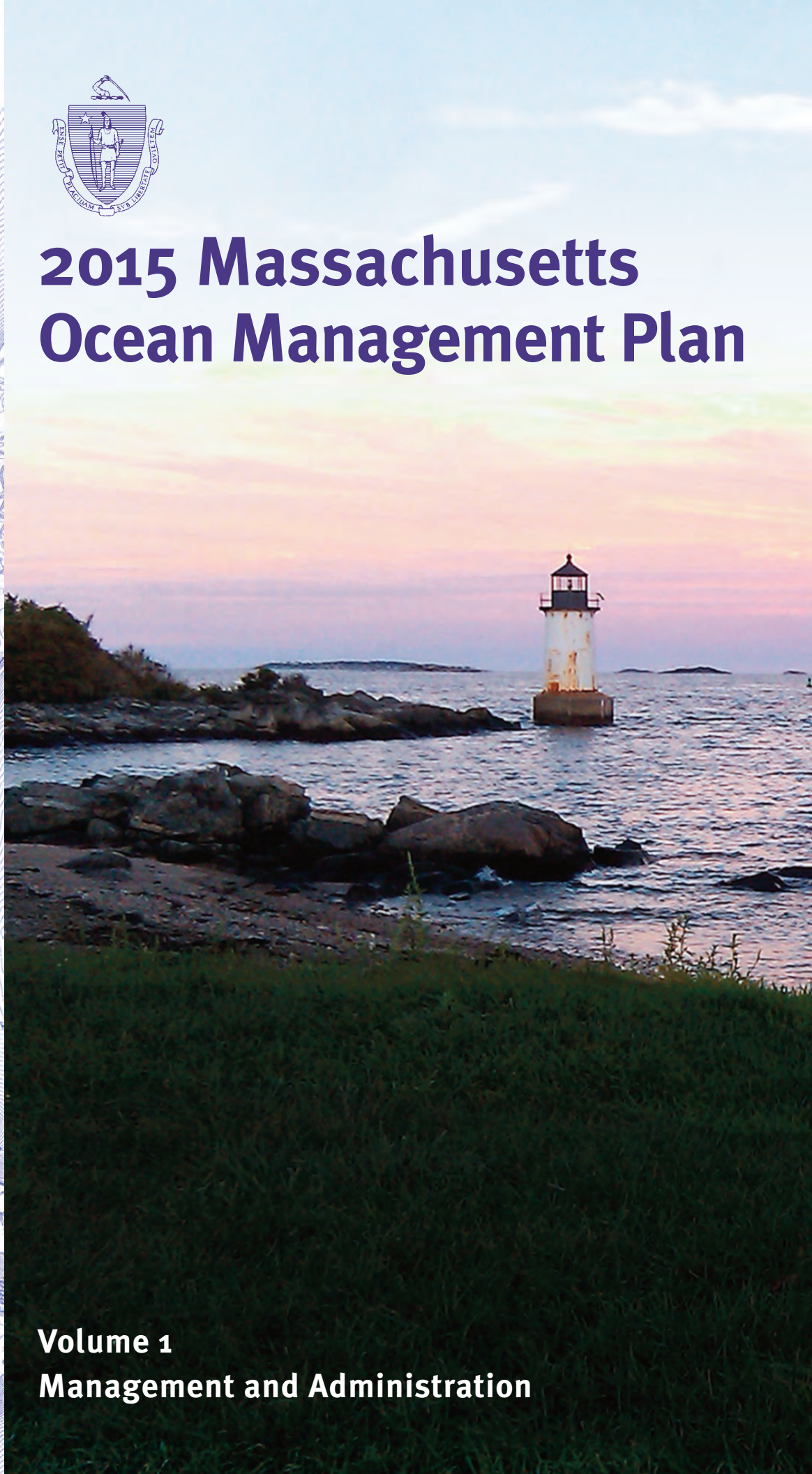
2015 Massachusetts Ocean Management Plan



Volume 1
Management and Administration

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January 6, 2015

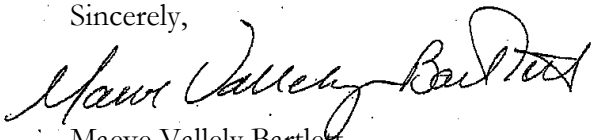
Dear Fellow Massachusetts Citizens:

In 2009, the Executive Office of Energy and Environmental Affairs (EEA) issued the Commonwealth's first-ever Ocean Management Plan, putting Massachusetts at the forefront of the nation on comprehensive ocean planning and management. This significant milestone, launched with the signing of the Oceans Act in May 2008, was the culmination of an extensive planning process that reflected the dedication of the Bay State to the responsible stewardship of our vast coastal and ocean resources and the sustainable uses they support. EEA, in collaboration with a range of stakeholders, worked to collect and analyze the best available science and data on ocean resources and uses and to identify the most efficient and effective management options available. The resulting ocean plan created a pragmatic management structure that enables the Commonwealth to proactively balance current and future uses of ocean waters while protecting critical ocean habitats and promoting sustainable economic development.

The Oceans Act specifically recognizes the need for such a plan to be revisited and revised as conditions change and management needs evolve, and therefore requires the ocean plan to be reviewed every five years and amended as necessary. This document—the 2015 Massachusetts Ocean Management Plan—is the first formal amendment of the 2009 ocean plan. This amendment continues the management framework of the original plan while making important revisions to specific plan aspects, which reflect changes in science and technologies, economic and policy priorities, and environmental conditions since 2009. The 2015 ocean plan advances a robust foundation for continued management of ocean resources and uses, progress on priority science and data needs, and engagement with communities and stakeholders that will guide ongoing work and achievements on these issues in Massachusetts.

As in 2009, the 2015 ocean plan would not have been possible without the dedicated efforts of many individuals and organizations and their contributions to the robust planning process. The Office of Coastal Zone Management led the planning process, with critical contributions from other EEA agencies, as well as other state and regional entities. The Ocean Advisory Commission provided sound guidance and important policy recommendations, and the Ocean Science Advisory Council gave expert advice on the science and technical aspects of the ocean plan. Many representatives of ocean interests and other members of the public participated in work groups, provided important input during the planning process, and made thoughtful comments on proposed plan revisions. I would like to personally thank all of these contributors for their commitment to ensuring that the Massachusetts Ocean Management Plan meets the needs of the Commonwealth's citizens today and into the future.

Sincerely,



Maeve Vallely Bartlett
Secretary
Executive Office of Energy and
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Chapter 1 - Introduction

In December 2009, the Executive Office of Energy and Environmental Affairs (EEA) issued the Commonwealth's first-ever Massachusetts Ocean Management Plan. The release of the plan was the culmination of an intensive planning process launched with the signing of the Oceans Act in May 2008. The Oceans Act (Appendix 1) gave the EEA Secretary formal oversight, coordination, and planning authority for the Commonwealth's ocean waters and ocean-based development. It also required EEA to develop an integrated ocean management plan that: defined the Commonwealth's goals, siting priorities, and standards for ensuring effective stewardship of ocean waters and resources held in trust for the benefit of the public; reflected the importance of these waters to the Commonwealth's citizens who derive livelihoods and recreational benefits from fishing; valued biodiversity and ecosystem health; identified and protected special, sensitive, or unique estuarine and marine life and habitats; and identified appropriate locations and performance standards for activities, uses, and facilities allowed by the Ocean Sanctuaries Act [M.G.L. c. 132A §12-18].

The development of the 2009 Massachusetts Ocean Management Plan, which was led by EEA's Office of Coastal Zone Management (CZM), included rigorous efforts to acquire, develop, and synthesize the best available data and science and to seek a high level of peer review and evaluation of this information. Throughout the process, EEA also carried out an extensive public and stakeholder participation program, including public workshops, meetings with stakeholders, and formal public hearings and comment periods. Members of the state's Ocean Advisory Commission and Ocean Science Advisory Council also provided important and valuable advice, guidance, and contributions to the planning process and the final plan. The development of the ocean plan underscored the critical importance and value of marine ecosystems and ocean-based commerce, trade, and economies in Massachusetts and reinforced the Commonwealth's responsibility to manage uses in a manner that preserves and enhances the integrity and sustainability of ocean ecosystems and resources and maintains the benefits held in trust for the public.

The Commonwealth's ocean plan is intended to be an evolving document—revisited and revised periodically to adapt as better information and science are developed, policy goals evolve, and experience in applying the management and administrative framework is gained. The Oceans Act and the implementing regulations of the ocean plan (301 CMR 28.00, Appendix 2) require that the Massachusetts Ocean Management Plan, its Baseline Assessment, and the enforceable provisions of relevant statutes and regulations be reviewed at least once every five years.

This document—the 2015 Massachusetts Ocean Management Plan (hereafter referred to as the 2015 ocean plan)—presents the first formal amendment of the original ocean plan

released in 2009. With its promulgation on January 6, 2015, the 2015 ocean plan serves as the current official version of the state's ocean plan, superseding the 2009 plan. This chapter provides an overview of the document, describes the plan review and update process, and summarizes the revisions made to the 2009 ocean plan. While this chapter generally references the maps in the ocean plan, specific information on management areas and maps is provided in Chapter 2, and the maps themselves are placed at the end of the document for production purposes. All of the maps in the ocean plan are also available on CZM's publicly accessible online data and mapping system, the Massachusetts Ocean Resource Information System (MORIS), at maps.massgis.state.ma.us/map_ol/mass_ocean_plan.php.

Overview of the Document

The 2015 ocean plan consists of two volumes:

- Volume 1: Management and Administration - Following this introductory chapter, Chapter 2 provides the Commonwealth's updated and amended approach for integrated ocean management, identifying and providing accompanying maps for the broad management areas and the special, sensitive, or unique habitat and water-dependent uses delineated for protection.[1] It also presents the siting and management standards for activities and projects subject to the ocean plan. Chapter 3 highlights progress in plan implementation since 2009 and describes key administrative elements, the review and revision process, continued mechanisms for input and engagement with experts and stakeholders, and an approach for monitoring and evaluating plan implementation.

- Volume 2: Baseline Assessment Five-Year Update and Science Framework - The Oceans Act mandated a Baseline Assessment as part of the ocean plan and required a review and update of this Baseline Assessment at least every five years. The 2009 Baseline Assessment constituted an extensive cataloguing of the current state of knowledge regarding human uses, natural resources, and other ecosystem components of Massachusetts ocean waters. The Baseline Assessment Five-Year Update: Report on Changes and Trends since 2009 is presented in Volume 2 and reports on the current condition, status, and trends in Massachusetts marine waters. Volume 2 also contains the Science Framework, which identifies updated science and data priorities and strategies that will support the continued evolution of the Massachusetts Ocean Management Plan.

[1] For production purposes, all maps are placed at the end of the document.

Ocean Plan Review and Amendment Process

The review and amendment process for the 2009 ocean plan was formally initiated with a public notice in the May 22, 2013, *Environmental Monitor*. Public hearings on the proposed scope of the plan amendment were held in Boston, New Bedford, Gloucester, and Barnstable in June 2013. Throughout the entire plan review and amendment process, the Ocean Advisory Commission provided valuable input and advice at meetings held in April 2013, September 2013, January 2014, September 2014, and December 2014. Similarly, input and advice on the update of the Baseline Assessment and in the review of science-related elements of the ocean plan were provided by the Ocean Science Advisory Council at meetings held in May 2013, October 2013, February 2014, September 2014, and December 2014.

The review of the 2009 ocean plan included a comprehensive assessment of the progress in meeting the requirements and commitments established by the Oceans Act and the plan itself. The results of the assessment were released in the document, *Review of the Massachusetts Ocean Management Plan, January 2014*, which provides a summary of the background and context for ocean planning in Massachusetts and reports on the plan development process, including the policies and management framework, plan administration and implementation, and work on science and data priorities identified in the 2009 ocean plan's Science Framework. The review document also synthesizes the views and opinions of members of the Ocean Advisory Commission and Ocean Science Advisory Council on the planning and implementation process and summarizes stakeholder and public input received during public meetings and the formal comment period on the review process. Finally, the review contains several recommendations to guide ongoing implementation of and potential revisions to the ocean plan. See www.mass.gov/eea/mop for an online copy of *Review of the Massachusetts Ocean Management Plan, January 2014*.

A critical component of the ocean plan amendment process was the efforts of six technical work groups that were convened in June 2013 to review scientific data and information and identify and characterize important trends in ocean resources and uses. Comprised of nearly 100 science, technical, and subject matter experts from state and federal agencies, academia, non-profits, and the private sector, the work groups addressed the following topic areas: habitat, fisheries, sediment resources, recreational and cultural services, transportation and navigation, and energy and infrastructure. At meetings in the fall and winter of 2013-2014, the Ocean Advisory Commission and Ocean Science Advisory Council reviewed draft reports from each of the six technical work groups and provided comments and advice. In March 2014, CZM held two public workshops to share information and solicit input from stakeholders on the findings and recommendations of the work groups.

Based on the information and recommendations contained in the work group technical reports and with input from advisory bodies, workshops, and public and stakeholder meetings, work

on the development and drafting of the 2014 draft ocean plan was done in the spring and summer of 2014.

On September 24, 2014, the availability of the 2014 draft ocean plan for public review and comment was noticed in the *Environmental Monitor*. Public hearings on the 2014 draft ocean plan were held in Ipswich, Hyannis, New Bedford, Vineyard Haven, and Boston in October 2014. In addition, informational meetings—including a legislative briefing at the State House, presentations at two Environmental Business Council programs, a presentation for the Boston Bar Association, a public meeting in Nantucket hosted by the Nantucket Planning and Economic Development Commission, and a presentation for the Cape Cod Marine Trades Association—were held in October and November 2014. The public hearings and informational meetings provided opportunities for stakeholders and the public to ask questions and provide oral comments.

After the 60-day public comment period, which closed on November 25, 2014, EEA compiled and reviewed both the oral comments received at the public hearings and written comments submitted. Comments on the 2014 draft ocean plan were received from more than 75 organizations and individuals, including: state and regional agencies; legislators; business, industry, and private sector representatives; commercial fishing groups and fishermen; non-profits; municipalities; and citizens. At a joint meeting of the Ocean Advisory Commission and Ocean Science Advisory Council in December 2014, options for adjustments to the 2014 draft ocean plan were deliberated and consensus recommendations to EEA and CZM were provided. The ocean plan was then revised and finalized for promulgation on January 6, 2015. Additional information and details on the ocean planning process and its history in Massachusetts is available at www.mass.gov/eea/mop.

Summary of Revisions to the 2009 Ocean Plan

The 2015 ocean plan makes several substantive changes to the 2009 plan. The revisions are briefly summarized below and detailed throughout the remainder of this document.

Management Areas

The ocean plan combines elements of both designated area and performance standard based management by establishing three categories of management areas. In the 2009 ocean plan, the vast majority of the Massachusetts Ocean Management Planning Area (planning area) was designated as a Multi-Use Area, open to all uses, activities, and facilities as allowed under the Ocean Sanctuaries Act subject to siting and management standards defined in the ocean plan. A Prohibited Area was also established, coincident with the Cape Cod Ocean Sanctuary, where under the Ocean Sanctuaries Act certain uses, activities, and facilities are prohibited (e.g., activities and facilities associated with

the generation, transmission, and distribution of electric power). Finally, the ocean plan identified several Renewable Energy Areas, including two designated Wind Energy Areas. The Gosnold Wind Energy Area and the Martha's Vineyard Wind Energy Area, which constitute two percent of the planning area, were designated as the only locations in the planning area suitable for commercial-scale wind energy facilities. The 2009 ocean plan also identified three other locations for commercial-scale wind that were designated as "provisional sites." While these provisional sites passed the initial screening process for the ocean plan, they were found to have technical limitations and potential cumulative impacts. The 2009 ocean plan therefore declared that while these provisional sites were not being proposed for designation as Wind Energy Areas and were not being explored for further feasibility by the Commonwealth, potential project proponents were not precluded from developing additional information and analysis for review by EEA. The 2009 ocean plan went on to state that any designation of the provisional sites as Wind Energy Areas would require a formal amendment to the ocean plan.

As described in Chapter 2 of this document, given the focus and progress on advancing offshore renewable wind energy in federal waters and considering some of the limitations and current status of development interest in state waters, the provisional commercial-scale wind energy areas have been removed from the 2015 ocean plan's Management Areas map. As with the 2009 ocean plan, while community-scale wind energy projects are allowed in the planning area—subject to the plan's siting and management standards and other applicable permits, licenses, and authorizations—the designation of sites for commercial-scale wind energy may only occur through an amendment to the ocean plan.

Also as explained in Chapter 2, with respect to the existing Martha's Vineyard and Gosnold Wind Energy Areas, the 2015 ocean plan calls for additional review, consultation, and evaluation of their status as designated wind energy areas. The 2015 ocean plan recognizes the legal authority of the Martha's Vineyard Commission under the Oceans Act to define the appropriate scale of offshore renewable energy projects within its jurisdiction. The 2015 ocean plan affirms the commission's formal definition of appropriate scale in its *2012 Wind Energy Plan for Dukes County* and its designation of exclusionary areas within large sections of the Martha's Vineyard Wind Energy Area and the Gosnold Wind Energy Area. Given the restrictions of the commission's county wind plan, the availability of new data and information, and stakeholder concerns expressed during the review of the 2014 draft ocean plan, the 2015 ocean plan acknowledges that commercial-scale wind energy projects are not suitable for these areas. These constraints, however, may not extend to smaller pilot or community-scale projects within these designated areas.

Protected Resources and Uses

The performance-based approach in the 2009 ocean plan identifies and maps specific "special, sensitive, or unique" (or SSU) estuarine and marine life and habitats and marine water-dependent uses. It also protects these high value resources and water-dependent uses through siting and performance standards that direct specific development activities away from these areas.

To update and amend the 2009 ocean plan, a comprehensive review of available data, information, and maps was conducted to identify changes to the spatial extent and/or condition of the mapped SSU resources and water-dependent uses. Six technical work groups comprised of scientists and technical or subject matter experts from state and federal agencies, academia, non-profits, and the private sector were convened to review the best available scientific data and information, identify and characterize important trends in ocean resources and uses, and provide recommendations as to key data, science, or monitoring to address identified gaps. Based on the recommendations of the technical work groups, changes have been made to six of the twelve spatial area maps of SSU resources identified and mapped in the 2009 ocean plan, and a new, modified SSU resource has been developed for regionally critical sea duck habitat. (Table 1-1 lists the SSU map changes.) The new regionally critical sea duck habitat SSU area, collectively

Table 1-1. Changes to mapped areas of special, sensitive, or unique resources

SSU resource	Mapped area change?
North Atlantic Right Whale Core Habitat	Yes
Humpback Whale Core Habitat	Yes
Fin Whale Core Habitat	Yes
Roseate Tern Core Habitat	No
Special Concern (Arctic, Least, and Common) Tern Core Habitat	No
Sea Duck Core Habitat (formerly mapped as Long-tailed Duck Core Habitat in 2009 ocean plan)	Yes (new SSU resource area)
Leach's Storm-Petrel Important Nesting Habitat	No
Colonial Waterbirds Important Nesting Habitat	No
Hard/Complex Seafloor	Yes
Eelgrass	Yes
Intertidal Flats	Yes
Important Fish Resources	No

referred to as the Sea Duck Core Habitat, includes regionally critical habitat areas for White-winged Scoter, Black Scoter, Surf Scoter, and Common Eider, along with revisions to the Long-tailed Duck important habitat areas from the 2009 ocean plan. In addition, based on the recommendations of the technical work groups, changes have been made to the spatial area maps for all five of the concentrations of water-dependent uses identified and mapped in the 2009 ocean plan (Table 1-2).

Table 1-2. Changes to mapped concentrations of water-dependent uses

Concentrations of water-dependent use	Mapped area change?
High Commercial Fishing Effort and Value	Yes
Concentrated Recreational Fishing	Yes
Concentrated Commerce Traffic	Yes
Concentrated Commercial Fishing Traffic	Yes
Concentrated Recreational Boating	Yes

Management of Uses

The 2009 ocean plan contained background information and described specific management standards and measures for uses, activities, and facilities allowed under the Ocean Sanctuaries Act, as amended by the Oceans Act, including: renewable energy, sand borrow sites for beach nourishment and shore protection, cables and pipelines, fishing, and aquaculture. The management of uses section in Chapter 2 of this document has been updated and modified to reflect new information and work to advance the proactive planning and siting for future projects. The changes are summarized below and described more fully in Chapter 2.

- Renewable Energy, Wind - Since 2009, there have been some important trends in offshore renewable wind energy, including significant progress in the planning, analysis, and leasing stages of offshore wind development in federal waters adjacent to Massachusetts. In June 2014, the Bureau of Ocean Energy Management (BOEM) and the Commonwealth of Massachusetts jointly announced the publication of the Proposed Sale Notice for Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore Massachusetts, detailing a proposed auction format, the four lease areas available, proposed lease provisions and conditions, and criteria for evaluating competing bids. On November 24, 2014, BOEM issued the Final Sale Notice and set the date for the federal lease sale for January 29, 2015. There have also been important advances on the Cape Wind project and the New Bedford Marine Commerce Terminal—the first facility in the nation specifically designed to support the construction, assembly, and deployment of offshore wind projects. As described below, in

response to this progress in the planning, analysis, and anticipated leasing of offshore wind energy areas in federal waters for potential development, the 2015 ocean plan includes provisions to advance the proactive planning and siting of transmission corridors to bring renewable energy from the projects in federal waters across state waters to landside grid tie-in locations.

- Renewable Energy, Tidal - In 2009, there were three tidal projects areas in Massachusetts state waters (two in the planning area) that had preliminary permits under the Federal Energy Regulatory Commission (FERC) hydrokinetic licensing process. As of January 2015, only one project—the Muskeget Channel Tidal Energy Project—has met the FERC-specified schedule of activities, target dates, and reporting on the status of studies. This project is now in pre-filing license status for a pilot project with FERC. During initial Massachusetts Environmental Policy Act (MEPA) review, the preparation of a Draft Environmental Impact Report (DEIR) was required and a scope for the DEIR was provided. Since the issuance of the Secretary's MEPA Certificate, the proponent has been conducting pre-deployment monitoring and preparing the DEIR. The 2015 ocean plan supports continued work on the planning and analysis of the pilot-scale phase of this potential tidal energy project.

- Sand for Beach Nourishment and Shore Protection - The 2009 ocean plan recognized that areas of many coastal communities are vulnerable to erosion and flooding, both now and with accelerated rates of sea-level rise. It also affirmed that the potential use of ocean sand resources for beach nourishment is an allowed activity under the Oceans Sanctuaries Act and may represent an option for increasing the beneficial services afforded by healthy beach and dune systems, but that this use needs to be balanced with the protection of marine ecosystems and existing water-dependent uses. Since 2009, there have been significant efforts and progress related to coastal shoreline and floodplain management and climate change adaptation in Massachusetts, including the release of the Massachusetts Climate Change Adaptation Report, technical and financial assistance provided to coastal communities through CZM's StormSmart Coasts program, and the convening of the state's Coastal Erosion Commission whose work includes efforts to assess coastal erosion and shoreline change and develop recommendations to address the adverse impacts of erosion on property, infrastructure, and natural resources. The 2015 ocean plan advances planning for potential areas of sand resources for beach nourishment by: (1) identifying spatial data and information on ocean sediments, SSU resources, habitats and fisheries, navigation and transportation, infrastructure uses, and other information to be used in planning and siting; (2) conducting a preliminary compatibility and screening assessment that identifies areas to avoid based on

potential biological and physical environmental impacts, incompatibility and/or adverse interactions with existing uses and sites, and limitations and specifications of potential dredging operations; and (3) providing a framework for further work and consultations. Within this framework, the 2015 ocean plan calls for the formation of an Offshore Sand Task Force to provide guidance and advice to EEA, the Ocean Advisory Commission, the Ocean Science Advisory Council, and the Coastal Erosion Commission on important aspects of this issue. The task force will be charged with: (1) reviewing the preliminary compatibility and screening assessment conducted during the ocean plan review and amendment process and making recommendations for any revisions; (2) identifying existing spatial data and other information that can be integrated into the compatibility assessment and screening; (3) providing advice as to further investigation, survey, and characterization work; (4) helping to develop standards for pre- and post-monitoring that would be required for project proponents; and (5) recommending criteria to ensure that potential projects are in the public interest. The 2015 ocean plan also contains specific management standards for proposed offshore sand projects for beach nourishment.

- Cables and Pipelines - The 2009 ocean plan described the importance of marine cables and pipelines for the transmission and distribution of electricity, fuels, and telecommunications, and the connection of these particular goods and services to national energy, security, and communication matters. Changes since 2009 include a five-year temporary suspension of operations at the Neptune Deepwater Liquefied Natural Gas (LNG) Port as approved by the U.S. Department of Transportation's Maritime Administration and the permitting and installation of the Comcast/NSTAR bundled submarine fiber-optic communications and electric cable between Falmouth and Tisbury. As noted in the 2009 ocean plan, a key issue for cables is the future development of offshore wind energy facilities that will require transmission connections to the Massachusetts coast. To help address this issue, the Massachusetts Clean Energy Center (MassCEC) commissioned a study that detailed important information on the key elements of transmission configurations, scenarios, land-side tie-ins, sub-station and cabling requirements, and construction considerations. In the 2015 ocean plan, information from the transmission study was integrated with spatial information on SSU resources, surficial sediment maps, navigational and other uses, and other areas to avoid (i.e., Nomans Danger Zone, existing cable areas, and Cape Wind area) in a compatibility assessment and screening analysis. Based on the outcomes of the analysis, four preliminary areas for offshore wind transmission cables were mapped and identified as areas for further survey, characterization, and assessment work.

Ocean Development Mitigation Fee

The 2009 ocean plan described the Oceans Act requirement that projects subject to the plan be assessed an Ocean Development Mitigation Fee, as established by the EEA Secretary. Promulgated in August 2013, the implementing regulations of the Oceans Act at 301 CMR 21.06 call for the EEA Secretary to develop a fee "schedule" that reflects differences in terms of the scale and effects of ocean development projects. As part of the ocean plan amendment process, EEA consulted with an advisory working group with representatives from the regulated community (energy and consultants), commercial fishing, environmental interests, and EEA agencies in the development of the proposed fee schedule. Chapter 3 of the 2015 ocean plan describes the tiered fee schedule and provisions for the determination and administration of the fee.

