MAYFLOWER WIND

Appendix L1. Offshore Designated Protected Areas Report

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MAYFLOWER WIND

Prepared for:
Mayflower Wind Energy LLC

Final Offshore Designated Protected Areas Report

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Revision	Revision date	Details	Authorized	Name	Position
0	2/13/21	For submittal	Yes	Nancy Palmstrom	Project Manager
1	8/27/21	Revised to include Brayton Point and updated Falmouth Project Design Envelope	Yes	Kristen Durocher	Deputy Project Manager

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Abbreviations and Acronyms

Abbreviation or Acronym	Definition
AIS	Automated Identification System
ADP	Area Designated for Preservation
APC	Area of Particular Concern
BOEM	Bureau of Ocean Energy Management
COP	Construction and Operations Plan
CRMC	Coastal Resources Management Council
CSC	Coastal Services Center
CZM	Office of Coastal Zone Management
DMF	Division of Marine Fisheries
DPA	Designated Protected Area
EEA	Executive Office of Energy and Environmental Affairs
ECC	Export Cable Corridor
ft	foot/feet
ha	hectare
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
km	kilometer
kV	kilovolt
Lease Area	Lease Area OCS-A 0521
m	meter
MARA	Marine Archaeological Resources Assessment
MassDEP	Massachusetts Department of Environmental Protection
MassGIS	Massachusetts Geographic Information System
Mayflower Wind	Mayflower Wind Energy LLC
M.G.L.	Massachusetts General Laws
mi	miles
MLLW	Mean Lower Low Water
MMTA	Massachusetts Marine Trades Association
MPA	Marine Protected Area
MSIR	Marine Site Investigation Report
NHESP	Natural Heritage and Endangered Species Program
nm	nautical mile
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
Ocean SAMP	Ocean Special Area Management Plan
OCM	Office for Coastal Management
OCS	Outer Continental Shelf
OMP	Ocean Management Plan
OPA	Ocean Planning Area
OSA	Oceans Sanctuaries Act
OSP	Offshore Substation Platform
POI	Points of Interconnection
RI CRMP	Rhode Island Coastal Resources Management Program

RIDEM	Rhode Island Department of Environmental Management
SAV	Submerged Aquatic Vegetation
SLA	Submerged Lands Act
SSU	Special, Sensitive, or Unique
UXO	Unexploded Ordnance
U.S.	United States
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WTG	Wind Turbine Generator

1.0 Introduction

Mayflower Wind Energy LLC (Mayflower Wind) proposes an offshore wind renewable energy generation project (the Project) located in federal waters off the southern coast of Massachusetts in the Outer Continental Shelf (OCS) Lease Area OCS-A 0521 (Lease Area). The Project will deliver electricity to the regionally administered transmission system via export cables with sea-to-shore transitions in Falmouth and Somerset, Massachusetts and Portsmouth, RI (intermediate landfall) and onshore transmission system extending to the respective points of interconnection (POIs) in Massachusetts.

1.1 Assessment Objectives

This report identifies particularly sensitive areas of the marine environment in the Project Area that have been specially designated for protection by federal, state, or municipal government agencies, or other non-governmental organizations, and evaluates the potential for the Project to affect such areas, broadly defined as designated protected areas (DPAs). These DPAs often protect or conserve biological diversity, important natural resources, culturally significant features, or other areas where certain activities may be prohibited or restricted in order to conserve the area for a specific use or purpose. These include, but are not limited to, parks, sanctuaries, marine protected areas, refuges, reserves/preserves, wildlife management areas, or conservation areas. Due to their ecological, cultural, or other importance, DPAs are often afforded some form of legal protection.

Other offshore DPAs related to maritime navigation, aviation, military activities, commercial fishing, essential fish habitat, marine mammal populations and habitat, seagrasses, and threatened and endangered species habitat, as well as onshore protected lands, are the subject of separate reports and are not discussed in detail within this report. Onshore DPAs are addressed in a separate report (Construction and Operations Plan [COP] Appendix L2, Onshore Protected Lands Report).

1.2 Report Organization

This report includes a general Project overview (Section 2.0), description of the federal, state, and local DPAs (Section 3.0), and characterization of effects (Section 4.0). References are provided in Section 5.0.

2.0 Project Description

2.1 Project Overview

The Mayflower Wind Project includes a Lease Area located in federal waters south of Martha's Vineyard and Nantucket (Figure 2-1). Wind turbine generators (WTGs) constructed within the Lease Area will deliver power via inter-array cables to the offshore substation platforms (OSPs). The WTG/OSP positions have been established based on a 1 x 1 nautical mile (nm) (1.9 x 1.9 kilometer [km]) grid oriented along the cardinal directions to maintain a uniform spacing of WTGs across all the lease areas within the Massachusetts/Rhode Island Wind Energy Area. Submarine offshore export cables will be installed within offshore export cable corridors (ECCs) to carry the electricity from the OSPs within the Lease Area to the onshore transmission systems via two different ECCs. One ECC will make landfall in Falmouth, Massachusetts and the other will make landfall at Brayton Point, in Somerset, Massachusetts.

The proposed Falmouth ECC will extend from the Lease Area and enter Massachusetts state waters south of Nantucket Island and Martha's Vineyard, and pass through Muskeget Channel into Nantucket Sound. The offshore export cables will make landfall via horizontal directional drilling (HDD). Potential landing location(s) for the Falmouth ECC include Shore Street, Central Park, or Worcester Avenue in Falmouth, Massachusetts. The proposed Brayton Point ECC will run north and west from the Lease Area through Rhode Island Sound to the Sakonnet River. It will then run north up the Sakonnet River, cross land at Aquidneck Island to Mount Hope Bay, and then north into Massachusetts state waters to Brayton Point. Landfall will be made via HDD at one of two potential landing locations in Somerset on the western side of Brayton Point from the Lee River (preferred) or the eastern side from the Taunton River (alternate).

The Offshore Project Area includes the Lease Area, Falmouth and Brayton Point ECCs, and the HDD at the landfall locations.

2.2 Specific Project Details

Each primary offshore Project component is briefly described below in Table 2-1. Additional details may be found in the COP Section 3 –Description of Proposed Activities.

Table 2-1. Key Project Details

Project Attribute	Description
Lease Area Size	127,388 acres (51,552 hectares [ha])
Layout and Project Size	Up to 149 WTG/OSP positions Up to 147 WTGs Up to 5 OSP(s)
WTGs	Rotor diameter: 721.7 – 918.6 feet (ft) (220.0 – 280.0 meters [m]) Blade length of 351.0 – 452.8 ft (107.0 – 138.0 m) Hub height above Mean Lower Low Water (MLLW): 418.7 – 605.1 ft (127.6 – 184.4 m)
OSP(s)	Top of topside height above MLLW: 160.8 – 344.5 ft (49.0 – 105.0 m)
WTG/OSP Substructures	Monopile, piled jacket, suction-bucket jacket, and/or gravity-based structure Seabed penetration: 0 – 295.3 ft (0 – 90.0 m) Scour protection for up to all positions
Inter-Array Cables	Nominal inter-array cable voltage: 60 kilovolts (kV) to 72.5 kV Length of inter-array cables beneath seafloor: 124.3 – 497.1 miles (mi) (200 – 800 km) Target burial depth (below level seabed): 3.2 – 8.2 ft (1 – 2.5 m)
Landfall Location(s)	Falmouth, MA Three locations under consideration: Worcester Avenue (preferred), Shore Street, and Central Park

Project Attribute	Description
	Somerset, MA Two locations under consideration: the western (preferred) and eastern (alternate) shorelines of Brayton Point Aquidneck Island, Portsmouth, RI Several locations under consideration for intermediate landfall across the island
Offshore Export Cables	Falmouth ECC Anticipated Cable Type: high voltage alternating current (HVAC) Number of export cables: up to 5 Nominal export cable voltage: 200 – 345 kV Length per export cable beneath seabed: 51.6 – 87.0 mi (83 – 140 km) Cable crossings: up to 9 Target burial depth (below level seabed): 3.2 – 13.1 ft (1 – 4 m) Brayton Point ECC Cable Type: high voltage direct current (HVDC) Number of export cables: up to 6 Up to 4 export power cables and up to 2 communication cables Nominal export cable voltage: ±320 kV Length per export cable beneath seabed: 97 – 124 mi (156 – 200 km) Cable/pipeline crossings: up to 16 (total) Target burial depth (below level seabed): 3.2 – 13.1 ft (1 – 4 m)

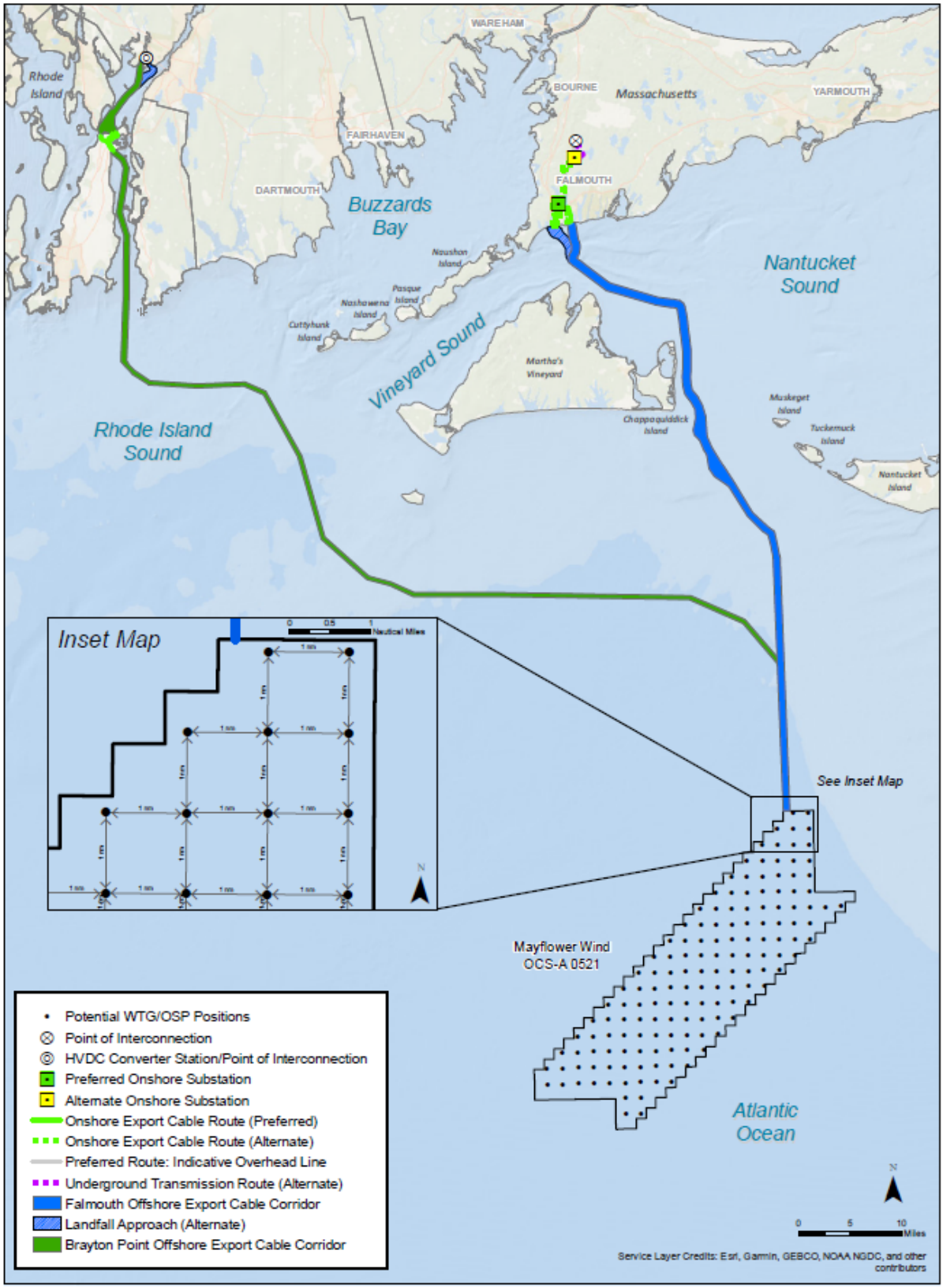


Figure 2-1. Location of Mayflower Wind Offshore Wind Renewable Energy Generation Project

3.0 Designated Protected Areas

This section describes the federal, state, and local DPAs potentially affected by the Project.

