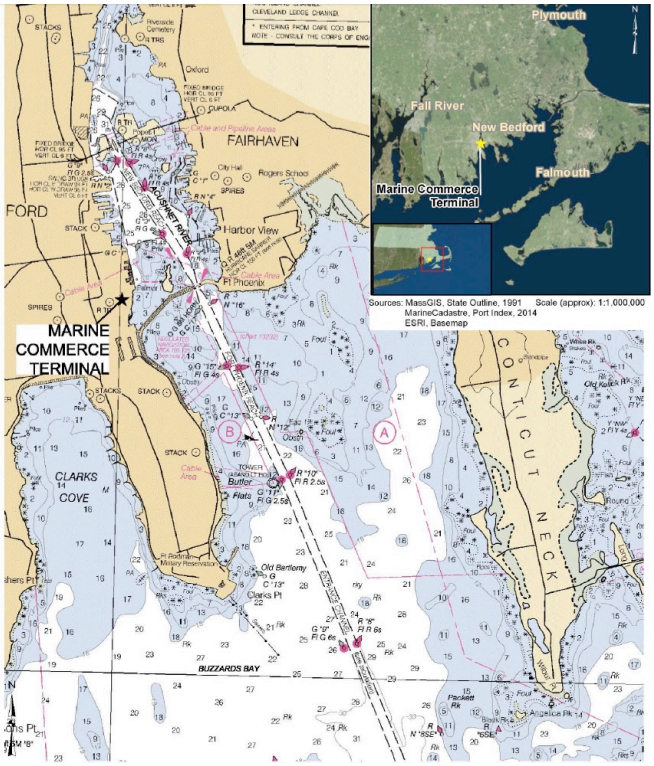

Figure 5-New Bedford Map[24]

In addition to New Bedford, other options in Massachusetts include the following locations which were highlighted as part of a study prepared for BOEM called "*The Identification of Port Modifications and the Environmental and Socioeconomic Consequences*":

Port/Terminal	Staging Port	O&M Port	Port Access Channel Width	Port Access Water Depths	Overhead Draft	Number of Berths	Quayside Bearing Capacity	Quayside Length	Quayside Seabed Suitable for Jacking	Haul Route Bearing Capacity	Storage Area Bearing Capacity	Size of Storage Area	Roll On/Roll Off Capability	Width of Ro-Ro Berth	Bearing Capacity of Ro-Ro Berth and Ramps	On-site Cranes' Capabilities	Crane Height Restrictions	Onshore Transportation Infrastructure (e.g. rail access
Massachusetts																		
Boston-Conley Terminal	x		182.9	12.2	Unlimited	5		304			404,700		FALSE	0	0	51	61	TRUE
Boston-Autoport	x		182.9	12.2	41.1	1		335					FALSE	0	0			TRUE
Nantucket Harbor		x	91.4	4.6	Unlimited			9.1					FALSE	0	0			TRUE
Hyannis Inner Harbor		x	30.5	4.0	Unlimited								FALSE	0	0			TRUE
Falmouth Harbor		x	30.5	3.0	Unlimited													TRUE
Edgartown Harbor		x	45.7	5.2	Unlimited													TRUE
Vineyard Haven Harbor		x	83.3	3.7	Unlimited											24		FALSE
New Bedford	x	x	36.6	9.1	Unlimited	1	20	305	TRUE	20	20	114,323	FALSE	0	0	0	51.8	TRUE
Fall River		x	121.9	10.7	41.1			175				27,520	TRUE					TRUE

Figure 6-Masschusetts Ports[25]

For the purposes of O&M, Falmouth Harbor is closest to the Proposed Project and is a potential option going forward in that regard.

Beyond Massachusetts, locations in Rhode Island could also serve as potential alternatives. The Port of Providence ("ProvPort") is one such option, which sits on

105 acres and has been used by Deepwater Wind and General Electric (GE) as an assembly area for 6MW WTGs that are being used at the Block Island Wind Farm. ProvPort is accessible by both road and rail and has the ability to serve both as a staging and an O&M port. Below is a summary of ProvPort's capabilities.

Capability Area	Criteria (units)	
Potential Use	Staging Port	Yes
	Operation & Maintenance (O&M) Port	Yes
Access	Port Access Channel Width (m)	182.9
	Port Access Water Depths (m)	12.2
	Overhead Draft (m)	59.1
	Number of Berths	27
Quayside Capabilities	Quayside Bearing Capacity (t/m^2)	U
	Quayside Length (m)	U
	Quayside Seabed Suitable for Jacking	U

Capability Area	Criteria (units)	
Storage Capabilities	Haul Route Bearing Capacity (t/m^2)	U
	Storage Area Bearing Capacity (t/m^2)	U
	Size of Storage Area (m^2)	42,000
Roll-On, Roll-Off (Ro-Ro)	Ro-Ro Capability (Yes/No)	Yes
	Width of Ro-Ro Berth (m)	U
	Bearing Capacity of Ro-Ro Berth & Ramps (t/m^2)	U
Cranes	On-site Cranes' Capabilities (t)	144
	Crane Height Restrictions (m)	U
Transportation	Onshore Transportation Infrastructure (rail, highway, etc.)	Rail

Table 3: Existing Capabilities of New Bedford.[26]

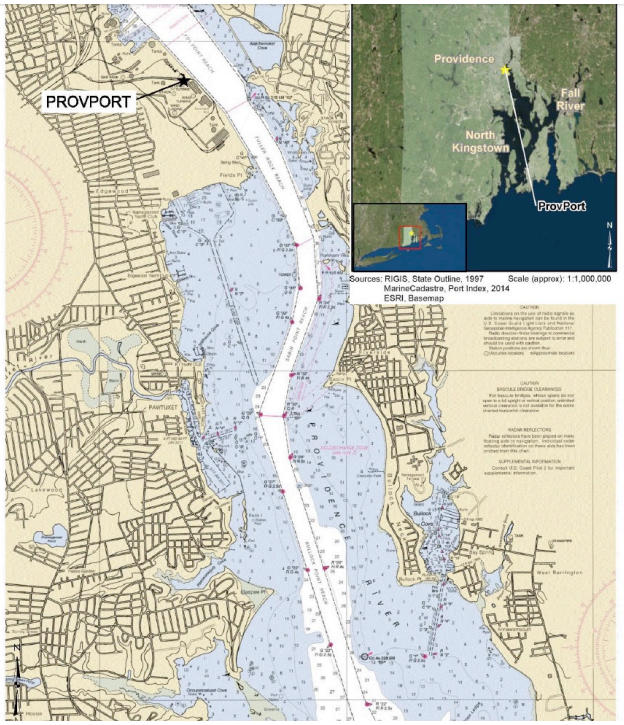

Figure 7- Port of Providence Map[27]

Lastly, the Port of Davisville (Quonset Point) is also located in Rhode Island and contains 46 acres of laydown and 13 acres of storage. It is operated by the Quonset

Development Corporation, a quasi-state agency. This port is also used by Deepwater Wind for the purposes of staging and will also serve as the long-term O&M port for Block Island Wind Farm. In 2012, the Port of Davisville invested approximately $30 million to upgrade its facilities by adding a 150 MT mobile harbor crane and is furthermore equipped to handle a variety of project cargoes and break bulk materials such as wind turbines and the associated equipment.

Capability Area	Criteria (units)	
Potential Use	Staging Port	Yes
	Operation & Maintenance (O&M) Port	Yes
Access	Port Access Channel Width (m)	152.4
	Port Access Water Depths (m)	9.8
	Overhead Draft (m)	59.1
	Number of Berths	2
Quayside Capabilities	Quayside Bearing Capacity (t/m^2)	U
	Quayside Length (m)	366
	Quayside Seabed Suitable for Jacking	U

Capability Area	Criteria (units)	
Storage Capabilities	Haul Route Bearing Capacity (t/m^2)	U
	Storage Area Bearing Capacity (t/m^2)	U
	Size of Storage Area (m^2)	52,600
Roll-On, Roll-Off (Ro-Ro)	Ro-Ro Capability (Yes/No)	Yes
	Width of Ro-Ro Berth (m)	U
	Bearing Capacity of Ro-Ro Berth & Ramps (t/m^2)	U
Cranes	On-site Cranes' Capabilities (t)	150
	Crane Height Restrictions (m)	U
Transportation	Onshore Transportation Infrastructure (rail, highway, etc.)	Rail; highway; air

U = Unknown

Table 4: Existing Capabilities of the Port of Davisville (Quonset Point).[28]

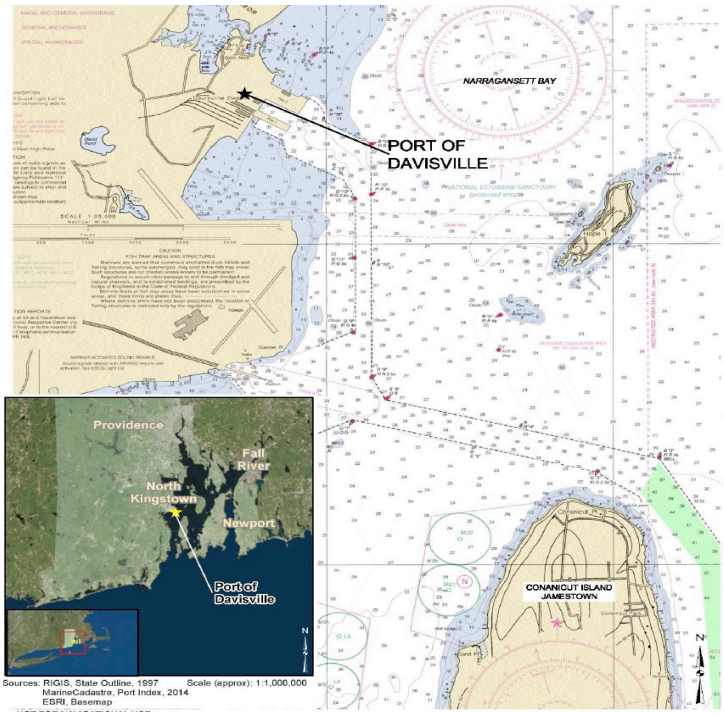

Figure 8-Port of Davisville Map[29]

Lastly, the Proposed Project would be a valuable source of job creation, revenue, and economic development. Proposed Project would call for a large undertaking during construction to assemble, store, and manage components at a port location. The 25-year operating period of the Proposed Project would serve as a long-term source of employment, and tenancy, as a local maintenance setup would have to be established in order to service the project on a continuing basis, and over the course of scheduled and unscheduled maintenance. A report from NREL indicates that offshore wind can generate up to 14-31 jobs per MW *depending* on the region and particular circumstance.[30] PNE knows firsthand from its experience in Germany that offshore wind has a positive impact on jobs and the local economy and furthermore recognizes the importance of training and developing a local work force. Going forward PNE looks forward to establishing long-term relationships with the local communities and stakeholders alike.

5. General Schedule of Proposed Activities

5.1. Key Project Milestones

The key milestones that can be identified at this time include the following:

- *Application Submission* – the date on which PNE submits the unsolicited lease application to BOEM, which is December 30, 2016.

- *Lease Award* – a defined time frame assumed at some point in 2017-18 in which the lease is awarded, but with the understanding that 30 CFR 585 requires BOEM to issue a call to determine competitive interest. However, the Proposed Project is also part of an area that has been previously identified and contains an effective EA with FONSI. Since no bids were received in the previous auction[31], PNE is requesting a non-competitive lease in this regard. Hence, the overall site lease award process should be shorter in duration when compared to other areas that lack those elements.

- *Site Assessment Plan (SAP)* – also known as the preliminary term. A one-year period commencing from lease award in which PNE would have to submit a Site Assessment Plan (SAP) which, per 30 CFR 585.605, describes the overall plan and methodology as well as activities that are to be performed going forward with respect to the characterization of the commercial lease. 30 CFR 585.606 and 30 CFR 585.610 provides a list of items that are to be addressed and included in the SAP.

- *Construction & Operations Plan (COP)* – once a SAP has been approved, the next step is to move forward in the preparation of a COP. Per 30 CFR 585.620, the COP describes the construction, operations, and conceptual decommissioning plans under the commercial lease, including project easements. Per 30 CFR 585.120 a commercial lease is defined as one that sets out the terms and conditions under which a personal can conduct commercial activities. 30 CFR 585.120 furthermore defines commercial

activities as “all activities associated with the generation, storage, or transmission of electricity or other energy product from a renewable energy project on the OCS, and for which such electricity or other energy product is intended for distribution, sale, or other commercial use” and additionally “activities associated with all stages of development, including initial site characterization and assessment, facility construction, and project decommissioning.”

- *Contracts / Financing* – commences once a COP has been approved. Based on projects built in Europe, this is a period that lasts roughly one year (but can be shorter or longer depending on the circumstances) in which the project owner engages in discussions with suppliers to procure components and services tied to the construction and operation of the project. This typically includes negotiations tied to turbine supply, Operations & Maintenance (O&M), foundations, installation vessels, all of which are packaged on a multi-contracting or an Engineering, Procurement, Construction, & Installation (EPCI) structure depending on the circumstances. It is also during this period that partners, buyers, and/or banks are approached in establishing a viable structure that will result in financial close.

- *Financial Close* – the point in time in which equity and debt have been committed to the project and in which construction contracts become effective. Power Purchase Agreement (PPA) and interconnection agreement have been secured in advance. This officially marks the start of construction.

- *Construction* – a multi-year process that includes lead times associated with the manufacture and delivery of equipment, preparatory works, construction and installation works. For a circa 400MW project, a minimum two-year year construction period is assumed.

- *Commercial Operation Date (COD)* – the date on which the project is fully constructed and delivering power to the grid. In the weeks/months leading up

to COD, project achieves various levels of commissioning building up to full-commissioning at COD.

5.2. Project Schedule

In total PNE foresees a preliminary development and construction schedule of 8 – 9.5 years from start to finish. Nonetheless, there are several factors that can affect this schedule including, but not limited to: political-regulatory dynamics at state and/or federal levels, third party opposition, availability of financing at financial close (i.e. Investment Tax Credit – ITC), macroeconomic conditions, as well as supply chain lead times and constraints.

Based on the milestones set out under Section 5.1, and based on an application being submitted to BOEM on December 30, 2016, the following anticipated project scheduled is proposed at this time:

Milestone	**Duration (years)**	**Date Range (upside/downside)**
Lease Award	1 - 2	2017 - 18
Preliminary Term	1	2018 - 19
COP Term	3 - 4	2019 - 23
Contracts / Financing	1	2022 - 24
Financial Close	-	2023 - 25
Construction	2	2025 - 27
COD	-	2025 - 27

Table 5: Preliminary Schedule for the Proposed Project.

A Gantt Chart is contained under Appendix A-14.

6. Renewable Energy and Environmental Site Conditions

6.1. Energy Resource

The National Renewable Energy Laboratory (NREL) published a technical report in December 2013 titled "*Assessment of Offshore Wind Energy Leasing Areas for the BOEM Massachusetts Wind Energy Area*". One of the stated aims of this report was to "assist BOEM in making the final determination for delineating the Massachusetts (MA) WEA into leasing areas that are each capable of supporting a commercially viable project" and furthermore with the expectation that "the proposed delineations will provide sufficient area for modifications to the facility layout based on the results of geophysical, geological, and biological surveys that will be conducted by the developer."[32] The study was conducted on the assumption that MA WEA would consist of 4-5 zones, with a phased-based build out of 500MW per phase. Three delineation options (Alternatives 1-3) were presented which could accommodate anywhere from 1220MW to 2955MW of offshore wind capacity depending on the usable area, with Alternative 1 most closely resembling the current MA WEA.

The NREL report contains an energy resource analysis, indicating that the Proposed Project has a wind resource that exceeds 9.2 m/s at 90m and with the predominant wind direction originating from the Southwest, a direction which is un-obstructed by other projects.