Baseline Assessment

A key component of the 2009 ocean plan is the Baseline Assessment, which was developed to characterize the planning area, with in-depth descriptions and assessments of ecosystem components, human uses, economics, cultural and archeological aspects, and climate change. The Oceans Act requires the review and update of the Baseline Assessment at least every five years. Based on information and findings from the six technical work groups, and working with the Ocean Science Advisory Council, the Baseline Assessment Five-Year Update: Report on Changes and Trends since 2009 was developed. This document is contained in Volume 2 of the 2015 ocean plan and accounts for and describes significant and/or otherwise notable changes, qualitative and quantitative trends, and new data sources that have been measured, observed, or identified since the 2009 "baseline." For consistency and to aid in cross-referencing, the chapter titles and subchapters in the update mirror those in the 2009 Baseline Assessment. The seven chapters in the Baseline Assessment update are: Water Column Features, Seabed Features, Habitat, Archeological Landscape and Cultural Heritage, Human Uses, Economic Impact of the Marine Sector, and Climate Change.

Science Framework

Recognizing that the understanding of ocean ecosystems and the human services they support will evolve and that the management framework of the ocean plan could be advanced with additional science and data work, the 2009 ocean plan identified eight top-priority science and data actions that could be achieved in a five-year timeframe. Since then, considerable progress has been made in implementing these priority actions, including important advancements in marine seafloor and habitat science and characterization, major additions of data and information on human use patterns such as recreational boating activity, and key updates in both functionality and data contents to

the publicly accessible online data and mapping system (Massachusetts Ocean Resource Information System, or MORIS). The 2015 ocean plan defines new science and data needs. The updated Science Framework presented in Volume 2 contains both short- and long-term priorities that were developed based on recommendations from the technical work groups and input from the Ocean Science Advisory Council. These priorities serve to define the preferred agenda for future work to advance the data and information that form the foundation of the ocean plan.

Northeast Regional Ocean Planning

The 2009 ocean plan described the importance of coordination and cooperative partnerships with various entities, especially regional planning agencies, federal agencies, the Northeast Regional Ocean Council, and other institutions and agencies involved in ocean management, science, and stewardship. One of the most significant developments since the 2009 ocean plan was released was the issuance of a Presidential Executive Order (#13547) in July 2010 that established the *National Policy for Stewardship of the Ocean, our Coasts, and the Great Lakes* to enhance ocean and coastal management efforts. The Executive Order calls for the formation of formal regional ocean planning bodies to implement an ocean planning process that will analyze current and anticipated uses of coastal and ocean resources.

In response to this Executive Order, the Northeast Regional Planning Body (Northeast RPB) was formally convened in November 2012 and includes representatives from the six New England states, 10 federal agencies, 10 federally recognized tribes, and the New England Fishery Management Council. The Northeast RPB is not a regulatory body and has no authority to create new regulations. Rather, its mandate is to develop a regional ocean plan and associated products to guide future agency decision-making, consistent with existing authorities. The Northeast RPB held formal meetings in November 2012, April 2013, January 2014, June 2014, and November 2014. Based on its deliberations and informed by public comment, stakeholder meetings, and workshops, the Northeast RPB developed a framework that identified the goals, objectives, actions, and products to produce a regional ocean plan by early 2016. Work is underway on a number of projects designed to support the planning effort by compiling detailed information on human activities in ocean areas, such as commercial fishing, marine transportation and commerce, recreational boating, and other activities, as well as information on ocean ecosystems, such as areas used by marine mammals, fish, and birds. The projects are collaborative efforts that include scientists, fishermen, boaters, and environmental groups, as well as leaders in the shipping, aquaculture, and energy industries.

The Massachusetts ocean planning process continues to provide the Commonwealth with unique insight and understanding and enables the state to play an important role on

the Northeast RPB. The Northeast regional ocean planning initiative has and will continue to benefit the Commonwealth by expanding the scope and extent of data and information available on marine resources and uses, utilizing and building on stakeholder engagement efforts, and advancing governmental coordination. Through its role on the Northeast RPB, Massachusetts will seek to ensure that the content of the regional ocean plan and its products are consistent with and can be integrated into the state's ocean plan, to the maximum extent practicable.

Chapter 2 - Management

The Massachusetts Ocean Management Plan establishes a management framework to address the goals of the Oceans Act and improve stewardship and management of the ocean environment and resources in and beyond Massachusetts marine waters. In the development of the original ocean plan released in 2009, several management options and alternatives were considered. The management approach ultimately adopted combines elements of both designated area and performance standards-based management. This approach uses existing regulatory frameworks and maximizes integration and coordination among agencies, with robust protections for important marine life and habitat and strong support for maritime water-dependent activities. This document—the 2015 Massachusetts Ocean Management Plan—presents the first formal amendment of the 2009 ocean plan and serves as the new official ocean plan for Massachusetts.

The 2015 ocean plan advances and builds on the original management approach of the 2009 ocean plan. This chapter describes the management areas established by the ocean plan, and then goes on to provide contextual information and details on the plan's siting and management standards for a set of allowed activities pursuant to the Ocean Sanctuaries Act, including renewable energy, offshore sand for beach nourishment, cables and pipelines, and aquaculture. The management approach and requirements established in the 2009 ocean plan are summarized and any revisions for the 2015 ocean plan are specifically discussed.

Management Areas

As defined by the Oceans Act, the Massachusetts Ocean Management Planning Area (planning area) is the water and submerged lands of the ocean, including the seabed and the soil, lying between a line designated as the "Nearshore Boundary of the Ocean Management Planning Area" and the seaward boundary of the Commonwealth (Figure 1).[1] Within the planning area, the 2009 ocean plan established three categories of management areas: Prohibited, Renewable Energy, and Multi-Use. These three management areas are carried forward by the 2015 ocean plan, with several revisions as described below (Figure 2).

Prohibited Area

The 2009 ocean plan designated a Prohibited Area, which is coincident with the Cape Cod Ocean Sanctuary. Within the Prohibited Area, a variety of uses, activities, and facilities are expressly prohibited by the Ocean Sanctuaries Act (e.g., activities and facilities associated with the generation, transmission, and distribution of electric

[1] For production purposes, all maps are placed at the end of the document.

power), and are therefore prohibited under the ocean plan. This 2015 ocean plan did not make any changes to the Prohibited Area.

Renewable Energy Areas

The 2009 ocean plan designated two Wind Energy Areas—the Gosnold Wind Energy Area and the Martha's Vineyard Wind Energy Area—that are presumptively suitable for commercial-scale or community-scale wind energy projects. Constituting two percent of the planning area's 2,145 square miles, these Wind Energy Areas were designated based on the presence of excellent wind resource, suitable water depth, and the absence of conflict with other uses or sensitive resources, as derived through an environmental analysis and screening process. The 2009 ocean plan also explained that there were potentially suitable locations in federal waters for commercial-scale wind, both adjacent to the state Wind Energy Areas and farther offshore. It discussed the formation and convening of a federal-state task force to assist the Bureau of Ocean Energy Management (BOEM) in the processes and steps for the potential leasing of areas of federal waters for commercial wind energy development pursuant to the federal Energy Policy Act of 2005 and BOEM's regulations for the Outer Continental Shelf (OCS) Renewable Energy Program promulgated in 2009.

While no projects have been proposed in the state-designated Wind Energy Areas since 2009, significant effort and progress have been made in the planning and analysis for potential offshore wind projects in federal waters, as described below in the Renewable Energy section. This work has led to the formal designation by BOEM of two separate but adjacent zones: (1) the Rhode Island/Massachusetts Wind Energy Area, which was leased in 2013 under the nation's first competitive auction, and (2) the Massachusetts Wind Energy Area, which is scheduled to be auctioned by BOEM on January 29, 2015. The 2015 ocean plan's maps have been updated to more accurately reflect the status of planning in federal waters offshore the Commonwealth (Figure 3).

In 2010, the Oceans Act was amended to provide those regional planning agencies who have statutorily derived regulatory authorities with the legal right to define the appropriate scale of offshore renewable energy facilities. In 2012, the Martha's Vineyard Commission issued its final *Wind Energy Plan for Dukes County*, which provides the basis for the commission's determination of "appropriate scale" for offshore wind development projects in state waters subject to their jurisdiction. The *Wind Energy Plan for Dukes County* defines exclusionary areas for offshore wind projects as "highly critical areas where no turbines or infrastructure shall be located" and delineates large sections of the Martha's Vineyard Wind Energy Area and Gosnold Wind Energy Area as exclusionary areas.

Since 2009, as described in the Multi-Use Area section below and in the Science Framework in Volume 2, significant work has been done to advance science and data priorities identified in the 2009 Science Framework, including work to map and characterize seafloor habitat and surficial sediments, marine mammal and bird distribution and abundance, and water-dependent uses such as marine commerce and navigation, recreational boating, and commercial fishing. New data and spatial information have led to updates of special, sensitive, or unique resources and water-dependent uses in the 2015 ocean plan.

Given the restrictions related to the appropriate scale determination of the Martha's Vineyard Commission *Wind Energy Plan for Dukes County*, the availability of new data and information on protected resources and uses, and stakeholder concerns expressed during in the ocean plan amendment process, the 2015 ocean plan acknowledges that commercial-scale wind energy projects (i.e., wind energy projects greater than community-scale, which as described below in the Renewable Energy section are capped at 17 turbines, see Table 2-5) are not suitable for the Martha's Vineyard Wind Energy Area or the Gosnold Wind Energy Area. These constraints, however, may not extend to smaller pilot or community-scale projects that could be sited within the state-designated Wind Energy Areas, subject to appropriate scale determination and necessary federal, state, and local review and approvals. The Executive Office of Energy and Environmental Affairs (EEA) will conduct additional review and evaluation of the designation and status of the state Wind Energy Areas in consultation with the Martha's Vineyard Commission and its member communities, the Town of Gosnold, and other stakeholders. Any recommended revisions to these designated areas would be proposed in the form of an ocean plan amendment through the processes described in Chapter 3 and the ocean plan's implementing regulations at 301 CMR 28.07.

The 2009 ocean plan also identified three locations (including one in federal waters adjacent to the planning area) for commercial-scale wind that were designated as "provisional sites." While located outside of exclusionary areas applied in the environmental analysis and screening process, these provisional sites were not designated as Wind Energy Areas and were not proposed for further feasibility analysis by the Commonwealth because of concerns for technical limitations, potential cumulative impacts, and wind energy suitability. The 2009 ocean plan stated that potential project proponents would not be precluded from developing additional information and analysis for review by EEA; however, the designation of any or all of the provisional sites as Wind Energy Areas could only occur through an amendment to the ocean plan.

Given the focus, efforts, and significant progress on advancing offshore renewable wind energy in federal waters, as described in the Renewable Energy section below, and in consideration of potential constraints and limitations and the current status of development interest in state waters, the provisional areas have been removed in the 2015 ocean plan. Potential project proponents are still eligible to explore wind energy projects in the Multi-Use Area, but as before, the designation of sites in the planning area as Wind Energy Areas for commercial-scale wind energy projects may only occur through an amendment to the ocean plan.

Finally, as described below in the Management of Uses in the Planning Area section, the location of potential tidal energy areas has been updated in the 2015 ocean plan (Figure 3). In 2009, the Federal Energy Regulatory Commission (FERC) had issued three preliminary permits in Massachusetts state waters under its hydrokinetic licensing process. As of January 2015, only one project—a community-based pilot tidal energy project in Muskeget Channel proposed by the Town of Edgartown—has met the FERC-specified schedule of activities, target dates, and reporting on the status of studies, and the project is now in pre-filing license status for a pilot project with FERC. The project has not completed the required review under the Massachusetts Environmental Policy Act (MEPA), and additional studies are necessary to inform the development of its Draft Environmental Impact Report and its FERC application.

Multi-Use Area

The 2009 ocean plan designated the remainder—and the vast majority—of the planning area as a Multi-Use Area (Figure 2), which is open to all uses, activities, and facilities ("activities" or "projects") allowed under the Ocean Sanctuaries Act, including but not limited to:

- Community-scale wind energy facilities;
- Wave and tidal energy facilities;
- Offshore sand for beach nourishment;
- Cables and pipelines; and
- Aquaculture.

Under the 2009 ocean plan, management of allowed activities in the Multi-Use Area is based on an approach that directs new development away from both critical marine ecosystem components—special, sensitive, or unique (SSU) resources—and areas important for water-dependent uses that were identified and mapped in the planning process. As described further in this section and in the Management of Uses in the Planning Area section, these SSU resources and concentrations of water-

dependent uses continue to serve as the basis for the management approach of the 2015 ocean plan.

- Protected Ocean Resources and Uses - As directed by the Oceans Act, the ocean plan identifies and establishes siting and management standards to protect (1) special, sensitive, or unique estuarine and marine life and habitats and (2) concentrations of water-dependent use areas. Through the ocean plan amendment process, significant effort was made to locate, develop, compile, and synthesize the best available data and information. Six technical work groups—comprised of scientists and technical or subject matter experts from state and federal agencies, academia, non-profits, and the private sector—were convened to identify and review new science, data, and information and to identify and characterize important trends in ocean resources and uses. These technical work groups addressed the following topic areas: habitat, fisheries, sediment resources, recreational and cultural services, transportation and navigation, and energy and infrastructure. Based on the recommendations of the technical work groups, the 2015 ocean plan includes changes for seven of the twelve spatial area maps for SSU resources and for all five of the concentrations of water-dependent use areas. These changes are indicated and summarized in Tables 2-1 and 2-2, and the updated maps are contained in Figures 4 through 20.

Table 2-1. List of special, sensitive, or unique resources and summary of changes made by the 2015 ocean plan[2]

SSU resource	Mapped area change?	Summary of change
North Atlantic Right Whale Core Habitat (Figure 4)	Yes	North Atlantic right whale core habitat was mapped for the 2015 ocean plan using more recent effort-corrected sightings data from 1998-2014 (data from 1970-2005 were used to delineate the SSU resource in the 2009 ocean plan). The updated SSU resource area increased to include more area in western Cape Cod Bay and off Outer Cape Cod.
Humpback Whale Core Habitat (Figure 5)	Yes	Humpback whale core habitat was updated using newer effort-corrected sightings data from 1998-2014 (in the 2009 ocean plan, data from 1970-2005 were used to map the SSU resource). The changes in the SSU resource area were minor—the updated humpback whale core habitat increased a small amount in Massachusetts Bay, northern Cape Cod Bay, and off Outer Cape Cod.

[2] For production purposes, all maps are placed at the end of the document.

SSU resource	Mapped area change?	Summary of change
Fin Whale Core Habitat (Figure 6)	Yes	Fin whale core habitat was mapped using newer effort-corrected sightings data from 1998-2014 (in the 2009 ocean plan, data from 1970-2005 were used to map the SSU resource). The changes in the SSU resource area were minor—the updated fin whale core habitat expanded slightly in eastern Cape Cod Bay.
Roseate Tern Core Habitat (Figure 7)	No	Roseate Tern core habitat was not updated because no new and/or higher quality data were identified. In the 2009 ocean plan, all SSU resources were gridded onto a 250 x 250-meter grid to allow for a consistent comparison of a variety of datasets. For the 2015 ocean plan, SSU resources were mapped in their native format, so the Roseate Tern core habitat was not gridded.
Special Concern (Arctic, Least, and Common) Tern Core Habitat (Figure 8)	No	Special concern (Arctic, Least, and Common) tern core habitat was not updated because no new and/or higher quality data were identified. In the 2009 ocean plan, all SSU resources were gridded onto a 250 x 250-meter grid to allow for a consistent comparison of a variety of datasets. For the 2015 ocean plan, SSU resources were mapped in their native format, so the special concern tern core habitat was not gridded.
Sea Duck Core Habitat (formerly mapped as Long-tailed Duck Core Habitat in 2009 ocean plan) (Figure 9)	Yes	The Long-tailed Duck core habitat mapped in the 2009 ocean plan was modified to include four additional sea duck species. This modified SSU resource area, collectively referred to as sea duck core habitat, includes regionally critical habitat for Long-tailed Duck, Common Eider, Black Scoter, Surf Scoter, and White-winged Scoter. Sea duck core habitat was mapped using effort-corrected sightings data from 2008-2012 and Long-tailed Duck telemetry data from 2008-2009. The new SSU resource area increased to include portions of Nantucket and Vineyard Sounds and Muskeget Channel.
Leach's Storm-Petrel Important Nesting Habitat (Figure 10)	No	Leach's Storm-Petrel important nesting habitat was not updated because no new and/or higher quality data were identified. In the 2009 ocean plan, all SSU resources were gridded onto a 250 x 250-meter grid to allow for a consistent comparison of a variety of datasets. For the 2015 ocean plan, SSU resources were mapped in their native format, so the Leach's Storm-Petrel important nesting habitat was not gridded.

SSU resource	Mapped area change?	Summary of change
Colonial Waterbirds Important Nesting Habitat (Figure 11)	No	Colonial waterbirds important nesting habitat was not updated because no new and/or higher quality data were identified. In the 2009 ocean plan, all SSU resources were gridded onto a 250 x 250-meter grid to allow for a consistent comparison of a variety of datasets. For the 2015 ocean plan, SSU resources were mapped in their native format, so the colonial waterbirds important nesting habitat was not gridded.
Hard/Complex Seafloor (Figure 12)	Yes	Hard/complex seafloor is seabed characterized singly or by any combination of hard seafloor, complex seafloor, artificial reefs, biogenic reefs, or shipwrecks and obstructions. For the 2015 ocean plan, hard/complex seafloor was mapped using updated surficial seafloor sediment data and the same complex seafloor data used in the 2009 ocean plan. The locations of artificial reefs, biogenic reefs, and shipwrecks and obstructions to navigation were added to the SSU resource area. The changes in hard/complex seafloor were minor—the updated area expanded at the mouth of Vineyard Sound and decreased east of Nantucket.
Eelgrass (Figure 13)	Yes	Eelgrass was updated by incorporating new data on the locations of eelgrass beds from 2006/2007, 2010, 2012, and 2013, in addition to the data from 1995 and 2001 used in the 2009 ocean plan. The changes between the mapped 2009 and 2015 SSU resource areas were minor.
Intertidal Flats (Figure 14)	Yes	Intertidal flats were mapped using updated data on the locations of intertidal flats from 2005-2010 (data from 2005 were used in the 2009 ocean plan). The changes between the mapped 2009 and 2015 SSU resource areas were minor.
Important Fish Resources (Figure 15)	No	Important fish resources were updated using trawl survey data from 1978-2012 (trawl surveys from 1978-2007 were analyzed in the 2009 ocean plan). The SSU resource area for the 2015 ocean plan did not change from 2009.

Table 2-2. List of concentrations of water-dependent uses and summary of changes made by the 2015 ocean plan[3]

Concentrations of water-dependent use	Mapped area change?	Summary of change
High Commercial Fishing Effort and Value (Figure 16)	Yes	High commercial fishing effort and value was updated using data from state trip-level and catch reports, federal vessel trip reports, and dealer transaction reports from 1988-2012 (reports from 1988-2007 were used in the 2009 ocean plan). The updated area increased off Outer Cape Cod, south of Cape Cod in Nantucket Sound, and east of Nantucket, and decreased in Vineyard Sound and Buzzards Bay.
Concentrated Recreational Fishing (Figure 17)	Yes	Concentrated recreational fishing was updated using information from a 2013 survey of experienced recreational fishermen. The changes in the mapped area were minor—the updated area increased slightly in Buzzards Bay and decreased in Massachusetts Bay.
Concentrated Commerce Traffic (Figure 18)	Yes	Concentrated commerce traffic was mapped using more recent Automatic Identification System (AIS) data from 2011-2012 (AIS data from 2008 were used in the 2009 ocean plan). The updated area expanded slightly south of Gloucester and in Buzzards Bay and incorporated new areas in Vineyard Sound and Nantucket Sound. An area mapped in 2009 in Cape Cod Bay between the Cape Cod Canal and federal waters was removed.
Concentrated Commercial Fishing Traffic (Figure 19)	Yes	Concentrated commercial fishing traffic was updated using additional years of Vessel Monitoring System (VMS) data from 2006-2010 (the 2009 areas were mapped using VMS data from September 2007 through August 2008). The changes in the updated mapped area from the 2009 ocean plan were minor.
Concentrated Recreational Boating (Figure 20)	Yes	Concentrated recreational boating was mapped using new data collected from two surveys of recreational boaters conducted in 2010 and 2012 and from a 2013 survey of expert recreational boaters. The updated areas increased off of the North Shore, in Massachusetts Bay, and in Buzzards Bay, and decreased in Cape Cod Bay, off Outer Cape Cod, and in eastern Nantucket Sound.

- Siting and Performance Standards - The 2015 ocean plan maintains the management framework developed by the 2009 ocean plan and codified in regulations at 301 CMR 28.00 et seq. Under this framework, proposed activities allowed under the Ocean Sanctuaries Act within the planning area

[3] For production purposes, all maps are placed at the end of the document.

that are required to file an Environmental Impact Report (EIR) under MEPA are subject to the siting and performance standards listed below.

Because activities have different potential impacts on SSU resources and concentrations of water-dependent uses, the protected resources and uses that must be addressed vary according to the type of activity. The specific SSU resources and concentrations of water-dependent uses that must be addressed for each allowed activity are detailed in the Management of Uses in the Planning Area section below. In addition to siting standards, the ocean plan defines performance standards to ensure that all practicable measures to avoid, minimize, and mitigate impacts are applied to projects and that public benefits outweigh detriments.

Projects that exceed EIR review thresholds are presumed to have more potential for significant impacts and pursuant to the ocean plan are subject to the siting and performance standards. Projects that exceed MEPA Environmental Notification Form (ENF) thresholds are required to document any potential impacts to SSU resources and/or concentrations of water-dependent uses to allow agencies and the public to inform the EEA Secretary whether additional review in a discretionary EIR is warranted. Under the ocean plan, the following standards apply to allowed activities that are subject to MEPA review through the preparation of an EIR:

- Activities proposed in the planning area are presumptively excluded from specific SSU resource areas listed in the Management of Uses in the Planning Area section below. The SSU resource area maps in the ocean plan represent the best available information regarding the spatial extent of SSU resources at the time of ocean plan publication. Pursuant to an EIR scope issued by the EEA Secretary, the development of project-specific information may require additional site characterization work to confirm the presence/absence of an SSU resource.
- This presumption may be overcome by the demonstration that:
    1. The maps delineating the SSU resource do not accurately characterize the resource based on substantial site-specific information collected in accordance with data standards and processes described in the bullet below; or
    2. No less environmentally damaging practicable alternative exists. For the purposes of this standard, an alternative is practicable if it is available and capable of being implemented

after taking into consideration cost, existing technology, and logistics with respect to the purpose of the activity; and

3. The project proponent has taken all practicable measures to avoid damage to SSU resources, and the activity will cause no significant alteration to SSU resources. Demonstration of compliance with this standard may include the incorporation of measures to avoid resources and impacts to resources through time of year (TOY) controls such that the construction, operation, or removal of the project will not occur when the SSU resource is present or may be adversely affected; and
4. The public benefits associated with the proposed activity outweigh the public detriments to the SSU resource.

- To the maximum extent practicable, project proponents must avoid, minimize, and mitigate impacts to concentrations of water-dependent use areas listed in the Management of Uses in the Planning Area section below.
- As part of the MEPA review process, the EEA Secretary shall use maps and information from the ocean plan to inform scoping for impact and/or alternatives analysis and may require additional project-specific characterization of existing uses and potential impacts as deemed appropriate.
- The following data standards apply to project proponents that seek to demonstrate that the maps contained in the ocean plan do not accurately characterize the protected resource or use:
    1. Consultation with the EEA Secretary, the Office of Coastal Zone Management (CZM), and other agencies with expertise, management responsibilities, and/or regulatory authority is advised in order to obtain their review of any proposed effort to map or otherwise characterize protected resources or uses.
    2. Information presented must be based on site-specific investigation or characterization that conforms with contemporary and accepted standards.

The SSU resources and concentrations of water-dependent uses identified, mapped, and protected in the ocean plan are not intended to represent the exclusive subject matter of MEPA review and agency permitting action. Rather, based on the direction of the Oceans Act, they have been identified as critically important ocean resources and uses that warrant particular attention through the regulatory review process. The ocean plan does not supersede any existing laws, including those that require the assessment of potential impacts to

resources and uses not listed above. The EEA Secretary retains discretion under the MEPA statute and regulations to scope a project for any issue deemed necessary and appropriate, based on information presented by the project proponent and agency or public comment.

Overall, management in the Multi-Use Area represents an effort to balance the protection of significant existing uses and important environmental resources with the flexibility needed to allow the development of necessary infrastructure, sustainable uses, and new activities and technologies, in the context of the public trust and within limitations of existing data. As discussed in the Science Framework (provided in Volume 2 of the 2015 ocean plan), ongoing analysis of existing data, future data development, and increased understanding of the marine environment and patterns of human uses will continue to result in refined ocean plan maps. This continual, adaptive approach to management ensures the best, most current information is available to support informed decision-making and improved ocean stewardship.

Management of Uses in the Planning Area

This section provides further context and details on the management of allowed uses under the 2015 ocean plan, including the siting and performance standards described in the Management Areas section above, and specifies additional management standards and other conditions for activities allowed under the Ocean Sanctuaries Act, as amended by the Oceans Act. Revisions to the management standards in the 2009 ocean plan are also described. The following activities are covered: renewable energy; offshore sand for beach nourishment; cables and pipelines; fishing and aquaculture; and other uses, activities, and facilities allowed under the Ocean Sanctuaries Act.

Renewable Energy

The 2008 Oceans Act amended the Ocean Sanctuaries Act to modify a long-standing prohibition on electric generating facilities to allow the development of renewable energy facilities of appropriate scale as defined by and consistent with the ocean plan. With this amendment, the Oceans Act recognized the importance of providing an opportunity to achieve significant public benefits from the development of marine-based renewable energy in balance with other social values.

Also in 2008, two other landmark laws were enacted in the Commonwealth: (1) the Green Communities Act, which mandates that 15% of the Massachusetts electric load

be served by renewable energy by 2020, and (2) the Global Warming Solutions Act, which requires steep, economy-wide reductions in greenhouse gas emissions.

To meet these goals, Massachusetts has developed and implemented numerous strategies and incentives to spur the growth of renewable energy and clean energy technology and to advance other complementary efforts to reduce greenhouse gases, including major progress in energy efficiency improvements and the expansion of programs that support solar energy development. Offshore wind will play an important role in meeting these mandates, and the Commonwealth has set a target of developing 2,000 megawatts (MW) of offshore wind power by 2020.