3.1 Federal DPAs

Figure 3-1 depicts federal DPAs near the Project Area.

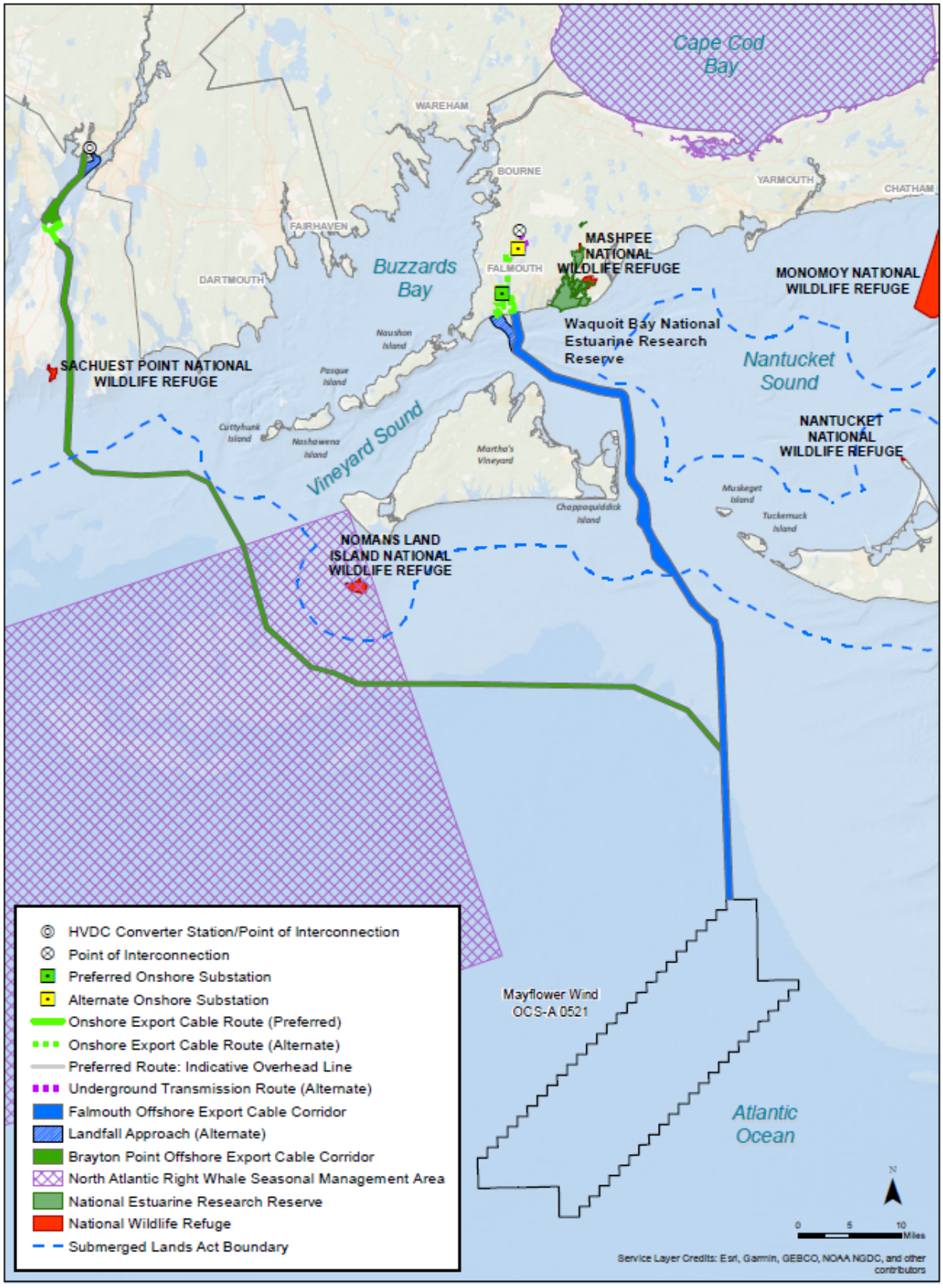
3.1.1 Submerged Lands Act Boundaries

The Submerged Lands Act (SLA) was established in 1953 by the United States (U.S.) Congress, which granted coastal states title to natural resources located within their coastal submerged lands out to three nm (5.6 km) from their coastline. The SLA defines “natural resources” as “oil, gas, and all other minerals, and fish, shrimp, oysters, clams, crabs, lobsters, sponges, kelp, and other marine animal and plant life,” yet expressly excludes “water power, or the use of water for the production of power.” 43 United States Code (U.S.C.) 1301(e). The law applies to navigable waters, and lands beneath, within the boundaries of respective coastal states out to three nm (5.6 km) from their coastlines. Title II of the SLA addresses the rights and claims by the states to the lands and resources beneath navigable waters within their historic boundaries and provides for their development by the states. Title III of the SLA maintains federal control of the seabed and resources therein beyond the state boundaries of three nm (5.6 km) and therein of the OCS. The federal government authorizes leasing by the Secretary of the Interior in accordance with certain specified terms and conditions (National Oceanic and Atmospheric Administration [NOAA], 2020a).

The Lease Area and portions of the offshore ECCs located beyond three nm (5.6 km) of the coastline are managed under the Outer Continental Shelf Lands Act and are not subject to regulation by the Commonwealth of Massachusetts, State of Rhode Island, or other nearby states under the SLA (Figure 3-1).

3.1.2 Marine Protected Areas

Marine Protected Areas (MPAs) have conservation or management purposes, defined boundaries, and some legal authority to protect resources. Nationally, MPAs are defined in Executive Order 13158 as “any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” MPAs are designated and managed by a variety of governmental agencies and have been established by more than 100 legal authorities. MPAs vary widely in purpose, legal authorities, managing agencies, management approaches, level of protection, and restrictions on human uses. They have been designated to achieve objectives ranging from the conservation of biodiversity, to the preservation of sunken historic vessels, to the protection of spawning species important to commercial and recreational fisheries (NOAA, 2012). The levels of protection provided by these MPAs range from fully protected reserves to sites allowing multiple uses including fishing, recreation, and industrial uses. As described in the subsections that follow, the Lease Area and offshore ECC is not located within or near federal MPAs.



Data sources: Bureau of Ocean Energy Management (BOEM), 2006; Office for Coastal Management (OCM), 2020; United States Fish and Wildlife Service (USFWS), 2020b

Figure 3-1. Federal DPAs In and Near the Project Area

The Lease Area and offshore ECCs do not cross National Estuarine Research Reserves (OCM, 2020). The closest National Estuarine Research Reserves are the Waquoit Bay National Estuarine Research Reserve, which is approximately 3 mi (4.8 km) to the east of the Falmouth landfall location(s); and the Narragansett Bay National Estuarine Research Reserve, located approximately 4 mi (6.4 km) to the west of the Brayton Point ECC, in the center of the Narragansett Bay. There are no anticipated effects from the Project to National Estuarine Research Reserves.

3.1.2.1 National Marine Sanctuaries

National Marine Sanctuaries are protected waters creating underwater preserves providing safe habitat for species or to protect historically significant shipwrecks. The sanctuary system consists of 14 MPAs (NOAA, 2020c). The Offshore Project Area does not cross and is not located near National Marine Sanctuaries. The closest National Marine Sanctuary is the Stellwagen Bank sanctuary located north of Upper Cape Cod in Massachusetts Bay approximately 80 mi (129 km) to the north of the Lease Area (National Centers for Coastal Ocean Science, 2020).

3.1.2.2 Marine National Monuments

The USFWS works with NOAA and state and territorial governments to cooperatively manage five Marine National Monuments. The Offshore Project Area does not cross and is not located in the vicinity of Marine National Monuments. The closest Marine National Monument is the Northeast Canyons and Seamounts Marine National Monument located approximately 105 mi (169 km) to the east of the Lease Area (Office of National Marine Sanctuaries, 2020).

3.1.3 National Wildlife Refuges

National Wildlife Refuges are areas of protection designated by the USFWS in order to conserve, manage, and restore fish, wildlife, and plant resources and their habitats (USFWS, 2020a). Each refuge is established to serve a statutory purpose that targets the conservation of native species dependent on its lands and waters. Activities on those areas are reviewed for compatibility with this statutory purpose.

The closest wildlife refuge to the Offshore Project Area is the Sachuest Point National Wildlife Refuge, located approximately 1 mi (1.6 km) to the west from the Brayton Point ECC (Figure 3-1). Sachuest Point is a 242-acre (98-ha) coastal refuge located on the northeastern shore of Sachuest Bay and the mouth of the Sakonnet River (USFWS, 2012). The refuge was established in 1972 and includes 40 acres (16 ha) of salt marshlands and steep rocky shorelines around the perimeter (USFWS, 2006). It is home to over 200 species of birds, including harlequin duck and nesting piping plover, and is a popular site for surf fishing. Sachuest Point is located approximately 62 mi (100 km) from the Lease Area and is outside the installation corridor for the Brayton Point ECC.

Nomans Land Island National Wildlife Refuge is located approximately 35 mi (56 km) to the northwest of the Lease Area and approximately 20 to 25 mi (32 to 40 km) to the west of the offshore Falmouth ECC and approximately 6 mi (9.7 km) to the west and north of the Brayton Point ECC (USFWS, 2020b). Nomans Land Island National Wildlife Refuge is a 628-acre (254-ha) island located three statute miles (4.8 km) southwest of the island of Martha's Vineyard in Massachusetts. The USFWS first began managing the eastern third of Nomans Land Island in 1970 under a Joint Management Agreement with the U.S. Navy, while the island was being actively used for military training purposes. In 1998, management of the entire island was transferred from the U.S. Navy to the USFWS for the protection and management of migratory birds. Both the island and its surrounding waters have been closed to public access since the Navy began leasing it in the 1940s as an aerial bombardment and gunnery range. Though range operations ended in 1996 and management responsibility for the island was transferred to the USFWS in 1998 to become a National Wildlife Refuge, the continued presence of unexploded ordnance throughout the island requires that it remain administratively closed to the public (USFWS, 2017).

Nomans Land Island National Wildlife Refuge is not located within the Offshore Project Area.

3.1.4 Deep Sea Corals

Deep Sea Corals are protected communities of small animals that live from 150 ft (46 m) to more than 10,000 ft (3,048 m) below sea level. Instead of forming rock-like reefs, these cold-water corals form groves of tree, feather, column, or fan shapes, sometimes reaching dozens of feet tall. Deep sea coral habitats have been discovered off the New England coast, hidden in deep canyons at the edge of the OCS. NOAA's Deep Sea Coral Research and Technology Program has developed a National Deep-Sea Corals and Sponges Database. The database is designed to compile and disseminate existing biological observations on deep-sea corals and sponges and their locations (NOAA, 2020d).

The Project is not located within mapped areas for deep sea corals (BOEM and NOAA, 2020).

3.1.5 North Atlantic Right Whale Seasonal Management Area

In 2008, NOAA National Marine Fisheries Service (NMFS) enacted a Right Whale Ship Strike Reduction Rule (50 CFR 224.105) with the goal of reducing right whale mortality due to ship traffic (NOAA, 2008). This rule applies to discrete areas of Atlantic coastal waters during certain times of the year. A designated Seasonal Management Area is located off the west coast of Martha's Vineyard, approximately 9 mi (14.5 km) from the Lease Area. This area encompasses right whale migratory routes and calving grounds. From November 1 through April 30, all vessels 65 ft (19.8 m) or longer must reduce speed to no more than 10 nm per hour while operating within the designated Seasonal Management Area (NOAA, 2014). The Brayton Point ECC will cross through approximately 18 mi (29 km) of the Seasonal Management Area (Figure 3-1).

3.1.6 Shipwrecks

NOAA's Office of Coast Survey's Automated Wreck and Obstruction Information System catalogs information on submerged wrecks and obstructions found within U.S. coastal waters. Available information on wrecks or obstructions may include vessel name, location, depth, the year of loss, and any related history (NOAA, 2009). Multiple wrecks are mapped in the waters south of Martha's Vineyard and Nantucket, as well as within Nantucket Sound, Rhode Island Sound, Narragansett Bay, and inland waters of Mt. Hope Bay and the Sakonnet River (NOAA 2009). Depending upon their location, shipwrecks may be protected under one of a number of different legal frameworks related to shipwrecks and cultural resources.