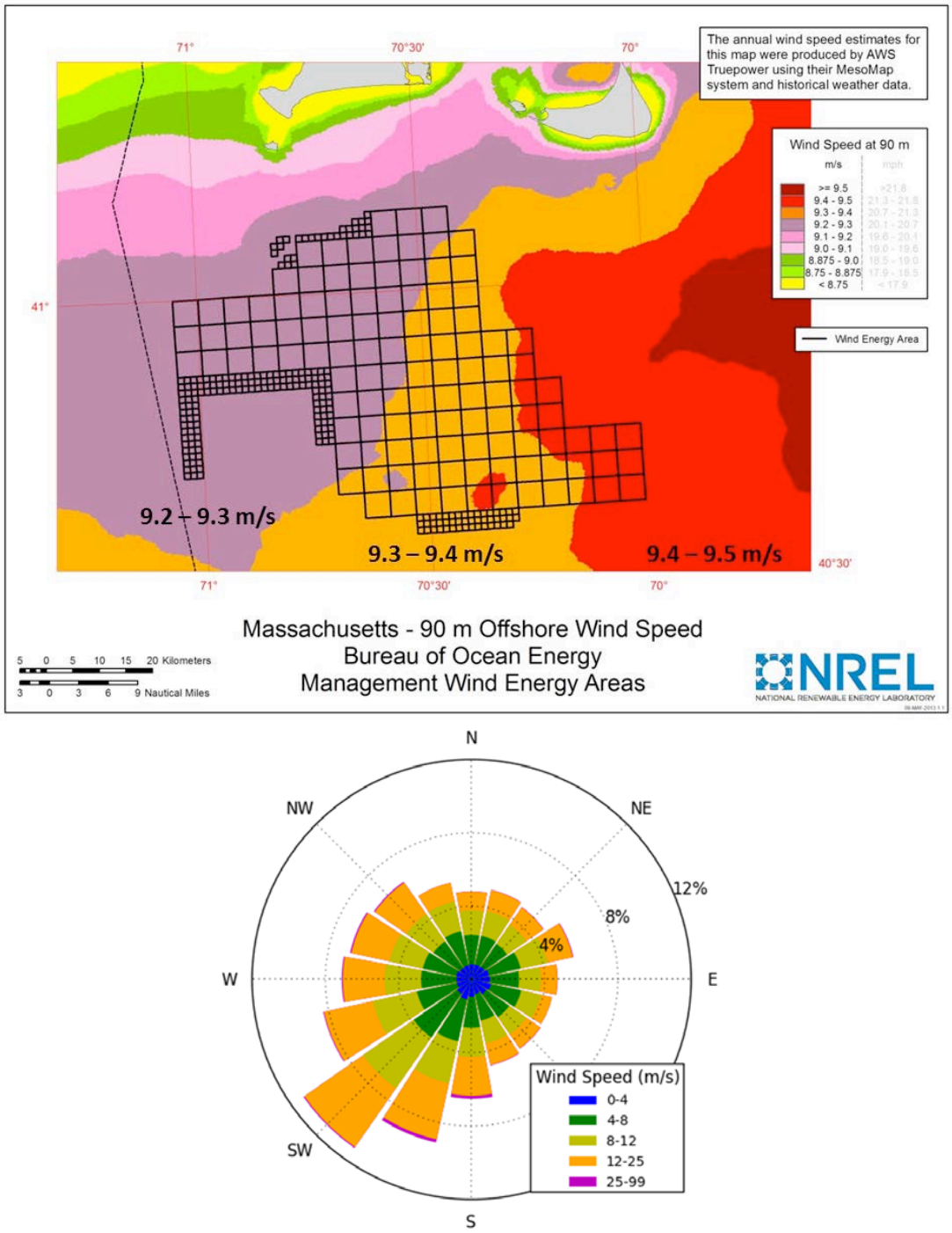

Figure 9- Offshore Wind Map 90m & Wind Rose NREL/ AWS Truepower[33]

While the NREL report contains a comprehensive analysis of the immediate area of interest, it is nevertheless a preliminary analysis given that it was performed on the basis of a 5MW WTG (future technology will involve use of larger WTG). Additionally, the scope did not include an assessment of potential impacts arising from fisheries, military use, ecological impacts, and traffic (although the EA does address some of

these issues). Going forward, all of these factors could affect the total usable area of the WEA.

6.2. Bathymetry

The NREL report furthermore contained an analysis on the water depth distribution which "found that the WEA has a range of water depths between 35 m and 65 m, with an average depth of about 50 m."[34] The following map illustrates the bathymetric distribution across the WEA:

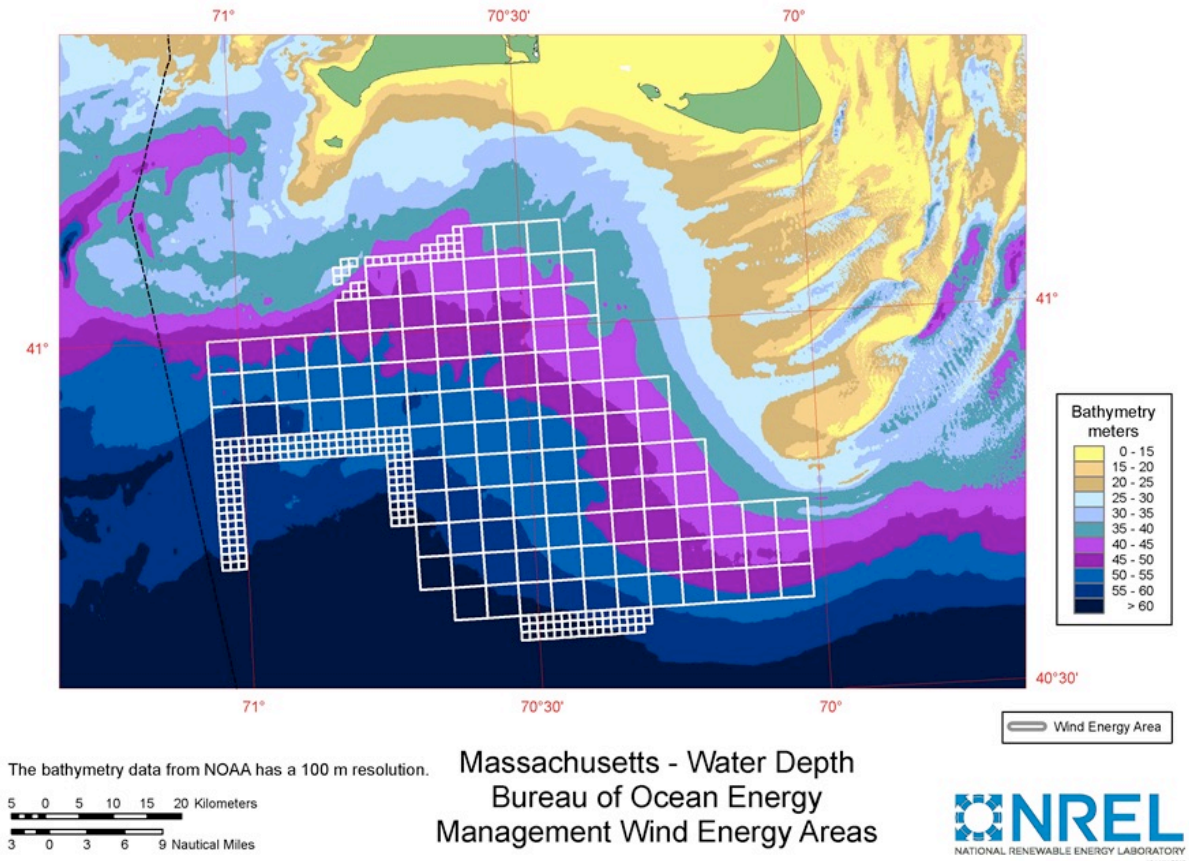

Figure 10-Water Depth map for the MA WEA[35]

Per Alternative 1, which is based on a delineation of four leasing areas, lease area 3 has a total area of 1,004km^2 out of which 408km^2 sits on water depths of less than 50m. Lease area 3 has an average water depth of 47.9m.

In securing a lease for the Proposed Project, PNE will engage various stakeholders in identifying potential impacts and to determine the physical project area that is usable for the purposes of offshore wind.

6.3. Environmental Assessment

This section explains the overall process, and alternatives proposed, in the Environmental Assessment (EA) that was performed previously. The EA was prepared as part of the "*Smart-from-the-Start*" initiative, a multi-year engagement process in which the following activities occurred:

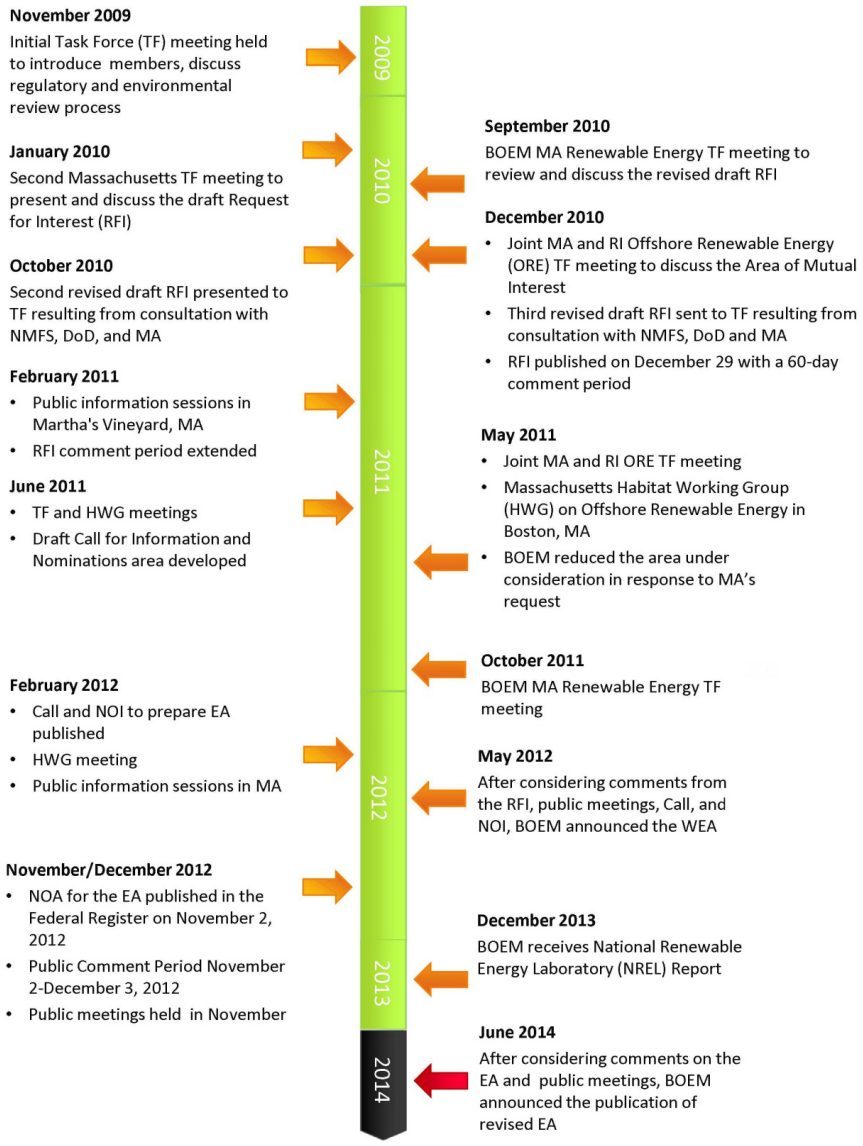

Figure 11-Engagement Process Leading to Issuance of Revised EA (2009-14).[36]

A revised EA and Notice of Availability (NOA) were issued in June 2014 along with a Finding of No Significant Impact (FONSI) stating that "the FONSI concluded that the reasonably foreseeable environmental impacts associated with the proposed action and alternatives, as set forth in the EA, would not significantly impact the quality of the human environment; therefore, the preparation of an Environmental Impact Statement (EIS) is not required."[37] The scope of the EA focused on lease issuance and SAP approval including:

1. Shallow hazards, geological, geotechnical, biological, and archaeological resource surveys (associated with lease issuance); and

2. Installation and operation of a meteorological tower, two meteorological buoys, or a combination of one tower and one buoy (associated with SAP approval).

"Additional analysis under NEPA will be required before any future decision is made regarding construction or operation of any wind energy facility on leases that may be issued within the WEA or construction of marine cables and onshore grid transmission connections that are constructed in support of wind energy facilities in the WEA. The purpose of conducting surveys and installing meteorological measurement devices is to assess the wind resources in the lease area, characterize the biological resources in the lease area, and to characterize the conditions of the water column and seabed so that a lessee can determine whether the site is suitable for commercial development and, if so, submit a COP."[38]

The EA assessed the following four alternatives[39]:

- Alternative A (Preferred Alternative) - Full Leasing of WEA: lease issuance and approval of site assessment activities could occur in all areas of the WEA offshore Massachusetts. High-value fishing grounds and important sea duck habitat areas were excluded from the WEA.

- Alternative B – Removal of Areas for North Atlantic Right Whales: Activities could occur in all areas of the WEA offshore of Massachusetts, except where

right whales occur and/or—based upon historical and current records, whale watch boat records, and NMFS aerial and shipboard protected species abundance surveys.

- Alternative C – Removal of Areas within 15nm of Inhabited Coastline: lease issuance and approval of site assessment activities could occur in all areas of the WEA offshore Massachusetts except areas within 15 nm of the inhabited Massachusetts coastline because of possible impacts on cultural resources.

- Alternative D – Removal of Areas within 21nm Inhabited Coastline: lease issuance and approval of site assessment activities could occur in all areas of the WEA offshore Massachusetts except areas within 21 nm of the inhabited Massachusetts coastline because of possible impacts on cultural resources.

The EA assumes that Alternative A would be the preferred alternative and much of the analysis was geared towards assessing the impacts associated with this alternative. Regardless, the Proposed Project is far removed from land.

The EA furthermore identified the presence of a number of species within and around the WEA including. Of particular concern is the presence of the North American Right Whale, for which Alternative B addresses by removing several blocks from the northeastern part of the WEA as illustrated below:

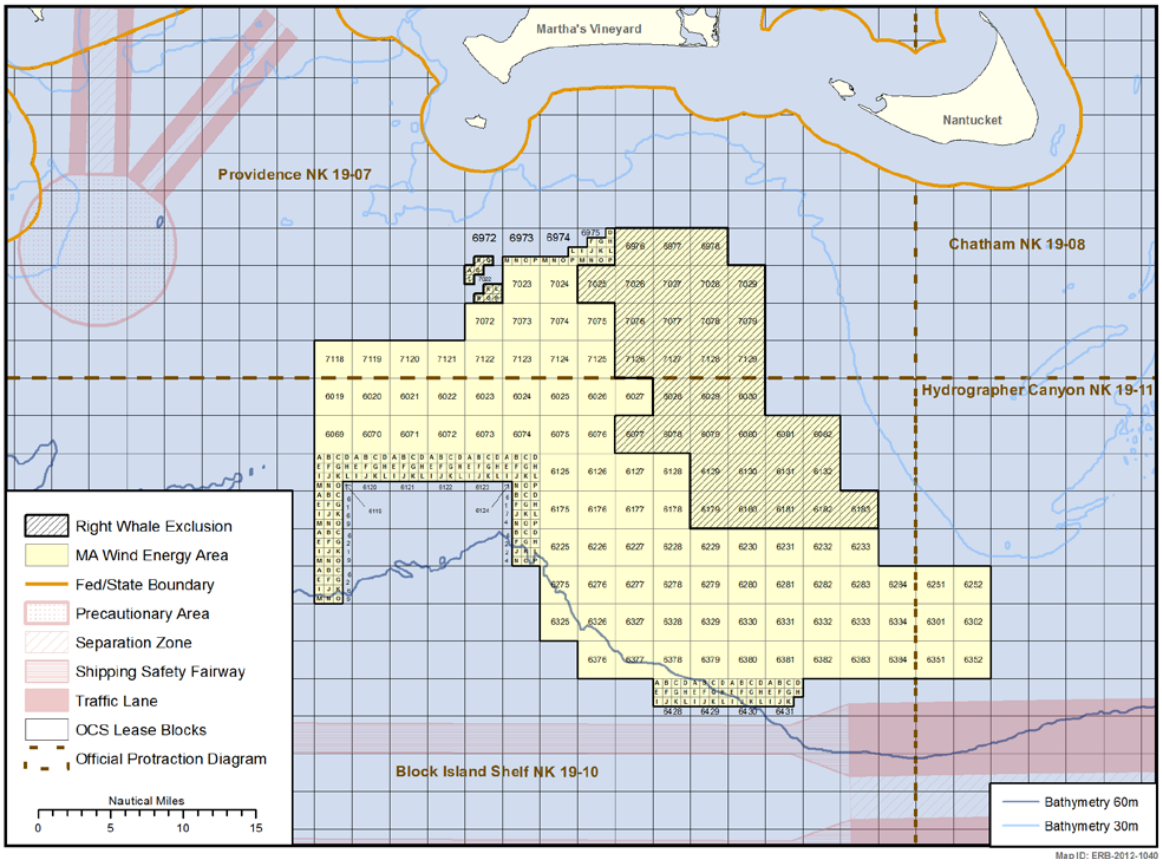

Figure 12-Alternative B North American Right Whale Exclusion[40]

6.4 Whales

One of the issues identified in the EA for MA WEA was the potential impact on the North Atlantic Right Whale (NARW). The NARW is protected under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA) and has been observed exhibiting feeding behavior in the MA WEA. According to the National Marine Fisheries Service (NMFS), NARW are found seasonally in the waters off Massachusetts and have been documented in the waters of the WEA. "Until 2008 when NMFS regulated shipping speed in right whales habitats, the leading causes of mortality in right whales were collisions with ships and entanglements in fishing gear (Van der Hoop et al., 2013). Since then, deaths from U.S. vessel strikes have nearly ceased (Laist et al., 2014; Van der Hoop et al., 2015). However, entanglement rates continue to increase in severity (Knowlton et al., 2012; Van der Hoop et al., 2013), with no evidence that current fishing regulations have reduced mortality (Pace et al., 2014)."[41]

The presence of NARW and other species raises the question going forward as to the amount of total usable area, even as the Proposed Project is part of an area that has over a number of years already undergone an extensive area identification and delineation process to account for various impacts. BOEM has in recent years commissioned a number of studies aimed at identifying the presence of various marine mammals in MA WEA based on the performance of visual, aerial, and acoustic surveys.