Since 2009, significant changes have occurred in Massachusetts renewable energy generation. Considering only solar and wind, major increases in the amount of installed renewable energy have been realized. In 2009, the total installed solar capacity was 18.5 MW, and as of December 2014, the total capacity was 699 MW. In terms of wind energy generation, in 2009 the total installed wind capacity was 14 MW, and as of December 2014, the total capacity was 107 MW.

The following bullets provide updates to the contextual information on renewable energy and revisions to management standards for the 2015 ocean plan.

- Offshore Wind Energy - As referenced above, the state has set a goal of developing 2,000 MW of wind-power capacity by 2020. Offshore wind resources can provide considerable emission-free renewable energy, and when developed with care and forethought, are compatible with other ocean uses and resource protection. Offshore wind is a potentially inexhaustible resource that is available in close proximity to areas with very high electricity demands, minimizing the need for costly new transmission lines.

  While there have been no projects proposed in the state-designated Wind Energy Areas since 2009, there has been significant progress in the planning and analysis for potential commercial wind leasing in two areas offshore in federal waters south of Martha's Vineyard and Nantucket and east of Block Island. Massachusetts has been working closely with BOEM and two intergovernmental task forces—comprised of federal, state, tribal, and local elected officials—on the first phases of the federal Offshore Renewable Energy Program, developed pursuant to the Energy Policy Act of 2005. To augment the intergovernmental task force process, EEA established two working groups on fisheries and habitat to engage additional experts and stakeholders and provide a forum for bringing their input, concerns, and advice to BOEM and the federal process. In addition to these working

groups, EEA and the Massachusetts Clean Energy Center (MassCEC) have collaborated with BOEM to host dozens of local public meetings and workshops. Major milestones and outcomes since 2009 include:

- December 2010 - BOEM issued a Request for Interest (RFI) for an area off Massachusetts, seeking developer interest and input from stakeholders as to resources and concerns in the RFI area.
- May 2011 - At the request of the Commonwealth, BOEM reduced the size of the RFI area to protect areas critical to commercial fisheries, marine fauna, and navigation.
- February 2012 - BOEM formally identified the Rhode Island/ Massachusetts Wind Energy Area (RI/MA WEA) (Figure 3).
- May 2012 - BOEM formally identified the Massachusetts Wind Energy Area (MA WEA) (Figure 3).
- June 2013 - BOEM issued a Finding of No Significant Impact for Environmental Assessment developed under the National Environmental Policy Act (NEPA) and the Final Sale Notice for the RI/MA WEA.
- July 2013 - BOEM held the first-ever competitive lease sale for offshore wind renewable energy in federal waters for two lease areas in the RI/MA WEA. Deepwater Wind New England, LLC was awarded both areas. Deepwater Wind must submit a Site Assessment Plan by April 1, 2015.
- December 2013 - The U.S. Department of Energy's National Renewable Energy Laboratory released a technical report analyzing the MA WEA and providing recommended delineations for potential leasing areas within the WEA.
- June 2014 - BOEM released the Proposed Sale Notice for the MA WEA, detailing the proposed auction format, the four lease areas available, proposed lease provisions and conditions, and criteria for evaluating competing bids.
- November 2014 - BOEM released the Final Sale Notice announcing that the federal commercial auction for the MA WEA will be held January 29, 2015. The auction will be BOEM's fourth competitive lease sale for offshore renewable wind energy.

With respect to the federal leasing process for projects in federal waters, it is important to note the status of the Cape Wind energy project. After years of extensive environmental review, consultations, and litigation, in October 2010 Cape Wind was issued the nation's first commercial lease to construct and operate an offshore wind power facility in a lease area in Nantucket Sound.

The project consists of 130 wind turbine generators, each with 3.6 MW nameplate capacity. The total capacity of the project is 468 MW, with an average anticipated output of 183 MW. The project will connect to the landside grid via two 115-kilovolt (kV) submarine transmission cables making landfall in the Town of Yarmouth. In April 2011, BOEM formally approved the Cape Wind project's Construction and Operations Plan and issued an Environmental Assessment and a Finding of No New Significant Impact. In November 2012, the Massachusetts Department of Public Utilities approved a long-term power purchase agreement with NSTAR to buy Cape Wind's renewable energy capacity and renewable energy credits. Cape Wind continues to work on financing and developing contracts with supply chain businesses.

Another important advancement related to offshore wind energy since 2009 is the development of the New Bedford Marine Commerce Terminal. In May 2013, the Commonwealth and the City of New Bedford broke ground on the terminal site, which will be the first port facility in the United States specifically designed to support the construction, assembly, and deployment of offshore wind projects. The terminal will also be able to handle high-volume bulk and container shipping, as well as large specialty marine cargo. As part of construction, the project includes the dredging and removal of approximately 250,000 cubic yards of contaminated sediment (which was contaminated by industrial waste generated during the 1930s and 1940s), a significant environmental benefit to the City of New Bedford. The terminal, located inside New Bedford Harbor and protected by the hurricane barrier, is in close proximity to the Cape Wind project site and the MA WEA and RI/MA WEA lease areas. It is expected that the terminal will provide key support to the construction of offshore wind projects in these areas. In September 2014, Cape Wind entered into a lease agreement with MassCEC to stage its construction operations out of the terminal. Cape Wind is expected to begin operations at the terminal site in 2015.

- Tidal Energy - Several areas in Massachusetts waters have been identified as having potential for tidal renewable energy (also known as marine hydrokinetic energy). Technology for tidal energy is still developing, with pilot projects and a few commercial-scale projects underway in Europe and recently in Maine. In 2009, there were three tidal projects areas in Massachusetts state waters (two in the planning area) that had preliminary permits from FERC through its hydrokinetic licensing process. As of January 2015, only one project—the Muskeget Channel Tidal Energy Project—has met the FERC-specified schedule of activities, target dates, and reporting on the status of studies, and the project is now in pre-filing license status for a

pilot project with FERC (Figure 3). The Muskeget project is a partnership of the Town of Edgartown, the Marine Renewable Energy Collaborative of New England, and the University of Massachusetts Dartmouth's School for Marine Science and Technology. The proposed project will be phased and at its full pilot scale will include 14 tidal energy units that could generate up to 5 MW per year, suspended approximately 25 feet below the sea surface and anchored to the seabed in areas of the channel at least 100 feet deep. A total of approximately 206 acres of channel area is required for all 14 units, including the anchoring system and space between units. A submarine cable will connect the tidal energy units to an on-shore site at either Chappaquiddick or Katama, in the Town of Edgartown. The EEA Secretary's MEPA certificate on the ENF required the preparation of a Draft Environmental Impact Report (DEIR) and provided a scope for the DEIR that included pre- and post-deployment monitoring of potential impacts to commercial and recreational fisheries, marine mammals, large pelagic species, sea turtles, and avian species. The 2015 ocean plan supports continued work on the planning and analysis of the initial, pilot-scale phase of this project.

Consistent with the 2009 ocean plan, pilot tidal projects that (1) are licensed under the FERC pilot project process, (2) fulfill the community benefit standards of the plan, and (3) are in compliance with other existing regulatory standards are presumed to be of appropriate scale under the 2015 ocean plan. As detailed in FERC's April 2008 Licensing Hydrokinetic Pilot Projects white paper, the licensing approach is designed to test new hydrokinetic technologies, determine appropriate siting of these technologies, and confirm their environmental effects. Eligible projects under the FERC process are small, can be shutdown or removed on short notice, and avoid sensitive locations. As described below in the Appropriate Scale bullet, under the ocean plan, tidal projects within the jurisdiction of a regional planning agency (RPA) with regulatory authority are subject to the appropriate-scale determination of that RPA.

- Wave Energy - The 2009 ocean plan stated that while small, pilot-scale, wave energy projects have been proposed, and at least one demonstration project has been deployed, the prospect for commercial-scale wave energy—another type of marine hydrokinetic energy—is limited in Massachusetts. Based on input from the energy and infrastructure technical work group and others in the industry, this assessment has not changed since 2009. There may be opportunities for better wave energy resources farther offshore in federal waters, and there has been some consideration of a nearshore wave energy pilot project. The Town of Nantucket was exploring a paddle-type generator at the

Madaket Beach area, but this project has been delayed indefinitely, due to a change in test site location by the wave energy developer, Resolute Marine.

- Appropriate Scale - The Oceans Act amends the Ocean Sanctuaries Act to allow the development of renewable energy facilities "of appropriate scale," provided that these facilities are otherwise consistent with the ocean plan. The act delineates seven factors to be addressed in the appropriate-scale test, and the 2009 ocean plan described how the analysis, compatibility assessment, application of screening criteria, and development of siting and performance standards address the values and concerns in the appropriate-scale test (summarized in Table 2-3 below).

Table 2-3. Appropriate-scale factors for the development of renewable energy facilities

Factor	As addressed by the ocean plan
Protection of the public trust	The exclusionary screening criteria for Wind Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-Use Area were designed to avoid, minimize, and mitigate impacts to activities associated with fishing, fowling, and navigation, in reasonable balance with the siting requirements of renewable energy.
Public safety	The exclusionary screening criteria for Wind Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-Use Area address public safety by locating renewable energy facilities away from concentrations of human activities, including shipping and commercial navigation, commercial and recreational fishing, and recreational boating, to the maximum extent practicable.
Compatibility with existing uses	The exclusionary screening criteria for Wind Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-Use Area were designed to avoid, minimize, and mitigate impacts to existing uses while not unduly limiting opportunity for renewable energy development.
Proximity to the shoreline	Wind Energy Areas may be sited no closer than 1 mile to the shoreline of inhabited land, where feasible. If a community pursues a project in the Multi-Use Area, the determination of proximity will be a factor in community support for the project, as required below under "community benefit."
Environmental protection	The exclusionary screening criteria for Wind Energy Areas and the siting and performance standards associated with renewable energy facilities allowed in the Multi-Use Area are designed to avoid, minimize, and mitigate impacts to important resources.

Factor	As addressed by the ocean plan
Community benefit	For any renewable energy project proposed in the Multi-Use Area, the project is required to demonstrate that the host community or communities formally support the project and—for projects other than test or demonstration-scale projects[4]—must provide an economic benefit to the community.
Appropriateness of technology and scale	"Appropriateness" is a function of the environmental, social, and economic interests assessed above and guides the distinction between community-scale wind (small and therefore may be located in busier, more visible waters) and Wind Energy Areas (larger and therefore sited to minimize conflicts).

As described above in the Management Areas section, an important provision related to the determination of appropriate scale for renewable energy facilities was added in an amendment to the Ocean Sanctuaries Act in 2010. The legislative language in the amendment specified that an RPA with regulatory authority shall define the appropriate scale of offshore renewable energy projects within its jurisdiction and review such projects as developments of regional impact.

In October 2011, the Cape Cod Commission approved the *Cape Cod Ocean Management Plan*, describing the commission's regional definition of appropriate scale for renewable energy facilities. This plan also contains guidance on the siting for cables, pipelines, and sand and gravel extraction, including minimum performance standards for the commission's development of a regional impact review process. The *Cape Cod Ocean Management Plan* delineates wind energy conversion facility prohibited areas, which include a 2-nautical mile landward buffer and a series of SSU resources and concentrations of water-dependent uses as defined and mapped by the 2009 ocean plan. The prohibited area excludes large areas of Cape Cod Bay, the Cape Cod Ocean Sanctuary, and Nantucket Sound from wind energy facilities.

In October 2012, the Martha's Vineyard Commission adopted a *Wind Energy Plan for Dukes County* that delineated exclusionary areas and areas of special concern for offshore wind projects. Exclusionary areas are defined as "highly critical areas where no turbines or infrastructure shall be located." The commission formally defined a wind energy facility of appropriate scale as a facility that conforms to the *Wind Energy Plan for Dukes County*. In this plan, large sections of the Martha's Vineyard Wind Energy Area and the Gosnold

[4] Test or demonstration-scale renewable energy projects are wind, tidal, or wave energy projects of a limited scale designed to pilot, test, and demonstrate renewable energy technology.

Wind Energy Area are covered by the exclusionary areas designation. Given the restrictions related to the appropriate-scale determination of the Martha's Vineyard Commission *Wind Energy Plan for Dukes County*, the availability of new data and information on protected resources and uses and updates of SSU estuarine and marine life and habitat and water-dependent use mapped areas, and stakeholder concerns expressed during the ocean plan amendment process, the 2015 ocean plan acknowledges that commercial-scale wind energy projects are not suitable for the Martha's Vineyard Wind Energy Area or the Gosnold Wind Energy Area. These constraints, however, may not extend to smaller pilot or community-scale projects that could be sited within the designated areas, subject to appropriate-scale determination and necessary federal, state, and local review and approvals.

Accordingly, this 2015 ocean plan modifies the 2009 definition of appropriate scale to account for the roles and authority of the Martha's Vineyard Commission and the Cape Cod Commission. Under the revised definition, a renewable energy project is of appropriate scale if the facility is capable of being sited in a given location such that the factors in Table 2-3 are addressed at a level of detail for the EEA Secretary to make a determination of adequacy on an EIR, the Massachusetts Department of Environmental Protection (MassDEP) to authorize such facility under the Chapter 91 and Water Quality Certificate regulations, and an RPA with regulatory authority to determine such facility's consistency with its definition of appropriate scale. These reviews should ensure that:

1. Public trust rights are protected.
2. Public safety is protected.
3. Significant incompatibilities with existing uses are avoided.
4. Proximity to shoreline avoids and minimizes conflicts with existing uses and minimizes visual impact to the maximum extent feasible.
5. Impacts to environmental resources are avoided, minimized, and mitigated to the maximum extent practicable.
6. For community-scale wind and pilot-scale wave or tidal projects, the host community[5] (or communities) must formally support the project and, for projects other than test or demonstration-scale projects,[6] must receive an economic benefit from the renewable energy facility. Further, other conditions described in the Management Standards bullet below apply to community wind projects.

[5] Host community means any town or city in which all or part of a renewable energy project's energy generating facilities (i.e., turbines not cables) are located.
[6] Test or demonstration-scale renewable energy projects are wind, tidal, or wave energy projects of a limited scale designed to pilot, test, and demonstrate renewable energy technology.

7. The technology and scale of the facility are appropriate to the proposed location as demonstrated by consistency with 1 through 6, above.

- Management Standards - Pursuant to the Ocean Sanctuaries Act, appropriate-scale renewable energy projects are an allowed activity. In addition to the requirements discussed in the Management Areas section and the Appropriate Scale bullet above, under the 2015 ocean plan, renewable energy projects must comply with the following management standards.

  In the Multi-Use Area, community-scale wind, tidal, and wave energy facilities are allowed subject to the siting and performance standards for SSU resources and for concentrations of water-dependent uses described in the Management Areas section above, additional standards detailed below, and other applicable law. The SSU resources and concentrations of water-dependent uses to be addressed for community-scale wind facilities are contained in Table 2-4 and Figure 21.

  It is important to note that pursuant to the ocean plan, the electric transmission cabling component of renewable energy projects—from the offshore collector station component of the renewable energy project to the landside interconnect station—is considered a cable project and must meet the siting and performance standards described in the Cables and Pipelines section below.

Table 2-4. SSU resources and concentrations of water-dependent uses to be addressed for community-scale wind energy facilities (see Figure 21)

Allowed use	SSU resource
Community-scale wind energy facilities	• North Atlantic right whale core habitat • Humpback whale core habitat • Fin whale core habitat • Roseate Tern core habitat • Special concern (Arctic, Least, and Common) tern core habitat • Sea duck core habitat • Leach's Storm-Petrel important nesting habitat • Colonial waterbirds important nesting habitat • Eelgrass • Intertidal flats

Allowed use	Concentrations of water-dependent use
Community-scale wind energy facilities	• High commercial fishing effort and value • Concentrated recreational fishing • Concentrated commerce traffic • Concentrated commercial fishing traffic • Concentrated recreational boating

In addition to the siting and performance standards, additional management standards apply to community-scale wind facilities, as follows:

1. Community-scale wind energy facilities are projects at a scale smaller than that of commercial-scale wind energy facilities, such that their size and energy generation levels are more suited to the needs of a community (e.g., ~10-50 MW) rather than production and distribution to the regional grid. Community-scale wind projects are characterized by strong local participation in and support for the project. Community-scale projects may also serve more than one community.
2. Working with the Massachusetts Association of Regional Planning Agencies, a methodology was developed for allocating the maximum number of allowed turbines for community-scale wind projects on the basis of each RPA's offshore territory within the planning area, linear distance along the nearshore boundary of the planning area, number of municipalities, and total wind energy potential (Figure 22). On the basis of the methodology, an allocation of the maximum number of turbines that may be approved within each coastal area represented by an RPA was developed. This allocation is contained in Table 2-5. The maximum allocation may be increased by the EEA Secretary based on a demonstration by an RPA that the existing cap for community-scale wind energy facilities is not economically viable, or that increasing the allocation will not affect the appropriate-scale determination described above.
3. Community-scale wind projects are subject to review under the ocean plan via a mandatory EIR.
4. Project proponents must demonstrate that the host community formally supports the project. Such support may be demonstrated by a letter from the town's Board of Selectman or the city's Mayor or City Council.
5. For projects not subject to review by RPAs with regulatory authority as developments of regional impact, appropriate scale shall be determined by the EEA Secretary in consultation with the host community.

Table 2-5. Allocation of turbines for community-scale wind projects based on methodology developed with Massachusetts Association of Regional Planning Agencies

Regional planning agency	Maximum number of allowed turbines
Merrimack Valley Planning Commission	7
Metropolitan Area Planning Council	22
Old Colony Planning Council	9
Southeastern Regional Planning and Economic Development District	10
Cape Cod Commission	24
Nantucket Planning and Economic Development Commission	11
Martha's Vineyard Commission	17
TOTAL	100

The SSU resources and concentrations of water-dependent uses to be addressed for commercial-scale tidal energy facilities are contained in Table 2-6 and Figure 23.

Table 2-6. SSU resources and concentrations of water-dependent uses to be addressed for commercial-scale tidal energy facilities (see Figure 23)

Allowed use	SSU resource
Commercial-scale tidal energy facilities	• North Atlantic right whale core habitat • Eelgrass • Intertidal flats • Important fish resources
	Concentrations of water-dependent use
	• High commercial fishing effort and value • Concentrated recreational fishing • Concentrated commerce traffic • Concentrated commercial fishing traffic • Concentrated recreational boating

In addition to the siting and performance standards, additional management standards apply to tidal and wave energy facilities, as follows:

1. Commercial-scale tidal energy facilities are projects at a scale greater than could be authorized by FERC as a pilot project under its Hydrokinetic Pilot Project Licensing Process.
2. Pilot tidal and wave energy facilities are projects at a scale that could be authorized by FERC as a pilot project under its Hydrokinetic Pilot Project Licensing Process.

3. Commercial-scale tidal energy facilities are subject to review under the ocean plan via a mandatory EIR.
4. Pilot-scale projects are subject to review if they exceed existing MEPA thresholds for a mandatory EIR or if the EEA Secretary requires a discretionary EIR based on review of an ENF. If subject to review, using the siting and performance standards for commercial-scale tidal energy facilities in Table 2-6 as guidance, the EEA Secretary will determine the SSU resources and concentrations of water-dependent uses that apply in the MEPA scope.
5. Project proponents must demonstrate that the host community formally supports the project. Such support may be demonstrated by a letter from the town's Board of Selectman or the city's Mayor or City Council.
6. For projects not subject to review by RPAs with regulatory authority as developments of regional impact, appropriate scale shall be determined by the EEA Secretary in consultation with the host community.

Offshore Sand for Beach Nourishment

Coastal shorelines shift continuously in response to a variety of factors. Wind, waves, tides, seasonal variations, human alterations, and sea level rise influence the movement of sediment within shoreline systems. Areas of Massachusetts coastal communities are vulnerable to erosion and flooding, which can lead to damage to property and infrastructure as well as diminished habitat and recreational values. In developed areas, especially where coastal engineering structures are used to stabilize shorelines, natural sediment transport processes can be interrupted, and under conditions of reduced sediment, the ability of coastal resource areas such as dunes and beaches to provide storm damage prevention and flood control benefits is continually reduced.

Climate change will exacerbate these issues—higher sea levels and future storm events will result in greater erosion and flooding impacts over time. Under accelerated rates of sea level rise, low-lying coastal areas will be particularly vulnerable to increased erosion, flooding, and inundation. In addition, these impacts will extend farther inland, resulting in greater loss of land and damage to development and natural resources along the coast of Massachusetts.

In Massachusetts, many communities are currently facing critical erosion issues that present threats to and are having adverse effects on public infrastructure and services, recreational opportunities, and natural habitat and ecological function. As

options for addressing current and future erosion and flooding issues are considered and strategies developed, interest in utilizing ocean sand resources for beach and dune nourishment and restoration is expected to increase. Offshore sand resources are one of several alternatives for projects seeking to restore beaches and dunes by adding compatible material, the others being sand sourced from upland locations and from coastal navigational and other dredging projects. While the beneficial re-use of sand from dredging projects and the use of upland sand sources is common in Massachusetts (Figure 24), offshore sand has been used in only a very small number of projects. In many other states, including New Jersey, New York, Delaware, North Carolina, and Florida, offshore sand is routinely used for beach nourishment. While there are considerable sand resources in certain offshore areas in both state and federal waters, the extraction of this material for beach nourishment must be balanced with the protection of marine ecosystems—especially impacts on habitat for commercial and another important fish species—and water-dependent uses.

Beach and dune nourishment and restoration represent "living" or "green" approaches to erosion management and storm surge protection that are appropriate in specific locations under certain conditions. As an alternative to shoreline armoring with revetments, seawalls, or similar coastal structures, beach nourishment can provide environmental benefits as coastal habitat enhancement and by restoring sediment to down-drift coastal landforms. Beach nourishment can also greatly improve public access and recreational opportunities and values. Like other engineered projects, beach nourishment projects have design lives based on predicted water levels, wave heights, and other factors. These projects will eventually need additional sediment replenishment to continue to function as planned, and depending on actual conditions, may exceed or fall short of the project design life. The 2007 guidance document, *Beach Nourishment: Guide to Best Management Practices for Projects in Massachusetts*, developed by MassDEP and CZM, contains important guidelines, specifications, best management practices, and applicable regulatory references for potential beach nourishment projects.

The following bullets provide important contextual information on offshore sand for beach nourishment and detail revisions to management standards for the 2015 ocean plan.

- Massachusetts Climate Change Adaptation Report - The state's 2008 Global Warming Solutions Act (GWSA) directed the EEA Secretary to convene an advisory committee to analyze strategies for adapting to the predicted changes in climate and develop a report. Prepared by EEA and its Climate Change Adaptation Advisory Committee, the *2011 Massachusetts Climate Change Adaptation Report* is the first broad overview of climate change

for the Commonwealth. The report describes the predicted impacts of a changing climate and the vulnerabilities of multiple sectors including natural resources, infrastructure, public health, and the economy. It also provides an analysis of potential strategies that could better prepare Massachusetts for anticipated changes.

The report is organized into two parts. Part I includes an overview of the observed and predicted changes to Massachusetts's climate and their anticipated impacts. It also includes key findings, a set of guiding principles, and key adaptation strategies that cut across multiple sectors. One of the 12 overarching strategies is to encourage ecosystem-based adaptation, highlighting the ability of natural ecosystems to reduce the vulnerability of the natural and built environments. The report states that "using natural habitats as 'green' infrastructure can help impede and potentially eliminate the risk posed by some climate change impacts while supporting crucial biota, enhancing quality of life, and serving as a carbon sink." Other important strategies highlighted in the report include advancing risk and vulnerability assessments, improving planning and land use practices, and supporting local communities.

Part II of the report covers five broad issue areas—including a chapter on Coastal Zone and Ocean—describing each issue area's vulnerabilities to climate change and outlining adaptation strategies that could help increase resilience and preparedness. The Coastal Zone and Ocean chapter includes recommendations for "sector" specific strategies, including the following related to beach and dune nourishment and restoration:

- Continue to advance use of soft engineering approaches that supply sediment to resource areas such as beaches and dunes in order to manage the risk to existing coastal development.
- Consider prioritizing placement of sediment on public beaches over offshore disposal.
- Promote habitat enhancement projects that would serve as green infrastructure, such as: oyster or mussel reefs for storm surge attenuation, constructed wetlands for floodwater control and storm surge attenuation, planted coir fiber sills for erosion control and storm surge protection, and beach or dune nourishment for erosion control and storm surge protection.

Work on implementation of many of the elements of the *2011 Massachusetts Climate Change Adaptation Report* is in progress through programs and efforts

across state agencies and by municipalities, non-governmental organizations, and the private sector. Under a coordinated plan for climate preparedness across the Commonwealth, launched in 2014, investments are being made to reduce risk associated with coastal storms and sea level rise. Through two complementary grant programs administered by CZM—the Coastal Community Resilience Grants Program and the Green Infrastructure for Coastal Resilience Grant Program—financial and technical assistance is being made available for community-based efforts to advance new and innovative projects to reduce risks associated with coastal storms, erosion, and sea level rise and increase community resilience (i.e., the ability to endure impacts associated with coastal storms and the effects of erosion, flooding, and sea level rise and to respond, recover, and adapt to consequences).

- Coastal Erosion Commission - In July 2013, the Massachusetts Legislature passed the 2014 Budget Bill, which included a section establishing a Coastal Erosion Commission. The commission was charged with investigating and documenting the levels and impacts of coastal erosion in the Commonwealth and developing strategies and recommendations to reduce, minimize, or eliminate the magnitude and frequency of coastal erosion and its adverse impacts on property, infrastructure, public safety, and beaches and dunes.

  The Coastal Erosion Commission was convened in March 2014, and over the course of its work, held five commission meetings, reviewed the work and findings of similar state or national level commissions on coastal shoreline and floodplain management, conducted five regional public workshops, and created three working groups—(1) Science and Technology, (2) Legal and Regulatory, and (3) Erosion Impacts—which provided significant assistance to the commission.

  In January 2015, the commission released its draft report. Developed with input from the three working groups and local officials, residents, property owners, and other stakeholders at the public workshops, and informed by the commission's deliberations, the draft report contains a set of recommendations and identifies a few key, high-level themes. These themes include: (1) the critical need to factor in the effects of climate change and sea level rise throughout planning, management efforts, project design, and regulatory review; (2) support for the sensible use of pilot projects to advance new and creative solutions and encourage innovation in shoreline management approaches; (3) the importance of improving the understanding of coastal and nearshore sediment dynamics; and (4) a call for strengthening provisions to

require that clean, compatible sediment that is dredged for navigational maintenance and improvement projects be placed on public beaches.