Additional details on wrecks of cultural/historical significance identified within the Lease Area and Falmouth ECC are addressed in the Marine Archaeological Resources Assessment (MARA) for the Project (COP Appendix Q). Additional geophysical and geotechnical surveys of the Lease Area and export cable corridors, including the Brayton Point export cable corridor, are ongoing and interpretation and results will be provided once completed.

3.2 Commonwealth/State DPAs

Massachusetts and Rhode Island have each developed ocean management plans - the Ocean Management Plan (OMP) and Ocean Special Area Management Plan (Ocean SAMP), respectively - for the offshore areas managed by each agency. The respective offshore areas are defined differently; most notably, Massachusetts includes only waters of the Commonwealth in the OMP, whereas Rhode Island includes federal waters (up to 30 nm from the Rhode Island coast), as well. Furthermore, Massachusetts and Rhode Island have different designations for protected areas: Special, Sensitive, or Unique (SSU) habitats and areas of concentrated water-dependent use in Massachusetts; and Areas of Particular Concern (APCs) or Areas Designated for Preservation (ADPs) in Rhode Island. As detailed below, Massachusetts has also established ocean sanctuaries within waters of the Commonwealth. The following sections discuss the resources and areas designated for protection by the two states within the Offshore Project Area.

The Rhode Island Coastal Resources Management Council (CRMC) has also developed a Shoreline Change SAMP that applies to the coastal zone of the state, including the beaches and wetlands bordering the Sakonnet River and approach to the Brayton Point landings.

3.2.1 Ocean Sanctuaries

3.2.1.1 Massachusetts

The Massachusetts Ocean Sanctuaries Act (OSA) (Massachusetts General Laws [M.G.L.] 132A, 12-A-16F, 18) established five ocean sanctuaries in Massachusetts waters (including the Cape Cod, Cape Cod Bay, Cape and Islands, North Shore, and South Essex Ocean Sanctuaries) and prohibits uses, activities, or facilities that would significantly alter the ecology of the ocean sanctuaries (Massachusetts Geographic Information System [MassGIS], 2020a). The landward boundary of the sanctuaries is the mean low water mark and the seaward boundary is the limit of state waters, generally three nm (5.6 km) offshore. The OSA contains a set of prohibited uses, activities, or facilities and a set of allowed uses, activities, or facilities; however, Chapter 114 of the Acts of 2008 (the "Oceans Act") amended the OSA to allow for the development of "appropriate scale" renewable energy facilities in ocean sanctuaries (except for the Cape Cod Ocean Sanctuary, where such facilities are not allowed), provided such facilities are consistent with the Massachusetts Ocean Management Plan (OMP).

The Lease Area is not located within designated ocean sanctuaries under the OSA (Figure 3-2); however, the Falmouth ECC will cross through the Cape and Islands Ocean Sanctuary (Office of National Marine Sanctuaries, 2020). This sanctuary encompasses the waters of Buzzards Bay, Vineyard Sound, portions of Nantucket Sound along the south side of Upper Cape Cod, and the waters surrounding Martha's Vineyard and Nantucket, covering 686,060 acres (277,647 ha) of marine area. Cable projects, such as the Mayflower Wind offshore export cables, are an allowed use within the Cape and Islands Ocean Sanctuary, provided that the project is consistent with the provisions of the OMP (see Section 3.2.2 for further detail on the OMP, and areas protected under the OMP). The Brayton Point ECC does not pass through the Cape and Islands Ocean Sanctuary.

3.2.1.2 Rhode Island

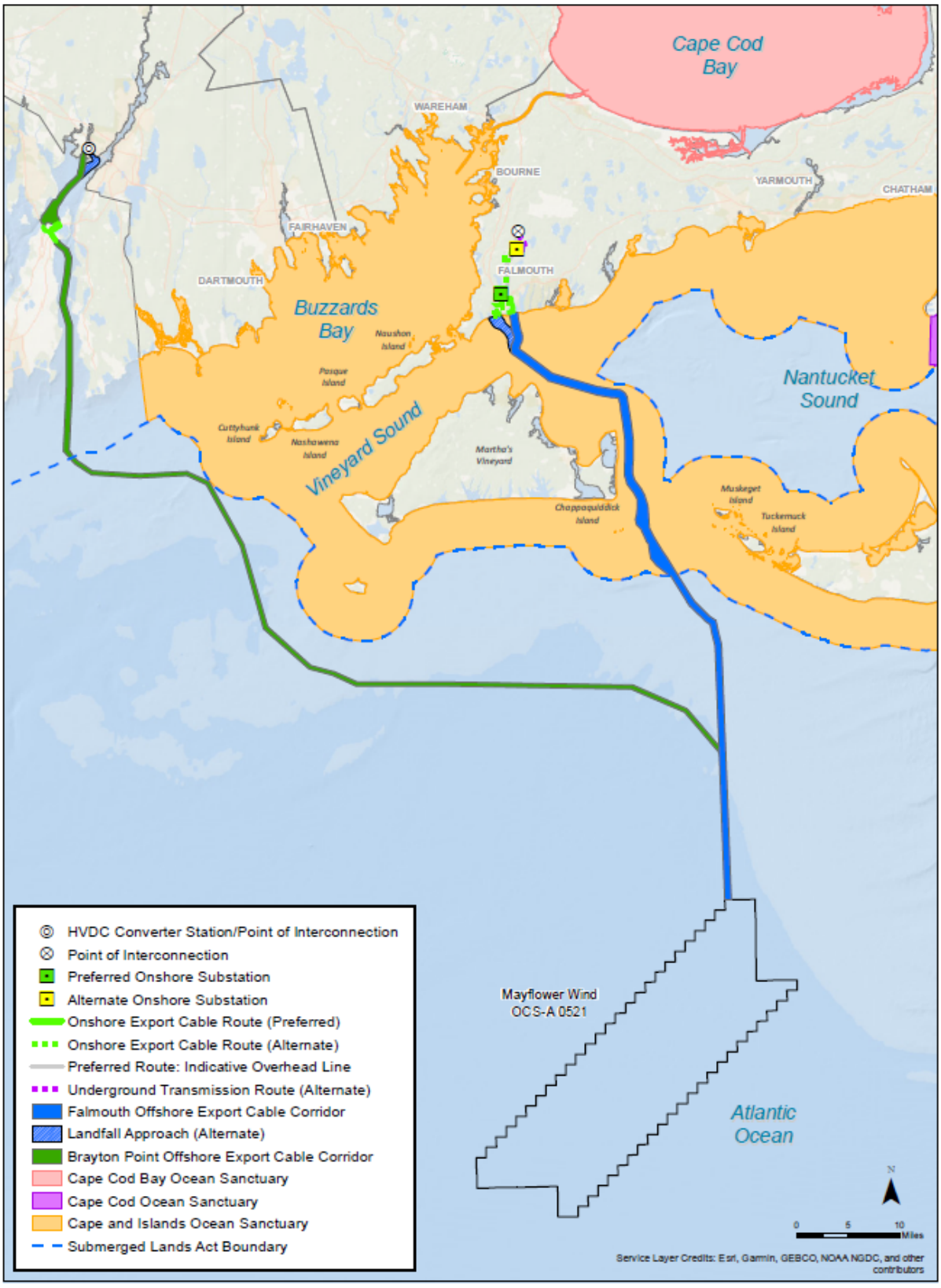
Rhode Island has not designated ocean sanctuaries or an equivalent within state waters.

3.2.2 Massachusetts OMP Management Areas

The OMP promotes sustainable use of the Commonwealth's ocean waters and protects critical marine habitat and important water-dependent uses by setting siting and management standards for new ocean-based projects. Within the ocean planning area (OPA), the OMP established the Cape Cod Ocean Sanctuary as a "prohibited area" where a variety of uses, activities, and facilities (e.g., those associated with the generation of electricity) are prohibited. The Cape Cod Ocean Sanctuary extends along the entire coastline of Outer Cape Cod from the tip of Provincetown in Cape Cod Bay to the tip of Monomoy Island at the southern end of Chatham (Executive Office of Energy and Environmental Affairs [EEA], 2015a). The remainder of the OPA off the coast of Massachusetts established under the OMP, including the Cape and Islands Ocean Sanctuary (Figure 3-2), is designated as multi-use, which allows most water-dependent uses, activities, and facilities in accordance with plan standards, but directs new development away from SSU habitats and areas of concentrated water-dependent use (EEA, 2015a).

The OMP identifies and maps the protected areas (e.g., critical habitat for whales, sea birds, fish resources, and benthic habitat, as well as high value fishing and important navigation and recreation areas) and establishes performance standards to minimize effects of ocean development. On behalf of EEA, the Office of Coastal Zone Management (CZM) is responsible for the administration, implementation, and oversight of the Massachusetts OMP (EEA, 2015a).

The Lease Area is located outside of the Commonwealth's waters and therefore does not fall within the scope of the OMP. The Brayton Point ECC likewise falls outside the scope of the OMP (Figure 3-2). The Falmouth ECC will be located within the Cape and Islands Ocean Sanctuary and is subject to the performance standards detailed in the OMP for cable projects. The Falmouth ECC is located outside of the prohibited area (i.e., Cape Cod Ocean Sanctuary) established under the OMP.



Data source: MassGIS, 2020a

Figure 3-2. Massachusetts Ocean Sanctuaries In and Near the Project Area

Projects subject to the OMP are required to pay an Ocean Development Mitigation Fee to compensate the Commonwealth of Massachusetts for unavoidable effects to the broad public interests and rights in the lands, waters, and resources of the OPA and to support the planning, management, restoration, or enhancement of marine habitat, resources, and uses pursuant to the Massachusetts Oceans Act of 2008 (EEA, 2015a). The fee structure is based on project scope and effects on habitat, natural resources, or water-dependent uses. During Massachusetts Environmental Policy Act review, the mitigation fee rate is determined based on project alternatives, effects (short-term, long-term, and cumulative), mitigation measures, and public benefits of a project.

The following subsections address specific areas or SSU resources identified within the OMP for consideration in the planning phase of projects located within the OPA. Cables for energy transmission, including for renewable energy projects, are an allowed use within many of the SSU resource areas, and must meet specific performance standards when proposed to be located within the resource area (EEA, 2015a). However, as detailed in the OMP, cable projects (including those associated with offshore wind renewable energy projects) are only required to address their compliance with the performance standards for the following SSU resources:

- North Atlantic right whale core habitat;
- Humpback whale core habitat;
- Fin whale core habitat;
- Hard/complex seafloor;
- Eelgrass; and
- Intertidal flats.

This section addresses the Falmouth ECC and landfall locations. The portion of the Brayton Point ECC located within waters of the Commonwealth fall outside the scope of the OMP. See 3.2.3 for a comparable discussion of Rhode Island management areas associated with the portion of the Brayton Point ECC within Rhode Island state waters governed by the Rhode Island Ocean SAMP.