One such study called "*Northeast Large Pelagic Survey Collaborative Aerial and Acoustic Surveys for Large Whales and Sea Turtles*" was prepared for BOEM and authored by individuals from the New England Aquarium, Provincetown Center for Coastal Studies, the University of Rhode Island Graduate School of Oceanography, and the Cornell Lab of Ornithology. The amount of information collected was substantial, based on various methods, and with the 2011-15 effort representing "more than 5 times all previous survey effort combined within the SA, and it provides a robust baseline assessment for future comparisons."[42] Below are a number of maps from this report which illustrate the occurrence of the NARW based on surveys performed during 2012-15. Figure 13 illustrates the overall Study Area (SA), whereas Figures 14 and 15 illustrate the presence of NARW by particular area and according to season.

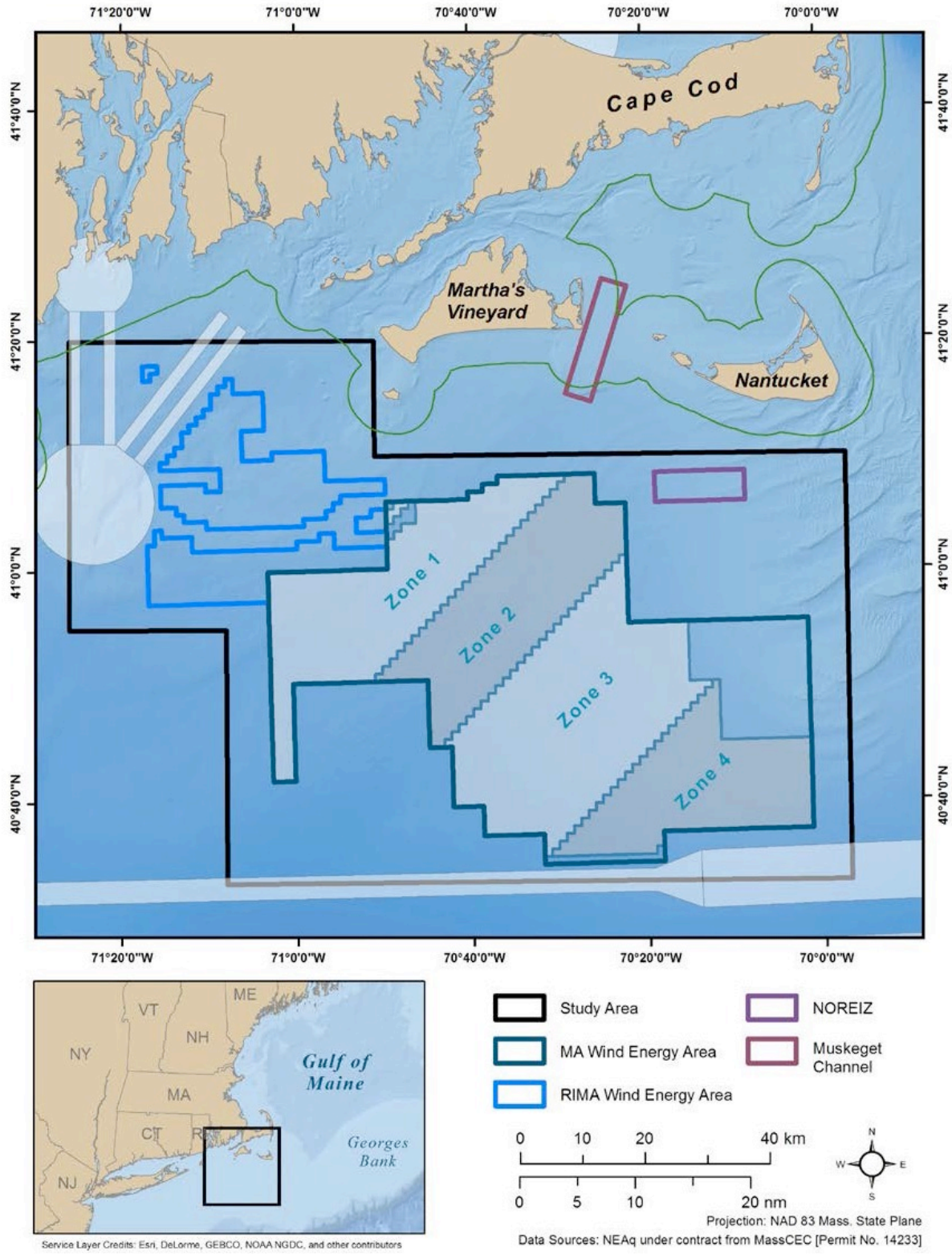

Figure 13- Wind Energy Areas (WEAs) offshore of Massachusetts (MAWEA) and Rhode Island (RIMA WEA), Muskeget Channel, NOREIX, and the study area (SA) designed by NLPSC. (Note: The original MAWEA is depicted by the dark blue line and existing areas are depicted as Zone 1-2).[43]

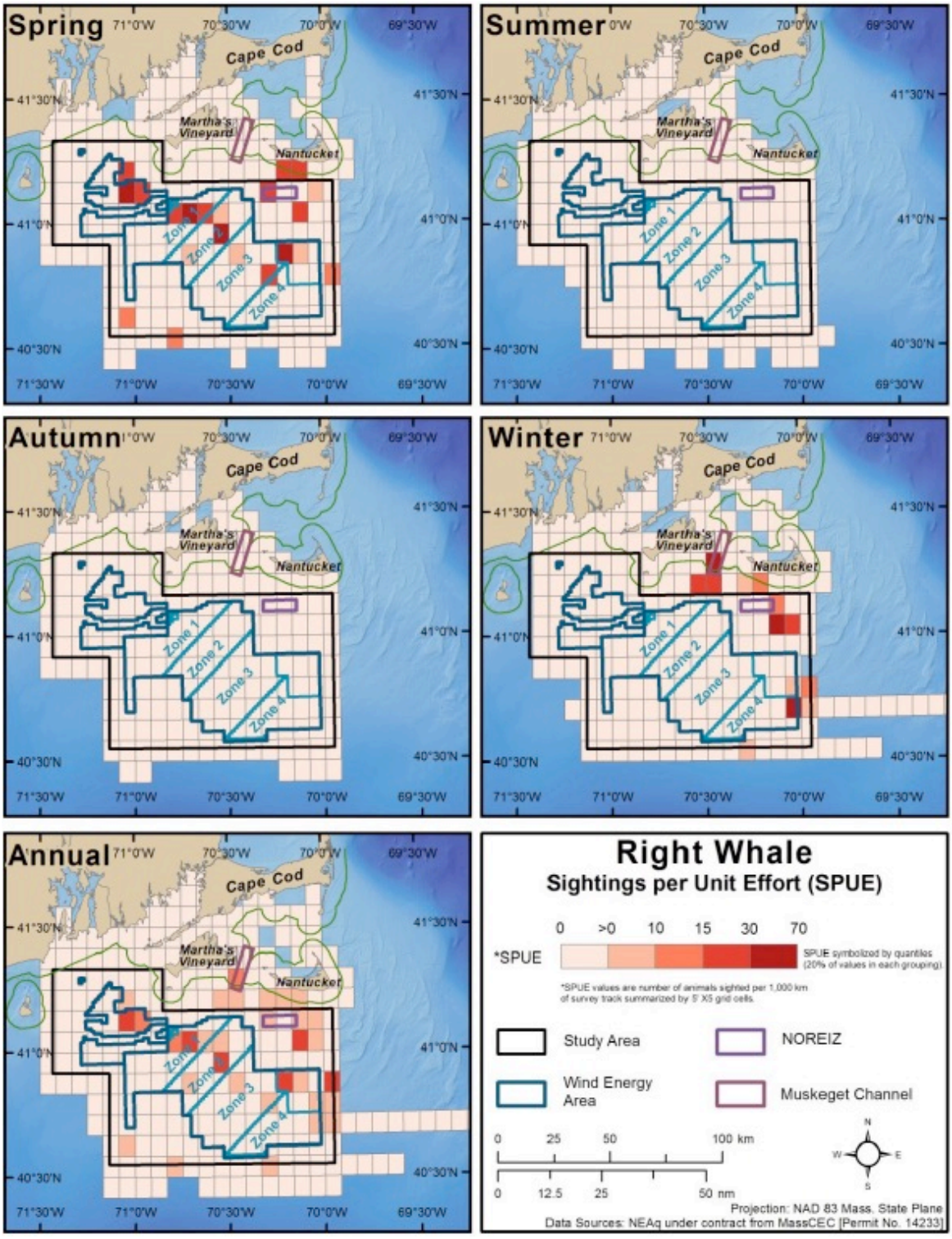

Figure 14-Right Whale Sighting-per-Unit-Effort (SPUE) by 5-minute squares partitioned by season across all years and with all seasons combined.[44]

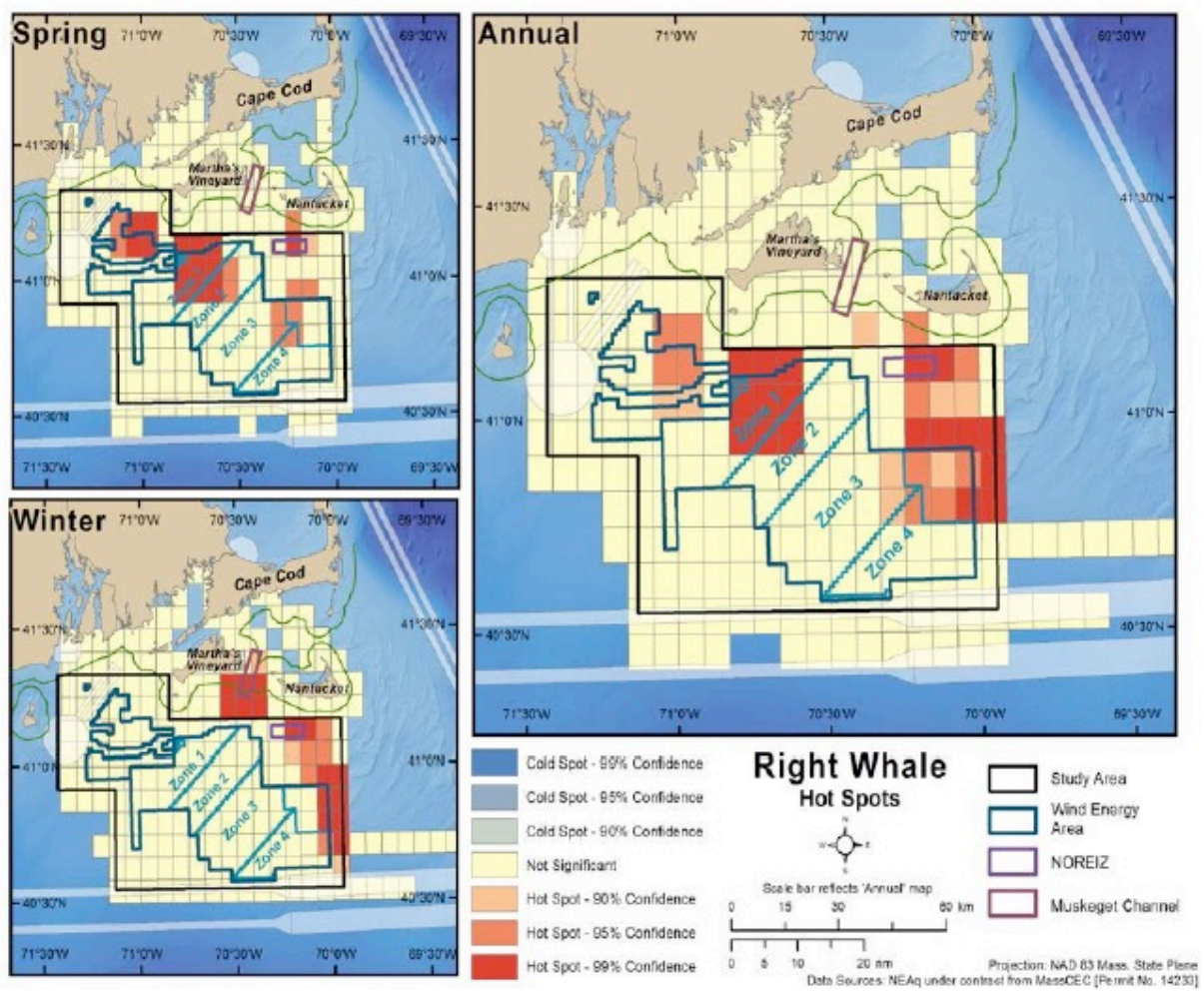

Figure 15-Hot Spot analysis of North Atlantic right whale SPUE data showing spring, winter, and annual patterns (2012-2015).[45]

The Proposed Project is designated as "Zone 3" in the above maps and generally shows that most, though not all, NARW sightings occur outside of the project area. The first map illustrates NARW sightings by season, showing that the majority of the sightings occur in the spring and to a lesser extent in the winter. "The winter distribution of right whales sighted in and around the SA appears to be found primarily in the northeastern section of the study area, near Nantucket, and mostly outside of the WEAs. By spring, right whales are distributed across the northern portions of the SA and WEAs, and hot spot analyses indicate that consistent aggregations of right whales occur in the RIMA WEA, in the Northwestern section of the MA WEA, and in the eastern part of the SA."[46]

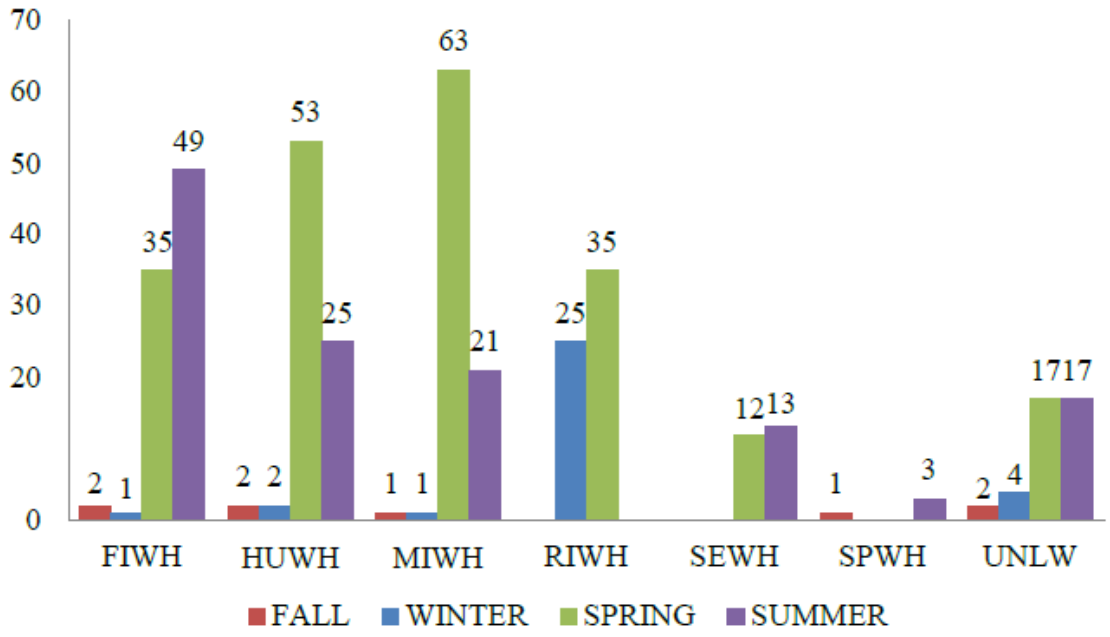

Figure 16- Numbers of Whale Sightings in the study area by season across all years (FIWH=fin whale, HUWH=humpback whale, MIWH= minke whale, RIWH=North Atlantic right whale, SEWH=sei whale, SPWH= sperm whale, UNLW= any whale sightings not identified to species).[47]

The highest number of NARW (and other whale sightings) occurred in the SA during the winter and spring months. In addition, the study was able to identify NARW sightings by time, as indicated below, showing that the majority of NARW upcalls occur between 3-8pm.