In the draft report, the commission assesses the status and trends of coastal erosion by examining the information and results of the Massachusetts Shoreline Change Project and then providing a summary assessment of past shoreline change and rates. Launched in 1989, the Shoreline Change Project develops and analyzes data from historical and modern sources, mapping the local high water line and developing shoreline change rates and statistics at 50-meter intervals along the exposed shoreline of Massachusetts. The commission's draft report provides both the long-term (~150 year period) and short-term (~30 year period) average change rates for each community, with the highest 20 erosion rates identified. Average short-term (~30 year) erosion rates for these top-20 communities range from 8.7 feet/year in Yarmouth along the Cape Cod Bay shoreline to 1.0 feet/year in West Tisbury and Westport (Table 2-7). It is important to note that while the shoreline change averages are provided on a municipal basis, within every coastal city or town there are areas with greater and lesser erosion rates. Long- and short-term shoreline change information from the Shoreline Change Project is available through the Massachusetts Ocean Resource Information System (or MORIS) at www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/shoreline-change. To augment the information derived from the Shoreline Change Project, coastline and storm damage reports collected by the Massachusetts Rapid Response Coastal Storm Damage Assessment Team were reviewed to identify several "hot spot" locations where the combination of erosion, storm surge, flooding, and waves have caused significant damage to buildings and/or infrastructure during coastal storm events over the past five years (Table 2-8).

Table 2-7. Communities with highest short-term (i.e., past ~30 year) erosion rates

Community	Short-term rate (ft/yr)
Yarmouth*	-8.7
Eastham**	-5.7
Orleans**	-5.7
Salisbury	-3.7
Ipswich	-3.5
Rowley	-3.3
Wellfleet**	-3.1
Truro**	-3.0
Nantucket	-2.7
Edgartown	-2.4

Community	Short-term rate (ft/yr)
Newbury	-2.4
Wellfleet*	-2.0
Chilmark	-1.7
Orleans*	-1.7
Eastham*	-1.7
Truro*	-1.6
Scituate	-1.3
Falmouth	-1.1
West Tisbury	-1.0
Westport	-1.0
* Location on Cape Cod Bay	
** Location on Outer Cape Cod	

Table 2-8. Erosion "hot spot" areas, listed from north to south

Community	Location
Salisbury	Salisbury Beach
Newburyport	Plum Island
Newbury	Plum Island
Hull	Nantasket Beach
Hull	Crescent Beach
Scituate	Glades
Scituate	Oceanside Drive
Scituate	Lighthouse Point
Scituate	Peggotty Beach
Scituate	Humarock Beach (northern half)
Marshfield	Fieldstone to Brant Rock
Marshfield	Bay Ave.
Plymouth	Saquish
Plymouth	Long Beach (southern end)
Plymouth	White Horse Beach
Plymouth	Nameloc Heights
Sandwich	Town Neck Beach
Dennis	Chapin Beach
Nantucket	Siasconset
Edgartown	Wasque Point
Oak Bluffs	Inkwell Beach
Gosnold	Barges Beach
Westport	East Beach

The commission's draft report also reviews existing and current inventories and assessments of coastal shoreline engineered structures. An inventory of all publicly owned shoreline stabilization structures was completed for the Commonwealth in 2009, and a complete update is currently underway and expected to be finalized by June 2015. To complement the data and information developed for public infrastructure, an inventory of privately owned coastal engineered structures was completed in 2013. The two inventories of coastal engineered structures together provide a comprehensive assessment of shoreline armoring coast-wide, and results indicate that 27% of the exposed coastal shoreline in Massachusetts is armored with some form of coastal protection. By region, the percentage of coastline protected by coastal engineered structures is: Boston Harbor at 58%, North Shore at 46%, South Shore at 44%, South Coastal at 36%, and Cape Cod and Islands at 13%.

Coastal shoreline engineered structures influence shoreline change. In locations where shore-parallel coastal engineered structures are at or near the limit of mean high water and therefore restrict landward movement of the shoreline, there is often no dry beach at high tide. Storm impacts at these locations can be greater, as fronting beaches help to dissipate wave energy, and with an engineered structure "fixing" the shoreline in place, there is no landward migration of the shoreline to keep pace with sea level rise.

As part of the Coastal Erosion Commission process, a shoreline characterization project was implemented to describe and categorize the land uses and natural resources potentially at risk from coastal erosion. The approach identified the occurrence and distribution of coastal landforms (e.g., dune, beach, and bank), habitats (e.g., forest, salt marsh, and rocky intertidal shore), developed lands (e.g., residential, commercial, and industrial), and shore-parallel coastal engineered structures (e.g., bulkheads, seawalls, and revetments) along the immediate, exposed shoreline for 57 Massachusetts communities. Of the assessed shoreline, 71% is comprised of coastal beach resource areas, while mapped coastal dunes, banks, and salt marshes account for 35%, 22%, and 23% respectively. As described above, 27% of the assessed shoreline is armored by coastal structures with revetments occupying 17% and seawalls/bulkheads 15%. Residential development accounts for 40% of the shoreline, with natural upland areas, maintained open space, and non-residential developed accounting for 32%, 23%, and 7% respectively. It is important to note that at a given shoreline location more than one type of landform, habitat, land use, and/or structure may be present (co-occur) such that the percentages listed above do not total

100%. The results of the characterization provide a baseline from which to monitor and identify landscape-level trends and patterns for evaluating adaptation and hazard mitigation strategies for a particular location or region.

More information on the Coastal Erosion Commission and access to its reports is available at: www.mass.gov/eea/erosion-commission.

- Planning, Analysis, and Siting for Potential Offshore Sand Resource Areas - The dredging of offshore sand for the purpose of beach restoration or shore protection is an allowed use under the Ocean Sanctuaries Act. A number of high-level policy blueprints—including the 2007 Coastal Hazards Commission report, the 2009 ocean plan, the 2011 Massachusetts Climate Change Adaptation Report, and the 2015 Coastal Erosion Commission Draft Report—have called for further work to advance the proactive planning, analysis, and identification of potential areas with suitable sand resources for beach nourishment that do not present significant adverse impacts to natural resources and existing water-dependent uses.

  Since 2009, CZM has continued its long-term partnership with the U.S. Geological Survey (USGS) and other partners on a cooperative seafloor mapping program. As of January 2015, the cooperative has mapped 1,393 square miles of state marine waters and has published or is preparing to release these data as USGS Open-File Reports. Geophysical data, including bathymetry, acoustic backscatter (a measure of seafloor hardness and roughness), and seismic-reflection profiles (pictures of sub-surface sediment layers), have been collected in these areas. In addition, seafloor sediment samples and photographs/videos of the seafloor were gathered to validate the geophysical data. CZM and the state Division of Marine Fisheries (*MarineFisheries*) undertook three research surveys in 2010, 2011, and 2012 aboard the U.S. Environmental Protection Agency's Ocean Survey Vessel (OSV) *Bold*, visiting 870 stations to collect seafloor imagery and grab samples and conduct sediment and benthic infaunal analysis as part of its seafloor mapping program to inform ocean planning and management. These data have been used to create interpretive data products such as maps of surficial seafloor sediments, seafloor sediment depth to bedrock, and physiographic zones (a term used by geologists to define regions of the seafloor based on morphology and sediment types). CZM, with guidance from and in close consultation with the USGS Woods Hole Science Center, has also worked to identify areas of sand deposits based on geologic mapping by USGS, other published geologic maps, and available information from seismic data and sediment cores.

In the update of the ocean plan, significant work went in to the initial planning and identification of appropriate potential locations for offshore sand areas, taking into account important criteria including compatible sand resources, potential environmental impacts, interactions with existing water-dependent uses, and consideration of other key factors.

Through this work, a preliminary map of sand resources that encompasses state waters and extends seven nautical miles seaward of the planning area was developed. First, deposits composed primarily of sand, formed by reworking of glacial deposits, were identified based on geologic mapping by USGS and other published geologic maps, and were then refined using available surficial sediment data, seismic sub-bottom profiles, and sediment cores characterizing the deposits as medium- to coarse-grained sand (Appendix 3). Figure 25 depicts the potential sand resources identified in this process.

The next phase of work included an initial compatibility assessment and screening analysis to identify areas of potential biological and physical environmental impacts, incompatibility and/or adverse interactions with existing uses and sites, and dredging operational limitations. Based on this work, the 2014 draft ocean plan identified potential areas that were proposed for further investigation and consultation. The initial compatibility assessment and screening analysis is described in Appendix 4.

Based on the review of the 2014 draft ocean plan and specific concerns raised during public comment and deliberations with the Ocean Advisory Commission, the Ocean Science Advisory Council, and the Coastal Erosion Commission, the 2015 ocean plan calls for the formation of an Offshore Sand Task Force by the EEA Secretary to provide guidance and advice to EEA, the Ocean Advisory Commission, the Ocean Science Advisory Council, as well as the Coastal Erosion Commission on important aspects of this issue. The task force will be charged with: (1) reviewing the preliminary compatibility assessment and screening analysis conducted during the ocean plan amendment process and making recommendations for any revisions; (2) identifying existing spatial data and other information that should be integrated into the compatibility assessment and screening analysis; (3) providing advice as to necessary investigation, survey, and characterization work, including efforts described in the Science Framework in Volume 2 of the 2015 ocean plan; (4) helping to develop standards for pre- and post-monitoring that would be required for project proponents; and (5) recommending criteria to ensure that potential projects are in the public interest.

The task force will be comprised of a broad cross-section of interests and stakeholders to be appointed by the EEA Secretary, including representatives from coastal cities and towns, regional planning agencies, commercial and recreational fishing, environmental organizations, and state and federal agencies, as well as a marine geologist, a coastal and marine engineer, and a fisheries biologist. On behalf of EEA, CZM will chair the task force, and both CZM and *MarineFisheries* will provide technical support. As part of its work, the task force shall convene regional forums to gather input from affected stakeholders and the public. The task force shall submit a report within one year from the date of its first meeting, or if its report is not complete by that time, shall provide the EEA Secretary with an update of its work and a proposal and rationale for a revised deadline.

- Management Standards - Pursuant to the Ocean Sanctuaries Act, dredging of offshore sand for beach nourishment and shore protection is an allowed activity. As with other allowed activities, under the ocean plan, offshore sand projects in the Multi-Use Area are subject to the siting and performance standards for SSU resources and for concentrations of water-dependent uses described in the Management Areas section above, additional standards detailed below, and other applicable law. The SSU resources and concentrations of water-dependent uses to be addressed for offshore sand projects for beach nourishment are contained in Table 2-9 and Figure 26.

Table 2-9. SSU resources and concentrations of water-dependent uses to be addressed for offshore sand projects for beach nourishment (see Figure 26)

Allowed use	SSU resource
Offshore sand projects for beach nourishment	• North Atlantic right whale core habitat • Humpback whale core habitat • Fin whale core habitat • Roseate Tern core habitat • Hard/complex seafloor • Eelgrass • Intertidal flats • Important fish resources
	Concentrations of water-dependent use
	• High commercial fishing effort and value • Concentrated recreational fishing

In addition to the siting and performance standards, additional management standards apply to offshore sand projects for beach nourishment, as follows:

1. Public benefits associated with the proposed project must outweigh public detriments, such that:
    - The proponent shall demonstrate that sand resources from public tidelands will be utilized for a properly designed and constructed nourishment project that has a documented critical erosion problem and will protect public infrastructure, natural resources, and other public interest factors, such as increased access and recreation; and
    - Alternative, compatible sand sources from beneficial re-use associated with navigational or other dredging projects or from upland sources are not reasonably practicable, taking into consideration cost, geographic proximity, timing, logistics, and other reasonable factors.
2. Project proponents must develop and implement a biological and physical monitoring plan for the sand source area and beach nourishment site, in consultation with EEA agencies and subject to the EEA Secretary's approval. Comprehensive documentation and evaluation of the project's performance—both in terms of the impacts to and recovery of the offshore source location as well as the functioning of the nourished beach/dune system—shall be undertaken.

Cables and Pipelines

Cables and pipelines are important infrastructure components for the transmission and distribution of electricity, fuels, and telecommunications. The provision of these particular goods and services is connected to national energy and communication supply and security matters. With the development of high-bandwidth fiber-optic cables, these technologies are now replacing traditional wire cabling for communications networks. Several installations of this linear infrastructure already exist in Massachusetts waters, including electric and telecommunication connections between both Nantucket and Martha's Vineyard and the mainland (Cape Cod), as well as the Hibernia cross-Atlantic communications cable system connected in Lynn. More recently, a combined fiber-optic communications and electric cable bundle from Falmouth to Tisbury by Comcast and NSTAR was installed in spring 2014. This project was the first to complete review and permitting and found to be consistent with the ocean plan.

On the fuel side, the transport of liquefied natural gas (LNG), in particular, through new pipeline systems has also greatly increased the range and delivery of this important energy resource. There are currently several pipeline installations in Massachusetts marine waters, including the HubLine high-pressure gas pipeline that

transits around Boston Harbor from Beverly to Weymouth and connections to the HubLine from the two deepwater LNG ports of Northeast Gateway and Neptune located southeast of Gloucester. In July 2012, the U.S. Department of Transportation's Maritime Administration approved a request from Neptune LNG LLC to amend its federal Deepwater Port License to include a five-year temporary suspension of port operations. Neptune's request indicated that recent conditions within the Northeast region's natural gas market had significantly impacted the Neptune Port's operational status and its ability to receive a consistent supply of natural gas imports.

As with other allowed uses, the 2009 ocean plan addressed cables and pipelines through siting and performance standards. For both cables and pipelines, the intent of the ocean plan is to minimize the cumulative impact of future development by requiring that linear infrastructure be co-located within common or adjacent corridors to the maximum extent practicable, with allowances for sufficient space between projects for necessary operations and maintenance generally according to industry standards.

The following bullets provide updates to the contextual information on cables and pipelines and revisions to management standards for the 2015 ocean plan.

- Offshore Wind Energy on the Outer Continental Shelf - The 2009 ocean plan stated that a key emerging issue for cables is the future development of offshore wind energy facilities in federal waters on the OCS, which will require cable connections to the Massachusetts coast. As described above in the bullet on Offshore Wind Energy in the Renewable Energy section, since 2009 there has been significant progress in the planning and analysis for potential commercial wind leasing in two offshore areas in federal waters south of Martha's Vineyard and Nantucket and east of Block Island (Figure 3). Massachusetts has been working closely with BOEM and two intergovernmental task forces—comprised of federal, state, tribal, and local elected officials—on the first phases of the federal Offshore Renewable Energy Program, developed pursuant to the Energy Policy Act of 2005. To augment the intergovernmental task force process, EEA established two working groups on fisheries and habitat to engage additional experts and stakeholders and provide a forum for bringing their input, concerns, and advice to BOEM and the federal process. In addition to these working groups, EEA and MassCEC have collaborated with BOEM to host dozens of local public meetings and workshops. Among the many milestones and outcomes since 2009, in July 2013, BOEM held the first-ever competitive lease sale for offshore wind renewable energy in federal waters and awarded

Deepwater Wind New England, LLC two lease areas in the RI/MA WEA. Deepwater Wind must submit a Site Assessment Plan by April 2015. BOEM released its Proposed Sale Notice for the MA WEA in June 2014, detailing the proposed auction format, the four lease areas available, proposed lease provisions and conditions, and criteria for evaluating competing bids. In November 2014, BOEM issued its Final Sale Notice establishing the federal lease sale date for January 29, 2015. Potential projects resulting from the federal auction will need to bring transmission cables from the federal lease areas to landside electric grid connection sites.

- MassCEC Transmission Study - In the spring of 2014, MassCEC, working in close coordination with EEA, CZM, and the Massachusetts Department of Energy Resources, commissioned a study on the components and aspects of transmission infrastructure and regional electric grid interconnection associated with potential wind projects offshore Massachusetts. The study report developed by a team of consultants led by the ESS Group Inc. provides important insight into the technical and logistical aspects of transmission, including both high-voltage direct current (HVDC) and high-voltage alternating current (HVAC) systems, the configuration and components of the system, and potential electric grid tie-in locations. The study affirms that there are a number of potential interconnection points in Massachusetts and southern New England where offshore wind projects in the MA WEA and the RI/MA WEA could link into the existing electric grid. These Independent System Operator-New England 345-kV substations could integrate the large block of energy generated by potential offshore wind projects with certain upgrades and improvements. Analysis contained in the study indicates that the three most advantageous interconnection points, based on a number of criteria, are: Brayton Point Substation in Somerset, MA; Canal Substation in Sandwich, MA; and Kent County Substation in Warwick, RI. (Other potential interconnect points include: Carver Substation in Carver, MA; Oak Street Substation in Barnstable, MA; State Forest Transition Station at Myles Standish State Forest, MA; Millstone Substation, Waterford, CT; Montville Substation, Montville, CT; and Shoreham Substation, Brookhaven, NY). Of the three top-tier substation sites identified in the study, only one—Canal Substation in Sandwich —would involve a potential route within the planning area (Figure 27). The study also describes integral system components including inter-array alternating current (AC) cabling, offshore AC collector stations, offshore and land-based converter stations, and the long distance cable bundle(s).

The MassCEC study is an initial, high-level technical assessment to support planning and stakeholder discussions around transmission and is intended to describe the relationship between sequential development of the Wind Energy Areas—which is still years out—and associated transmission infrastructure, independent of markets and policy. The MassCEC transmission report is available at: mapping.masscec.com.s3.amazonaws.com/MassCEC-OSW-Transmission-Study-2014.pdf.

- Potential Offshore Wind Energy Transmission Siting - One of the goals of the ocean plan update was to advance the planning and siting of offshore wind energy transmission corridor(s) to bring renewable energy from the projects in federal waters across state waters to landside grid tie-in location(s).

  Significant work went in to the planning and identification of appropriate potential transmission corridor routes for the 2015 ocean plan, including a compatibility assessment, screening analysis, and optimization tool. The transmission corridor routes identified through that process will be the focus of additional characterization, investigation, and assessment work, synchronized with the next stages in the BOEM process, including leasing, site assessment, and NEPA analysis.

  In the first part of the siting method, the lease areas within the MA WEA and RI/MA WEA, as delineated by BOEM, were used as the areas of origin, and the Canal Substation in Sandwich was identified as the target top-tier substation destination (Figure 27).

  An important aspect in the preferential siting of, and potential impacts from, transmission cables is related to the cable installation. Under both state and federal regulatory programs, projects will have to ensure that transmission cables are adequately buried to avoid or minimize impacts to water-dependent uses—including commercial and recreational fishing, shipping, and boating (when anchoring is required)—and to protect the cable. While state permits and licenses have generally established 6 feet as a target burial depth, it is recognized that in some locations this depth may not be possible and in other areas it may not be necessary. All projects will need to have an approved plan for inspection and maintenance to ensure that adequate coverage is maintained.

  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 routes 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 impacts to environmental resources and water-dependent uses can be avoided and minimized.

As referenced in the MassCEC study, near the cable landfall location, Horizontal Directional Drilling (HDD) operations are typically employed as a best practice to avoid environmental resources (e.g., eelgrass, wetlands, beaches, shellfish areas, etc.) and other land-based or estuarine impacts from construction. HDD operations include a land-based drilling rig system that drills down and under land and water for distances of up to approximately 3,000 feet or more.

Through the compatibility assessment and screening analysis, areas to avoid and areas of concern were identified based on potential biological and physical environmental impacts, incompatibilities, limitations and specifications of transmission cable installation operations, and/or adverse interactions with existing uses and sites to avoid. The compatibility assessment and screening analysis, including a list of the areas to avoid and areas of concern and a map of these areas, is contained in Appendix 5.

The optimization analysis then generated routes that would steer clear of the areas to avoid while minimizing cable distance. Because potential landfall locations fall outside the planning area and there are many available options (and therefore uncertainty) related to specific sites, the 2015 ocean plan focuses on the planning area and identifies routes that fall outside the areas to avoid. Based on the outputs, four 500-meter-wide corridors were mapped: (1) a northern route in Buzzards Bay, (2) a southern route in Buzzards Bay, (3) a route in Vineyard Sound, and (4) a route through Muskeget channel into the western part of Nantucket sound. In the corridor areas closer to the landward boundary of the planning area, the areas for further investigation were expanded to include wider planning area sections. The outputs of the analysis showing the areas to avoid, areas of concern, and preliminary areas for offshore wind transmission cables for further investigation are included

in Appendix 5. Figure 28 contains the preliminary areas for offshore wind transmission cable corridors.

The important fish resources SSU was not identified as a protected area to be addressed by cable projects in the 2009 ocean plan. However, cables should avoid this SSU resource where feasible because it is an area of concern. In small sections of important fish resources SSU areas, where avoidance is not possible, consultation with *MarineFisheries*, the National Marine Fisheries Service, and the fisheries technical work group will help to identify whether there are specific locations of significance and whether measures are needed to avoid resources and impacts through TOY controls, such that the construction of a project will not occur when the SSU resource is present or may be adversely affected.

It is anticipated that TOY preclusions for North Atlantic right whale core habitat, humpback whale core habitat, and fin whale core habitat will also be necessary for transmission cable installation projects in certain areas to meet the siting and performance standards for those marine mammal SSU resources. Additional provisions to avoid, minimize, and mitigate impacts to areas of concentrations of water-dependent uses will also apply.

With respect to the tasks and efforts to further investigate the preliminary areas for offshore wind transmission cables, more detail on this proposed work is provided in the Science Framework in Volume 2 of the 2015 ocean plan. Key elements will include: ongoing consultation with agencies and survey work that includes seismic-reflection profiling, core sampling, and magnetometry work. Based on the data and information resulting from the investigation and characterization work, preliminary areas for offshore wind transmission cables are subject to change under future updates to the ocean plan.

- Management Standards - As with other allowed activities, under the ocean plan, cable and pipeline projects in the Multi-Use Area are subject to the siting and performance standards for SSU resources and for areas of concentrations of water-dependent uses described in the Management Areas section above, additional standards detailed below, and other applicable law. The SSU resources and concentrations of water-dependent uses to be addressed for cable projects are contained in Table 2-10 and Figure 29 and for pipeline projects in Table 2-11 and Figure 30.

Table 2-10. SSU resources to be addressed for cables (see Figure 29)

Allowed use	SSU resource
Cable projects	• North Atlantic right whale core habitat • Humpback whale core habitat • Fin whale core habitat • Hard/complex seafloor • Eelgrass • Intertidal flats

Table 2-11. SSU resources and concentrations of water-dependent uses to be addressed for pipelines (see Figure 30)

Allowed use	SSU resource
Pipeline projects	• North Atlantic right whale core habitat • Humpback whale core habitat • Fin whale core habitat • Hard/complex seafloor • Eelgrass • Intertidal flats • Important fish resources
	Concentrations of water-dependent use
	• High commercial fishing effort and value • Concentrated recreational fishing

In addition to the siting and performance standards, additional management standards apply, as follows:

1. Cable projects proposed in the preliminary areas for offshore wind transmission cables are in presumptive compliance with the siting standards of the ocean plan, provided that:
    - Investigations and survey confirm the predominance of soft-bottom seafloor (i.e., the general absence of hard-bottom substrate) within the preliminary areas for offshore wind transmission cables such that sufficient burial depths for cables can be reasonably expected. The presence of relatively small areas of hard-bottom substrate, such that the cable route cannot be practicably located without going through these areas of hard-bottom substrate, within acceptable limits, is permissible, based on review and determination by EEA in consultation with its agencies.
    - TOY controls are in place such that operations and dredging will avoid damage and cause no significant alteration to the following SSU resources:

- North Atlantic right whale core habitat,
- Humpback whale core habitat, and
- Fin whale core habitat.

2. Cable projects proposed in the preliminary areas for offshore wind transmission cables must develop and implement a biological and physical monitoring plan, in consultation with EEA agencies and subject to the EEA Secretary's approval.

The 2015 ocean plan does not preclude potential project proponents from exploring and advancing transmission cable projects outside of the designated preliminary areas for offshore wind transmission cables. Any proposed project would have to meet the siting and performance standards for SSU resources and for concentrations of water-dependent uses described in the Management Areas section above, the management standards detailed above, and other applicable law.

Fishing and Aquaculture

Fishing has a long history in the Commonwealth, and commercial and recreational fishing continue to be significant drivers of the marine economy and are important for their contributions to shoreside business. New Bedford, Gloucester, Provincetown, and Boston are home to the state's major commercial fleets, but nearly all harbors and inlets in Massachusetts support commercial fishing activity. The Massachusetts marine aquaculture industry is also an important and growing trade. Although currently focused on shellfish, with technological advances and improved understanding of oceanographic conditions, offshore aquaculture has considerable promise for the future.

Commercial and recreational fishing are allowed uses managed by *MarineFisheries*, which maintains the sole authority for the opening and closing of areas for the taking of any and all types of fish, and works closely with its Marine Fisheries Advisory Commission, the New England Fishery Management Council, and the Atlantic States Marine Fisheries Commission to manage species on a consistent basis across the region.

As directed by the Oceans Act, the ocean plan reflects the importance of commercial and recreational fishing by identifying areas of high commercial fishing activity and concentrations of recreational fishing activity. Current efforts are underway as part of the Northeast regional ocean planning initiative to more fully understand and characterize commercial and recreational fishing activities. This information will assist in evaluating the potential impacts of specific projects under the ocean plan. EEA and its agencies will continue to collaborate with and track these efforts to

increase understanding of the spatial and other aspects of these important water-dependent uses.

Aquaculture is licensed by the towns, *MarineFisheries*, and the U.S. Army Corps of Engineers (USACE). Additionally, the Massachusetts Department of Agricultural Resources (DAR) provides a variety of services aimed at the promotion and development of Massachusetts aquaculture. DAR's Aquaculture Program, located within the Division of Agricultural Conservation and Technical Assistance, fosters development of the Massachusetts aquaculture industry through efforts aimed at implementation of the Commonwealth's Aquaculture Strategic Plan.

In addition to other applicable regulatory authorities, aquaculture projects are subject to review and permitting by *MarineFisheries* (322 CMR 15.00). The regulations control the siting and operation of five categories of aquaculture. Facilities most likely to occur within the planning area are bottom-anchored cages for finfish and bottom-anchored long-line systems for shellfish. The 2015 ocean plan does not alter existing municipal and state jurisdictions regarding the granting of licenses and permits for aquaculture. The use of ocean plan maps and information and consultation between project proponents, *MarineFisheries,* and other EEA agencies in the siting of proposed facilities will provide a mechanism to identify issues that proponents should address in their project development process.