3.2.2.1 North Atlantic Right Whale Core Habitat

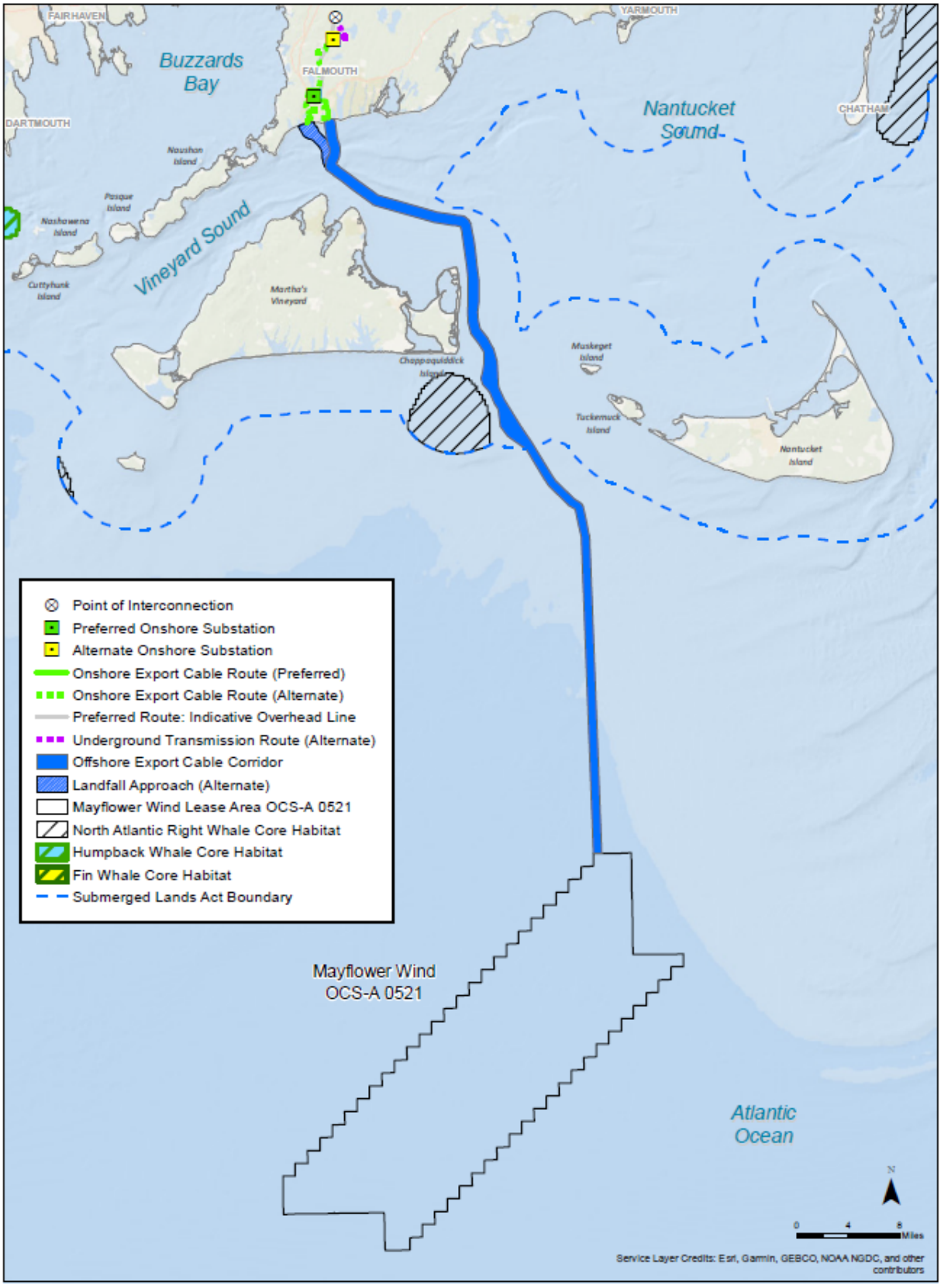
The North Atlantic right whale (*Eubalaena glacialis*) is both a state- and federally listed endangered species that regularly uses Massachusetts waters for feeding. The OMP established the North Atlantic right whale core habitat SSU resource based on data that identified statistically significant use by right whales of certain areas of the Massachusetts coast (MassGIS, 2020b).

The Falmouth ECC is not located within the North Atlantic right whale core habitat SSU resource area. However, the Falmouth ECC passes 0.5 mi (0.8 km) to the east of the North Atlantic right whale core habitat SSU resource area located south of Chappaquiddick Island (Figure 3-3) (MassGIS, 2020b).

3.2.2.2 Humpback Whale Core Habitat

The humpback whale (*Megaptera novaeangliae*) is both a state- and federally-listed endangered species that regularly feeds in Massachusetts waters. The OMP established the humpback whale core habitat SSU resource based on data that identified statistically significant use by humpback whales of certain areas of the Massachusetts coast (EEA, 2015b).

The Falmouth ECC is not located within the vicinity of humpback whale core habitat SSU resource areas (Figure 3-3) (MassGIS, 2020c).



Data sources: MassGIS, 2020b; 2020c; 2020d

Figure 3-3. Whale Core Habitat SSU Resources In and Near the Project Area

3.2.2.3 Fin Whale Core Habitat

The fin whale (*Balaenoptera physalus*) is both a state and federally-listed endangered species that regularly uses Massachusetts waters for feeding. The OMP established the fin whale core habitat SSU resource based on data that identified statistically significant use by fin whales of certain areas of the Massachusetts coast (EEA, 2015b).

The Falmouth ECC is not located within the vicinity of fin whale core habitat SSU resource area (Figure 3-3) (MassGIS, 2020d).

3.2.2.4 Roseate Tern Core Habitat

The roseate tern (*Sterna dougallii*) is both a state-and federally-listed endangered species. Roseate tern core habitat SSU resource is listed as areas with documented roseate tern breeding, staging (presence of 100 or more individuals), and critical foraging, based on information from the Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endandered Species Program (NHESP). The breeding and staging sites were identified and mapped by NHESP biologists and buffered by 0.3 nm (0.6 km). NHESP biologists identified core foraging areas based upon scientific literature to represent the most important foraging areas, critical to the use of the mapped breeding and staging areas (EEA, 2015b).

The Falmouth ECC and landfall location(s) are not located within the roseate tern core habitat SSU resource area (Figure 3-4) (MassGIS, 2020e).

3.2.2.5 Special Concern Tern Core Habitat

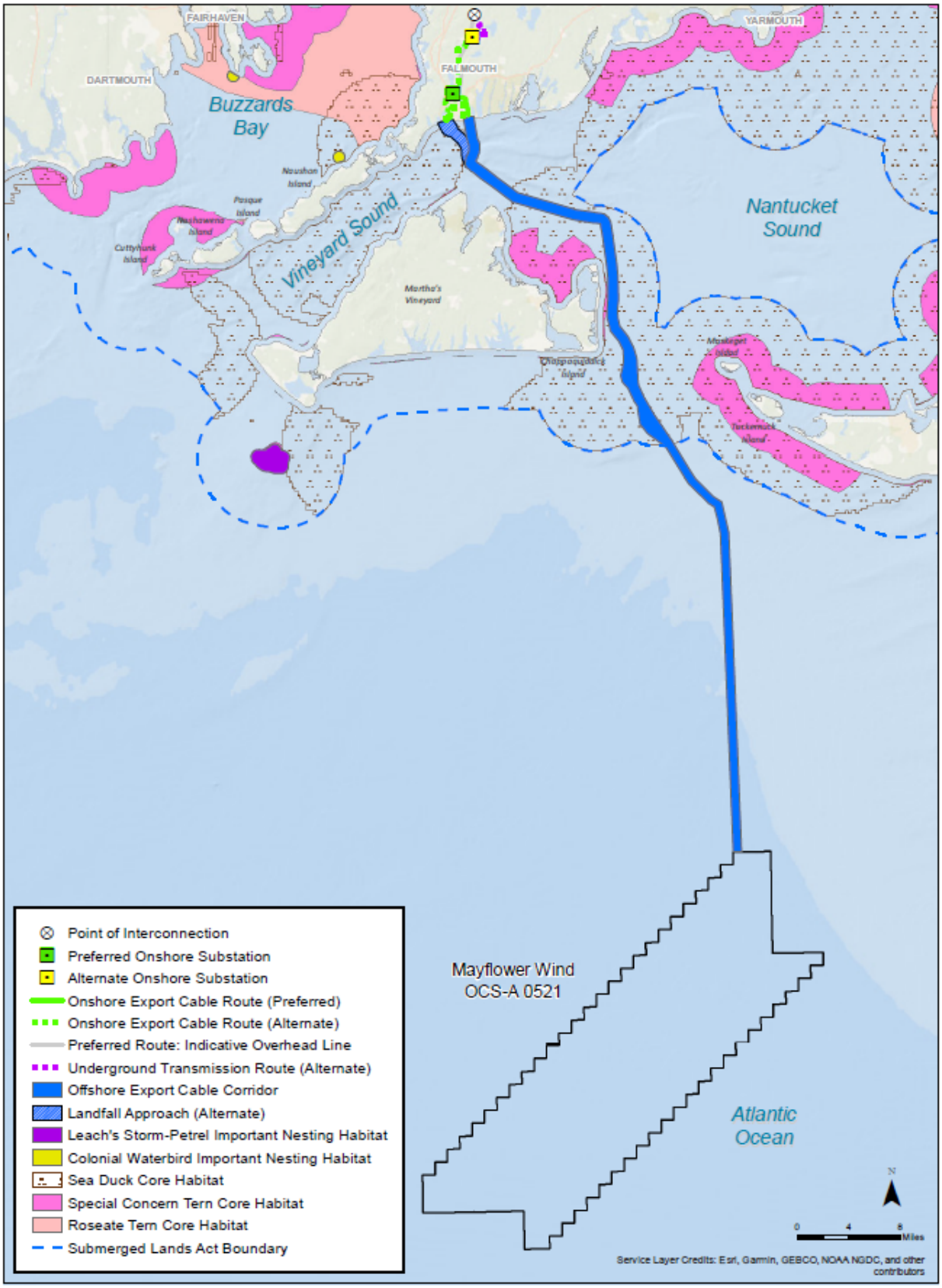
The special concern tern core habitat SSU resource is listed as breeding, staging, and critical foraging areas based on a dataset from the Massachusetts NHESP. The core habitats are delineated for three tern species, including the common tern (*Sterna hirundo*), least tern (*Sternula antillarum*), and Arctic tern (*Sterna paradisaea*), which are state listed as species of special concern. The core habitats include documented breeding, staging (presence of 100 or more pairs), and foraging areas. The breeding and staging sites were identified and mapped by NHESP biologists and buffered 0.3 nm (0.6 km). Within the foraging areas, NHESP biologists identified core foraging areas based upon scientific literature to represent the most important foraging areas, critical to the use of the mapped breeding and staging areas. The breeding, staging, and critical foraging areas were mapped as core habitat (EEA, 2015b).

The Falmouth landfall location(s) are not located within the special concern tern core habitat SSU resource area. Although the Falmouth ECC is adjacent to the resource area directly east of Chappaquiddick Island, the Falmouth ECC does not cross this SSU resource (Figure 3-4) (MassGIS, 2020f).

3.2.2.6 Sea Duck Core Habitat

The sea duck core habitat SSU resource area represents the regionally critical habitat for long-tailed duck (*Clangula hyemalis*), common eider (*Somateria mollissima*), black scoter (*Melanitta americana*), surf scoter (*Melanitta perspicillata*), and white-winged scoter (*Melanitta deglandi*). The sea duck core habitat SSU resource was mapped using USFWS survey data from 2008 - 2012 (EEA, 2015b).

The Falmouth ECC crosses through the sea duck core habitat SSU resource; however, cable projects are considered an allowed use under the OMP for certain SSU resources, including sea duck core habitat (Figure 3-4) (MassGIS 2020g).



Data sources: MassGIS, 2020e; 2020f; 2020g; 2020h; 2020i

Figure 3-4. Avian SSU Resources In and Near the Project Area

3.2.2.7 Leach's Storm-Petrel Important Nesting Habitat

Leach's storm-petrel (*Oceanodroma leucorhoa*) is a state-listed endangered species that breeds at two locations in Massachusetts. Leach's storm-petrel important nesting habitat in Massachusetts is located on Nomans Land Island and Penikese Island, as observed by Massachustts DFW biologists. The important habitat areas are these breeding sites buffered by 0.3 nm (0.6 km) (EEA, 2015b).

The Falmouth ECC and landfall location(s) are not located within the Leach's storm-petrel important nesting habitat (Figure 3-4) (MassGIS, 2020h).

3.2.2.8 Colonial Waterbirds Important Nesting Habitat

The colonial waterbirds important nesting habitat area includes important nesting sites for common tern, least tern, roseate tern, Arctic tern, Leach's storm-petrel, double-crested cormorant (*Phalacrocorax auritus*), herring gull (*Larus argentatus*), great black-backed gull (*Larus marinus*), laughing gull (*Leucophaeus atricilla*), black skimmer (*Rynchops niger*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), little blue heron (*Egretta caerulea*), black-crowned night heron (*Nycticorax nycticorax*), and glossy ibis (*Plegadis falcinellus*). These nesting sites for colonial nesting waterbirds are based on a dataset that originated from the Massachustts NHESP. The important habitat areas are the nesting sites buffered by 0.3 nm (0.6 km) (EEA, 2015b).