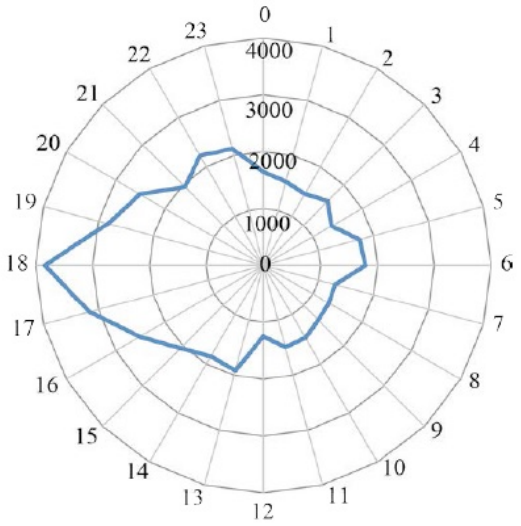

Figure 17-Radial Plot of the total numbers of detected right whale upcalls per hour (00-23 EST_ from November 2011 through March 2015.[48]

In reference to the study, the Director of BOEM has indicated that "The survey results confirm that responsible commercial wind development activities in these WEAs will not adversely affect protected species populations."[49] Going forward, PNE supports continued efforts to identify and quantify the presence of NARW and other species, as well as their behavior, as such information is essential in developing any mitigative plans in the future.

In addition to the 2011-15 pelagic study, the EA contained the following maps which indicated the presence of various whale species on the basis of SPUE:

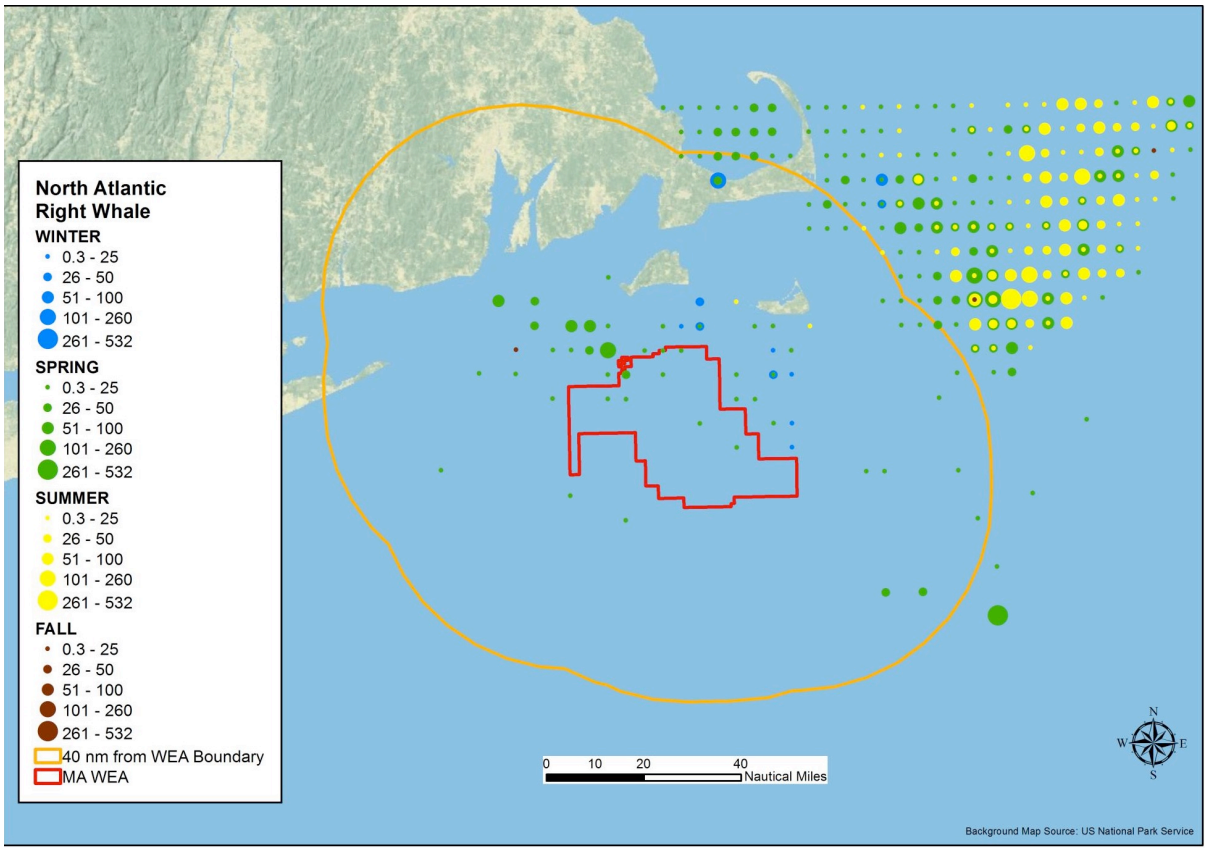

Figure 18- SPUE for North Atlantic right whales in the Massachusetts WEA and surrounding waters[50]

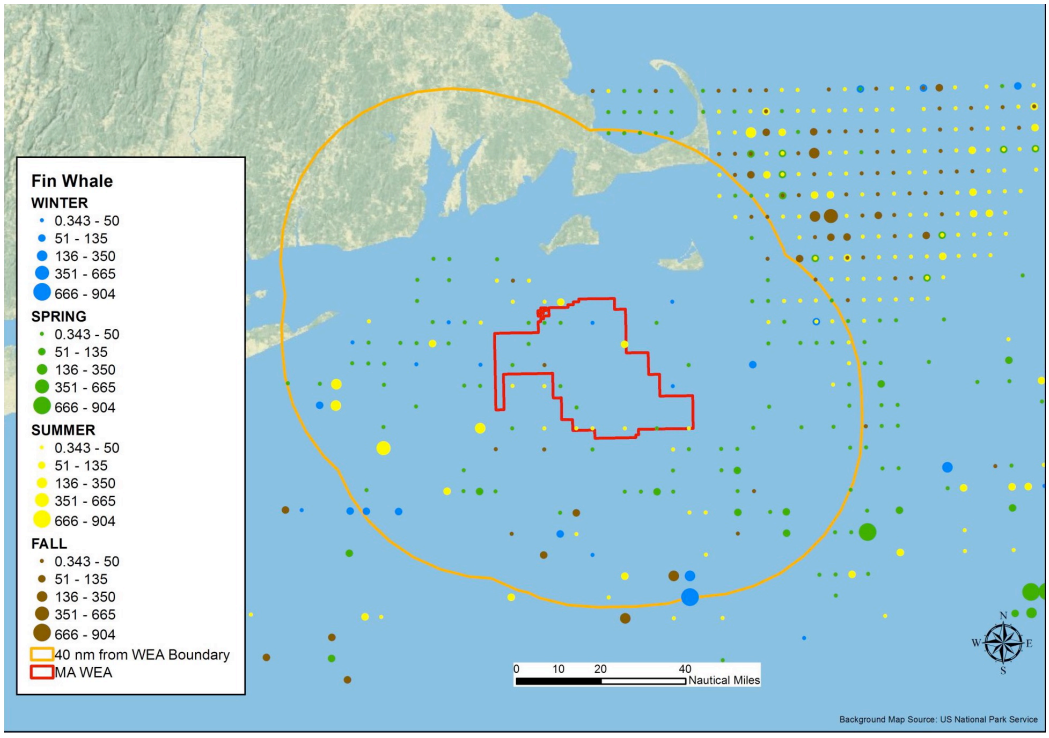

Figure 19-SPUE for fina whales in the Massachusetts WEA and surrounding waters.[51]

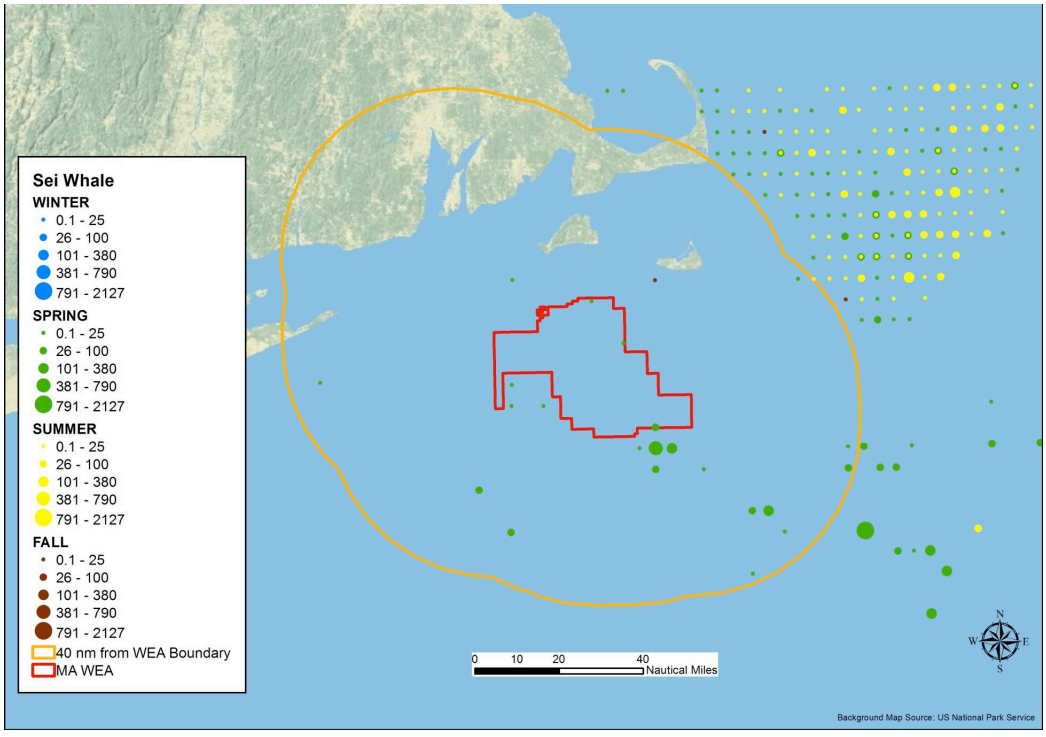

Figure 20-SPUE for sei whales in the Massachusetts WEA and surrounding waters.[52]

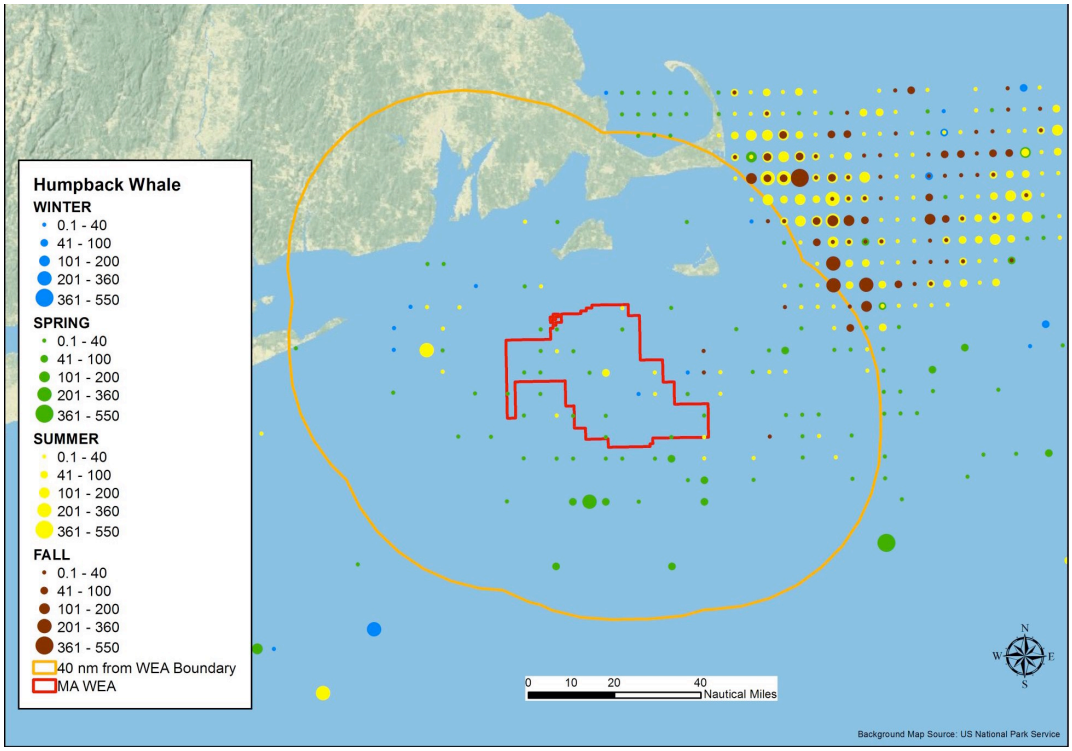

Figure 21-SPUE for humpback whales in the Massachusetts WEA and surrounding waters.[53]

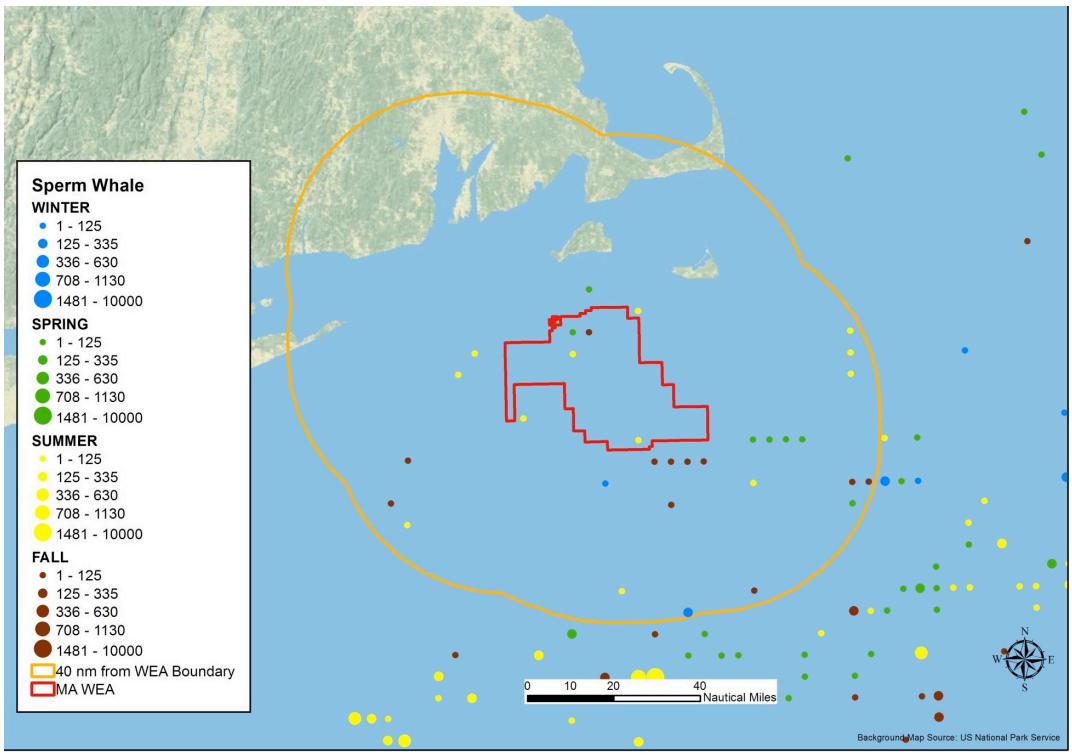

Figure 22-SPUE for sperm whales in the Massachusetts WEA and surrounding waters.[54]

Regardless of the source, be it the EA or other purpose-oriented studies performed before/during/after the fact, the surveying of whales and their presence in the area is

an ongoing multi-year process during which time their prevalence, migratory behavior, and other factors will become better understood overtime.