To better convey the Commonwealth's siting priorities with respect to ocean-based aquaculture projects, the fisheries technical work group recommended that new, larger, offshore aquaculture projects should be addressed in a similar manner as other ocean-based development projects such as offshore sand for beach nourishment and cables and pipelines. In order to fully analyze the types of ocean-based aquaculture facilities that could be reasonably foreseeable and their potential impacts to, or conflict with, SSU resources and concentrations of water-dependent uses, under the 2015 ocean plan, EEA will establish an advisory group to examine the issue of aquaculture siting and formal review under the ocean plan. Work by the advisory group will include examination of current and reasonably foreseeable ocean-based aquaculture facilities to better understand issues associated with potential effects on water quality, benthic habitat, submerged aquatic vegetation, and endangered species, as well as interactions with water-dependent uses, including navigation and commercial and recreational fishing. The advisory group will consider possible revisions to the ocean plan under a future amendment, including: (1) appropriate review thresholds for aquaculture projects under the ocean plan, (2) which SSU resources and concentrations of water-dependent uses should be addressed by offshore aquaculture, and (3) additional conditions, if any, that should

apply. The advisory group will also explore the benefits and feasibility of proactive identification and siting of potential areas for certain aquaculture project types.

Advisory group members will be selected by the EEA Secretary, and will include representatives from commercial aquaculture businesses and organizations working in support of the offshore aquaculture industry, commercial and recreational fishing, environmental organizations, coastal cities and towns, regional planning agencies, and state and federal agencies. On behalf of EEA, CZM will chair the advisory group, and CZM, *MarineFisheries*, and DAR will provide technical support.

Other Uses, Activities, and Facilities Allowed under the Ocean Sanctuaries Act

Other projects that are allowed under the Ocean Sanctuaries Act and may be of a scale to have potentially significant impacts include:

- Projects authorized under Chapter 91 and deemed to be of public necessity and convenience;
- Municipal wastewater treatment discharges and facilities;
- Operation and maintenance of existing municipal, commercial, or industrial facilities and discharges;
- Channel and shore protection projects; and
- Improvements not specifically prohibited by the Oceans Sanctuaries Act.

A significant change since 2009 is legislation passed in 2014 (Chapter 259 of Acts of 2014, §§28-45) that amended the Oceans Sanctuaries Act to allow new or modified discharges from municipal wastewater treatment plants to an ocean sanctuary provided a series of 10 conditions are met. In recognition of this change and within the context of ongoing comprehensive wastewater planning—including the Cape Cod Commission's Section 208 Water Quality Management Plan, which focuses on a watershed-based approach to addressing significant nutrient impacts to estuaries—future revisions to the ocean plan may be necessary to ensure that the planning and siting of new or modified discharges are consistent with the goals of both the Ocean Sanctuaries Act and the Oceans Acts of 2008.

The 2015 ocean plan affirms that for activities proposed within the planning area that are not specifically addressed by the ocean plan but allowed under the Ocean Sanctuaries Act, the EEA Secretary retains discretion under the MEPA statute and regulations to review these projects for any issue(s) deemed necessary and appropriate, based on information presented by the project proponent and agency or public comment. If a project is subject to review under the ocean plan through the

EEA Secretary's MEPA certificate, the scope shall indicate the applicable siting and performance standards. Reviewing agencies shall use the ocean plan and maps as the guidance for their review.

Chapter 3 - Administration

Consistent with the Oceans Act of 2008, the Massachusetts Ocean Management Plan is guided by the goals of integrated and adaptive management, effective stewardship and protection of marine ecosystems, and support for sustainable uses and services. The Oceans Act also requires the review of ocean plan provisions at least once every five years. The 2015 Massachusetts Ocean Management Plan is the first formal amendment of the original ocean plan released in 2009. With its promulgation on January 6, 2015, the 2015 ocean plan serves as the current official version of the state's ocean plan, establishing specific mechanisms for plan implementation and continued evolution. This chapter highlights progress in plan implementation since 2009 and describes key administrative elements, the review and revision process, continued mechanisms for input and engagement with experts and stakeholders, and an approach for monitoring and evaluating plan implementation.

Key Administrative Elements

This section describes key components of ocean plan implementation since 2009, which were developed pursuant to directives in the Oceans Act and to ensure effective administration of specific provisions of the ocean plan.

Secretarial Functions and Responsibilities

The Oceans Act confers upon the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) oversight, coordination, and planning authority over the Commonwealth's ocean waters, resources, and development. The Act further stipulates that all state agency authorizations for activities or projects in state waters must be consistent with the ocean plan. In addition to coordinated agency review of projects, there is an important need to ensure that other agency actions related to ocean management—including policy development, scientific research, and regulatory decision-making—are in harmony with and advance the goals of the ocean plan.

In the 2009 ocean plan, the EEA Secretary designated an interagency ocean management team, chaired by the Office of Coastal Zone Management (CZM) and comprised of personnel from CZM, the Department of Environmental Protection's Wetlands and Waterways Program, the Department of Fish and Game's Natural Heritage and Endangered Species Program and Division of Marine Fisheries (*MarineFisheries*), and the Massachusetts Environmental Policy Act Office. This interagency team will continue to serve as a coordinating body, offering assistance and advice to the EEA Secretary, coordinated project review, recommendations for

validation and synthesis of data used in the ocean plan, and ocean-related policy and research support.

Implementing Regulations for the Ocean Plan

The Oceans Act requires the EEA Secretary to promulgate regulations to implement and administer the ocean plan. An advisory group consisting of a broad cross-section of stakeholders and interests assisted EEA by providing valuable input, guidance, and feedback on draft regulations for the 2009 ocean plan, which were subsequently reviewed and endorsed by the Ocean Advisory Commission. After formal public comment and public hearings, the final regulations were promulgated in August 2013. The regulations are contained in 301 CMR 28.00 et seq. and are provided in Appendix 2 of this document. EEA will review the existing implementing regulations to determine if any changes are necessary based on the 2015 ocean plan. If revisions are needed, EEA will seek stakeholder advice and input during the development of proposed changes to regulatory language prior to formal rule-making processes.

Incorporation into the Massachusetts Coastal Program

Another requirement of the Oceans Act is that the ocean plan be incorporated into the Massachusetts coastal zone management program. Under the federal Coastal Zone Management Act (CZMA), the National Oceanic and Atmospheric Administration (NOAA) has established a flexible framework that enables states to develop individual coastal management programs, with policies and approaches that meet their specific needs, within a framework that addresses national goals and objectives and meets standardized criteria. The Massachusetts coastal management program was approved by NOAA in 1978, and several years later the legislature established the Office of Coastal Zone Management within EEA.

The CZMA gives states the authority to review projects that require federal licenses and permits (and other federal activities) to ensure that they abide by state-defined enforceable coastal policies. This process is called federal consistency review. Formal incorporation of the ocean plan into the state's approved coastal management program is required for CZM to apply ocean plan standards in federal consistency review. After significant consultation with and review by NOAA, the ocean plan and its enforceable policies were formally approved as part of the Massachusetts coastal management program in September 2011. The enforceable standards of the ocean plan are listed in an appendix in the *Massachusetts Office of Coastal Zone Management Policy Guide - October 2011*, which is the official record of the state's coastal program policies and legal authorities as of the release of the 2015 ocean plan.

Coordinated Project Review

Chapter 2 of this document details the ocean plan's management framework, which establishes three types of management areas (i.e., Prohibited, Renewable Energy, and Multi-Use) and describes management standards to protect special, sensitive, or unique (SSU) natural resources and important existing water-dependent uses. Under this framework, ocean plan performance standards are implemented through the administration of the Massachusetts Environmental Policy Act (MEPA). Through MEPA review, the project proponent develops information necessary to characterize potentially affected resources and uses, evaluate siting alternatives, and describe measures taken to avoid, minimize, and mitigate potential project impacts. Because SSU resources and concentrations of water-dependent uses are not aligned exclusively with specific agency jurisdiction or sole expertise, the interagency team described in the Secretarial Functions and Responsibilities section above coordinates agency review for projects subject to the ocean plan.

As of the release date for the 2015 ocean plan, there have been three proposed projects subject to the plan's siting and performance standards: (1) a fiber-optic communications cable from Fairhaven to Tisbury by GPCS Fiber Communications, Inc.; (2) a pilot tidal energy project located in Muskeget Channel by the Town of Edgartown; and (3) a combined fiber-optic communications and electric cable bundle from Falmouth to Tisbury by Comcast and NSTAR. The interagency team provided coordinated review functions for these projects, including pre-application consultations with project proponents, review of MEPA filings, and individual agency permit and license issuance. Details on these projects and their review under the ocean plan are provided in the *Review of the Massachusetts Ocean Management Plan, January 2014*.

The interagency team will continue to perform project review coordination and support. For ocean-based projects that may be subject to plan jurisdiction, pre-application consultation with the interagency team is strongly encouraged, allowing agencies to assist proponents in determining whether the project is subject to MEPA review and ocean plan jurisdiction. Agencies will also provide additional guidance and recommendations as to what documentation and characterization will be required by the proponent in the regulatory review process. Upon written request, the EEA Secretary (or his or her designee) will provide project proponents with an advisory opinion regarding the applicability of the ocean plan to a proposed project.

Under the ocean plan, in the preparation of an Environmental Notification Form (ENF) under MEPA, project proponents are required to document: (1) whether they are subject to the ocean plan based on criteria established in MEPA thresholds and the ocean plan and (2) any potential impacts of the project to SSU resources or concentrations of water-dependent uses. In the ENF review, agencies will assess the

project's potential impacts to protected resources and uses and provide comments to the EEA Secretary that describe the type and extent of information and analysis that must be developed and submitted as part of an Environmental Impact Report (EIR) so that the project's conformance with the ocean plan's management standards can be evaluated. As explained in Chapter 2 of this document, the EEA Secretary retains discretion under the Oceans Act and MEPA to review a project for any issue deemed necessary and appropriate, based on information presented by the project proponent and agency or public comment.

In the EIR review, agencies will assess the information submitted, including project alternatives and measures to be taken to avoid, minimize, and mitigate impacts to SSU resources or concentrations of water-dependent uses as well as public benefits of the project for conformance with the ocean plan's siting and performance standards.

In the issuance of the final MEPA Certificate, the EEA Secretary will consider agency and public comments and analysis from the MEPA Office and determine the project's conformance with the ocean plan's management standards. The Oceans Act requires that all agencies must ensure that all certificates, licenses, permits, and approvals for any proposed project subject to the ocean plan are consistent, to the maximum extent practicable, with the management standards and conditions contained in Chapter 2 of the ocean plan and its implementing regulations. The EEA Secretary's MEPA Certificate will therefore direct each agency to include in its Section 61 Findings a determination that all feasible measures have been taken such that the agency's approval of the project is consistent with the ocean plan and implementing regulations. In its Section 61 Findings, each agency shall specify: any measures required by the project proponent to meet ocean plan requirements, the entity responsible for funding and implementing such measures, and the anticipated implementation schedule needed to ensure that the measures shall be implemented as appropriate to prevent or avoid impacts.

Ocean Development Mitigation Fee and Ocean Resources and Waterways Trust

The Oceans Act includes a requirement that any project subject to the ocean plan shall be assessed an ocean development mitigation fee as established by the EEA Secretary. Section 301 CMR 28.06 of the ocean plan regulations, promulgated in 2013, addresses the ocean development mitigation fee and establishes that the purpose of the fee is to compensate the Commonwealth for unavoidable impacts of ocean development projects to the broad public interests and rights in the lands, waters, and resources of the Massachusetts Ocean Management Planning Area (planning area), as well as to support the planning, management, restoration, or

enhancement of marine habitat, resources, and uses pursuant to the Oceans Act. The Oceans Act and its implementing regulations state that commercial or recreational fishing permits and licenses are not subject to the fee.

301 CMR 28.06 requires the EEA Secretary to promulgate a fee structure for ocean development projects that reflects differences in the scope and scale of projects and their effects on protected resources or uses. With input from an advisory working group comprised of representatives from the regulated community (including an energy utility and a legal firm representative), commercial fishing and environmental interests, and state agencies, a fee structure and accompanying guidance were developed and issued for review in the 2014 draft ocean plan. This 2015 ocean plan adopts the fee structure and provides details on the administration of the fee, as described below.

Using a tiered approach, three defined activity classes have been established and general guidelines developed to differentiate a proposed project's scope, scale, and effects. Using the fee structure listed in Appendix 6 as guidance, project proponents will provide information and analysis during MEPA review to inform the determination of the fee. This information will be submitted in the Draft EIR filing, or in the case of a Single EIR, in the Expanded ENF and include the detailed description and analysis of:

- The nature and location of the project;
- Project alternatives;
- Impacts of the project and its alternatives, including both short-term and long-term impacts for all phases and cumulative impacts;
- Measures and management techniques to be taken to avoid, minimize, and mitigate potential impacts to the environment, water-dependent uses, and public trust interests;
- Public benefits of the project, and other mitigation proposed, separate and distinct from the ocean development fee;
- Proposed Section 61 Findings; and
- Information for a Public Benefits Determination, including the nature of the tidelands affected by the project and the public benefit of the project.

The project proponent will use this information to determine and propose the appropriate fee class. Proponents may request that the fee be paid over several years, but any such allowance shall not exceed a term of 10 years. Proponents may also seek a reduction of the fee based on a clear demonstration of need or hardship. The MEPA filing shall include a statement of the specific circumstances that constitute the need or hardship, and the relief requested.

In their review of the EIR, agencies, stakeholders, and the public may provide comments to the EEA Secretary on the proponent's proposed fee class, concurring with the proposed fee class in the EIR, or recommending a different one, as substantiated by their review and comments. Based on the MEPA filing, comments received, evaluation of the proposed project and its effects, public benefits, other mitigation proposed, and other applicable information, the EEA Secretary shall issue a determination of the final fee to be referenced in the final MEPA Certificate. As administrator of the fee, the EEA Secretary retains broad discretion in determining the fee amount and any conditions necessary to ensure that the "as-built" project is consistent with the project as described in the final MEPA EIR filing.

The Oceans Act created an Ocean Resources and Waterways Trust to receive all proceeds from ocean development mitigation fees as well as appropriations or other credits. In Fiscal Year 2009, the trust fund was established by the Executive Office for Administration and Finance. The Oceans Act identifies the EEA Secretary as trustee and contains provisions pertaining to expenditures from the trust. The 2009 ocean plan provided additional direction on the management of the trust. Based on the statutory and management requirements contained in the Oceans Act and the ocean plan, EEA established the *Ocean Resources and Waterways Trust Implementation Guidelines* to direct the administration and management of the trust (Appendix 7). Expenditures from the fund are directed to the restoration, enhancement, or management of marine habitat and resources impacted by an ocean development project. Funds derived from impacts to public navigation by an ocean development project will be used for navigational improvements. Funds derived from impacts to fisheries resources are targeted for use for fisheries restoration and management programs. Other funds credited to the trust fund are to be used only for environmental enhancement, restoration, and management of ocean resources and uses generally consistent with the Oceans Act and the ocean plan. As of January 2015, there have been three deposits to the trust. The amount and sources of these funds and summaries of the projects supported by the trust are available on EEA's Massachusetts Ocean Management Plan website at www.mass.gov/eea/mop/ocean-trust.

The 2015 ocean plan adopts the following guidance contained in the 2009 ocean plan relative to any potential royalty fees that may be established for renewable energy projects:

- For pilot/community-scale renewable energy projects, the renewable energy benefits (e.g., energy and jobs) will stand for any royalty fees.
- For commercial-scale renewable energy projects in the planning area, as part of any request for proposals and related contractual processes, the Commonwealth will negotiate royalty fees to be made as annual payments for

a percentage of total energy production. The royalty shall be matched with a commensurate payment—or combination of energy royalty and benefits of equivalent value (e.g., energy, jobs, and municipal improvements)—to the host community (or communities), as defined in Chapter 2 of the ocean plan.

- For both pilot/community- and commercial-scale projects, nothing in the ocean plan changes, nor should be construed to change, the authority of a municipality to negotiate impact fees or other community benefits with renewable energy project developers.

Massachusetts Ocean Resource Information System

A key objective of the ocean plan, as detailed in the Science Framework in Volume 2 of the 2015 ocean plan, is to enhance data availability and inform managers, stakeholders, and the public of science- and data-related advancements. In 2011, CZM released the updated version of the Massachusetts Ocean Resource Information System (MORIS), an online mapping tool that can be used to search and display spatial data pertaining to the Massachusetts coastal zone. Users can interactively view various data layers over different backdrops (aerial photographs, political boundaries, bathymetry, or other data including Google basemaps), create and share maps, and download the data for use in a Geographic Information System (GIS). A stand-alone version of MORIS that contains all of the maps in the ocean plan is available at maps.massgis.state.ma.us/map_ol/mass_ocean_plan.php, and a MORIS user's guide can be found at maps.massgis.state.ma.us/map_ol/moris_users_documentation.pdf.

Plan Review

The Oceans Act and the ocean plan implementing regulations require the review of the plan and its components—including the Baseline Assessment and enforceable provisions—at least once every five years. In January 2013, EEA initiated a formal review and update of the 2009 ocean plan, beginning with a comprehensive assessment of progress and performance to achieve the requirements and commitments established by the Oceans Act and the ocean plan itself. In addition to public workshops and a formal public comment period, the review process also sought the views and opinions of the members of the state's Ocean Advisory Commission and Ocean Science Advisory Council. SeaPlan (an independent, nonprofit ocean science and policy group formerly known as the Massachusetts Ocean Partnership) interviewed and surveyed current and previous members of the commission and council to capture their perspectives on the development, implementation, and future revision of the 2009 ocean plan.

The results of this assessment were released in the document, *Review of the Massachusetts Ocean Management Plan, January 2014*, which provides a summary of the background and context for ocean planning in Massachusetts and reports on the ocean plan development process, including the policies and management framework, plan administration and implementation, and work on science and data priorities identified in the 2009 ocean plan's Science Framework. While not all of the ocean plan components have been fully tested and plan implementation is still ongoing, the review provides important insights into the content of the 2009 ocean plan, as well as a look at the progress and performance of the plan's implementation. See www.mass.gov/eea/mop for an online copy of *Review of the Massachusetts Ocean Management Plan, January 2014*.

Revisions to the Ocean Plan

The provision that the ocean plan be reviewed at least every five years makes the legislative intent of the Oceans Act clear: a comprehensive ocean management plan is not to be a static, standing document; instead, it should be regularly revisited and revised. The 2009 ocean plan detailed two different types of plan modifications and the processes associated with these changes—plan amendments and plan updates. The ocean plan implementing regulations at 301 CMR 28.07 codified the standards for these two types of revisions, as summarized below. The process used to amend the 2009 ocean plan is summarized in Chapter 1.

Plan Amendments

An amendment to the ocean plan is required for changes to substantive management elements of the ocean plan, including:

- Revision of existing or creation of new management area locations or boundaries, excepting minor adjustments;
- Substantial revision of existing or creation of new management standards;
- Identification of new or removal of current protected SSU resources or mapped areas;
- Identification of new or removal of current protected concentrations of water-dependent uses or mapped areas; or
- Other changes that would result in significant alteration to the management framework or geographic extent of the ocean plan.

Guidelines for the ocean plan amendment process are contained at 301 CMR 28.07(5). The amendment process is initiated with a public notice in the Environmental Monitor announcing the intent to amend the current ocean plan. The EEA Secretary will consult with: (1) the Ocean Advisory Committee in determining

the scope of the plan amendment, and (2) with the Ocean Science Advisory Council in determining the scope of the updates to the baseline assessment and science-related elements of the plan amendment. Regional public hearings will be held to receive input on the proposed scope for the amendment. EEA and its agencies will work closely with the Ocean Advisory Committee and Ocean Science Advisory Council on the development of the amendment. A draft of the plan amendment will be made available for 60-day public review and comment, and public hearings will be held on the draft amended plan. After the close of the public comment period, the EEA Secretary will promulgate a final, amended ocean plan and will file the ocean plan with the Massachusetts House of Representatives and Senate clerks.

Plan Updates

An ocean plan update is a type of revision that is necessary for effective and efficient administration, but is not of the scope or scale of a plan amendment. As specified in 301 CMR 28.07(6), the following changes to the ocean plan may be made through a plan update:

- Corrections to address errata and technical discrepancies or errors, or to clarify intent or meaning;
- Additions of updated data and information on the spatial extent or further characterization of existing SSU resource areas or areas of concentrations of water-dependent uses;
- Minor shifts in existing management area boundaries; and
- Other adjustments that do not result in significant changes to the management framework or geographic extent of the ocean plan.

The ocean plan regulations also contain guidelines for the EEA Secretary to conduct the ocean plan update process, including the submission of a plan update request that includes: a justification and rationale for the need for the update; a strategy to ensure that the update conforms with data standards and processes; and a plan to secure input from EEA agencies, the Ocean Advisory Commission, and the Ocean Science Advisory Council. A proposed update must be noticed in the *Environmental Monitor* and subject to a 30-day public review and comment period. After the close of the public comment period, the EEA Secretary will issue a final decision on the proposed update, which would then be noticed in the *Environmental Monitor*.

Stakeholder Input, Expert Advice, and Partnerships

An important requirement of the Oceans Act and a fundamental tenant of the ocean planning process is a strong program for input from and engagement with experts, stakeholders, and

the public. The ocean plan includes the following mechanisms to ensure an active expert and public input process: expert advisory boards, government coordination, and work with partners and technical work groups.

Ocean Advisory Commission and Ocean Science Advisory Council

The Ocean Advisory Commission is a formal consultative body created by the Oceans Act to assist the EEA Secretary in the development of the ocean plan. It is comprised of 17 members representing communities and stakeholder interests, legislators, and public agencies, with mandated composition and terms. The Ocean Science Advisory Council was established by the Oceans Act to provide support and advice on the science information compiled for the ocean plan. The council is made up of nine members from institutions or interests specified in the Oceans Act.

The Ocean Advisory Commission and the Ocean Science Advisory Council played very strong roles in the development of both the 2009 ocean plan and the 2015 ocean plan. EEA will continue to look to these formal bodies for stakeholder advisory and science and technical input in matters pertaining to the ongoing implementation of and future revisions to the ocean plan, as well as to ongoing efforts related to the Northeast regional ocean planning initiative, described later in this chapter. These two groups will provide key forums for bringing the input, advice, and concerns of Massachusetts into the regional ocean planning process by discussing new and emerging ocean planning and policy issues. Meetings of the Ocean Advisory Commission and the Ocean Science Advisory Council are public and will continue to be noticed appropriately. See www.mass.gov/eea/mop for a list of current members of the Ocean Advisory Commission and the Ocean Science Advisory Council.

Interstate, Federal, and Tribal Government Coordination

In addition to direct agency-to-agency coordination and communication, several regional entities serve as key vehicles for dialogue, collaboration, and consultation with other states, federal government agencies, and tribes on issues related to ocean planning. Major interstate, federal, and tribal government ocean planning coordination efforts that involve the Commonwealth of Massachusetts are described below.

Massachusetts is an active participant in the Northeast Regional Ocean Council (NROC), a state and federal partnership that provides a forum for coordination and collaboration on regional approaches to balance resource use and conservation in the Northeast. NROC was formed in 2005 by the Governors of the New England states, and in recognition of the importance of the national role in regional issues, NROC

was expanded to include federal agencies. NROC works to augment the functions and activities of existing entities in the region and to build upon current state, multi-state, and federal governance and institutional mechanisms to improve management of ocean and coastal resources. NROC serves as an important resource for and contributor to the Northeast regional ocean planning initiative. In this role, NROC greatly benefits the Commonwealth by expanding the scope and extent of data and information available on marine resources and uses and by utilizing and building on stakeholder engagement efforts. Examples of these benefits include new data and maps on recreational boating, commercial vessel traffic, and commercial fishing activity developed through this partnership. NROC also sponsored workshops with various ocean-based industries in 2012 to learn more about key issues facing different sectors in New England, anticipate changes in coming years, and discuss the role of regional ocean planning to address issues and opportunities. More information on NROC is available at www.northeastoceancouncil.org.

The data and information developed by NROC and its members and partners directly support the efforts of the Northeast Regional Planning Body (Northeast RPB), which has the responsibility of developing an ocean management plan for New England. Convened in November 2012 under the *National Policy for Stewardship of the Ocean, Our Coasts, and the Great Lakes*, the Northeast RPB includes representatives from the six New England states, 10 federal agencies, 10 federally recognized tribes, and the New England Fishery Management Council. CZM Director Bruce Carlisle and *MarineFisheries* Director Paul Diodati serve as representatives for the Commonwealth. The Northeast RPB is not a regulatory body and has no authority to create new regulations. Rather, its mandate is to develop a regional ocean plan and associated products to guide future agency decision-making, consistent with existing authorities. The Northeast RPB held formal meetings in November 2012, April 2013, January 2014, June 2014, and November 2014. Based on its deliberations and informed by public comment, stakeholder meetings, and workshops, the Northeast RPB developed a framework that identified the goals, objectives, actions, and products to build a regional ocean plan by early 2016. Work is underway by the Northeast RPB on a number of projects that will advance the understanding of spatial and other information on water-dependent uses and marine ecosystems. The projects are collaborative efforts that include scientists, fishermen, boaters, and environmental groups, as well as leaders in the shipping, aquaculture, and energy industries.

While all of the Northeast RPB projects are broadly applicable to the Massachusetts Ocean Management Plan, several in particular help to address the ocean plan's science priorities. One such effort is a project that began in 2012 to map commercial fisheries in New England. Using existing data available for certain fisheries, map

products were developed and discussed with the fishing industry, scientists, and managers, and between August 2012 and July 2013, more than 50 gatherings were held throughout New England to obtain advice and input to further develop maps of commercial fishing activity. A report on the initial phase of this effort is available on the Northeast RPB website (www.neoceanplanning.org), and additional work is underway to produce more complete information. Another important project is on natural resource characterization, with ongoing work to: (1) compile both observational and model-based information on the abundance and distribution of marine mammals, sea turtles, birds, and fish, and (2) examine options for a regional approach to advance ecosystem-based management including methods to assess and identify areas of ecological importance. In June 2014, the Northeast RPB convened a natural resources workshop where approximately 125 participants from tribes, federal and state agencies, industry groups, academic institutions, and nonprofit organizations, as well as interested citizens, provided input on these two aspects of the natural resource characterization project. In November 2014, the Northeast RPB decided to establish an interdisciplinary work group to explore options for adaptive ecosystem-based management approaches, including the identification of important ecological areas and the potential evaluation of decision-support tools such as trade-off analyses, which examine the ecological, social, and economic benefits and detriments of ocean uses and projects. This work by the Northeast RPB directly links to and will inform priority actions listed in the Science Framework in Volume 2 of the 2015 ocean plan.