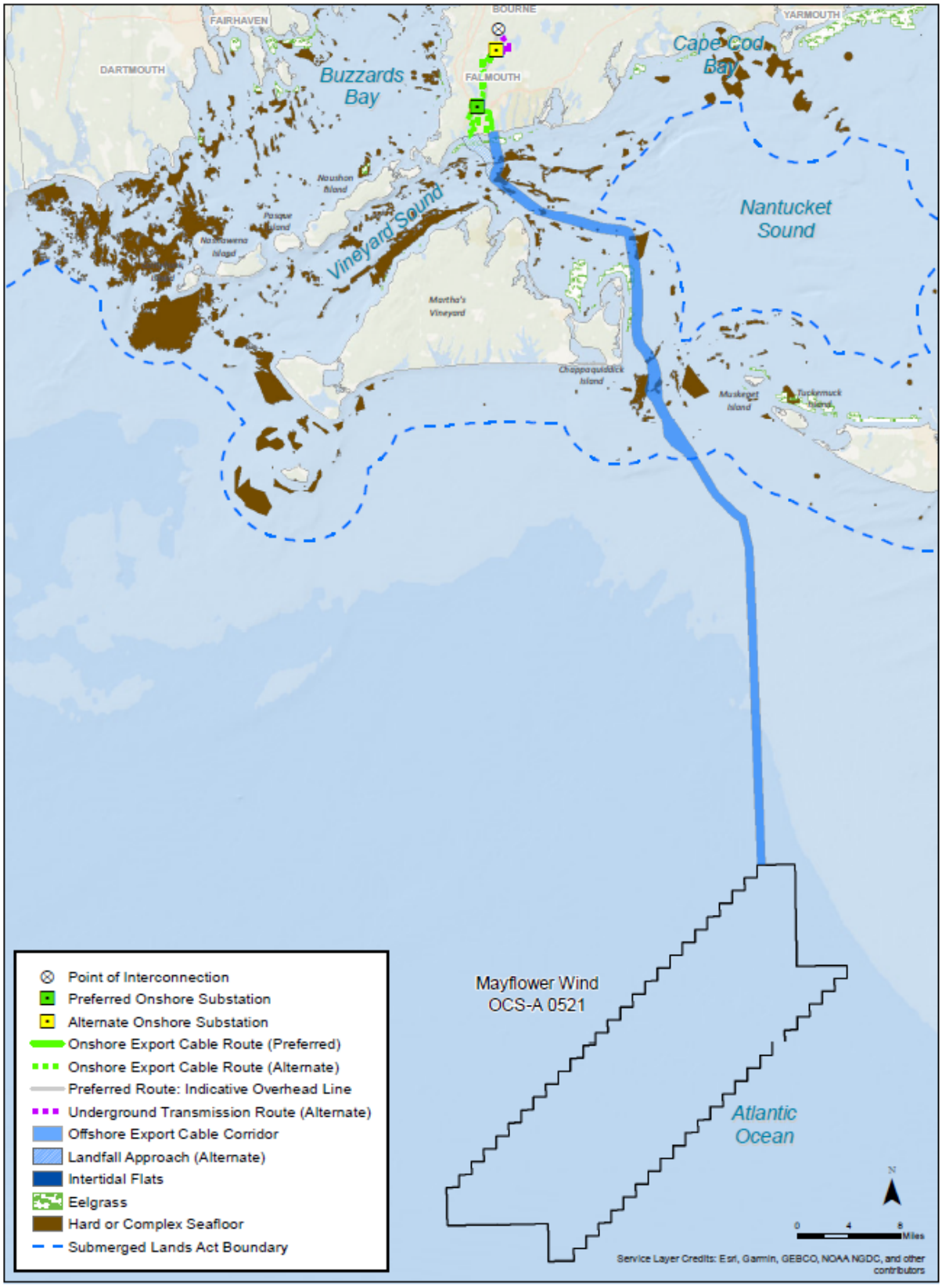
The Falmouth ECC and landfall location(s) are not located within the colonial waterbirds important nesting habitat SSU resource (Figure 3-4) (MassGIS, 2020i).

3.2.2.9 Hard/Complex Seafloor

Hard seafloor is seabed characterized by exposed bedrock or concentrations of boulder, cobble, or other similar hard bottom distinguished from surrounding unconsolidated sediments. Complex seafloor is a morphologically rugged seafloor characterized by high variability in bathymetric aspect and gradient. Biogenic reefs and man-made structures, such as artificial reefs, shipwrecks, or other functionally equivalent structures, may provide additional suitable substrate for the development of hard bottom biological communities. Hard/complex seafloor is seabed characterized singly or by the combination of hard seafloor, complex seafloor, artificial reefs, biogenic reefs, or shipwrecks and obstructions to navigation (EEA, 2015b).

The OMP provides guidelines for installation of transmission cables through hard/complex seafloor. Installation methods that achieve burial with the minimal seabed disturbance, including footprint, width of trench, and sidecast and suspension of sediments, are strongly preferred. Such methods include jet plowing, remotely operated seabed tractors, and some towed seabed plows. In locations where seafloor bottom conditions prevent target burial depth, cover is required to protect the cable. Generally, past practices have involved the addition of rock armoring, concrete mattresses, or clean sand sediments. These materials are put down over the cable to provide necessary coverage and protection. Therefore, identifying potential transmission cable corridors in areas of the seafloor away from hard bottom is strongly recommended so that preferred installation techniques can be used, target burial depths can be achieved, and effects to environmental resources and water-dependent uses can be avoided and minimized (EEA, 2015b).

The Falmouth ECC will cross through areas of hard/complex seafloor SSU resource as mapped by the OMP (Figure 3-5). Cable projects are considered an allowed use under the OMP for certain SSU resources, including hard/complex seafloor. However, the guidelines outlined in the OMP call for avoidance of hard/complex seafloor to the extent practicable (MassGIS, 2020j). Mayflower Wind is currently conducting geophysical and geotechnical surveys of the offshore ECCs to identify locations of hard/complex seafloor to inform the final placement of the offshore export cables to avoid, minimize, or mitigate the potential effects to this SSU resource.



Data sources: MassGIS, 2020j; 2020k; 2020l

Figure 3-5. Seafloor SSU Resources In and Near the Project Area

3.2.2.10 Eelgrass

Eelgrass (*Zostera marina)* and other seagrasses are often referred to as submerged aquatic vegetation (SAV) in order to distinguish these seagrasses from algae and emergent saltwater plants found in salt marshes. Vital to shallow coastal ecosystems, eelgrass beds provide important habitat, food, and shelter for diverse communities of fish, shellfish, and invertebrates throughout the region. Eelgrass beds are critical wetlands components of shallow coastal ecosystems throughout the Commonwealth of Massachusetts. Eelgrass beds provide food and cover for a great variety of commercially- and recreationally-important fauna and their prey. The leaf canopy of seagrass beds calms the water, filters suspended matter and, together with extensive roots and rhizomes, stabilizes sediment. Additionally, eelgrass is afforded additional protection under the Clean Water Act as a “special aquatic site” under the United States Environmental Protection Agency’s Section 404(b)(1) guidelines, as well as the Massachusetts Wetlands Protection Act.

The Massachusetts Department of Environmental Protection (MassDEP) has completed a statewide seagrass mapping effort to map the state's SAV resources (MassDEP, 2020). These data were used to create the final OMP SSU dataset for eelgrass to alert project proponents and permitting agencies to the likely presence of eelgrass in the general vicinity of the mapped SSU resource area.

Portions of the Falmouth ECC and the preferred and alternate landfall locations in Falmouth will cross areas of MassDEP mapped eelgrass SSU resources (Figure 3-5) (MassGIS, 2020k). Cable projects are considered an allowed use under the OMP for certain SSU resources, including eelgrass. However, Mayflower Wind conducted field surveys in August 2020 to delineate the extent of seagrass beds at the preferred and alternate Falmouth landfall locations (COP Appendix K, Seagrass and Macroalgae Report). Using single beam echo sounding with precision navigation, side scan sonar, and towed underwater video, eelgrass distribution was accurately mapped near the three Falmouth landfall locations under consideration (Figure 3-6). The approach to the Shore Street landfall had nearly continuous SAV bed coverage consisting primarily of eelgrass, with only a few areas of open bottom. The Worcester Avenue approach had patchier eelgrass distribution with several large areas devoid of eelgrass. However, due to the shallower water depths, eelgrass at Worcester Avenue extends farther offshore than at the Mill Road (eliminated landfall site) or Shore Street sites. The underwater video data confirmed that the primary species present in the SAV bed was eelgrass. Since the Central Park landfall is located a little more than 700 feet (213 m) to the west of the Worcester Avenue landfall, data collected from Worcester Avenue will be used to inform the approximate extent of eelgrass; although a separate survey was not conducted at the Central Park landfall location. Additionally, Mayflower Wind is planning to use HDD to install the ECCs at the landfall locations (see COP Section 3.3 – Project Components and Project Stages for details) to avoid seagrass beds to the extent possible and minimize and mitigate unavoidable direct effects associated with the Project.

3.2.2.11 Intertidal Flats

Intertidal flats exist on low wave energy coasts and are formed when large amounts of clay, silt, and fine sand particles are imported by rivers. Salt marshes have formed at many locations off of the Cape Cod peninsula and have formed “closed” tidal flats, characterized by plant growth within the tidal flats. These form along low wave energy segments of the coastline where rivers import large volumes of material that are primarily deposited in shallow areas near the shore. These salt marshes are important stopover and breeding sites for birds and thus represent a crucial habitat within the tidal flat environment (World Ocean Review, 2020).

The Falmouth ECC and landfall location(s) are not located within mapped intertidal flats SSU resource areas (Figure 3-5) (MassGIS, 2020l).

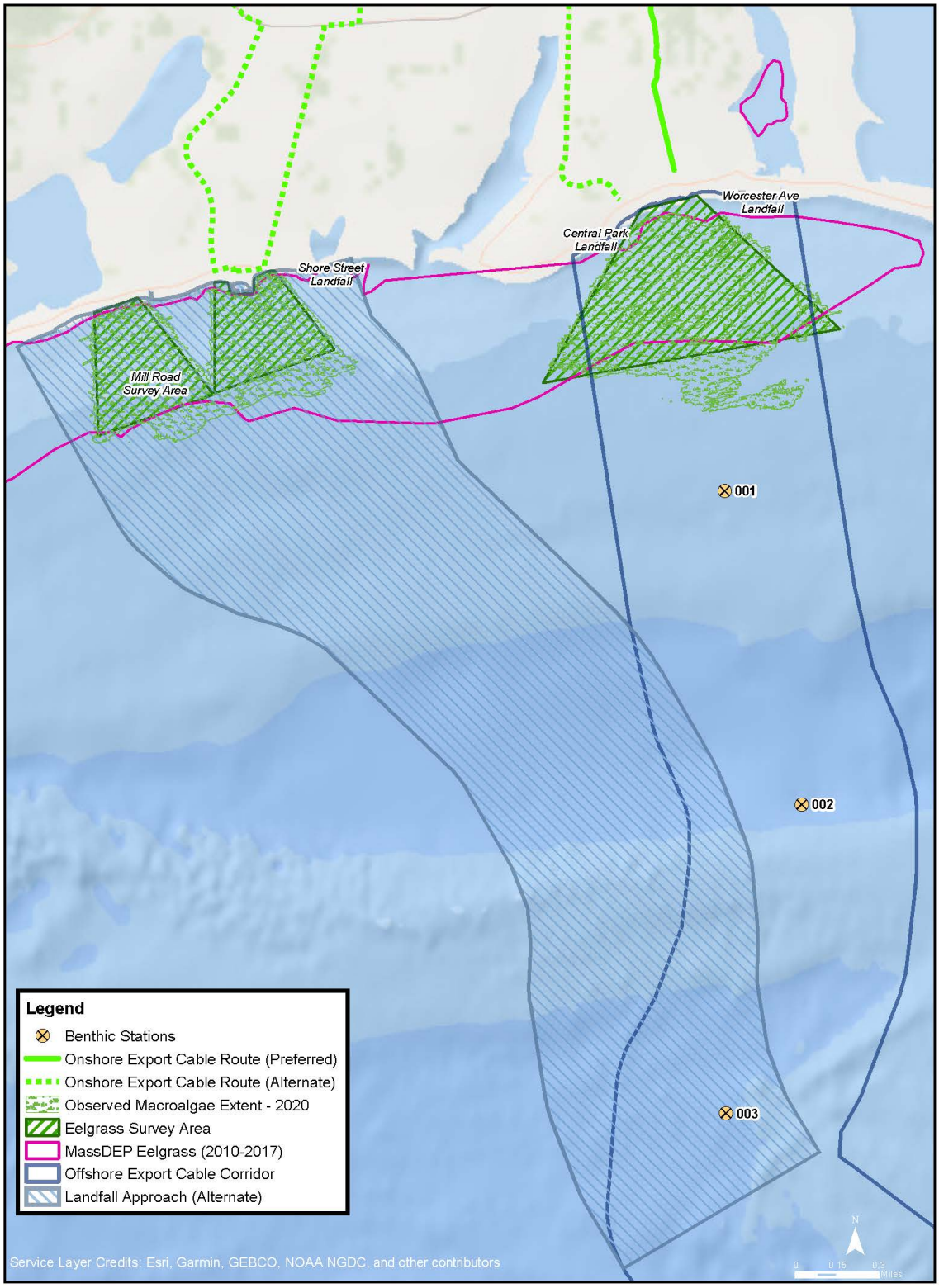


Figure 3-6. August 2020 Mayflower Wind Eelgrass Survey Results

3.2.2.12 Important Fish Resources

The important fish resources SSU resource is derived from the mean biomass or abundance of 22 selected species based on five bioregions and six depth zones. These data were compiled from the Massachusetts Division of Marine Fisheries (DMF) Resource Assessment Trawl Survey data collected in May and September from 1978 - 2012 (EEA, 2015b).