There are lessons learned from projects in Europe and the U.S. in regards to mitigation measures. In Europe, a 2014-15 study was performed by a consortium of major European developers and utilities, with support from the Carbon Trust Offshore Wind Accelerator aimed at reducing costs, risks and noise emissions of offshore monopile installation in future European offshore wind projects.[55] In the U.S., Deepwater Wind acquired two leases in 2013 in RIMA and in 2014 signed an agreement with several environmental and conservation organizations to "minimize potential impacts on North Atlantic right whales and other marine mammals from underwater noise and construction vessels during the developer's site characterization and assessment activities."[56] The agreement includes the following provisions[57]:

- Seasonal Restrictions on Sub-bottom Profiling and on Pile Driving for Meteorological Tower Installation;
- Vessel Speed Restrictions;
- Use of Noise Attenuation and Source Level Reduction Technology;
- Establishment of an Exclusion Zone;
- Real-time Monitoring Effort, and;
- Adaptive Management Review

These above measures are an example of what has been agreed upon previously in relation to a project that is part of the RIMA cluster. The agreement applies only to "site characterization and site assessment activities in the RI/MA WEA. It does not apply to any other wind energy area, including the MA WEA, or project development site. It does not apply to the construction and operations phases, nor does it imply or

suggest what measures may be appropriate at the construction and operations phases. Construction and Operations Plans (COPs) will be subject to a separate environmental review, permitting, and approval process by the federal government." Nevertheless, it is a good example of mitigating measures that can be developed going forward in collaborative approach. Going forward, PNE looks forward to working with federal, state, and local agencies and stakeholders to identify, quantify, and mitigate potential impact on NARW and other critical species that appear in the Proposed Project area.

6.5 Sea Turtles

In regards to the presence of sea turtles the same pelagic survey / study referenced in Section 6.4 made the following conclusions:

- "Three species of endangered sea turtle were observed during this study. Most turtles were observed during the summer and autumn, with no significant inter-annual variability."[58]

- "Leatherback abundance estimates for the SA ranged from 9 to 90 during the summers and from 6 to 99 in autumn, with an apparent preference for the northeastern corner of the SA….These results suggest an important foraging habitat for leatherbacks adjacent to the northeastern edge of the MA WEA south of Nantucket."[59]

- "Loggerheads were primarily seen in August and September, and did not show any significant spatial patterns other than a slight tendency to move offshore in September."[60]

- "Turtles, particularly leatherbacks and loggerheads, use this area consistently from year to year."[61]

The figures below illustrate the occurrence of sea turtle species across MA WEA.

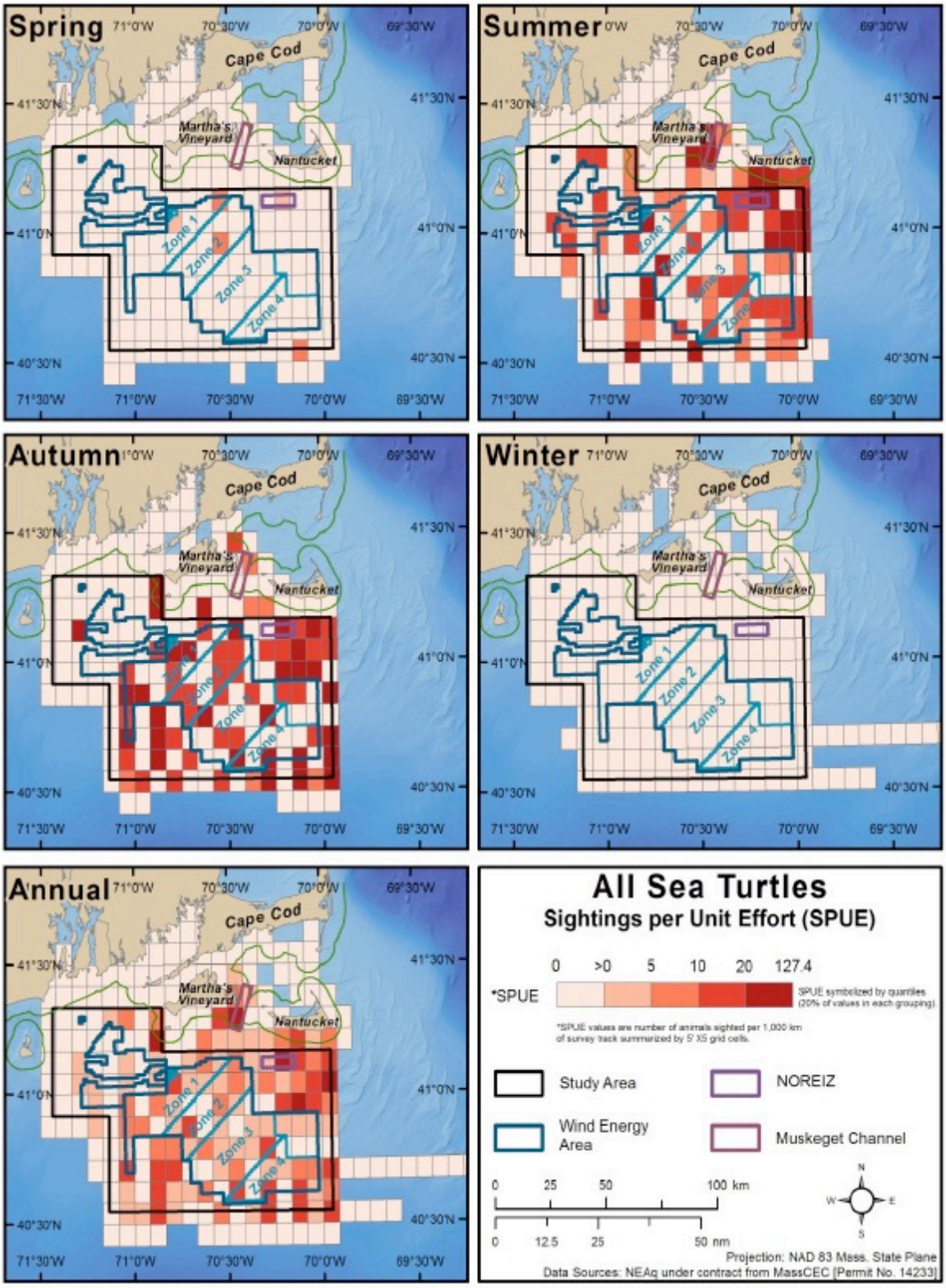

Figure 23-Sightings per Unit Effort for all sea turtle species combined by 5-minute squares, partitioned by season across all year and with all seasons combined.[62]

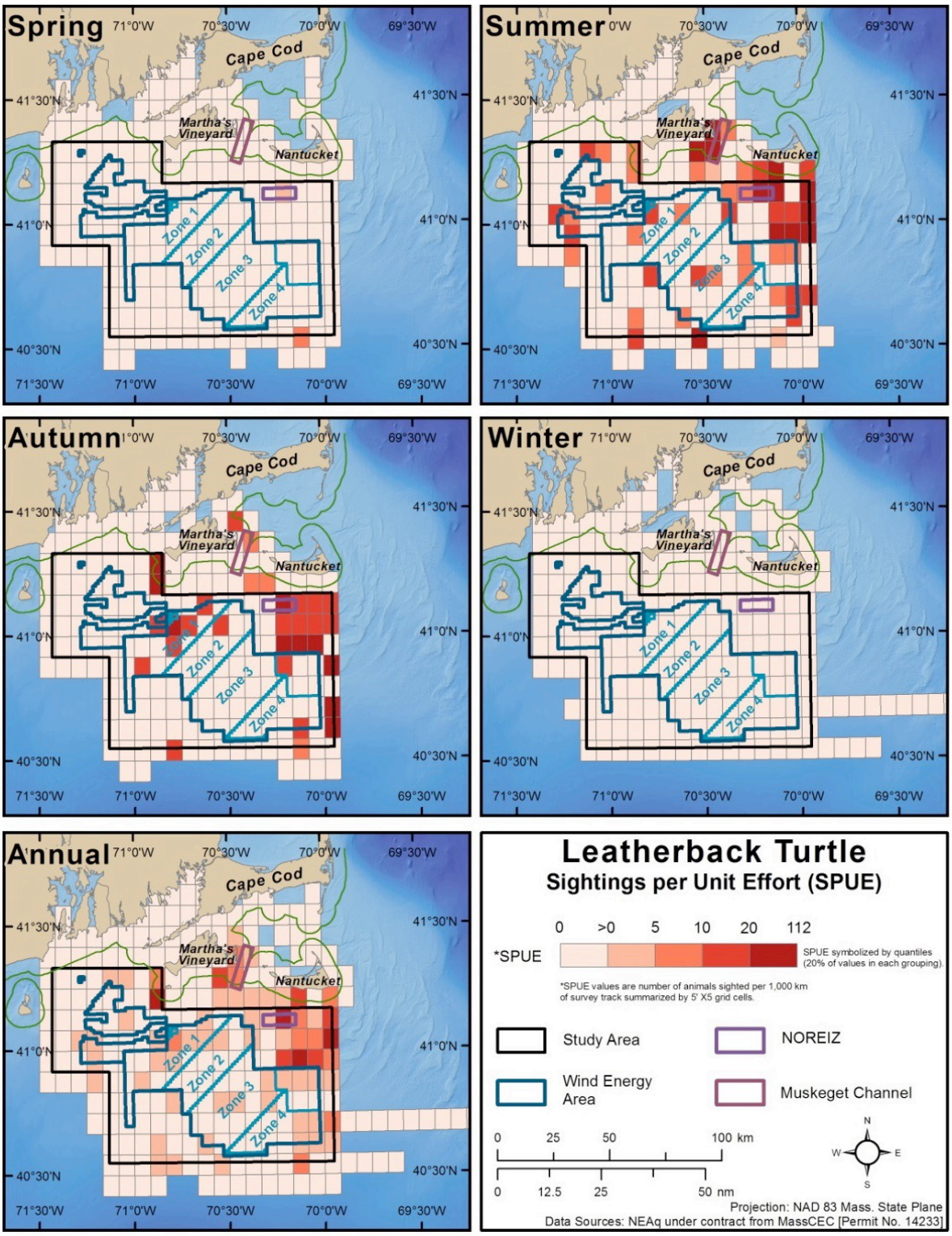

Figure 24-Leatherback turtle SPUE by 5-minute square, partitioned by season across all years and with all seasons combined.[63]

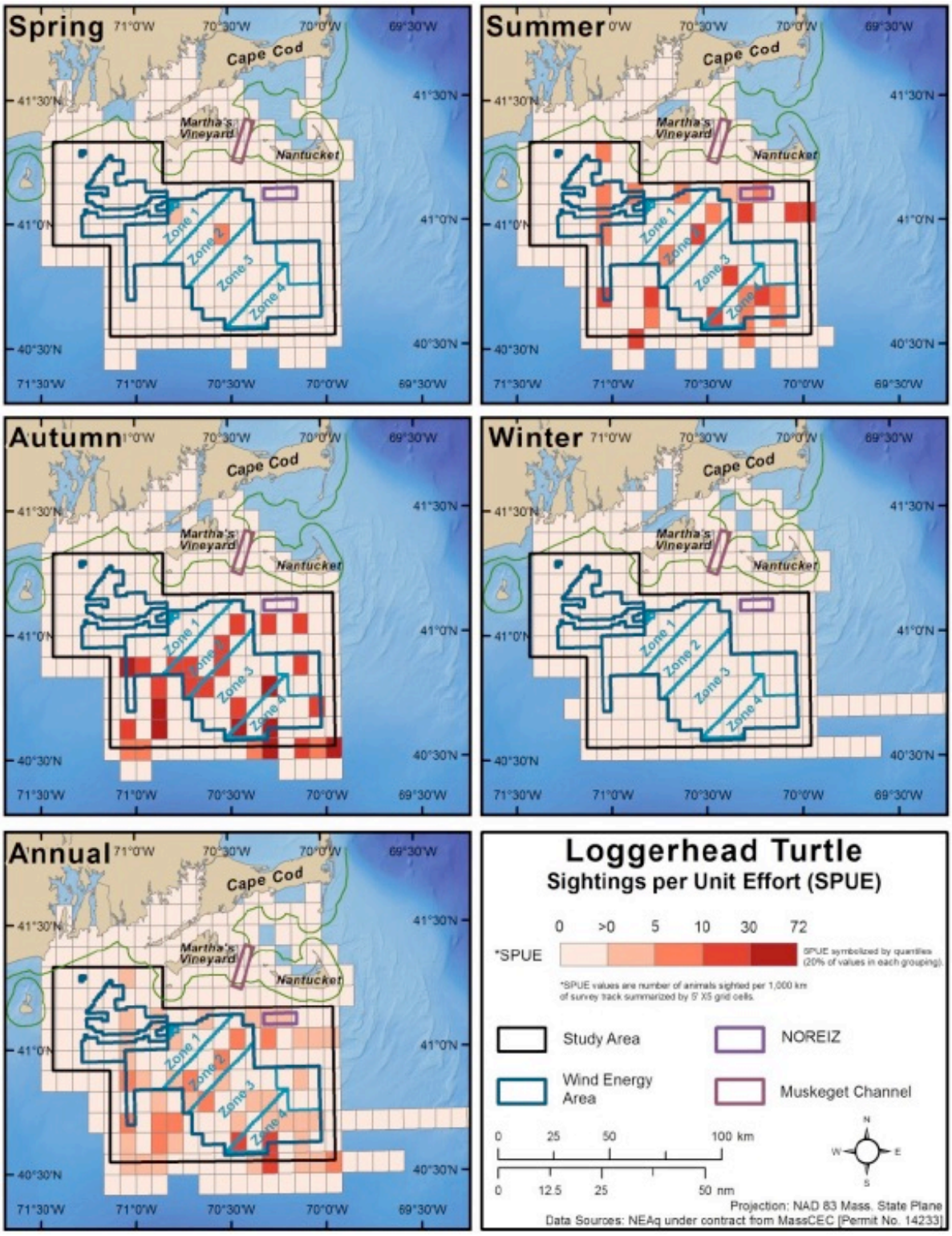

Figure 25-Loggerhead turtle SPUE by 5-minute squares partitioned by season across all years and with all seasons combined.[64]

The Proposed Project is designated as "Zone 3" in the above maps and generally shows that the presence of turtles occurs primarily in the summer and autumn

periods and that their presence is spread out over the entire MA WEA during those periods.

As a cross-reference, the EA contained the following maps illustrating the SPUE of turtle species across the broader MA WEA and surrounding environs, illustrating fewer sightings in comparison.