Massachusetts is also a member of the Gulf of Maine Council on the Marine Environment. This regional organization was established in 1989 by the governments of Nova Scotia, New Brunswick, Maine, New Hampshire, and Massachusetts to foster cooperative actions within the Gulf of Maine watershed. Its mission is to maintain and enhance environmental quality in the Gulf of Maine to allow for sustainable resource use by existing and future generations. Among other functions and programs of the Gulf of Maine Council, it serves as a forum to share key information, knowledge, and data on ocean planning initiatives in both the United States and Canada. The council provides a unique opportunity to promote cross-border coordination and collaboration, track and exchange information on ocean planning strategies and activities, and share information and knowledge on best practices, tools and techniques, and data on marine natural systems and human uses.

Formed in 2008, the Northeastern Regional Association of Coastal and Ocean Observing Systems (NERACOOS) is a regional nonprofit organization that leads and coordinates the development, implementation, operation, and evaluation of a sustained, regional coastal ocean observing system for the northeast United States and Canadian Maritime provinces, as part of the United States Integrated Ocean

Observing System. NERACOOS develops, assesses, and disseminates important data and data products on a multitude of ocean conditions and parameters, including current observations, forecasted conditions, and average weather and ocean conditions between 2001 and the present to examine trends in climate patterns. Massachusetts serves on the NERACOOS board and on its Strategic Planning and Implementation Team.

These regional forums have and will continue to benefit the Commonwealth by providing key inter-governmental coordination and consultation opportunities, expanding stakeholder engagement efforts, and increasing the scope and extent of data and information available on marine resources and uses. Massachusetts will seek to ensure that these efforts continue to support and can be integrated into the state's ocean plan, to the maximum extent practicable.

SeaPlan (Formerly the Massachusetts Ocean Partnership)

The Massachusetts Ocean Partnership, an independent organization of ocean stakeholders, was a key partner in the development of the Commonwealth's first ocean plan. A memorandum of understanding (MOU) between EEA and the Massachusetts Ocean Partnership outlined the partnership's role in implementing stakeholder and public input processes and for filling key data and science gaps during plan development. Through these efforts, the partnership supported a robust and extensive stakeholder involvement process, ensuring that the ocean plan management strategies were based on sound public input. The Massachusetts Ocean Partnership also directly invested in foundational work that, among other things, examined various ocean planning framework models from around the world, assessed the potential compatibilities between uses and among uses and resources in state waters, provided support for key improvements to MORIS that built on an open source mapping engine platform (GeoServer) to provide access to data about Massachusetts coastal and ocean areas and resources and a repository for all the data and maps contained in the ocean plan, and advanced efforts to address identified data and science needs.

In October 2011, the Massachusetts Ocean Partnership formally changed its name to SeaPlan as part of a transition to an independent nonprofit organization specializing in science-based, stakeholder-informed, coastal and marine spatial planning around the nation and the globe. SeaPlan provided key support in the development of the 2015 ocean plan. With its survey of the members of the Ocean Advisory Commission and the Ocean Science Advisory Council, SeaPlan captured key perspectives on the development, implementation, and revision of the 2009 ocean plan. SeaPlan provided assistance in the revision and advancement of the ocean plan performance framework, described below in the Monitoring and Evaluation

Framework for Progress and Performance Assessment section. SeaPlan also assisted with facilitation and logistical support for the public hearings on the draft of the 2015 ocean plan and is working in support of the regional ocean planning initiative in the Northeast, as well as in other areas of coastal and marine spatial planning and climate resilience work.

Science and Technical Experts

Both the 2009 ocean plan and the 2015 ocean plan were developed based on the principle of identifying and utilizing the best available science and information, and the Commonwealth is committed to maintaining a strong science foundation for future ocean plan development. Data and information come from sources both within and outside Massachusetts state government. Through technical work groups on habitat, fisheries, sediment resources, recreational and cultural services, transportation and navigation, and energy and infrastructure, scientists and subject matter experts assist in the identification and characterization of important trends in ocean resources and uses, help form recommendations for future science and data priorities, provide direct input on data and information, and in many cases, provide direct access to valuable datasets. Beyond the technical work groups, EEA and its agencies will rely on existing partnerships to ensure that ongoing monitoring and assessment efforts continue to provide critical data streams for resource assessment and use characterization. EEA will also seek new opportunities to collaborate with other institutions and agencies to address the short- and long-term science priorities outlined in the Science Framework.

Monitoring and Evaluation Framework for Progress and Performance Assessment

The Oceans Act requires that the ocean plan be updated to adapt to changing ocean conditions, availability of new science and better information, evolving policy goals, emerging needs, and increased experience in implementation. A priority of the 2009 ocean plan was the development of a performance framework to: (1) identify, track, and assess performance indicators that measure progress in administration and implementation of the ocean plan, and (2) identify ocean resources and uses and track/monitor trends and changes in their condition, state, or health.

Considerable effort has gone into the revision and evolution of a performance framework, including the review of the indicators selected by a panel of experts and identified in the 2009 ocean plan as well as the experience and lesson learned in the ocean plan review and amendment process, as described previously in this chapter. The 2015 ocean plan contains an updated Monitoring and Evaluation Framework that builds on the preliminary indicators

identified in the 2009 ocean plan and provides an enhanced structure for monitoring, evaluating, and updating the ocean plan. The development of this proposed updated framework was informed by SeaPlan in consultation with Charles Ehler, author of the new United Nations Educational, Scientific and Cultural Organization's Intergovernmental Oceanographic Commission publication, *A Guide to Evaluating Marine Spatial Plans (October 2014)*. The updated Monitoring and Evaluation Framework includes two tracks:

- Track 1: Management and Administration - Evaluates progress and performance in implementing management/administration measures and accomplishing goals.

- Track 2: Ocean Conditions and Uses - Assesses changes and trends in ocean conditions and uses (i.e., state of the system) within the planning area.

Diagram 1 is a graphical representation of how the Monitoring and Evaluation Framework is integrated into the ocean plan review and update process and Diagram 2 highlighting steps to develop and implement the framework for both tracks.

Diagram 1. Graphical representation of the proposed Monitoring and Evaluation Framework

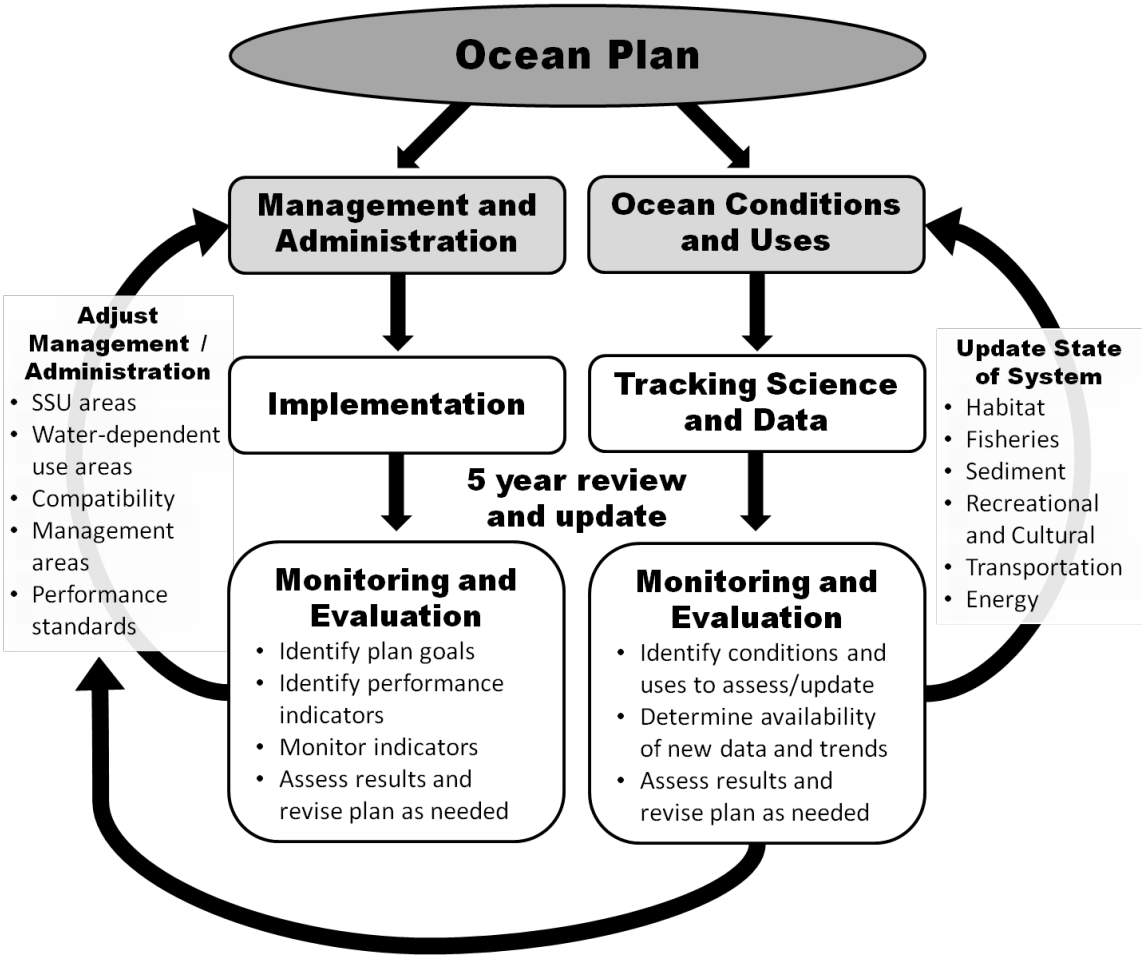
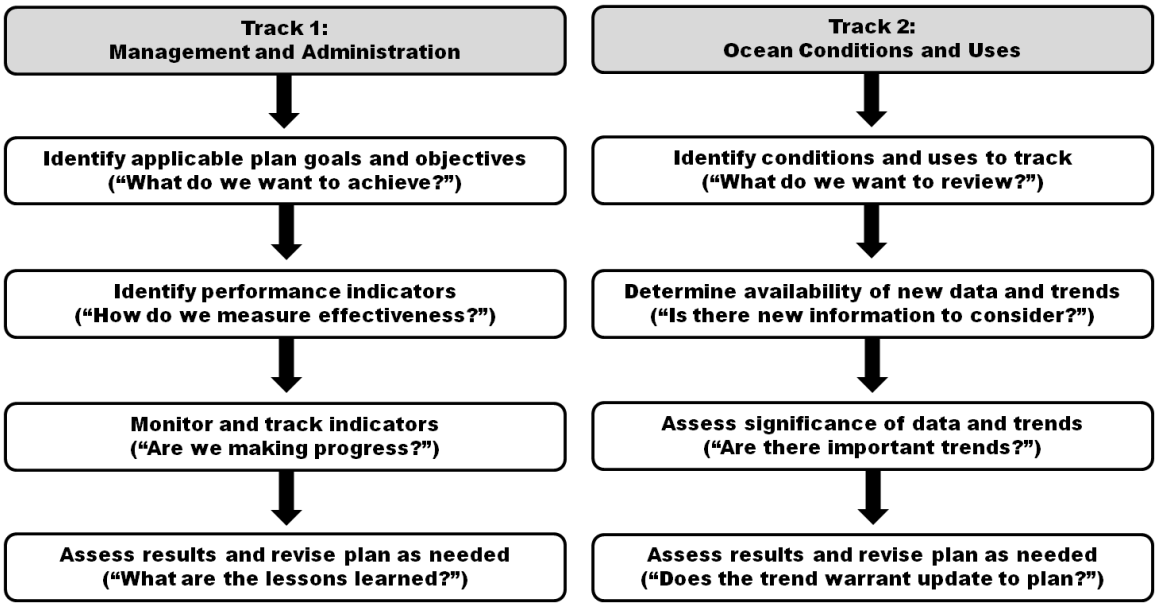


Diagram 2. Proposed Monitoring and Evaluation Framework, highlighting steps to develop and implement the framework for both tracks



Track 1: Management and Administration

This track monitors the progress and effectiveness of implementation of ocean plan management and administration elements. More specifically, this track is designed to help identify and evaluate needs for potential revisions to the ocean plan's performance and siting standards, SSU resource areas, areas of concentrations of water-dependent uses, and designation of management areas. The development and implementation of this track consists of four steps: (1) identify relevant ocean plan goals, (2) identify indicators and metrics that measure effectiveness in accomplishing goals, (3) monitor indicators, and (4) assess results to inform the ocean plan revision process (see Diagram 2).

The process of identifying indicators and metrics that will measure effectiveness in accomplishing goals is challenging. As identified as a priority in the 2015 ocean plan's Science Framework, more work is necessary to further examine, assess, and select indicators and metrics, and EEA will work the Ocean Advisory Commission, Ocean Science Advisory Council, technical work groups, and stakeholders to develop and finalize an operational Monitoring and Evaluation Framework. Two priority criteria should be used to identify and select indicators: (1) strength of the indicator in linking the ocean plan goals and objectives to the implementation of management and administration elements (i.e., can the indicator measure the important aspects of whether the ocean plan goals and objectives are achieved through implementation of

the management and administration elements?); and (2) ability of the indicator to be measured or described (i.e., are data readily available or reasonably attainable?). To illustrate Track 1, five indicator themes and potential metrics are provided in Table 3-1.

Table 3-1. Examples of performance indicators and metrics for monitoring and evaluating the progress of implementation of ocean plan management and administration elements

Indicator	Metrics
Status of special, sensitive, or unique (SSU) resources and concentrations of water-dependent uses	- Number of protected SSU resources and concentrations of water-dependent uses - Changes in extent and/or location - Context of any changes to resource and use areas
Progress on Science Framework priorities, data acquisitions, and mapping efforts	- Percent completion or ongoing work of identified priorities - Expected completion date of defined priority - Utilization of science and data in revision of plan
Development and implementation of ocean management and governance tools	- Proposed, revised, or promulgated regulations and policies - Measures employed to minimize conflicts and impacts between uses and resources - Revisions to existing or new management areas, including any changes in siting and performance standards - Summary of the existing permitted uses in the planning area - Efficacy of permitting process
Status of Ocean Resources and Waterways Trust	- Allocation of resources to support ocean plan's science priorities and other ocean stewardship and restoration
Stakeholder and public involvement in the planning process and ongoing implementation	- Meetings of the Ocean Advisory Commission and Ocean Science Advisory Council - Efforts and progress of technical work groups - Workshops - Public meetings and comment opportunities

Track 2: Ocean Conditions and Uses

This track monitors changes and trends in ocean resource conditions and uses in and beyond the planning area to enable the ocean plan to adapt to evolving knowledge and understanding of the ocean environment. More specifically, this track will provide a framework for identifying new data and noteworthy trends on conditions and uses (e.g., environmental, ecological, economic, socio-cultural, etc.) to inform decisions regarding potential revisions to SSU resources, concentrations of water-dependent uses, and management actions. The development and implementation of this track consists of these steps: (1) identify relevant ocean conditions and uses to track, assess, and update; (2) determine the availability of new data and information;

(3) identify trends in conditions and uses; and (4) assess results and revise the ocean plan as needed (see Diagram 2).

Examples of relevant ocean conditions and uses to assess and update during the ocean plan review process are provided below. The six broad categories and the topics within them align with the technical work groups convened to review the best available scientific data and information and to identify and characterize important trends in ocean resources and uses.

1. Habitat
    - Wetlands, including eelgrass and intertidal flats areas
    - Sea turtles
    - Marine mammals
    - Avifauna

2. Fisheries
    - High commercial fishing effort and value
    - Concentrated recreational fishing
    - Important fish resources
    - Aquaculture

3. Seafloor and sediment resources
    - Hard/complex seafloor
    - Surficial sediment and sediment deposits
    - Artificial and biogenic reef structures, including shipwrecks and other navigational obstructions

4. Recreational and cultural services
    - Boating
    - Fishing
    - Marine beaches
    - Diving
    - Wildlife viewing
    - Public access infrastructure
    - Land use and scenic landscape
    - Archaeological resources and cultural landscape
    - Tribal engagement
    - Heritage infrastructure

5. Transportation and navigation
    - Commercial shipping, transportation, and navigation
    - Commercial fishing traffic
    - Recreational boating

6. Energy and infrastructure
    - Energy generating facilities
    - Energy consumption
    - Transmission
    - Offshore/marine renewable energy
    - Wastewater, stormwater, and industrial facilities discharges
    - Desalination facilities

EEA will work with the technical work groups and the Ocean Science Advisory Council to apply the following questions to each topic above:

- Are new data or information available for the topic (e.g., environmental, ecological, economic, socio-cultural, etc.)?
- Do the data or information support a potential change to SSU resource areas or concentrations of water-dependent use areas?
- Do the data or information reveal any significant or noteworthy trends?
- Is there a connection between the trend or change and the ocean plan management standards?
- Is this connection significant enough to warrant revisions or updates to the management standards?

The responses to the questions above will guide the assessment of changes in ocean conditions and uses and their relationship to the management areas and standards in the ocean plan.

Finalizing and Applying the Monitoring and Evaluation Framework

As detailed in the Science Framework contained in Volume 2, more work is necessary to examine the performance indicators and metrics in Track 1 and the "state of the system" questions in Track 2 to assess the connection(s) to the management framework in the ocean plan and determine if data are readily available or reasonably attainable to measure progress. Working with the Ocean Advisory Commission, the Ocean Science Advisory Council and the ocean plan technical work groups, the measures will be reviewed, revised and updated to ensure that they will

provide relevant and helpful information to measure progress in ocean plan implementation.

Once finalized, the application of the monitoring and evaluation framework will improve the required 5-year formal ocean plan review by providing a structure and process to: (1) assess progress on the ocean plan's management objectives and actions and (2) better understand the state and trends of the Commonwealth's ocean resources and uses. Within this context, potential revisions to the ocean plan may be identified including the modification of existing or creation of new management areas, the development of new management standards or adjustments to current ones, and changes to SSU resource areas or concentrations of water-dependent use areas.

Appendix 1 - The Oceans Act of 2008

Chapter 114 of the Acts of 2008 - AN ACT RELATIVE TO OCEANS. [As modified by Chapter 131, Section 91 of the Acts of 2010].

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same as follows:

SECTION 1. Chapter 10 of the General Laws is hereby amended by inserting after section 35GG the following section:-

Section 35HH. There shall be established and set up on the books of the commonwealth a separate fund to be administered by the secretary of energy and environmental affairs, as trustee, in consultation with the department of environmental protection, to be known as the Ocean Resources and Waterways Trust Fund. There shall be credited to the fund any revenue from appropriations or other monies authorized by the general court and specifically designated to be credited to the fund, any appropriation or grant explicitly made to the fund and any income derived from the investment of amounts credited to the fund and the proceeds from any ocean development mitigation fees established pursuant to section 18 of chapter 132A. The priority for use of funds derived from compensation or mitigation for ocean development projects shall be to restore or enhance marine habitat and resources impacted by the project for which the compensation or mitigation shall have been received. The funds derived from compensation or mitigation related to public navigational impacts shall be dedicated to public navigational improvements; provided, however, that any funds for the enhancement of fisheries resources shall be directed to conduct fisheries restoration and management programs. Any other amounts credited to the fund shall be used, without further appropriation, only for the purposes of environmental enhancement, restoration and management of ocean resources by the secretary pursuant to section 4C of chapter 21A. No expenditure from the fund shall cause the fund to be in deficiency at the close of a fiscal year. Monies deposited in the fund that are unexpended at the end of the fiscal year shall not revert to the General Fund and shall be available for expenditure in the subsequent fiscal year.

SECTION 2. Chapter 21A of the General Laws is hereby amended by inserting after section 4B the following section:-

Section 4C. (a) The ocean waters and ocean-based development of the commonwealth, within the ocean management planning area described in this section, shall be under the oversight, coordination and planning authority of the secretary of energy and environmental affairs, hereinafter referred to as the secretary, in accordance with the public trust doctrine. Notwithstanding any general or special law to the contrary, the secretary, in consultation with

the ocean advisory commission established pursuant to subparagraph (c) and the ocean science advisory council established pursuant to subparagraph (d), shall develop an integrated ocean management plan, which may include maps, illustrations and other media. The plan shall: (i) set forth the commonwealth's goals, siting priorities and standards for ensuring effective stewardship of its ocean waters held in trust for the benefit of the public; and (ii) adhere to sound management practices, taking into account the existing natural, social, cultural, historic and economic characteristics of the planning areas; (iii) preserve and protect the public trust; (iv) reflect the importance of the waters of the commonwealth to its citizens who derive livelihoods and recreational benefits from fishing; (v) value biodiversity and ecosystem health; (vi) identify and protect special, sensitive or unique estuarine and marine life and habitats; (vii) address climate change and sea-level rise; (viii) respect the interdependence of ecosystems; (ix) coordinate uses that include international, federal, state and local jurisdictions; (x) foster sustainable uses that capitalize on economic opportunity without significant detriment to the ecology or natural beauty of the ocean; (xi) preserve and enhance public access; (xii) support the infrastructure necessary to sustain the economy and quality of life for the citizens of the commonwealth; (xiii) encourage public participation in decision-making; (xiv) and adapt to evolving knowledge and understanding of the ocean environment; and (xv) shall identify appropriate locations and performance standards for activities, uses and facilities allowed under sections 15 and 16 of chapter 132A. The division of marine fisheries, pursuant to chapter 130 and any other applicable general or special law, shall have sole responsibility for developing and implementing any fisheries management plans or fisheries regulations. Marine fisheries shall be managed in compliance with the applicable rules and regulations of the division of marine fisheries and federal or interstate fishery management plans issued pursuant to said chapter 130 or any other applicable general or special law and shall be integrated, to the maximum extent practicable, with an ocean management plan.

(b) An ocean management plan shall include any waters and associated submerged lands of the ocean, including the seabed and subsoil, lying between the line designated as the "Nearshore Boundary of the Ocean Management Planning Area", which is depicted on a plan dated January 31, 2006, prepared by the office of coastal zone management and maintained at the executive office of energy and environmental affairs and with the clerks of the house and the senate, and the seaward boundary of the commonwealth, as defined in 43 U.S.C. § 1312. An ocean management plan may take into account the different regional characteristics of the commonwealth's waters. A plan shall include existing municipal, state and federal boundaries and may include recommendations for clarifying those boundaries.

(c)(i) There shall be an ocean advisory commission to assist the secretary in developing the ocean management plan. The commission shall consist of 3 members of the senate, 1 of whom shall be appointed by the minority leader of the senate; 3 members of the house of representatives, 1 of whom shall be appointed by the minority leader of the house of representatives; the director of coastal zone management or his designee; the director of marine

fisheries or his designee; the commissioner of environmental protection or his designee; and 8 members to be appointed by the governor, 1 of whom shall be a representative of a commercial fishing organization, 1 of whom shall be a representative of an environmental organization, 1 of whom shall have expertise in the development of offshore renewable energy, 1 of whom shall be a representative of the Cape Cod commission, 1 of whom shall be a representative of the Martha's Vineyard Commission, 1 of whom shall be a representative of the Merrimack Valley Planning Commission, 1 of whom shall be a representative of the metropolitan area planning council and 1 of whom shall be a representative of the Southeastern Regional Planning and Economic Development District. Members shall be appointed for terms of 3 years, except that, initially, 4 members appointed by the governor shall be appointed for terms of 2 years and 3 members appointed by the governor shall be appointed for terms of 1 year. The appointing authority may fill any vacancy that occurs in an unexpired term. The members of the commission shall be selected with due regard to coastal geographic distribution.

(ii) The commission shall meet at least quarterly and at the discretion of the secretary. The commission shall hold public meetings relative to matters within the jurisdiction of the ocean management plan and shall make recommendations to the secretary for the proper management and development of the plan. The secretary shall consider the recommendations of the commission.

(iii) The office of coastal zone management and division of marine fisheries shall provide technical support to the commission.

(d) There shall be an ocean science advisory council to assist the secretary in creating a baseline assessment and obtaining any other scientific information necessary for the development of an ocean management plan. The council shall consist of 9 members to be appointed by the secretary, 3 of whom shall be scientists from academic institutions, at least 1 of whom shall be from the School for Marine Science and Technology at the University of Massachusetts at Dartmouth and at least 1 of whom shall be from the Department of Environmental, Earth and Ocean Sciences at the University of Massachusetts at Boston; 3 of whom shall be scientists from private, nonprofit organizations, at least 1 of whom shall be a scientist designated by the Massachusetts Fishermen's Partnership; and 3 of whom shall be scientists from government agencies with demonstrated technical training and experience in the fields of marine ecology, geology, biology, ichthyology, mammalogy, oceanography or other related ocean science disciplines, at least 1 of whom shall be from the division of marine fisheries. The secretary shall serve as coordinator of the council. The council shall meet at least quarterly and at any other time that the secretary shall deem necessary to assist him in compiling the scientific information necessary for the development of an ocean management plan.

(e) Upon the secretary's adoption of an ocean management plan, all certificates, licenses,

permits and approvals for any proposed structures, uses or activities in areas subject to the ocean management plan shall be consistent, to the maximum extent practicable, with the plan.

(f) The secretary shall develop and implement a public outreach and information program to provide information to the public regarding the ocean management planning process.

(g) The secretary shall, at least 6 months before establishing an ocean management plan pursuant to this section, provide for public access to the draft plan in electronic and printed copy form and shall provide for a public comment period, which shall include at least 4 public hearings in at least 4 different coastal regions. The secretary shall publish notice of the hearings in the Environmental Monitor within 30 days of the date of the hearing. A notice of the public hearing shall also be placed, at least once each week for the 4 consecutive weeks preceding the hearing, in newspapers with sufficient circulation to notify the residents of the coastal region where the hearing shall be held. The hearing shall be held not sooner than 30 days and not later than 35 days after the notice is published in the Environmental Monitor. The public comment period shall remain open for at least 60 days from the date of the final public hearing. After the close of the public comment period, the secretary shall issue a final ocean management plan and shall file the plan, together with legislation necessary to implement the plan, if any, by filing the same with the clerks of the house of representatives and senate.

(h) The secretary shall promulgate regulations to implement, administer and enforce this section and shall interpret this section and any regulations adopted hereunder consistent with his power to enforce the laws. These regulations shall include provisions for the review of the ocean management plan, its baseline assessment and the enforceable provisions of relevant statutes and regulations at least once every 5 years.