The OMP states that cable projects should avoid this SSU resource where feasible. Where complete geographic avoidance is not possible, consultation with federal and state agencies and fisheries technical work groups will help to identify whether there are specific locations of significance that require avoidance. This consultation will also help to identify opportunities to avoid effects by scheduling construction for periods when the SSU resource is absent or may be less susceptible to adverse outcomes.

The Falmouth ECC will cross areas of mapped important fish resources SSU resources (Figure 3-7) (MassGIS, 2020m). Fisheries resources, anticipated effects, and avoidance measures are discussed in COP Appendix N, Essential Fish Habitat and Protected Fish Species Assessment as well as in COP Section 11.0 – Commercial and Recreational Fisheries and Fishing Activity and Appendix V, Commercial and Recreational Fisheries and Fishing Activity Technical Report.

3.2.2.13 High Commercial Fishing Effort and Value

The OMP reflects the importance of commercial and recreational fishing by identifying areas of high commercial fishing activity and concentrations of recreational fishing activity. The high commercial fishing effort and value SSU resource is derived from DMF catch and trip-level reports, NMFS Vessel Trip Reports, and Standard Atlantic Fisheries Information System dealer transaction reports. The EEA (2014) combined commercial fishing effort and landings value data to create a dataset of commercial fisheries activity from 1988 - 2012 and then reclassified them into high (top 25 percent), medium (middle 50 percent), and low (bottom 25 percent) categories.

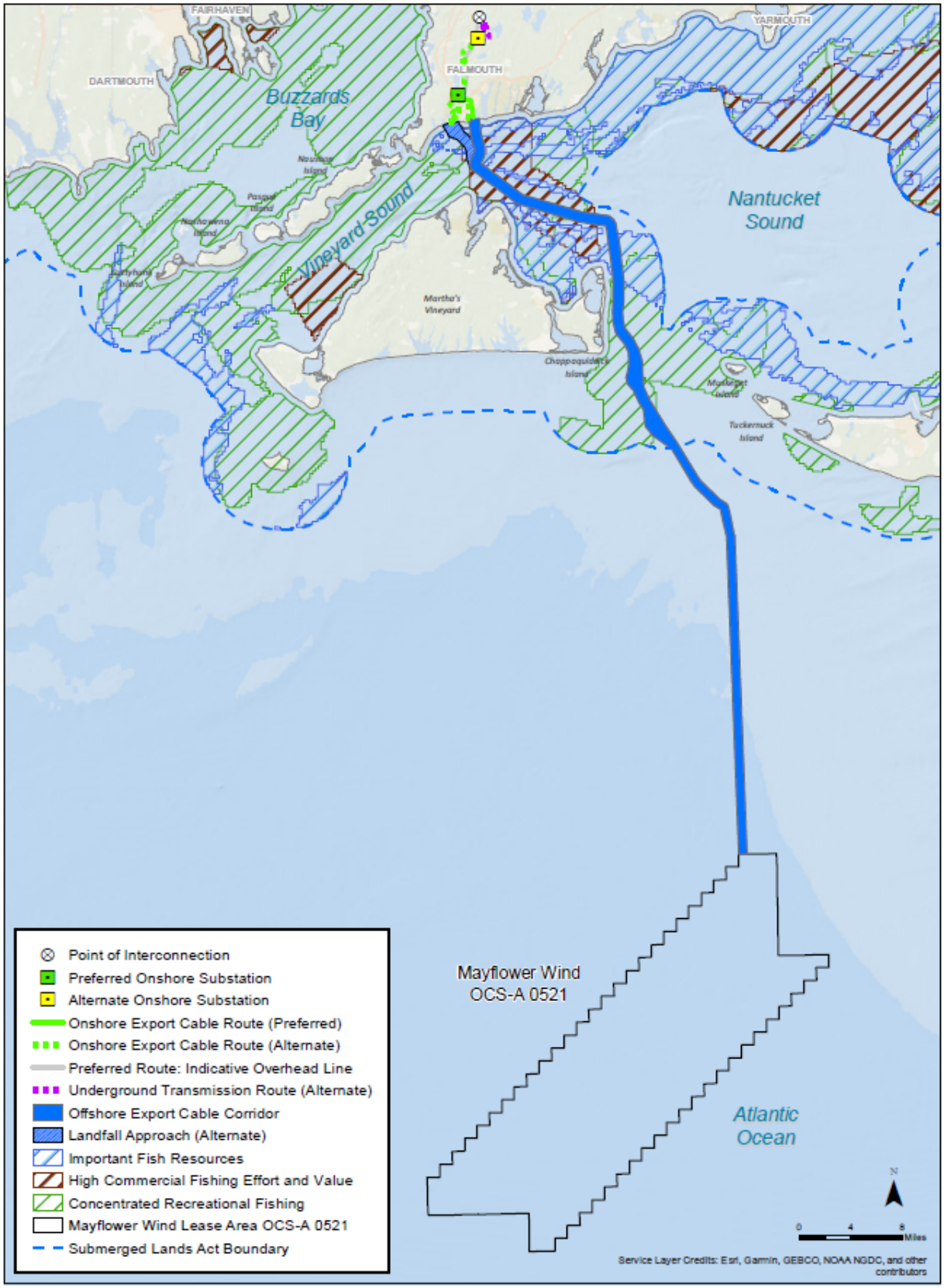
The fishing effort and landings values from these sources were combined to High areas were mapped as the concentrations of water-dependent use areas (EEA, 2015b).

The Falmouth ECC will cross through the high commercial fishing effort and value SSU resource (Figure 3-7). Cable projects are considered an allowed use under the OMP in the high commercial fishing effort and value SSU resource area (MassGIS, 2020n). For further information on commercial and for-hire recreational fishing activities near the Project Area, see COP Section 11.0 – Commercial and Recreational Fisheries and Fishing Activity and Appendix V, Commercial and Recreational Fisheries and Fishing Activity Technical Report.

3.2.2.14 Concentrated Recreational Fishing

In the Fall of 2013, the DMF sent a survey to experienced recreational fishermen (including charter boat captains and DMF employees) to gather information on recreational fishing activity. Using the data from this survey, areas identified by more than one respondent were mapped as the concentrations of water-dependent use area (EEA, 2015b).

The Falmouth ECC will cross though concentrated recreational fishing SSU resource areas; however, cable projects are considered an allowed use within this SSU resource (Figure 3-7) (MassGIS, 2020o). For further information on commercial and for-hire recreational fishing activities near the Offshore Project Area, see COP Section 11.0 – Commercial and Recreational Fisheries and Fishing Activity and Appendix V, Commercial and Recreational Fisheries and Fishing Activity Technical Report.



Data sources: MassGIS, 2020m; 2020n; 2020o

Figure 3-7. Fishing SSU Resources In and Near the Project Area

3.2.2.15 Concentrated Commerce Traffic

Concentrated commerce traffic data were derived from Automatic Identification System (AIS) data from 2011 - 2012. AIS is a navigation safety communications system that transmits information about a vessel, including its identiy, ship type, and position to shore stations and other ships. Raw AIS data from 2011 and 2012 were processed by the NOAA Coastal Services Center (CSC) to create vessel tracklines. Using the tracklines produced by NOAA CSC, the Massachusetts CZM created a dataset of vessel density and used concentrated vessel density to map concentrations of water-dependent use areas (EEA, 2015b).

The Falmouth ECC will cross concentrated commerce traffic areas; however, cable projects are considered an allowed use within this SSU resource (Figure 3-8) (MassGIS, 2020p). For further information on navigational safety and risks associated with the Project, see COP Appendix X, Navigation Safety Risk Assessment.

3.2.2.16 Concentrated Commercial Fishing Traffic

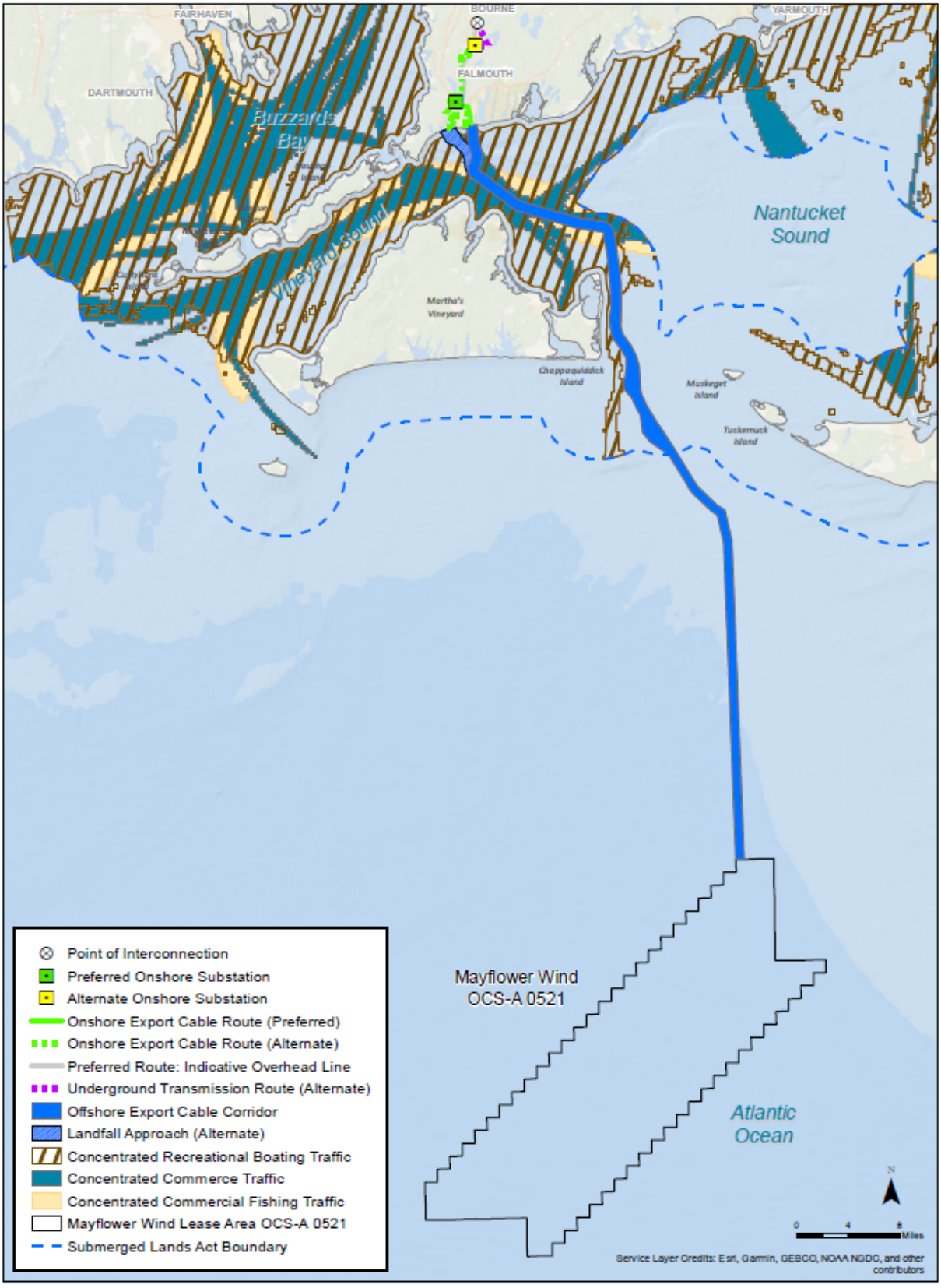
Concentrated commercial fishing traffic data were dervied from Vessel Monitoring System data, which are collected by the NMFS to track commercial fishing vessel activity for law enforcement (closed areas), safety, and scientific study. The Vessel Monitoring System data were from 2006 - 2010 and were prepared for the Northeast Regional Ocean Council by RPS Applied Science Associates to create a dataset of standardized commercial fishing vessel density. The Massachusetts CZM used the top 10 percent of the fishing vessel density in the planning area to map the concentrations of water-dependent use areas (EEA, 2015b).