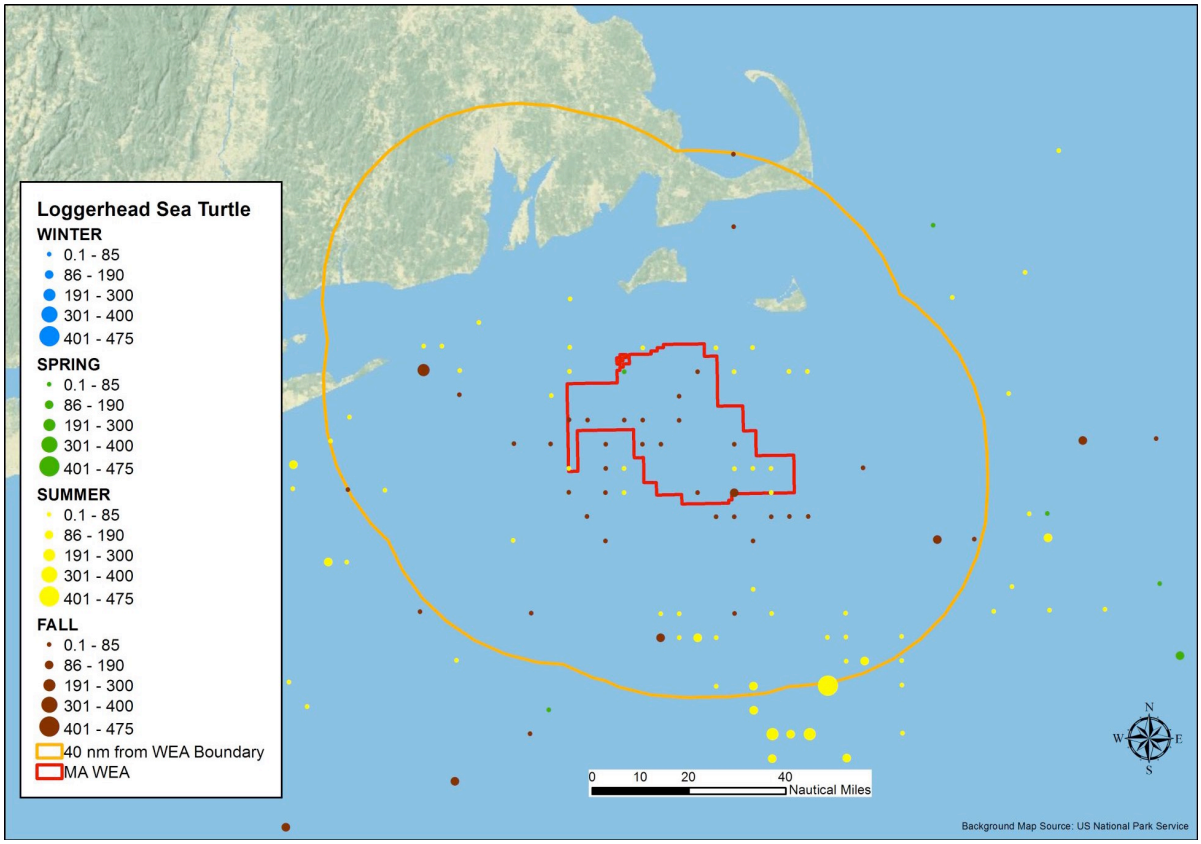

Figure 26-SPUE for loggerhead sea turtle in the Massachusetts WEA and surrounding waters.[65]

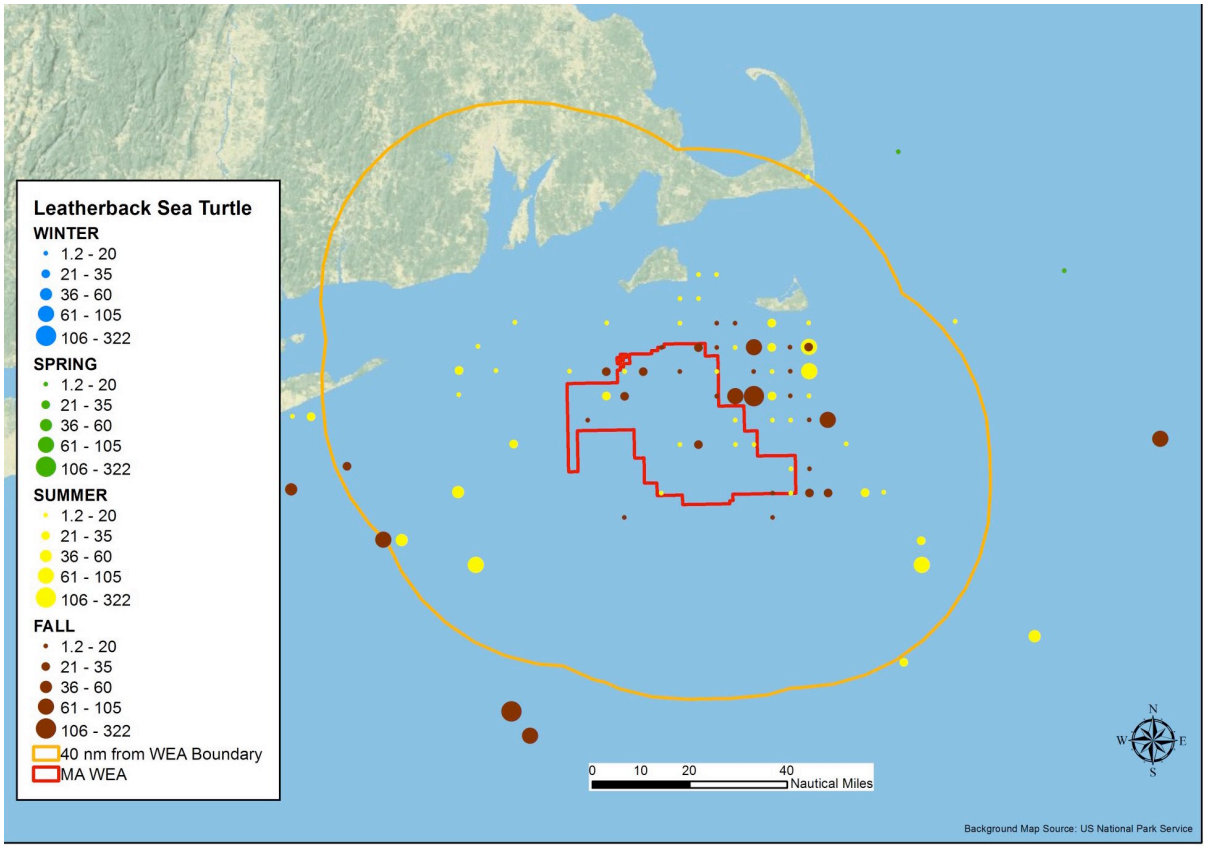

Figure 27-SPUE for leatherback sea turtles in the Massachusetts WEA and surrounding waters.[66]

The presence of the aforementioned sea turtle species raises the question going forward as to the amount of total usable area, even as the Proposed Project is part of an area that has over a number of years already undergone an extensive area identification and delineation process to account for various impacts. Nevertheless, the ultimate site-specific stipulations and mitigation measures will depend largely on the prevailing context and conditions of the Proposed Project. Going forward, PNE looks forward to working with federal, state, and local agencies and stakeholders to identify, quantify, and mitigate potential impact on sea turtles and other critical species that appear in the Proposed Project area.

6.6 Avian

According to the EA performed in 2014, “Two species of birds that may occur in the WEA are listed under the ESA as endangered or threatened. The northwestern Atlantic Ocean population of Roseate Tern (*Sterna dougallii*) is listed as endangered, and the Atlantic Coast population of the Piping Plover (*Charadrius melodus*) is listed

as threatened. A third bird species that may occur in the WEA, the Red Knot (Calidris canutus rufa), is currently regarded by the USFWS as a candidate for ESA listing status (Niles et al., 2007) but has been proposed to be listed as threatened (78 FR 60023); a final ruling is expected by June 2014."[67] In December 2014, the USFWS designated the Red Knot as being threatened.

A report on avian presence in MA WEA was released in 2016 and based on surveys that were performed during 2011-15. Called "*Abundance and Distribution of Seabirds off Southeastern Massachusetts, 2011-2015*" the report was prepared for MassCEC and BOEM under Cooperative Agreement number M12AC00024 by the College of Staten Island, City University of New York; NOAA, National Centers for Coastal Ocean Science; and Notice Nature, Inc. The area that was surveyed is illustrated below:

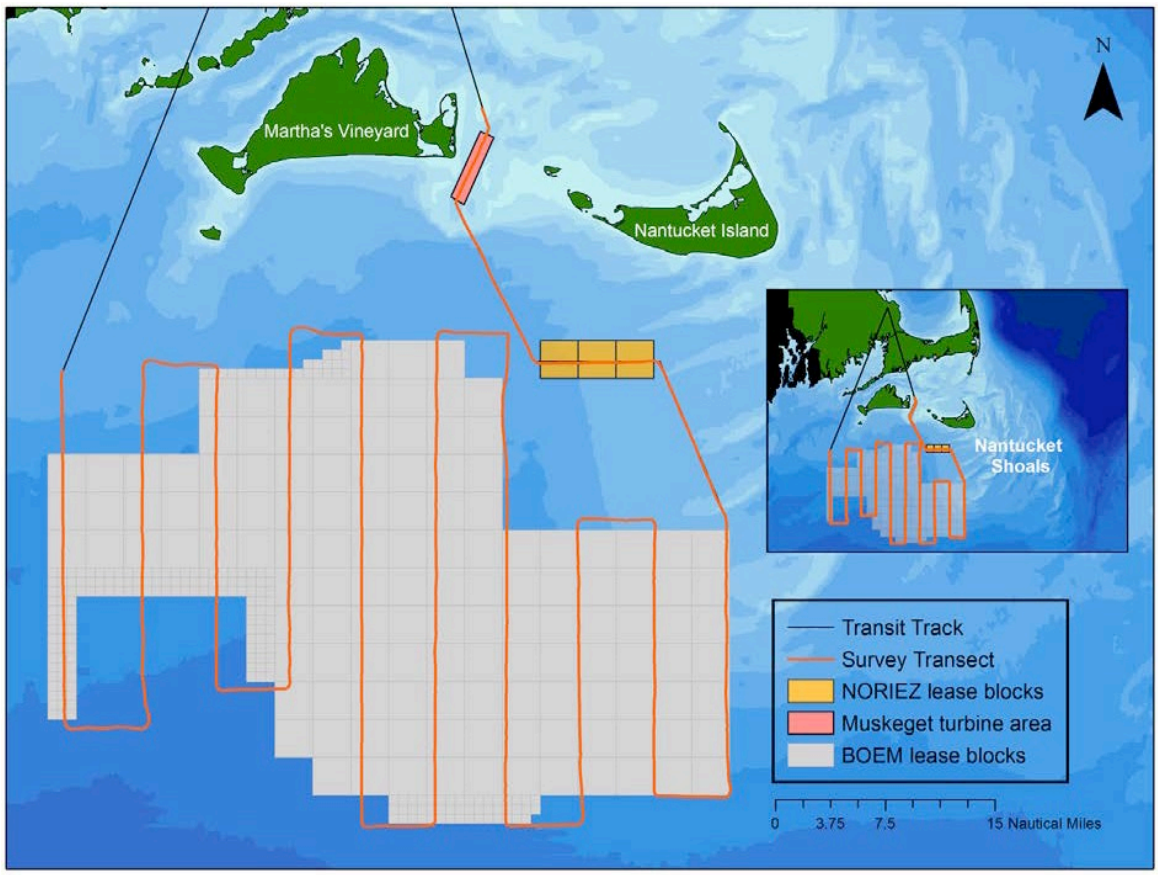

Figure 28-Study Areas and configuration of transect lines.[68]

(Note that this area appears to be based on an older delineation and that some areas on the eastern side of MA WEA have since been excluded. Current delineation to be confirmed by BOEM.)

To the east of MA WEA is an area known as Nantucket Shoals (illustrated below) which is a known seabird hotspot. “The Nantucket Shoals are known as a highly biologically productive region due to upwelling of nutrient rich water from the Gulf of Maine that occurs there (Kenney & Wishner 1995; Townsend et al. 2004), and the Shoals have been identified as an important fishing ground foraging area for seabirds (Ecosystem Assessment Program 2009; White et al. 2009, White 2013).”[69]

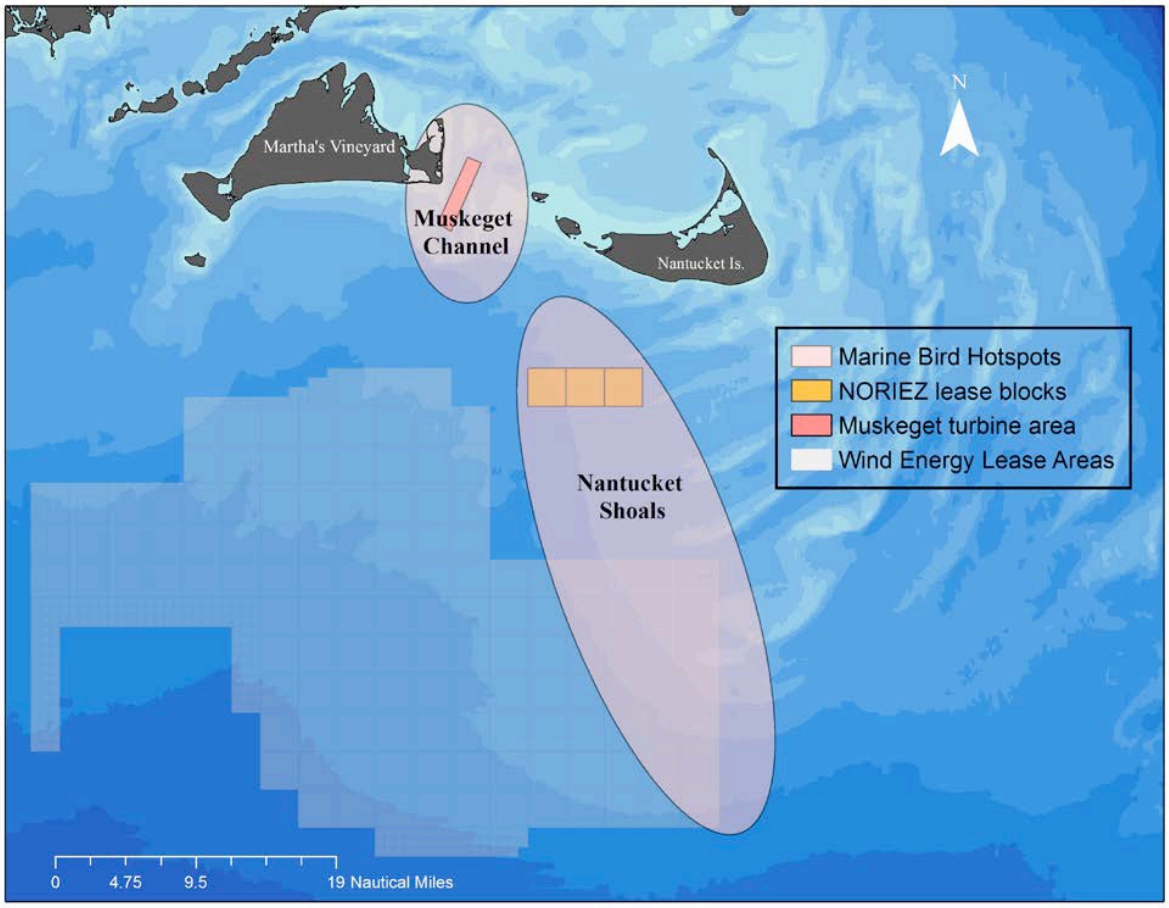

Figure 29-Hotspots of Seabird Abundance[70]

The analysis was performed using aerial observations. The only ESA designated bird species which was both identified in the EA *and* for which an aerial survey was performed in the corresponding study was the Roseate Tern. Aerial surveys were performed during the spring, summer, and fall with the spring season having the highest prevalence.