(i) The joint committee on state administration and regulatory oversight, in this subsection called the committee, may review a proposed ocean management plan or regulations proposed or adopted pursuant to this chapter. The committee shall consult with the joint committee on environment, natural resources and agriculture in performing this review. The committee may hold public hearings concerning a proposed ocean management plan or a proposed or existing regulation and may submit to the secretary comments concerning the merit and appropriateness of the plan or regulations to be promulgated and an opinion on whether the proposed plan or regulations are authorized by, and consistent with, this chapter and existing state laws and regulations. The secretary shall respond in writing within 10 days to the committee's written questions relevant to the committee's review of a proposed plan or proposed or existing regulation. The secretary shall provide to the committee, without charge, copies of all public records in the secretary's custody relating to the proposed plan or regulation or action in question within 10 days of a request by the committee. The committee may issue a report with proposed changes to a proposed plan or proposed or existing regulation and shall transmit this report to the secretary. If the secretary does not adopt the proposed changes

contained in the committee's report, the secretary shall notify the committee in writing of the reasons why he did not adopt the changes either at the time he adopts a proposed plan or proposed regulation or within 21 days of receiving the committee's report on an existing regulation.

(j) The ocean management plan shall be consistent with this section and all other general and special laws. The ocean management plan shall not be construed to supersede existing general or special laws, or to confer rights and remedies in addition to those conferred by existing general or special laws.

(k)(1) In the geographic area subject to the ocean management plan, as described in paragraph (b), commercial and recreational fishing shall be allowable uses, subject to the exclusive jurisdiction of the division of marine fisheries. Any component of a plan which regulates commercial or recreational fishing shall be developed, promulgated and enforced by the division of marine fisheries pursuant to its authority under chapter 130.

(2) A component of an ocean management plan which does not have as its primary purpose the regulation of commercial or recreational fishing but which has an impact on such fishing shall minimize negative economic impacts on commercial and recreational fishing. Prior to inclusion in an ocean management plan, a component with such a reasonably foreseeable impact shall be referred to the division of marine fisheries, which shall, in writing and in a timely and efficient manner, evaluate the component for its impact on commercial and recreational fishing and, if possible, develop and recommend to the secretary any suggestions or alternatives to mitigate or eliminate any adverse impacts.

(3) The director of marine fisheries, subject to the approval of the marine fisheries advisory commission, shall have sole authority for the opening and closing of areas within the geographic area described in subsection (b) for the taking of any and all types of fish, pursuant to section 17A of chapter 130. Nothing in this section shall be construed to limit the powers of the director pursuant to section 17 of chapter 130 or any other provision thereto.

SECTION 3. Section 12B of chapter 132A of the General Laws, as appearing in the 2006 Official Edition, is hereby amended by striking out the definitions of "Commissioner" and "Department" and inserting in place thereof the following definition:-

"Director", the director of coastal zone management.

SECTION 4. Said section 12B of said chapter 132A, as so appearing, is hereby further amended by inserting after the definition of "Facilities plan" the following definition:-

"Office", office of coastal zone management.

SECTION 5. Section 12C of said chapter 132A, as so appearing, is hereby amended by striking out, in lines 1 and 3, the word "department" and inserting in place thereof, in each instance, the following word:- office.

SECTION 6. Section 14 of said chapter 132A, as so appearing, is hereby amended by striking out, in line 2, the word "department" and inserting in place thereof the following word:- office.

SECTION 7. Said chapter 132A, as so appearing, is hereby further amended by striking out section 15 and inserting in place thereof the following section:-
Section 15. Except as otherwise provided in this section, the following activities shall be prohibited in an ocean sanctuary:

(1) the building of any structure on the seabed or under the subsoil;

(2) the construction or operation of offshore or floating electric generating stations, except: (a) on an emergency and temporary basis for the supply of energy when the electric generating station is otherwise consistent with an ocean management plan; or (b) for appropriate-scale renewable energy facilities, as defined by an ocean management plan promulgated pursuant to section 4C of chapter 21A, in areas other than the Cape Cod Ocean Sanctuary; provided, however, that (i) the renewable energy facility is otherwise consistent with an ocean management plan; (ii) siting of all such facilities shall take into account all relevant factors, including but not limited to, protection of the public trust, compatibility with existing uses, proximity to the shoreline, appropriateness of technology and scale, environmental protection, public safety and community benefit; and (iii) in municipalities where regional planning agencies have regulatory authority, a regional planning agency shall define the appropriate scale of offshore renewable energy facilities and review such facilities as developments of regional impact, and the applicant may seek review of the regional planning agency's development of regional impact determination, but not its determination of appropriate scale, pursuant to the authority of the energy facilities siting board to issue certificates of environmental impact and public interest pursuant to sections 69K to 69O, inclusive, of chapter 164;

(3) the drilling or removal of any sand, gravel or other minerals, gases or oils;

(4) the dumping or discharge of commercial, municipal, domestic or industrial wastes;

(5) commercial advertising; or

(6) the incineration of solid waste or refuse on, or in, vessels moored or afloat within the boundaries of an ocean sanctuary.

SECTION 8. Section 16 of said chapter 132A, as so appearing, is hereby amended by striking out, in lines 14 and 15, the words "telecommunications and energy" and inserting in place thereof the following words:- public utilities or the department of telecommunications and cable.

SECTION 9. Said section 16 of said chapter 132A, as so appearing, is hereby further amended by striking out, in line 20 and in lines 28 and 29, the word "department" and inserting in place thereof, in each instance, the following word:- office.

SECTION 10. Said section 16 of said chapter 132A, as so appearing, is hereby further amended by striking out, in lines 29 and 30, the words "fisheries, wildlife and environmental law enforcement" and inserting in place thereof the following words:- fish and game.

SECTION 11. Section 16A of said chapter 132A, as so appearing, is hereby amended by inserting after the word "department", in line 6, the following words:- of environmental protection.

SECTION 12. Section 16B of said chapter 132A, as so appearing, is hereby amended by striking out, in line 26 and in lines 30 and 31, the words "and the division of water pollution control" and inserting in place thereof the following words:- of environmental protection.

SECTION 13. Section 16C of said chapter 132A, as so appearing, is hereby amended by inserting after the word "department", in lines 1 and 5, the following words:- of environmental protection.

SECTION 14. Section 16E of said chapter 132A, as so appearing, is hereby amended by inserting after the word "department", in lines 1 and 2 and line 5, the following words:- of environmental protection.

SECTION 15. Said section 16E of said chapter 132A, as so appearing, is hereby further amended by inserting after the word "commissioner", in lines 13 and 14, the following words:- of environmental protection.

SECTION 16. Section 16F of said chapter 132A, as so appearing, is hereby amended by inserting after the word "department", in line 1, the following words:- of environmental protection.

SECTION 17. Said section 16F of said chapter 132A, as so appearing, is hereby further amended by striking out the last sentence.

SECTION 18. Section 18 of said chapter 132A, as so appearing, is hereby amended by inserting, after the word "of", in line 2, the following words:-energy and.

SECTION 19. Said section 18 of said chapter 132A, as so appearing, is hereby further amended by striking out, in lines 7 and 8 and line 9, the word "department" and inserting in place thereof,

in each instance, the following word:- office.

SECTION 20. Said section 18 of said chapter 132A, as so appearing, is hereby further amended by adding the following paragraph:-

Any permit or license issued by a department, division, commission, or unit of the executive office of energy and environmental affairs and other affected agencies or departments of the commonwealth for activities or conduct consistent with this chapter shall be subject to an ocean development mitigation fee as shall be established by the secretary of energy and environmental affairs; provided, however, that no fee shall be assessed on commercial and recreational fishing permits or licenses. All the proceeds of the ocean development mitigation fee shall be deposited in the Ocean Resources and Waterways Trust Fund established pursuant to section 35HH of chapter 10.

SECTION 21. Nothing in this act shall be construed to alter the jurisdictional authority of the division of marine fisheries. Nothing in this act shall be construed to prohibit the transit of commercial fishing vessels and recreational vessels in state ocean waters.

SECTION 22. Any project that, before the effective date of this act, has: (1) filed a license application under chapter 91 of the General Laws and received a written determination of completeness from the department of environmental protection; (2) if subject to section 61 of chapter 30 of the General Laws, received a certificate of adequacy regarding a final environmental impact report; or (3) if the project is subject to the jurisdiction of the energy facilities siting board, received both a final decision from the energy facilities siting board and a certificate of adequacy regarding a draft environmental impact report, shall not be subject to the requirements of said ocean management plan.

SECTION 23. The secretary of energy and environmental affairs shall promulgate a final ocean management plan by December 31, 2009. Upon adoption, an ocean management plan shall formally be incorporated into the Massachusetts coastal zone management program, as referenced in section 4A of chapter 21A of the General Laws.

SECTION 24. Section 8 of this act shall take effect upon the adoption of an ocean management plan or by December 31, 2009, whichever occurs first.

SECTION 25. The secretary of energy and environmental affairs shall convene an advisory committee for the purpose of reviewing section 16 of chapter 132A of the General Laws and regulations promulgated pursuant thereto. The advisory committee shall review the regulatory definitions of "public necessity and convenience" and "significant alteration". The secretary shall submit a report, together with legislative recommendations, if any, to the joint committee on environment, natural resources and agriculture by December 31, 2009.

Appendix 2 - 301 CMR 28.00 Implementing Regulations for the Ocean Management Plan

301 CMR 28: OCEAN MANAGEMENT PLAN

28.01: Authority and Purpose

(1) 301 CMR 28.00 is adopted pursuant to M.G.L. c. 21A §4C and M.G.L. 132A, §§ 12A-16F (Massachusetts Oceans Sanctuary Act) as amended by St. 2008, c. 114 (Massachusetts Oceans Act). These regulations implement, administer, and enforce M.G.L. c. 21A, § 4C and the Ocean Management Plan, developed and promulgated in accordance with the Massachusetts Oceans Act. In accordance with St. 2008, c. 114, § 23 and with the federal Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) and implementing regulations at 15 CFR §§ 923 and 930, enforceable standards of the Ocean Management Plan form part of the Massachusetts Coastal Zone Management Program and shall be interpreted and applied in a manner consistent with 301 CMR 20.00.

(2) 301 CMR 28.00 is promulgated by the Secretary to fulfill, in part, the statutory responsibility for the oversight, coordination, and planning for ocean waters and ocean-based development in the Commonwealth. The Massachusetts Oceans Act requires the Secretary to develop and implement an integrated ocean management plan for a specified Ocean Management Planning Area. The purpose of 301 CMR 28.00 is also to define, interpret, and clarify the procedures and rules necessary for agencies to carry out responsibilities under the Massachusetts Oceans Act, M.G.L. c. 21A, § 4C, and M.G.L. 132A, §§ 12A-16F. Pursuant to statutory directive, the Ocean Management Plan establishes management areas and standards for certain

Activities allowed under M.G.L. c. 132A, §§ 15-16 within the Ocean Management Planning Area. The Activities subject to the Ocean Management Plan are governed by siting and performance standards, associated with mapped resources and uses, that direct development away from areas with important and high value resources and water-dependent uses. 301 CMR 28.00 establishes the procedures and requirements necessary to interpret, implement, administer, and enforce M.G.L. c. 21A, § 4C and the Ocean Management Plan, including provisions to:

(a) Codify the jurisdiction, management areas, and standards developed by the Ocean Management Plan;

(b) Establish procedures for assessing the Ocean Development Mitigation Fee, pursuant to M.G.L. c. 132A § 18;

(c) Develop provisions for the review of the Ocean Management Plan and its baseline assessment and enforceable measures;

(d) Define the process for making updates or amendments to the Ocean Management Plan; and

(e) Ensure regulatory consistency for pertinent agency decisions regarding ocean development.

(3) Nothing in the Ocean Management Plan or 301 CMR 28.00 shall be construed to supersede existing general or special laws, or to confer rights and remedies in addition to those conferred by existing general or special laws.

28.02: Definitions

Activities means activities, uses or facilities allowed under M.G.L. c. 132A §§ 15 and 16.

Agency means any agency, department, board, commission, or authority of the Commonwealth.

Cables means linear infrastructure for the transmission of telecommunications or electricity.

Commercial Scale Wind Energy means wind energy projects of a scale designed for the generation of energy at commercial scale; that is, greater than wind energy projects for an individual community or subset thereof. Commercial scale wind energy facilities are those that are larger than the community-scale allocations contained in the Ocean Management Plan.

Commercial Scale Tidal Energy means tidal energy facilities at scale greater than could be authorized by the Federal Energy Regulatory Commission (FERC) as a

pilot project under FERC's Hydrokinetic Pilot Project Licensing Process described in the April 2008 *Licensing Hydrokinetic Pilot Projects* White Paper.

Community Scale Wind Energy means wind energy projects of a scale designed to provide energy for an individual community or communities. Community Scale Wind Energy Facilities must conform to the maximum allocation of turbines that may be approved within the areas of the coastal Regional Planning Agencies as contained in the Ocean Management Plan.

Concentrations of Water-dependent Uses means areas described and mapped in the Ocean Management Plan, as may be updated or amended, where the intensity of marine-based commercial and recreational fishing, commercial shipping and navigation, and recreational boating uses are significant. Maps of the Concentrations of Water-dependent Uses and the methods utilized for developing them are available on the Massachusetts Ocean Resources Information System.

Environmental Impact Report means an Environmental Impact Report, or EIR, as defined and used in 301 CMR 11.00: *MEPA Regulations*.

Environmental Monitor means the publication, titled the *Environmental Monitor*, issued by the Executive Office of Energy and Environmental Affairs to provide information on projects under review by the MEPA office, recent MEPA decisions, and other public notices from Agencies. The URL for the online version of the *Environmental Monitor* is http://www.env.state.ma.us/mepa/emonitor.aspx.

Environmental Notification Form means an Environmental Notification Form, or ENF, as defined and used in 301 CMR 11.00: *MEPA Regulations*.

Host Community means any town or city in which all or part of a renewable energy Activity's energy generating facilities (i.e., turbines not cables) are located.

Massachusetts Ocean Resources Information System means the online geographical information system (GIS) data base and mapping tool managed by the Office of Coastal Zone Management. All of the maps and GIS data contained in the Ocean Management Plan are maintained and available in digital format on the Ocean Management Plan Data site of the Massachusetts Ocean Resources Information System. The URL for is http://maps.massgis.state.ma.us/map_ol/mass_ocean_plan.php.

MEPA means the Massachusetts Environmental Policy Act, M.G.L. c. 30, §§ 61 through 62H and regulations at 301 CMR 11.00: *MEPA Regulations*.

Ocean Advisory Commission means the advisory commission established by the Oceans Act for the purpose of assisting the Secretary in the development of an Ocean Management Plan. Membership and other terms are defined in M.G.L. c. 21A, § 4C(c)(i) through (iii).

Ocean Management Plan means the Massachusetts Ocean Management Plan developed and promulgated pursuant to St. 2008, c. 114 and M.G.L. c. 21A, § 4C and as updated and amended.

Ocean Management Planning Area means the waters and associated submerged lands of the ocean, including the seabed and the soil, lying between a line designated as the "Nearshore Boundary of the Ocean Management Planning Area" and the seaward boundary of the Commonwealth, as defined in 43 U.S.C. § 1312. The "Nearshore Boundary of the Ocean Management Planning Area" is depicted on a map dated January 31, 2006, prepared by the Office of Coastal Zone Management, and available on the Massachusetts Ocean Resources Information System, that constitutes the landward boundary of the Ocean Management Planning Area.

Ocean Science Advisory Council means the council established by the Oceans Act for the purpose of assisting the Secretary in creating a baseline assessment and obtaining other scientific information necessary for the development of the Ocean Management Plan. Membership and other terms are defined in M.G.L. c. 21A, § 4C(d).

Person means any individual, corporation, partnership, trust, association, or other business or nonprofit organization, or any Federal, municipal, or regional governmental, intergovernmental or other entity that is not an Agency.

Pilot Tidal and Wave Energy Project means a tidal and wave energy (or hydrokinetic) facility at a scale that could be authorized by the Federal Energy Regulatory Commission (FERC) as a pilot project under FERC's Hydrokinetic Pilot Project Licensing Process described in the April 2008 *Licensing Hydrokinetic Pilot Projects* White Paper.

Pipeline means linear infrastructure for the conveyance of such materials as natural gas.

Proponent means any Agency or Person, including a designee or successor in interest, that undertakes, or has a significant role in undertaking, an Activity.

Regional Planning Agency means, for the purposes of these regulations, one of the six coastal regional planning organizations established pursuant to statewide enabling legislation that help communities plan and implement short- and long-range improvements for transportation, economic development, environmental, land use, and community development needs. The six coastal regional planning organizations are: the Cape Cod Commission, the Martha's Vineyard Commission, the Merrimack Valley Planning Commission, the Metropolitan Area Planning Council, the Nantucket Planning and Economic Development Commission, and the Southeastern Regional Planning and Economic Development District.

Renewable Energy Activities means wind, tidal, or wave energy projects allowed under M.G.L. c. 132A §§ 15-16 and includes Commercial Scale Wind Energy, Commercial Scale Tidal Energy, Community Scale Wind Energy, Pilot Tidal and Wave Energy, and Test or Demonstration-Scale Renewable Energy Projects.

Sand and Gravel Extraction means the activity of removing sand or gravel from the seabed and subsoil for the purpose of beach restoration, nourishment or shore protection.

Secretary means the Secretary of the Executive Office of Energy and Environmental Affairs.

Special, Sensitive or Unique Resources means special, sensitive or unique estuarine and marine life and habitats, pursuant to St. 2008, c. 114 and M.G.L. c. 21A, § 4C. Special, Sensitive or Unique Resources are described and mapped in the Ocean Management Plan, as may be updated or amended. Maps of the Special, Sensitive or Unique Resources and the methods utilized for developing them are available on the Massachusetts Ocean Resources Information System.

Test or demonstration-scale renewable energy projects mean wind, tidal, or wave energy projects of a limited scale designed to pilot, test, and demonstrate renewable energy technology.

28.03: Jurisdiction

(1) Areas Subject to Jurisdiction.

(a) Activities listed in 301 CMR 28.03(2) that occur in all or part of the Ocean Management Planning Area are subject to jurisdiction.

(2) Activities Subject to Jurisdiction.

(a) Any Person engaged in the following Activities shall comply with the siting and performance standards set forth in 301 CMR 28.04: Renewable Energy, Sand and Gravel Extraction, Cables, and Pipelines.

(b) Within the Ocean Management Planning Area, the Ocean Management Plan standards apply to Activities that are required to file an Environmental Impact Report.

(c) Proponents of Activities that exceed Environmental Notification Form thresholds are required to document any potential impacts to Special, Sensitive and Unique Resources or areas of Concentrations of Water-dependent Uses.

(d) The Ocean Management Plan may be amended to include other Activities allowed under M.G.L. c. 132A, §§ 15 and 16 pursuant to 301 CMR 28.07.

(e) Upon written request, the Secretary or his or her designee will provide Proponents, Persons, or Agencies with a written advisory opinion regarding the applicability of the Ocean Management Plan or 301 CMR 28.00.

(f) Activities that are allowable pursuant to M.G.L. c. 132A §§ 15 and 16 and that are not required to develop an Environmental Impact Report are presumed to meet the standards in 301 CMR 28.04.

(3) Protected Resources and Uses.

(a) The Ocean Management Plan identifies key components of Massachusetts estuarine and marine ecosystems, defined as Special, Sensitive or Unique Resources, and establishes standards to protect them. The Ocean Management Plan also establishes management guidance for balancing potential impacts to areas with Concentrations of Water-dependent Uses with new Activities in the Ocean Management Planning Area. The standards for protected resources and uses are contained in 301 CMR 28.04.

(b) Maps developed in the Ocean Management Plan and maintained in the Massachusetts Ocean Resources Information System delineate the areas of defined Special, Sensitive or Unique Resources and Concentrations of Water-dependent Uses. These maps shall be used to ensure that the standards in 301 CMR 28.04 are met. Additional information, including more accurate characterization or delineation of Special, Sensitive or Unique Resources and Concentrations of Water-dependent Uses, may be required pursuant to a Secretary's MEPA certificate. This additional information and other information made available during MEPA review will be utilized in the review and authorization of proposed Activities.

(4) Activities and Resources not subject to Ocean Management Plan jurisdiction.

(a) Pursuant to M.G.L. c. 130 and any other applicable general or special law, the Division of Marine Fisheries shall have sole responsibility for developing and implementing any fisheries management plans or fisheries regulations. Marine fisheries shall be managed in compliance with the applicable rules and regulations of the Division of Marine Fisheries and federal or interstate fishery management plans issued pursuant to M.G.L. c. 130 or any other applicable general or special law and shall be integrated, to the maximum extent practicable, with the Ocean Management Plan.

(b) Maps and information contained in the Ocean Management Plan will assist the Division of Marine Fisheries in the review of proposed Aquaculture Facilities pursuant to 322 CMR 15.00: *Management of Marine Aquaculture*.

28.04: Management Areas and Standards

(1) Management areas. Within the Ocean Management Planning Area, the following management areas are defined in the Ocean Management Plan:

(a) Prohibited areas. Areas where Activities are expressly prohibited by either the Ocean Sanctuaries Act or Ocean Management Plan.

(b) Wind Energy Areas. Areas suitable and presumptively allowed for commercial-scale wind energy facilities and other renewable energy Activities subject to standards and conditions contained in the Ocean Management Plan and these regulations.

(c) Multi-use Areas. Areas, including portions of state waters not identified as Ocean Sanctuaries pursuant to the M.G.L. c. 132A § 13(a), where Activities allowed under the Ocean Sanctuaries Act are subject to the standards and conditions contained in the Ocean Management Plan and 301 CMR 28.00.

(2) Management Standards for Special, Sensitive or Unique Resources. The following standards apply only to those Activities that are required to file an Environmental Impact Report pursuant to MEPA:

(a) Activities proposed in the Ocean Management Planning Area are presumptively excluded from the Special, Sensitive or Unique Resource areas delineated on maps contained in the Ocean Management Plan and maintained in the Massachusetts Ocean Resources Information System.

(b) This presumption may be overcome by demonstrating to the Secretary that:

1. The maps delineating the Special, Sensitive or Unique Resources do not accurately characterize the resource based on substantial site-specific information collected in accordance with data standards and processes contained in 301 CMR 28.08; or

2. No less environmentally damaging practicable alternative exists. For the purposes of this standard, an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics with respect to the purpose of the Activity; and,

3. The Proponent has taken all practicable measures to avoid damage to Special, Sensitive or Unique Resources, and the Activity will cause no significant alteration Special, Sensitive, or Unique Resources. Demonstrating compliance with this standard may include the incorporation of measures to avoid resources and impacts through time of year controls such that the construction, operation, or removal of the Activity will not occur when the Special, Sensitive or Unique Resource is present or may be adversely effected; and,

4. The public benefits associated with the proposed Activity outweigh the public detriments to the Special, Sensitive or Unique Resource.

(3) Management Standards for Concentrations of Water-dependent Uses. The following standard applies only to those Activities which are required to develop an Environmental Impact Report pursuant to MEPA. To the maximum extent practicable, Proponents of Activities must avoid, minimize, and mitigate impacts to areas of Concentrations of Water-dependent Uses delineated on maps developed in the Ocean Management Plan and maintained in the Massachusetts Ocean Resources Information System.

(4) Additional Management Standards for Renewable Energy Activities. The following standards apply to Renewable Energy Activities:

(a) Pursuant to M.G.L. c. 132A, § 15, a Regional Planning Agency shall define the appropriate scale of offshore renewable energy Activities and review such Activities as developments of regional impact in municipalities where Regional Planning Agencies have regulatory authority. A Proponent may seek review of the Regional Planning Agency's development of regional impact determination, but not its determination of appropriate scale, pursuant to M.G.L. c. 164 §§ 69K through 69O.

(b) For Commercial Scale Wind Energy Activities, the following standard applies. For Activities not subject to review by Regional Planning Agencies with regulatory authority as developments of regional impact, appropriate scale shall be determined by the Secretary in consultation with the Host Community and shall include consideration of economic benefits that the Host Community must receive from the Commercial Scale Wind Energy Activity.

(c) For Community Scale Wind Energy Activities, the following standard applies. The Ocean Management Plan lists the maximum number of turbines allocated for Community-Scale Wind Energy Activities within each Regional Planning Agency's planning area. The maximum allocation may be raised by the Secretary based on a demonstration by a Regional Planning Agency that the existing cap for a community-scale wind energy facility is not economically viable or that raising the allocation will cause no significant impact to appropriate scale interests.

(d) For Community-Scale Wind and Pilot Wave or Tidal Activities, the following standards apply:

1. For Activities not subject to review by Regional Planning Agencies with regulatory authority as developments of regional impact, appropriate scale shall be determined by the Secretary in consultation with the Host Community.
2. Proponents of Activities must demonstrate that the Host Community formally supports the project. Such support may be demonstrated by a letter from the town's Board of Selectman, or the city's Mayor or City Council; and,
3. Proponents of Activities other than test or demonstration-scale renewable energy projects must provide an economic benefit to the Host Community.

28.05: Consistency of Agency Authorizations

(1) It shall be the responsibility of all Agencies to ensure that all certificates, licenses, permits and approvals for any proposed Activities in the Ocean Management Planning Area and subject to the jurisdiction of the Ocean Management Plan, as contained in 301 CMR 28.03, are consistent, to the maximum extent practicable, with the provisions of said plan.

(2) In issuing licenses, permits and approvals for the Activity, Agencies shall act consistently, to the maximum extent practicable, with the Secretary's findings and determinations contained in a MEPA certificate, including as they may apply to the Activity's compliance with the management standards contained in 301 CMR 28.04(2). An Agency may also rely upon such findings and determinations of the Secretary when reviewing and taking action on an application or request by a proponent for a license, permit or approval from the Agency for the Activity.

(3) An Agency shall include a determination in its § 61 findings pursuant to MEPA, that all feasible measures have been taken such that its approval of the Activity is consistent with the Ocean Management Plan and 301 CMR 28.00. The Agency shall specify any measures required to achieve consistency, the Person or Agency

responsible for funding and implementing such measures, and the anticipated implementation schedule that will ensure that the measures shall be implemented prior to, or when appropriate, in relation to timing of unavoidable impacts.