The Falmouth ECC will cross through areas of concentrated commercial fishing traffic SSU; however, cable projects are considered an allowed use under the OMP for the concentrated commercial fishing traffic SSU resources (Figure 3-8) (MassGIS, 2020q). For further information on navigational safety and risks associated with the Project, see COP Appendix X, Navigation Safety Risk Assessment.

3.2.2.17 Concentrated Recreational Boating

Concentrated recreational boating areas were delineated using data from the 2010 Massachusetts Recreational Boater Survey conducted by SeaPlan and partners, the 2012 Northeast Recreational Boater Survey conducted by SeaPlan and partners, and a 2013 rapid assessment survey of experienced mariners by Massachusetts Marine Trades Association (MMTA). In the 2010 survey, respondents plotted over 1,000 boating routes in Massachusetts state waters from May to October 2010. Building off the 2010 survey, SeaPlan conducted a similar survey in 2012 for the Northeast. Boaters mapped over 1,000 routes in Massachusetts state waters between May and October 2012. In the MMTA survey, mariners marked charts with routes commonly used by recreational boaters in Massachusetts. Over 500 routes were mapped through this survey. The recreational boating routes from these three surveys were combined and used to create a map of recreational boating route density, and the top 50 percent of route density in the planning area was mapped as the concentrations of water-dependent use area (EEA, 2015b).

The Falmouth ECC will cross through areas of concentrated recreational boating (Figure 3-8). Cable projects are an allowed use within the concentrated recreational boating SSU resource (MassGIS, 2020r). For further information on navigational safety and risks associated with the Project, see COP Appendix X, Navigation Safety Risk Assessment.



Data sources: MassGIS, 2020p; 2020q; 2020r

Figure 3-8. Concentrated Commercial and Recreational SSU Resources In and Near the Project Area

3.2.3 Rhode Island Ocean SAMP Management Areas

The Rhode Island Coastal Resources Management Program (RI CRMP) is a federally-approved coastal program under the federal Coastal Zone Management Act (16 U.S.C. 1451 *et seq*.). The Ocean SAMP is the regulatory, planning and adaptive management tool used by the Rhode Island CRMC to uphold its regulatory responsibilities in the Ocean SAMP area, defined as 500 ft (152 m) from the coastline in state waters, from the mouth of Narragansett Bay seaward out to three nm, and all federal waters within the boundary (Figure 3-9) (CRMC, 2010).

The Lease Area is located outside of Rhode Island waters and, therefore, does not fall within the scope of the Ocean SAMP. The Brayton Point ECC passes through approximately 31 statue miles (50 km) of the Ocean SAMP study area – i.e., the offshore portion of the Brayton Point ECC up to the limits of the Narragansett Bay (Figure 3-9).

The Ocean SAMP defines three different categories of management areas within the SAMP area: Areas of Particular Concern (APCs), Areas Designated for Preservation (ADPs), and Other Areas.

APCs were designated through the Ocean SAMP process with the goal of protecting areas that have high conservation value, cultural and historic value, or human use value from Large-Scale Offshore Development (i.e. offfshore wind facilities, wave generation devices, offshore LNG platforms, and artificial reefs). Underwater cables are not defined as a large-scale offshore development by the Ocean SAMP. However, the Ocean SAMP (CRMC, 2010) states:

> *All Large-scale, Small-scale, or other offshore development, or any portion of a proposed project, shall be presumptively excluded from APCs. This exclusion is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC.*

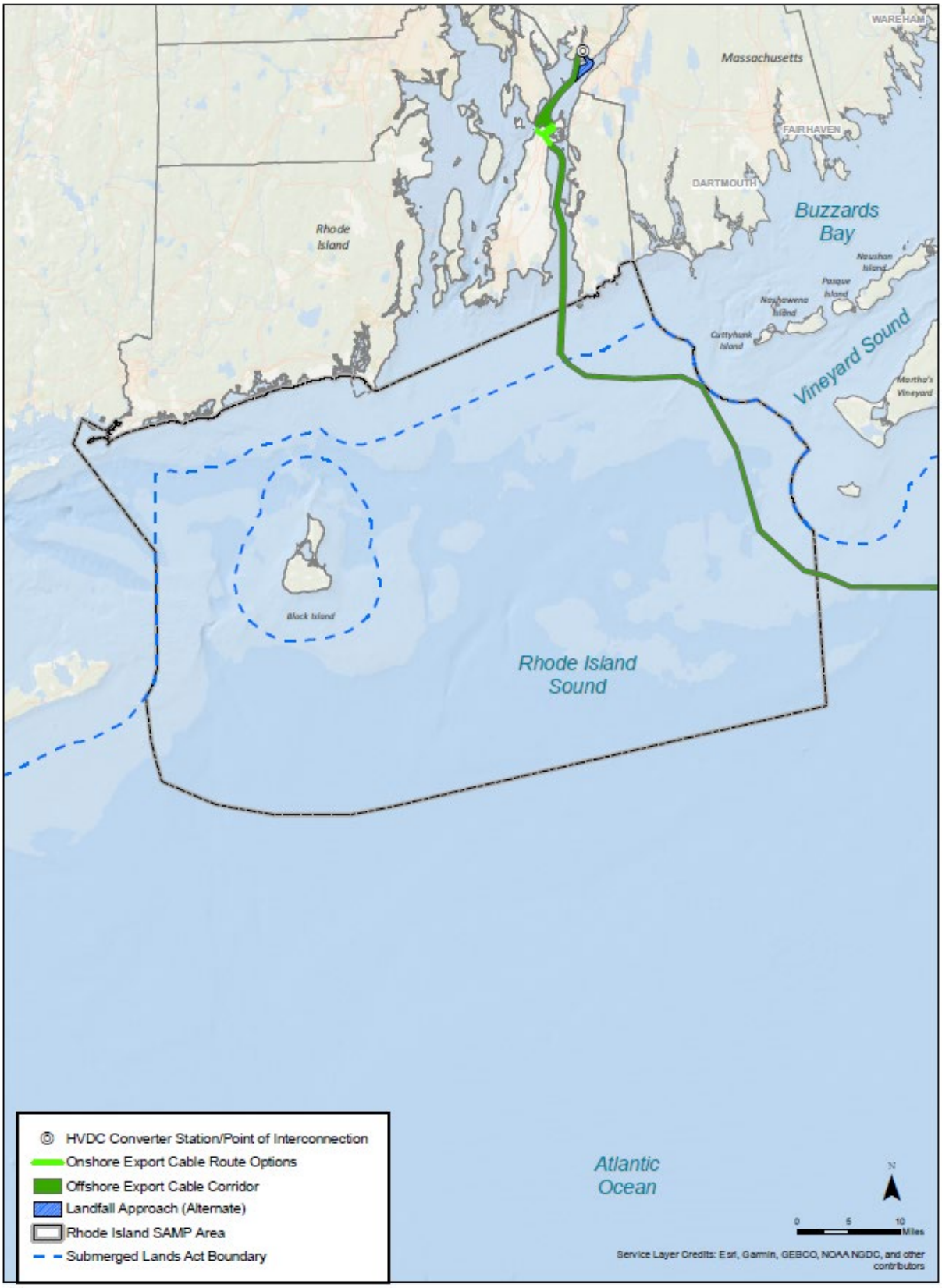
The following APCs have been defined by the Ocean SAMP:

- Historic shipwrecks, archeological or historical sites and their buffers;
- Offshore dive sites;
- Glacial moraines;
- Navigation, Military, and Infrastructure areas;
- Areas of high fishing activity;
- Heavily-used recreational boating and sailboat racing areas;
- Naval Fleet Submarine Transit Lanes.

In addition, the Ocean SAMP notes that other APCs may be identified during the pre-application review by state and federal agencies as areas of importance.

The Ocean SAMP also seeks to define ADPs – areas designated for the purpose of preserving their ecological value. These areas are afforded additional protection based on evidence indicating that Large-Scale Offshore Development in these areas may result in significant habitat loss (CRMC 2010). Underwater cables are exempt from the development prohibitions established for these areas. At the time of writing, one ADP had been established to protect sea duck foraging habitat in water depths less than or equal to 65.6 ft (20 m).

Finally, the Ocean SAMP defines “Other Areas” subject to regulatory controls within the Ocean SAMP area. One such area (areas of high intensity commercial marine traffic) is defined in the plan and discussed further below.



Data source: CRMC, 2021

Figure 3-9. Rhode Island Ocean SAMP Area

3.2.3.1 Historic Shipwrecks, Archaeological or Historical Sites

Historic shipwrecks, marine archaeological or historical sites and their buffers are designated APCs within the Ocean SAMP area. As noted in Section 3.1.6, numerous wrecks are mapped in state and federal waters off the coast of Rhode Island and Massachusetts. The Brayton Point ECC avoids shipwrecks within the Ocean SAMP Area but crosses known wrecks further inland, near the Mt. Hope Bay Bridge. Additional details on wrecks of cultural/historical significance identified within the Offshore Project Area are addressed in the Marine Archaeological Resources Assessment for the Project (COP Appendix Q).

3.2.3.2 Offshore Dive Sites

Important offshore dive sites within the Ocean SAMP area, most of which are shipwrecks, are designated APCs due to their recreational and cultural value, as well as their importance to recreation and tourism within the state. Twelve of the most important wrecks for diving were identified by dive boat captains operating within the area (CRMC 2010). The closest dive sites APCs to the Brayton Point ECC are the T.C. Teti, located adjacent to but outside the ECC and the Neptune, located approximately 4 mi (6 km) southwest of the ECC (Figure 3-10). The Brayton Point ECC will not cross directly through any designated offshore dive sites.