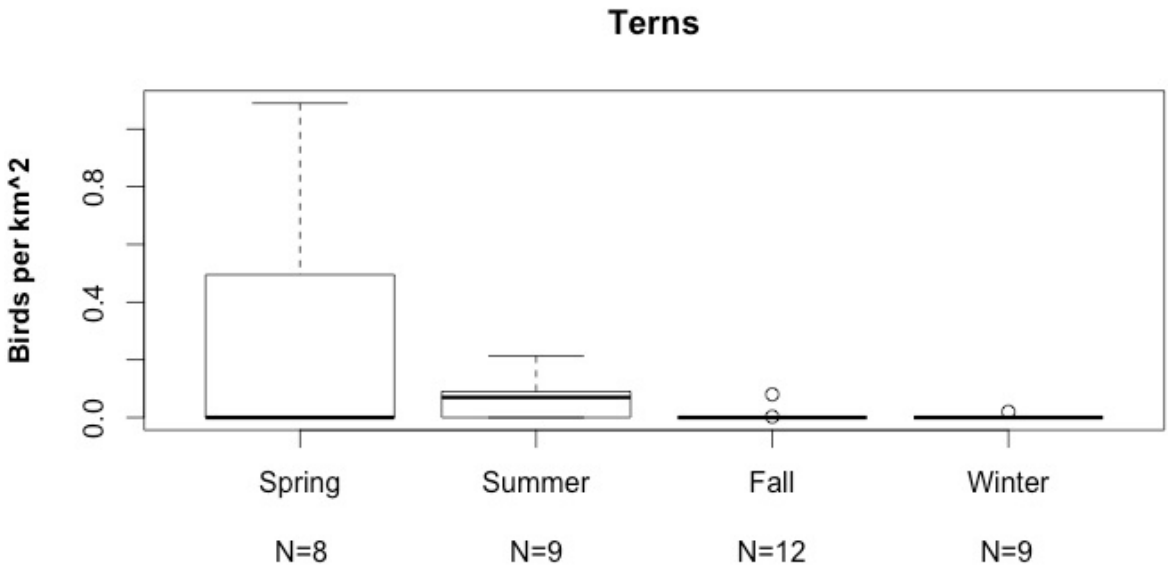

Figure 30-Seasonal occurence of Common and Roseate Terns off Massachusetts, 2011-2015.[71]

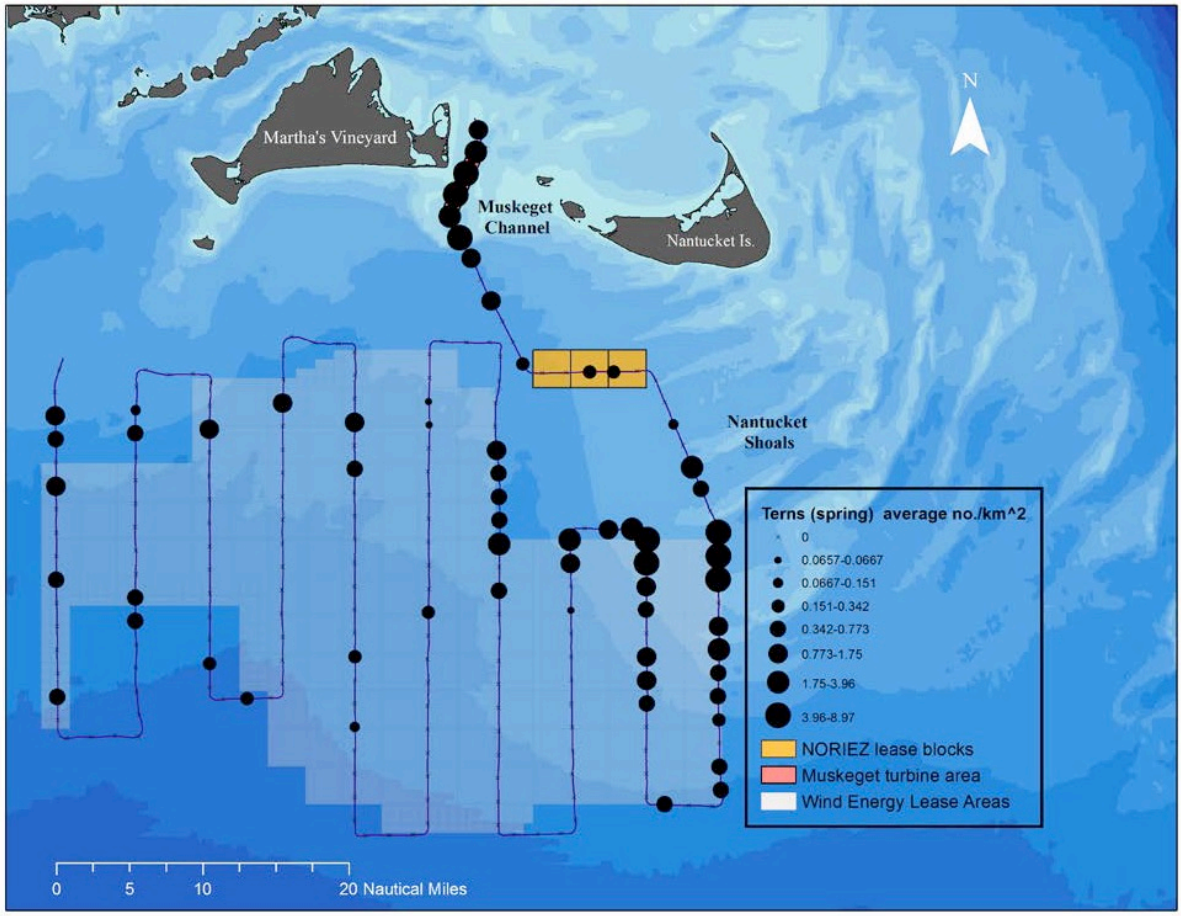

Figure 31: Distribution of Common and Roseate Terns in spring.[72]

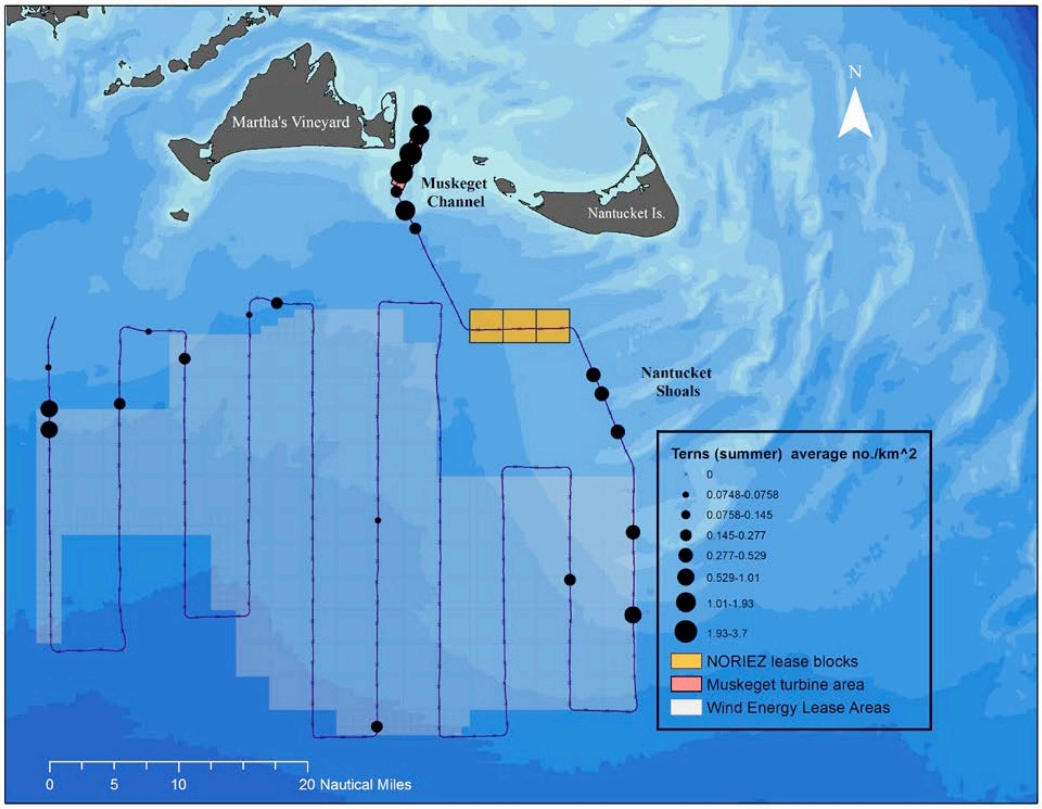

Figure 32-Distribution of Common and Roseate Terns in Summer[73]

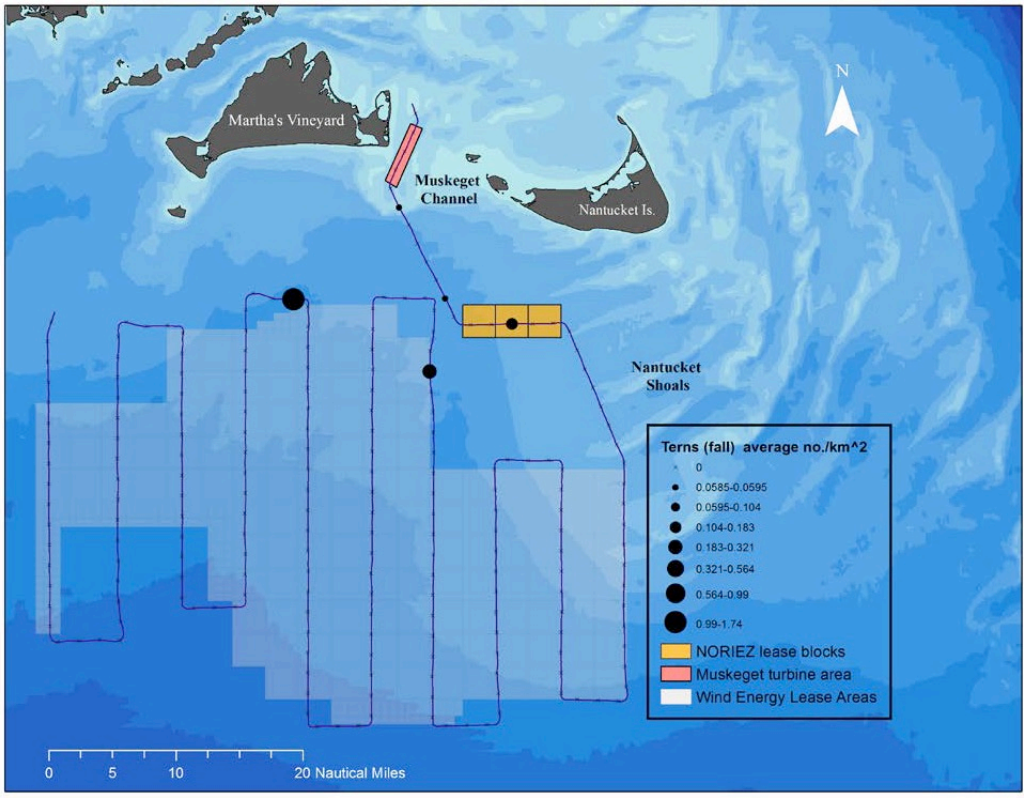

Figure 33 Distribution of Common and Roseate Terns in summer.[74]

The study concludes that: “The western edge of the Nantucket Shoals emerged as an obvious Hotspot for Long-tailed Ducks, White-winged Scoters, Northern Gannets, and Razorbills. We found Roseate and Common Terns in high abundance there in both Year 1 and Year 2, but did not survey the area during May of Year 3. On this basis, we conclude that the Nantucket Shoals are a Hotspot for these terns during May.”[75]

The Proposed Project is part of an area that has already over a number of years undergone an extensive area identification and delineation process to account for various impacts, with subsequent amendments having been made to exclude some of the original areas. The maps below illustrate the original call area in 2012, whereas the latter shows the current MA WEA cluster with several blocks having been excluded on the eastern boundary. At present two leases have been awarded to date in the MA WEA cluster.

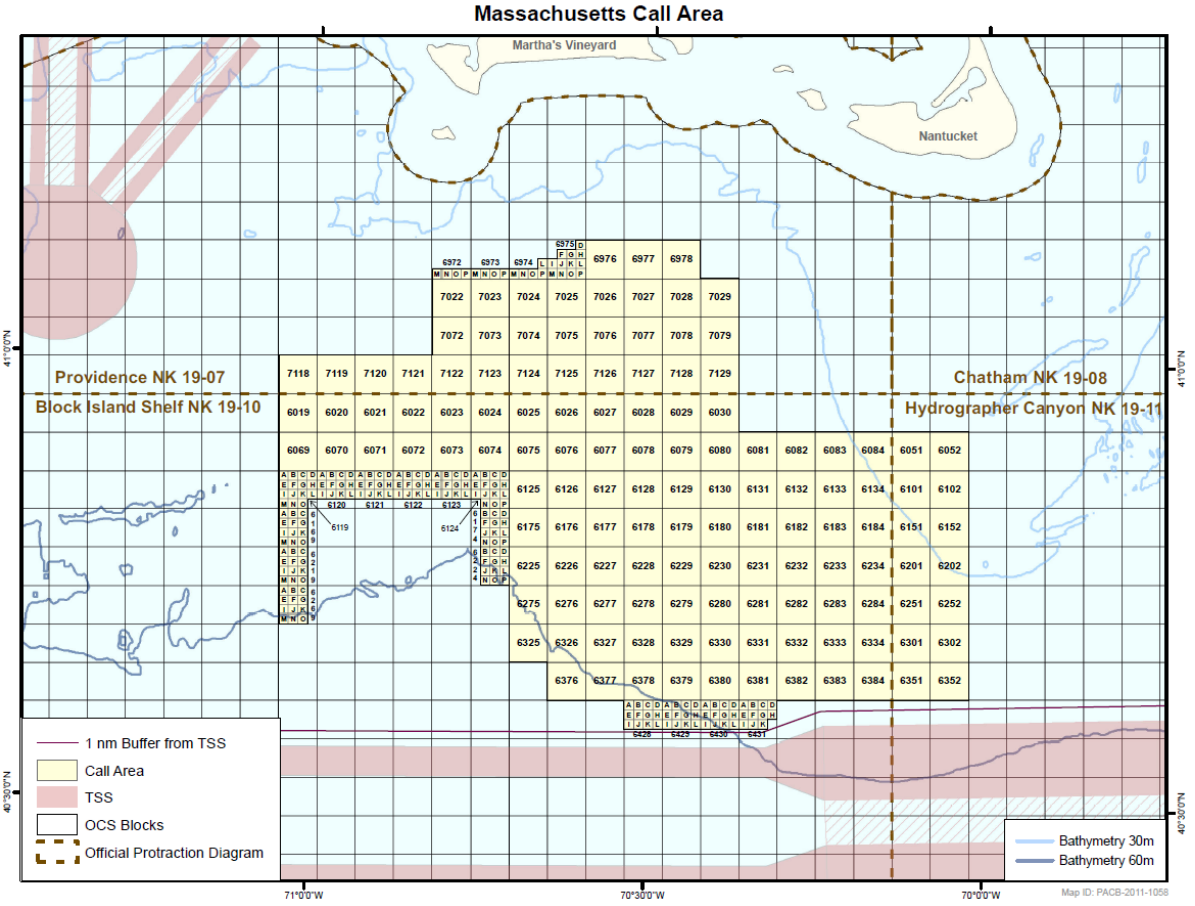

Figure 34- Original Massachusetts Call Area.[76]

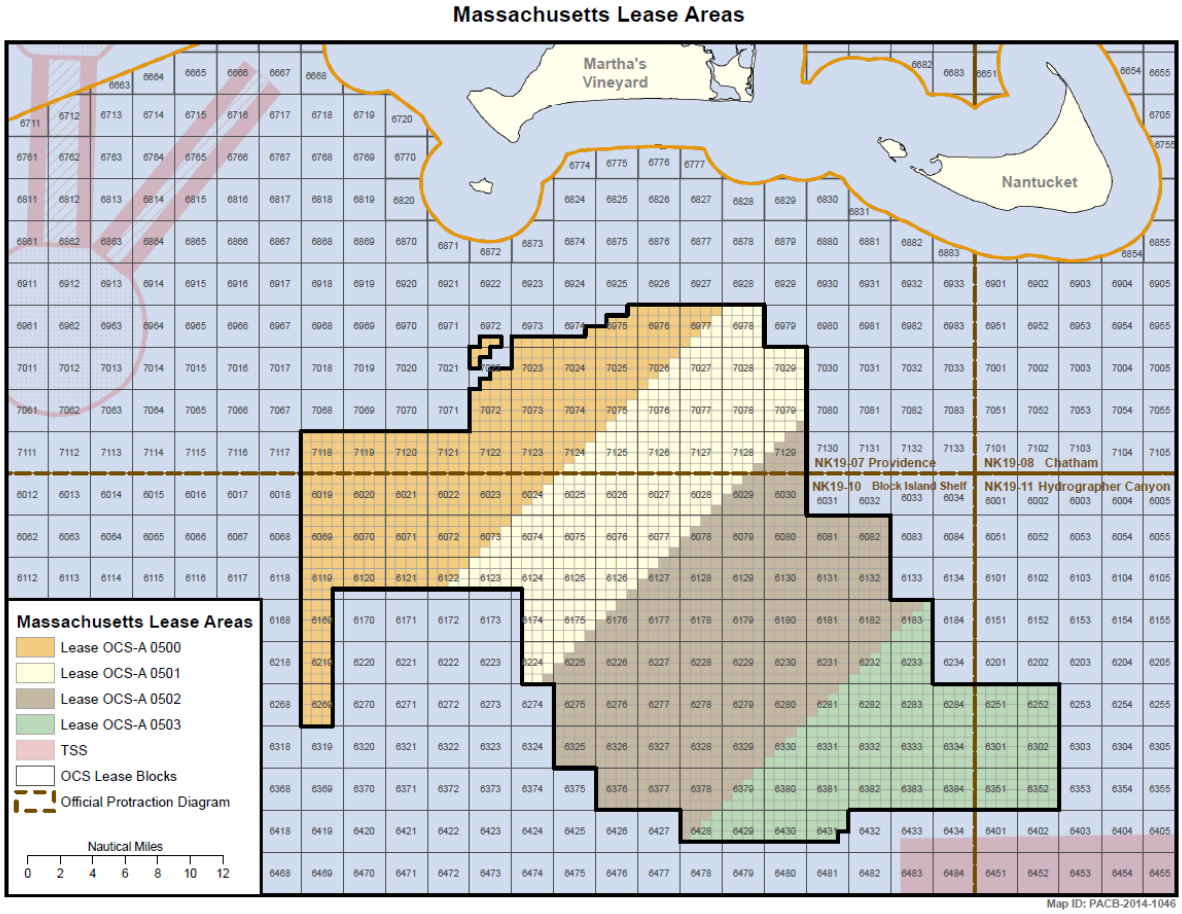

Figure 35-Massachusetts Wind Energy Area (MA WEA) Current Delineation[77]

Going forward, PNE looks forward to working with federal, state, and local agencies and stakeholders to identify, quantify, and mitigate potential impact on avian species and other critical species that appear in the Proposed Project area.