3.2.3.3 Glacial Moraines

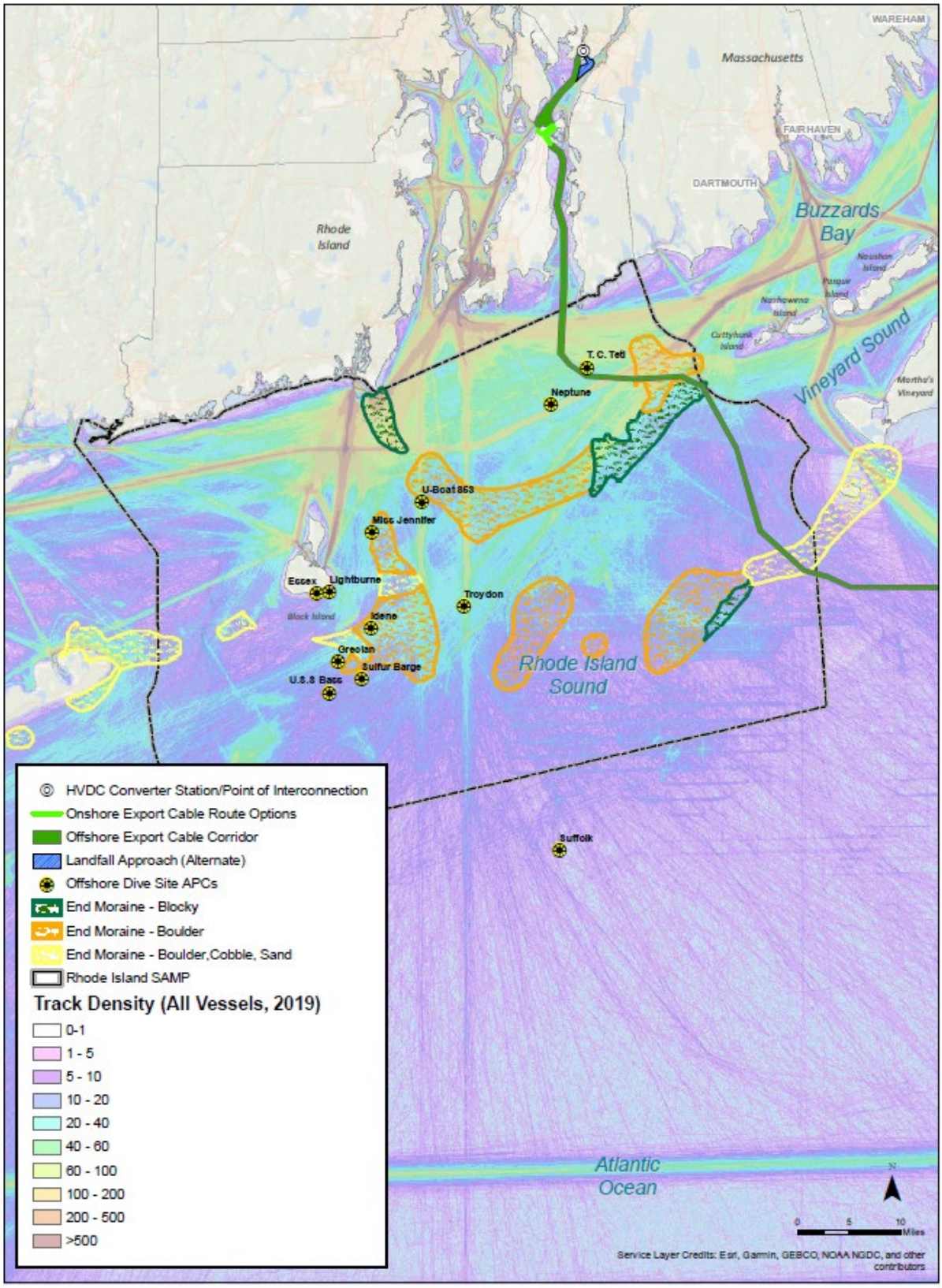
According to the Ocean SAMP, glacial moraines create a unique bottom topography that allows for habitat diversity and complexity, which in turn creates environments that exhibit some of the highest biodiversity within the entire Ocean SAMP area. The moraine features, in general, are composed of coarse materials such as boulders and large rocks. These materials provide vertical relief on the seafloor, which influences currents and provides greater surface area for colonization by attached organisms (CRMC, 2010). These areas are likewise considered important for their contribution to commercial and recreational fishing in the area. The Brayton Point ECC will cross through boulder, cobble, sand and boulder moraines mapped in the Ocean SAMP area (Figure 3-10). Seafloor features such as moraines will be mapped in more detail using acoustic data as part of the cable route planning process (COP Appendix E, Marine Site Investigation Report [MSIR]). These maps will define the limits and topography of the moraines in more detail and will be used to optimize the ECC route to reduce disturbance and protect the cable. Additional geophysical and geotechnical surveys of the Lease Area and export cable corridors, including the Brayton Point ECC, are ongoing and interpretation and results will be provided once completed.

3.2.3.4 Navigation, Military, and Infrastructure Areas

Navigation, military, and infrastructure areas, including designated shipping lanes, precautionary areas, recommended vessel routes, ferry routes, dredge disposal sites, military testing areas, unexploded ordnance (UXO), pilot boarding areas, anchorages, and a coastal buffer of 0.6 mile (1 km) are designated as APCs in the Ocean SAMP area based on their importance to marine transportation, navigation and other activities. The Brayton Point ECC will cross through two designated shipping lanes and one ferry route (Quonset Point to Martha's Vineyard Fast Ferry Route) within the Ocean SAMP area. The Brayton Point ECC will pass in the vicinity of known UXO locations and within 29 miles (47 km) of a UXO disposal site. The Brayton Point ECC avoids all other mapped navigation, military and infrastructure areas in the Ocean SAMP area. See COP Appendix X, Navigation Safety Risk Assessment for further details.

3.2.3.5 Areas of High Fishing Activity

The Ocean SAMP notes that areas of high fishing activity as identified during the pre-application process by the Fishermen's Advisory Board may be designated by the Council as APCs. The Ocean SAMP includes maps of fishing activity by gear type based on qualitative input from fishermen, and CRMC proposes to identify and evaluate prime fishing areas on an ongoing basis through consultation with the Fishermen's Advisory Board (CRMC, 2010). However, due to the dynamic nature and sensitivities around identifying prime fishing locations, the Ocean SAMP does not define static areas as APCs. See COP Appendix V, Commercial and Recreational Fisheries and Fishing Activity Technical Report for further details.



Data source: CRMC, 2008

Figure 3-10. Glacial Moraines and Dive Site APCs In and Near the Brayton Point ECC

3.2.3.6 Heavily Used Recreational Boating Areas

Several heavily-used recreational boating and sailboat racing areas are designated as APCs. The Ocean SAMP notes that organized recreational boating and sailboat racing activities are concentrated in these areas, which are therefore important to sustaining Rhode Island's recreation and tourism economy (CRMC, 2010). The Brayton Point ECC does not pass through any designated boating and racing areas.

3.2.3.7 Naval Fleet Submarine Transit Lanes

The U.S. Navy has designated Submarine Transit Lanes for submerged transit. One of these lanes overlaps with the southern border of the Ocean SAMP area. Based on this description, the Brayton Point ECC does not cross a designated transit lane. Detailed information on submarine transits through the SAMP area is unavailable as this information is classified.

3.2.3.8 Sea Duck Foraging Habitat

The Ocean SAMP designates sea duck foraging habitat in water depths less than or equal to 65.6 ft (20 m) as an ADP due to the ecological value of these foraging areas to avian species. In lieu of more detailed information on bottom substrate and bivalve density, CRMC preemptively designated all areas within the 65.6 ft (20 m) contour as an ADP until further research allows for a more refined determination (CRMC, 2010). The Brayton Point ECC does not cross the 65.6 ft (20 m) contour within the Ocean SAMP area. Furthermore, as an underwater cable, the export cable would be exempt from the prohibition for crossing these areas.

3.2.3.9 Areas of High Intensity Commercial Marine Traffic

Areas of high intensity commercial marine traffic in state waters, defined as 50 or more vessel counts within a 1 km by 1 km grid, are identified as an "Other Area" in the Ocean SAMP – i.e., an area for which some offshore developments could represent a hazard to commercial navigation. An area running east to west along the entire coast of Rhode Island registers as high intensity based on the above definition (Figure 3-10). However, the area crossed by the Brayton Point ECC has relatively lower intensity use (at 50 to 250 vessel counts) than most of the Rhode Island coast, in particular the offshore area directly approaching and entering Narragansett Bay. See Appendix X, Navigation Safety Risk Assessment for further details.

3.2.4 Artificial Reefs

3.2.4.1 Massachusetts

Artificial reefs are intentionally placed structures that provide additional habitat for fish. Creation of artificial habitat can be an effective method of increasing productivity, providing additional recreational and commercial fishing opportunities, and enhancing the forage base by providing attachment substrate. Attachment substrate is habitat for blue mussels and finfish and creates settlement, forage, and shelter habitat for lobster as well as habitat for several life-stages of winter flounder. Artificial reefs are used by commercial fishers and recreational anglers, scuba divers, and planners (DMF, 2020). The DMF has created an artificial reef program that plans, develops, and monitors artificial reefs to promote compliance with interstate and national standards. Artificial reefs off the coast of Massachusetts include Yarmouth reef, Dartmouth reef, Sculpin Ledge reef, HubLine reef, and the Harwich reef (MassGIS, 2020s).

There are no artificial reefs located within the Lease Area or along the offshore ECCs (MassGIS, 2020s). The closest artificial reef located in the vicinity of the Project is located in Nantucket Sound south of the town of Yarmouth approximately 13 statute miles (21 km) east of the offshore Falmouth ECC.

3.2.4.2 Rhode Island

Rhode Island has one artificial reef, installed in 2019 in the Providence River as part of a partnership between the Nature Conservancy and the Rhode Island Department of Environmental Management (RIDEM, 2019). The reef is not located in the near vicinity of the Lease Area or ECCs.

4.0 Effects Characterization

4.1 Effects Characterization Approach

Each of the potentially affected DPAs are the subject of separate technical studies. Therefore, resource sensitivity and potential effects of the Project on these DPAs are addressed separately within the COP and related appendices. Section 4.2 provides a summary list of the potentially affected DPAs, and Section 4.3 provides a cross reference table which lists the COP section or appendix where the detailed assessment is presented.

4.2 Potentially Affected Resources

Designated Protected Areas potentially located near the Project Area were reviewed in Section 3.0 of this report. Of those reviewed, the following DPAs are not located within the Lease Area and will not be impacted by the offshore ECCs and, as such, are not considered further.

- Marine Protected Areas:
  - Cape Cod Ocean Sanctuary;
  - National Estuarine Research Reserve;
  - National Marine Sanctuaries; and
  - Marine National Monuments.
- National Wildlife Refuges;
- Deep Sea Corals;
- Artificial Reefs;
- Massachusetts Ocean Planning Area:
  - Northern Atlantic right whale core habitat;
  - Humpback whale core habitat;
  - Fin whale core habitat;
  - Roseate tern core habitat;
  - Special concern tern core habitat;
  - Leach's storm-petrel important nesting habitat;
  - Colonial water birds important nesting habitat; and
  - Intertidal flats.
- Rhode Island Ocean SAMP Area:
  - Historic shipwrecks, archaeological or historical sites;
  - Offshore dive sites;
  - Navigation, military, and infrastructure areas;
  - Heavily used recreational boating areas;
  - Naval fleet submarine transit lanes; and
  - Sea duck foraging habitat.

The Lease Area does not contain any DPAs. However, one or more of the ECCs cross the following DPAs in federal or state waters:

- North Atlantic Right Whale Seasonal Management Area;
- Massachusetts Ocean Planning Area:
  - Important fish resources;
  - High commercial fishing effort and value;
  - Concentrated recreational fishing;
  - Concentrated commerce traffic;
  - Concentrated commercial fishing traffic;
  - Concentrated recreational boating;
  - Cape and Islands Ocean Sanctuary;
  - Sea duck core habitat;
  - Hard/complex seafloor; and
  - Eelgrass.
- Rhode Island Ocean SAMP Area:
  - Glacial moraines;
  - Areas of high fishing activity (to be determined during the pre-application process); and
  - Areas of high intensity commercial marine traffic.

In addition, the offshore ECCs and Lease Area contain previously mapped shipwrecks that may be protected under various state or federal laws.

4.3 Identification and Characterization of Effects

Resource sensitivity and potential effects of the Project on these DPAs are addressed separately within the COP and related technical appendices. The relevant assessments are identified in Table 4-1. As such, potential impacts to these DPAs will be addressed within the assessments listed below.

Table 4-1. DPAs and Associated Detailed Assessment Cross References

DPA	Detailed Assessment Cross Reference
Concentrated Commerce Traffic Concentrated Commercial Fishing Traffic Concentrated Recreational Boating	COP Appendix X, Navigation Safety Risk Assessment
Important Fish Resources High Commercial Fishing Effort and Value Concentrated Recreational Fishing	COP Section 11.0 – Commercial and Recreational Fisheries and Fishing Activity COP Appendix V, Commercial and Recreational Fisheries and Fishing Activity Technical Report
North Atlantic Right Whale Seasonal Management Area	COP Section 6.8 – Marine Mammals COP Appendix O – Marine Mammal and Sea Turtle Monitoring and Mitigation Plan
Cape and Islands Ocean Sanctuary	COP Appendix D1, Massachusetts Coastal Zone Management Act Consistency Certification – Falmouth POI

DPA	Detailed Assessment Cross Reference
Shipwrecks	COP Appendix Q, Marine Archaeological Resources Assessment
Sea Duck Core Habitat	COP Section 6.1, Coastal and Marine Birds COP Appendix I1, Avian Exposure Risk Assessment
Eelgrass	COP Section 6.5, Coastal Habitats COP Appendix K, Seagrass and Macroalgae Report
Hard / Complex Seafloor Glacial Moraines	COP Section 6.6, Benthic and Shellfish Resources COP Appendix M, Benthic and Shellfish Resources Characterization Report COP Appendix E, MSIR

4.4 Mitigation Measures

As noted in Section 4.2, the Project will traverse or occur in or near several DPAs. The DPAs are the subjects of other technical reports. Therefore, the reader is referred to the specific COP sections referenced above, COP Section 16 (Summary of Avoidance, Minimization, and Mitigation Measures of Potential Impacts), or appendix for a discussion of proposed mitigation measures (see Section 4.3).

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