6.7 Aviation

With respect to potential aviation impact, the 2014 revised EA has made the following assessments:

- The closest public airports to the WEA are Nantucket Memorial Airport on Nantucket Island, and Katama Airfield and Martha's Vineyard Airport, both located on Martha's Vineyard. Private airports nearby include Tuckernuck and Muskeget Island Airport (located on islands between Nantucket and Martha's

Vineyard). Major airports located on the mainland include Logan International Airport in Boston, MA, Providence T.F. Green Airport in Providence, RI, and Long Island near New York, NY. In addition, there is military air traffic associated with Otis Air National Guard Base on Cape Cod, MA.[78]

- "The FAA designates air space for military activities, including training routes, operating areas (OPAREAs), restricted airspace, and warning areas. There are no military OPAREAs or training routes in the airspace over the WEA (FAA, 2012). The majority of the WEA is within a U.S. Navy Aviation Warning Area, which is a type of Special Use Airspace where flight operation may be restricted at times."[79]

- "The closest restricted airspace occurs around a small island that is approximately 2.8 nm south of the western end of Martha's Vineyard and approximately 6.5 nm (12 km) north of the WEA (U.S. Navy, 2007)."[80]

- "Additionally, the airspace above the WEA may be used by USCG or other government and private aircraft for data collection (such as the avian surveys associated with this proposed action) and search and rescue operations."[81]

- "Any meteorological tower more than 199 ft (61 m) tall also would require an obstruction evaluation analysis by the FAA to determine whether a meteorological tower would pose a hazard to air traffic and a Determination of Hazard/No Hazard issued by the FAA if within 12nm (22 km) of shore. Should BOEM receive a SAP for a meteorological tower outside of FAA jurisdiction (i.e., further than 12 nm [22 km] from shore), BOEM would determine whether the proposed meteorological tower would pose a threat to air navigation. With implementation of mitigation measures and appropriate FAA review and approvals, BOEM anticipates that impacts on aviation under Alternative A would be negligible."[82]

- "BOEM would conduct evaluations of impacts on radar systems during the SAP phase, once details about where towers would be placed within the WEA and what devices would be on the towers are known. Evaluation of impacts of

meteorological towers on military and civilian radar systems would be included in any Determination of Hazard/No Hazard by the FAA (if within 12 nm [22 km] of shore). BOEM would consult with DOD on any meteorological towers outside of FAA jurisdictional authority to determine impacts of meteorological towers greater than 12 nm (22 km) from shore on military and civilian radar systems."[83]

- "Installation/operation of the meteorological towers and buoys would not measurably impact current or projected future military or aviation activities for several reasons. An aircraft colliding with meteorological towers is unlikely because the towers would be constructed following USCG and FAA requirements relating to marking and lighting of towers. BOEM would consult on impacts on military and civilian radar systems once project specific details are known."[84]

The Proposed Project is located far from shore and airports. Nevertheless, the ultimate aviation impact will be determined in subsequent stages of the process and in coordination with BOEM and FAA.

6.8 Military Use Areas

As mentioned earlier in Section 3.3, DOD has indicated some areas could affect military operations and requested consultation going forward in relation to the Proposed Project. The 2014 revised EA includes the following with respect to military use areas:

- "Military Use Areas, established in numerous areas off all U.S. coastlines, are required by the U.S. Air Force, Navy, Marine Corps, and Special Operations Forces to conduct various testing and training missions."[85]

- "Military OPAREAs define where the U.S. Navy conducts surface and subsurface training and operations. The WEA is within the Narragansett Bay OPAREA. The Navy conducts various training activities at sea, such as

sinking exercises of surface targets and mine warfare exercises. The Navy also conducts shakedown cruises for newly built ships, and for ships completing overhaul or extensive repairs in shipyards located along the coasts."[86]

- "In addition, a U.S. Navy aviation warning area occurs over the majority of the WEA."[87]

- "There are no danger zones or restricted areas within the WEA; the closest danger zone/restricted area to the WEA under Alternative A is the restricted air space over Nomans Land Island that is approximately 10 nm north of the WEA. Nomans Land Island is also designated as a danger zone for naval operations (33 CFR 334.70) because unexploded ordnance is suspected to be present (NOAA Office of Coast Survey, 2009) and public access is not permitted."[88]

- "Two OCS blocks within the WEA do contain unexploded ordnance (Martin, personal communication)–Blocks 6070 and 6284."[89]

- "BOEM consulted with DOD on Alternative A of this EA. DOD responded that the impact on the Navy's training areas and other DOD activities from site characterization surveys and installation, operation, and decommissioning of meteorological towers/buoys offshore Massachusetts could be mitigated by site-specific stipulations designed in consultation with DOD. Therefore, impacts would be negligible and avoidable when coordinated with DOD."[90]

The EA indicates that much of the military-related impact in the area can be mitigated and is subject to site-specific stipulations, though for the avoidance of doubt PNE looks forward to any discussion with BOEM and DOD to identify particular impacts as well as avoidance / mitigation measures, and in light of the fact that two leases in MA WEA (the same area) have to date been awarded and given the extent of existing delineation and inter-agency efforts between BOEM and other agencies.

6.9 Vessel Traffic

The closest traffic separation scheme (TSS) and shipping lane is located just south of MA WEA. Another TSS is located west of Martha's Vineyard, near the entrance to Buzzards Bay, although this is not located near the area of the Proposed Project.

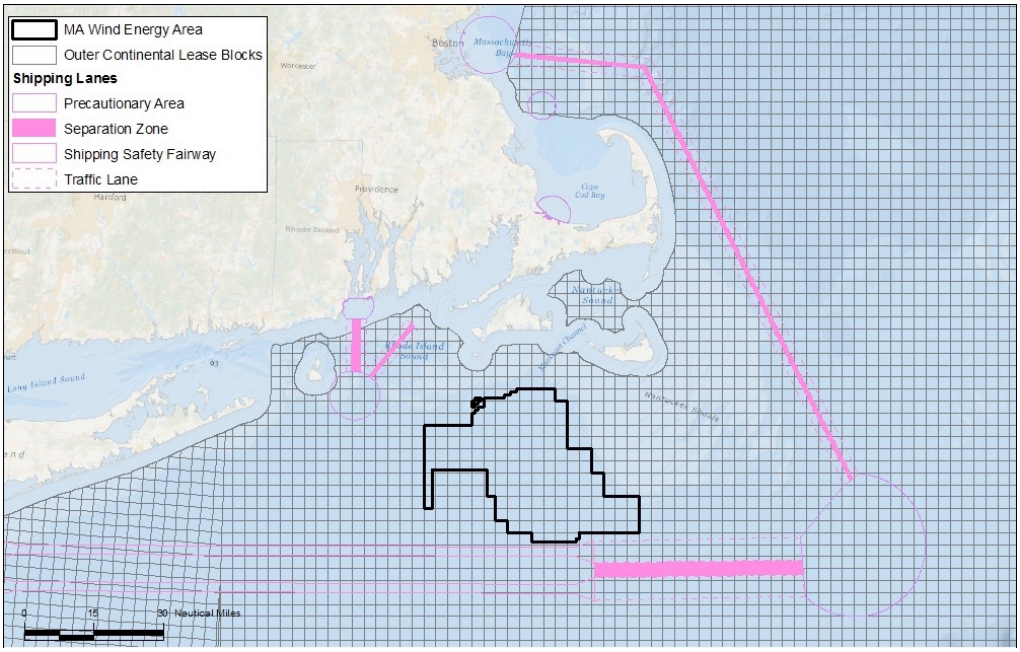

Figure 36-Location of Shipping Channels in the WEA. [91]

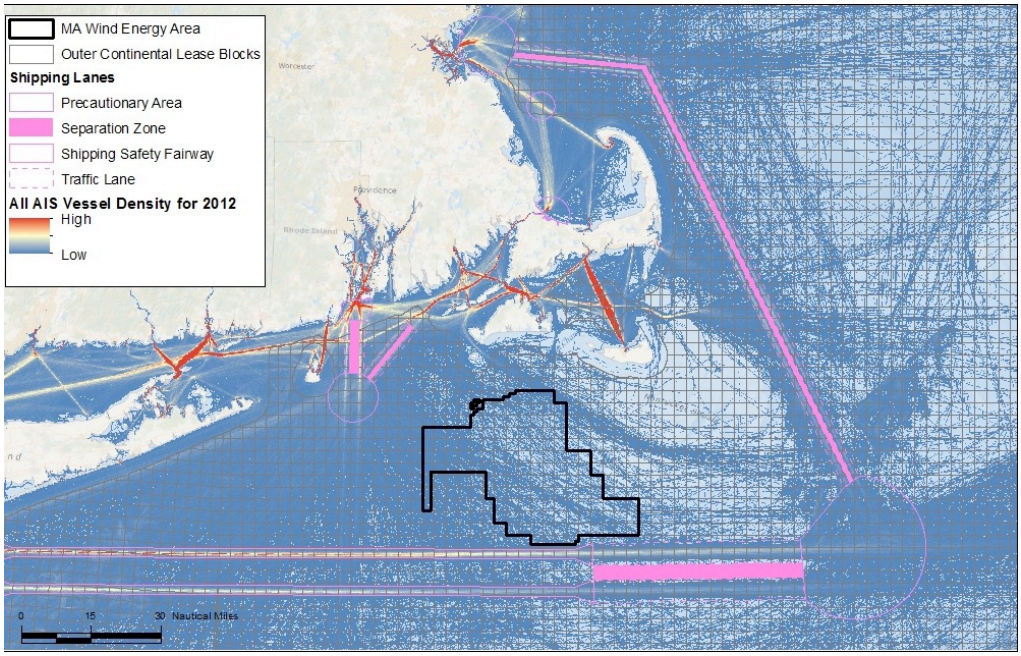

Figure 37-Vessel traffic density aggregated over 2012 derived from AIS data, shipping, and the WEA. [92]

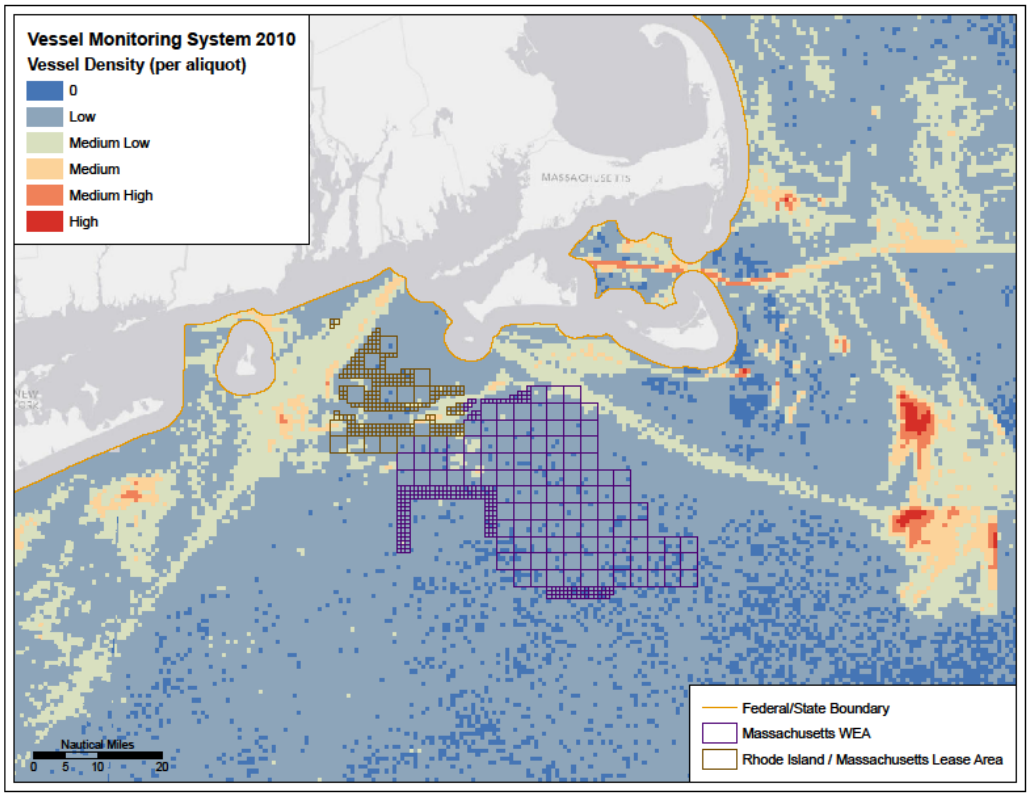

Figure 38 Vessel traffic density derived from VMS 2010 density data and the WEA.[93]

The EA concludes[94] that impacts on vessel traffic and navigation attributed to site characterization surveys as well as the construction, operation, and decommissioning of meteorological and oceanographic data collection towers and buoys associated with Alternative A will be negligible and minor. Furthermore, additional vessel activity associated with the proposed action is expected to be relatively small, the number of vessels passing through the WEA is not expected to significantly increase vessel traffic density when compared to existing and projected future vessel traffic in the WEA. Based on the use of aids, such as Private Aids to Navigation, impacts on navigation from the placement of meteorological towers and buoys are expected to be minor.

Lastly, the Proposed Project is part of a previously identified area that has been delineated by BOEM on the basis of engagement with stakeholders and input from various agencies and as such traffic-related considerations should have been taken into account in the ultimate area delineation. Nevertheless, going forward PNE will work with BOEM, USCG and other agencies / stakeholders during subsequent

phases to determine potential impacts, avoidance areas, and mitigation measures with respect to marine traffic.

6.10 Telecommunications Cables

At this time PNE does not have any information with regards to the potential presence of telecommunications cables within the Proposed Project area, nor did the associated EA make any reference / indication to that effect. There are a number of telecommunications cables to the west of MA WEA that intersect with RIMA. Going forward PNE will work to identify and locate the presence of telecommunications cables in the area of the Proposed Project.

6.11 Visual Impact / Cultural & Historical

The Proposed Project is not located near any inhabitants or properties and is in fact located 76nm south of Brayton Point. Of all the MA WEA projects, the Proposed Project is furthest from shore.

7. Conformance with State and Local Energy Planning

If BOEM determines that there is no competitive interest and PNE is able to move forward on the basis of this unsolicited request, PNE will per 30 CFR 585.231 submit any consistency certification and necessary information to the applicable State Coastal Zone Management Act (CZMA) agency or agencies as well as BOEM and will seek conformance letters in that regard.

APPENDIX