28.06: Ocean Development Mitigation Fee

(1) Any Activity subject to the jurisdiction of the Ocean Management Plan and these regulations and requiring a permit or license issued by a department, division, commission, or unit of the Executive Office of Energy and Environmental Affairs and other affected agencies or departments of the commonwealth shall be subject to an Ocean Development Mitigation Fee as established by the Secretary. The purpose of the fee is to compensate the Commonwealth for unavoidable impacts of ocean development Activities on the broad public interests and rights in the lands, waters, and resources of the Ocean Planning Area and to support the planning, management, restoration, or enhancement of marine habitat, resources, and uses pursuant to the Massachusetts Oceans Act. No portion of the fee assessed by the Secretary shall be based on the Activity requiring a commercial or recreational fishing permit or license.

(2) All fees assessed by the Secretary shall be deposited in the Ocean Resources and Waterways Trust pursuant to M.G.L. c. 10, § 35HH and shall be administered in accordance with the purposes of the Fund and guidelines established by the Secretary.

(3) Under 301 CMR 28.06, the Secretary shall promulgate a fee structure for ocean development Activities subject to the Ocean Management Plan and 301 CMR 28.00. The Ocean Development Mitigation Fee should reflect differences in the scope and scale of Activities and their effects on protected resources or uses.

(4) The Ocean Development Mitigation Fee as determined by 301 CMR 28.06(3) will be listed in the final MEPA certificate.

(5) Nothing in 301 CMR 28.06 shall modify or otherwise affect an Agency's independent authority to require the Proponent to provide mitigation or compensation in *lieu* of mitigation as a condition of a permit or license issued by the Agency for the Activity.

28.07: Standards for Plan Review, Amendments, and Updates

(1) Consistent with M.G.L. c. 21A, § 4C, the development and revision of the Ocean Management Plan is the authority and responsibility of the Secretary. The Office of

Coastal Zone Management will support the Secretary, and act on his or her behalf as delegated, in the administration, implementation, and oversight of the Ocean Management Plan and 301 CMR 28.00.

(2) The Secretary shall ensure that the Ocean Management Plan, its baseline assessment, and the enforceable provisions of relevant statutes and regulations are reviewed at least once every five years.

(3) The scope of such review will be determined by the Secretary in consultation with the Ocean Advisory Commission and the Ocean Science Advisory Council.

(4) The following changes to the Ocean Management Plan shall be made only through an amendment:

(a) The revision of existing or the creation of new management area locations or boundaries, excepting minor adjustments;
(b) The substantial revision of existing or the creation of new management standards;
(c) The identification of new or removal of current protected Special, Sensitive, or Unique Resources;
(d) The identification of new or removal of current protected areas of Concentrations of Water-dependent Uses; or,
(e) Other changes that would result in significant alteration to the management framework or geographic extent of the plan.

(5) The Secretary will conduct the review and amendment process in accordance with the following guidelines:

(a) The plan amendment process will be initiated with a public notice in the *Environmental Monitor* announcing the intent to review and amend the current Ocean Management Plan.
(b) Public hearings will be held to receive input on the content and implementation of the current Ocean Management Plan. Generally, a hearing will be held in the each of the following regions: North Shore, Metro Boston, South Shore, Cape and Islands, and South Coastal.
(c) The Secretary will consult with the Ocean Advisory Committee in determining the scope of the plan amendment and in the development of amendments pursuant to said scope.
(d) The Secretary will consult with the Ocean Science Advisory Council in determining the scope of the updated baseline assessment scope and in the review of science related to the plan amendment scope.
(e) The Secretary will make a draft of the plan amendment available in electronic and printed copy form for public comment. Public hearings will be

held on the draft amended plan. The public comment period will remain open for a minimum of 60 days after the last hearing.

(f) After the close of the public comment period, the Secretary will promulgate a final amended Ocean Management Plan and will file the plan with the House of Representatives and Senate clerks.

(g) 301 CMR 28.00 will be revised as necessary to implement, administer and enforce M.G.L. c. 21A, § 4C and the Ocean Management Plan.

(6) Distinct from an amendment to the Ocean Management Plan, updates are revisions to the plan intended for proposed changes necessary for effective and efficient administration but not at the scope or scale of an amendment. The following changes to the Ocean Management Plan may be made through an update:

(a) Corrections to address errata, technical discrepancies or errors, or to clarify intent or meaning;

(b) Updated data and information on the spatial extent or further characterization of Special, Sensitive and Unique resources or Concentrations of Water-dependent Uses;

(c) Minor shifts in existing management area boundaries; and,

(d) Other adjustments that do not result in significant changes to the management framework or geographic extent of the Ocean Management Plan.

(7) The Secretary will conduct the update process in accordance with the following guidelines:

(a) Requests for an update by an Agency or Person will be submitted to the Secretary. Proposed updates must meet a confirmed need for adjustments to the plan or clarify the management or administrative framework of the current and any proposal for an update must include a clear summary statement and rationale for the purpose of the update.

(b) For a proposed update that pertains to new or updated data on Special, Sensitive, or Unique Resources or Concentrations of Water-dependent Uses, the update must conform with the data standards and processes contained in 301 CMR 28.08.

(c) The Secretary will seek input from Agencies and will consult with the Ocean Advisory Commission and the Ocean Science Advisory Council on the proposed update.

(d) The Secretary will provide for public notice in the *Environmental Monitor* of the intent to update the Ocean Management Plan upon a determination that the update meets the above criteria and will further the goals of the Ocean Management Plan. The public comment period will be at least 30

days. The Secretary may hold one or more public hearings on the proposed update.

(e) After the close of the public comment period, the Secretary will issue a final decision on the proposed update. This decision will be noticed in the *Environmental Monitor*.

28.08: Data Standards

(1) For Proponents seeking to demonstrate that the maps contained in the Ocean Management Plan do not accurately characterize the protected resource or use pursuant to 301 CMR 28.04 (2)(a)1, the following standards apply:

(a) Consultation with the Secretary, the Office of Coastal Zone Management, and other Agencies with expertise or authority is advised in order to review any proposed effort to map or otherwise characterize protected resources or uses.

(b) Information presented must be based on site-specific investigation or characterization that conforms with contemporary and accepted standards.

(2) For proposed updates to or the delineation of new areas of mapped Special, Sensitive and Unique Resources or Concentrations of Water-dependent Uses pursuant to 28.07, the following standards apply:

(a) Prior to initiating a proposed investigation or mapping effort, Persons or Agencies shall consult with the Secretary, the Office of Coastal Zone Management and other Agencies with expertise or authority to determine study requirements and data products.

(b) Any new or revised data set for Special Sensitive and Unique Resources or Concentrations of Water-dependent Uses should be based on site-specific studies that conform with contemporary and accepted standards, and adhere to other customary principles such as peer review.

(c) Any final data product must include acceptable geospatial meta-data, including the identification and description of any data modification or transformation, synthesis, or extraction.

28.99: Severability. If any section or clause of 301 CMR 28.00 is held invalid or unconstitutional by a court of competent jurisdiction, the remainder shall not be affected thereby.

Appendix 3 - Data Sources Used for Developing Potential Sand Resources Map

The comprehensive map of potential sand resources in Massachusetts waters and adjacent federal waters was derived from a number of U.S. Geological Survey (USGS) publications spanning 1987 to the present with one dataset originating from the Massachusetts Geological Survey. Using these maps, geologic units (a volume of rock or sediment of identifiable origin and age) representing deposits composed primarily of sand, formed by reworking of glacial deposits, were identified. These areas were then refined based on available surficial sediment data, seismic sub-bottom profiles, and sediment cores characterizing the deposits as medium- to coarse-grained sand. The age of the data are roughly equivalent to the confidence or assumed accuracy of the resource mapping (i.e., older work was reliant on acoustic data collection techniques that have now been superseded in both resolution and areal coverage).

The following data sources were used to create the potential sand resources map (listed by region):

- Salisbury to Ipswich - Mapped and refined geologic unit Qsrt (late Pleistocene-Holocene regressive-transgressive shoreline deposits) from the following publication:

  Hein, Christopher J., FitzGerald, Duncan M., Barnhardt, Walter A., and Stone, Byron D., 2013. Onshore-offshore surficial geologic map of the Newburyport East and northern half of the Ipswich Quadrangles, Massachusetts: Massachusetts Geological Survey Geologic Map GM 13-01, 3 sheets, www.geo.umass.edu/stategeologist/frame_maps.htm?./Products/Surficial_Geology/Newburyport_East/index.html.

- Massachusetts Bay - Mapped and refined geologic unit Qb (beach or bar deposits) shown on Figure 11 in the following publication:

  Oldale, Robert N., and Bick, Jennifer, 1987. Maps and seismic profiles showing geology of the inner continental shelf, Massachusetts Bay, Massachusetts: U.S. Geological Survey Miscellaneous Field Studies Map MF-1923, 4 sheets.

- Nahant to Northern Cape Cod Bay - Mapped and refined sediment thickness of geologic units Qmn (Holocene nearshore marine sediments) and Qmd (Holocene deepwater marine sediments) from the following publication:

Pendleton, Elizabeth A., Baldwin, Wayne E., Barnhardt, Walter A., Ackerman, Seth D., Foster, David S., Andrews, Brian D., and Schwab, William C., 2013. Shallow geology, seafloor texture, and physiographic zones of the Inner Continental Shelf from Nahant to northern Cape Cod Bay, Massachusetts: U.S. Geological Survey Open-File Report 2012-1157, 53 p., http://pubs.usgs.gov/of/2012/1157/.

- Cape Cod Bay - Mapped and refined geologic units Qb (beach deposits) and Qob (older beach or bar deposits) shown on Figure 12 in the following publication:

  Oldale, Robert N., and O'Hara, Charles J., 1990. Maps showing the geology of the inner continental shelf, Cape Cod Bay, Massachusetts: U.S. Geological Survey Miscellaneous Field Studies Map MF-2118, 4 sheets.

- Nantucket Sound - Mapped and refined geologic unit Qb (marine beach and bar deposits) shown on Figure 10 in the following publication:

  O'Hara, Charles J., and Oldale, Robert N., 1987. Maps showing geology, shallow structure, and bedform morphology of Nantucket Sound, Massachusetts: U.S. Geological Survey Miscellaneous Field Studies Map MF-1911, 4 sheets.

- Vineyard Sound - Mapped and refined sediment thickness of geologic units Qmn (Holocene nearshore marine sediments) and Qmd (Holocene deepwater marine sediments) from the following unpublished report in progress:

  Baldwin, Wayne E., Foster, David S., Pendleton, Elizabeth A., Barnhardt, Walter A., Schwab, William C., Andrews, Brian D., and Ackerman, Seth D. Shallow geology, sea-floor texture, and physiographic zones of Vineyard and western Nantucket Sounds, Massachusetts: U.S. Geological Survey Open-File Report. [in prep.]

- Buzzards Bay - Mapped and refined sediment thickness of geologic units Qfe (Holocene fluvial and estuarine sediments) and Qmn (Holocene nearshore marine sediments) from the following unpublished report in review:

  Foster, David S., Baldwin, Wayne E., Barnhardt, Walter A., Schwab, William C., Ackerman, Seth D., Andrews, Brian D., and Pendleton, Elizabeth A., Shallow geology, sea-floor texture, and physiographic zones of Buzzards Bay, Massachusetts: U.S. Geological Survey Open-File Report. [in prep.]

Appendix 4 - Initial Compatibility Assessment and Screening Analysis for Potential Offshore Sand Resource Areas

As described in Chapter 2, building on the work and approaches in the 2009 ocean plan, the 2015 ocean plan advances the planning for and siting of potential areas of sand resources for beach nourishment by conducting a preliminary compatibility and screening assessment to identify and map areas to avoid based on potential biological and physical environmental impacts, incompatibility and/or adverse interactions with existing uses and sites, and limitations and specifications of potential dredging operations.

To implement this approach, a preliminary map of sand resources that encompasses state waters and extends seven nautical miles seaward of the planning area was developed (Appendix 4 – Figure 1). First, areas with sand attributes from a surficial sediment dataset were extracted and then deposits composed primarily of sand, formed by reworking of glacial deposits, were identified based on geologic mapping by USGS, other published geologic maps, available seismic sub-bottom profiles, and sediment cores characterizing the deposits as medium- to coarse-grained sand. More information on the data sources used for developing potential sand resources map is contained in Appendix 3.

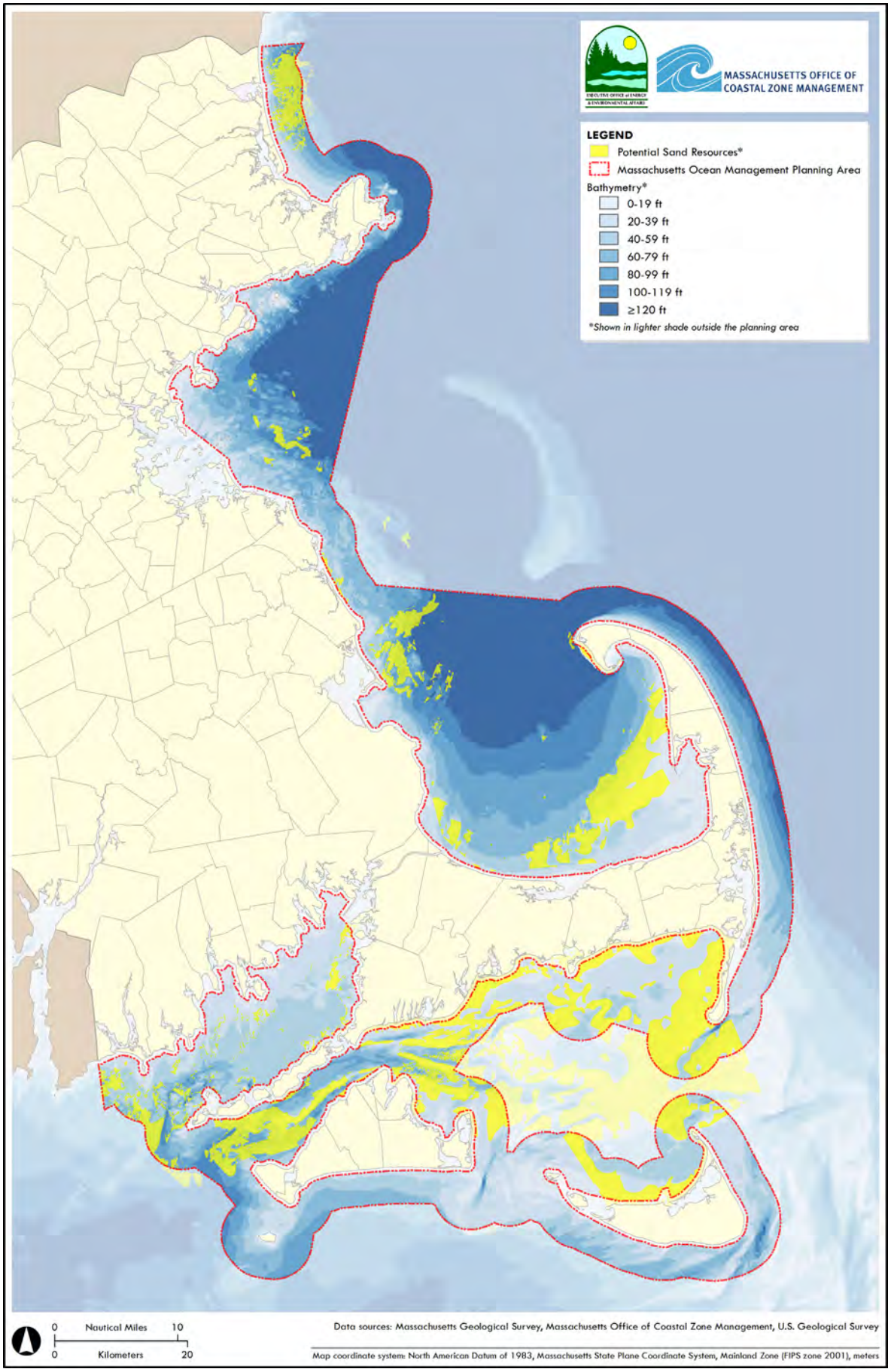
Based on an analysis of potential impacts, incompatibility and/or adverse interactions with existing uses and sites, as well as limitations and specifications of dredging operations, spatial data and information on special, sensitive and unique (SSU) resources, habitats and fisheries, navigation and transportation, infrastructure uses, and bathymetry were assembled and identified as areas to avoid for siting of potential offshore sand areas, Appendix 4 - Table 1 and Appendix 4 - Figure 2. This initial planning and siting work was conducted in order to identify potentially appropriate areas for further investigation, analysis and consultation, see Appendix 4 - Figure 3.

As described in Chapter 2, this initial compatibility assessment and screening analysis provides a framework for further work and consultations. An Offshore Sand Task Force will be convened to provide guidance and advice to the Executive Office of Energy and Environmental Affairs (EEA), the Ocean Advisory Commission, the Ocean Science Advisory Council, and the Coastal Erosion Commission on important aspects of this issue. Among its charges, the task force will review the preliminary compatibility and screening assessment conducted during the ocean plan amendment process and make

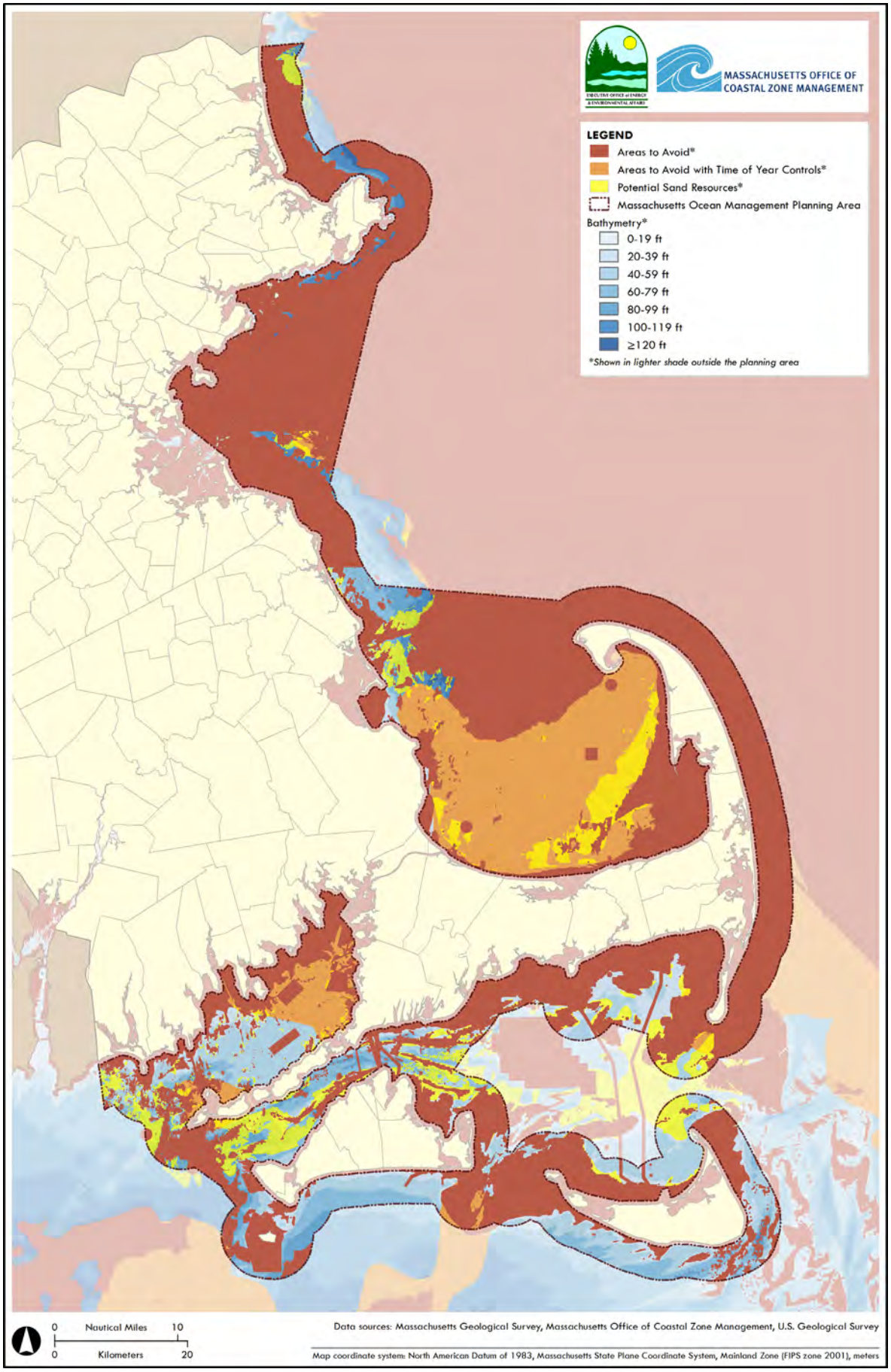
recommendations for any revisions. The task force will also identify existing spatial data and other information that can be integrated into the compatibility assessment and screening.

Appendix 4 - Table 1. Initial areas to avoid for siting of potential offshore sand areas

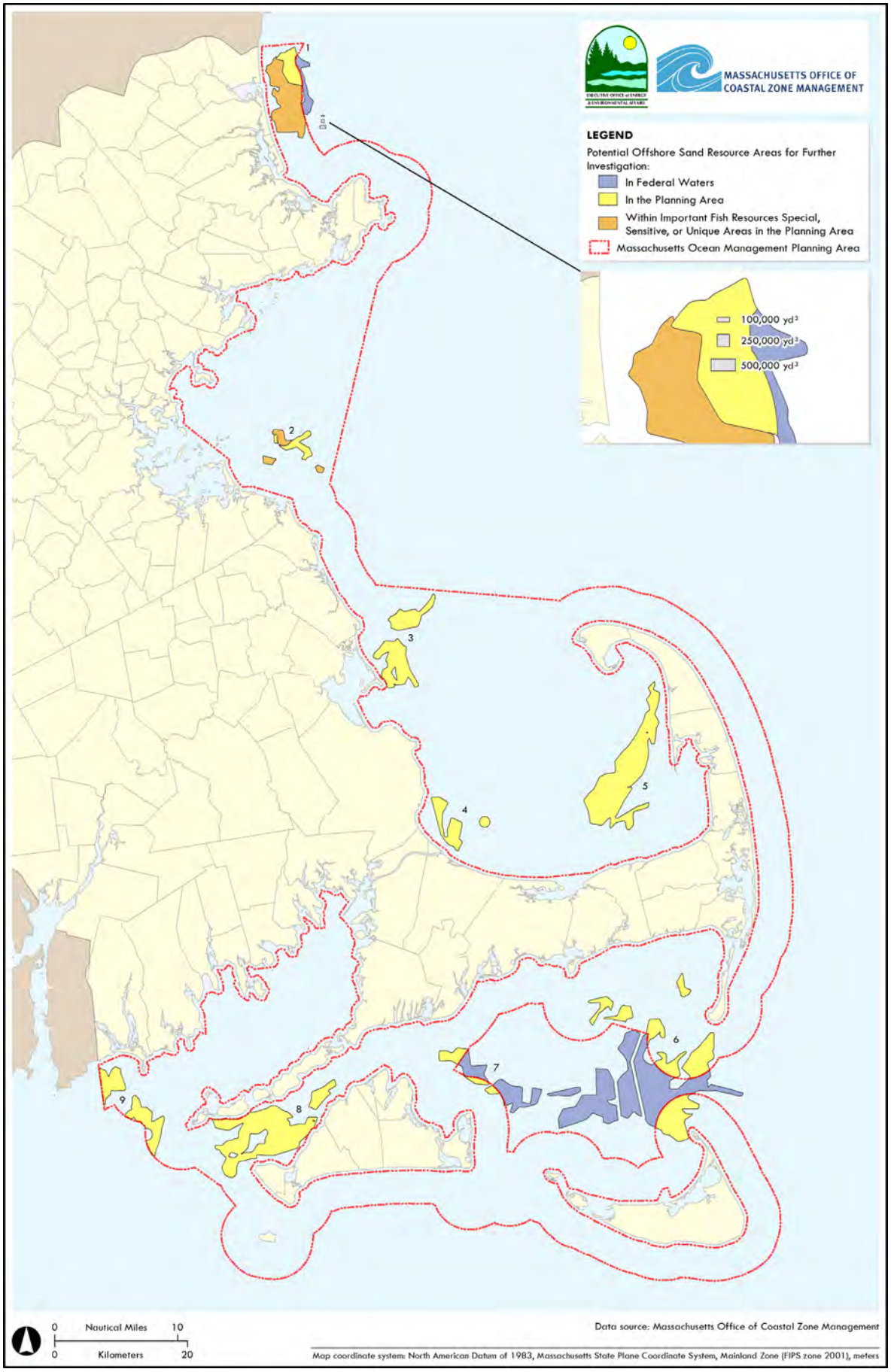
Category	Areas to avoid
Prohibited and Protected Areas	Cape Cod Ocean Sanctuary
	Stellwagen Bank National Marine Sanctuary
Special, Sensitive, or Unique (SSU) Resources	North Atlantic right whale core habitat*
	Humpback whale core habitat*
	Fin whale core habitat*
	Roseate Tern core habitat*
	Hard/complex seafloor
	Eelgrass
	Intertidal flats
	Important fish resources**
Critical Fisheries Management Areas	Winter Cod Conservation Zone
	Spring Cod Conservation Zone
Depth of Closure and Shoals	Areas of water depth <30 ft
Transportation and Navigation Uses	Anchorage areas (C, D, L, and M)
	Pilot boarding areas
Infrastructure Uses	Cable areas and existing cables with 250-m buffers
	Pipeline areas and existing pipelines with 500-m buffers
	Liquefied natural gas deepwater ports
Aquaculture Uses	Aquaculture sites
Areas to Avoid	Nomans Danger Zone
	Cape Wind lease area
	U.S. Army Corps of Engineers disposal sites
Areas of Operational Limitation	Water depth <16 ft (minimum draft of dredge when loaded) or >125 ft (maximum operating depth of dredge)
* Avoidance of these SSU areas can be met by the enforceable application of time of year controls (TOY) such that the activity will not occur when the SSU resource is present or may be adversely affected.	
** Areas of two delineated important fish resources SSU areas where significant sand resources may be present were identified for further analysis and consultations.	



Appendix 4 - Figure 1. Potential sand resources



Appendix 4 - Figure 2. Areas to avoid for initial compatibility assessment and screening analysis



Appendix 4 - Figure 3. Output of initial compatibility assessment and screening analysis identifying potential offshore sand resource areas for further investigation (labeled by number)

Appendix 5 - Compatibility Assessment and Screening Analysis for Offshore Wind Transmission Cable Corridors

As described in Chapter 2, building on the work and approaches in the 2009 ocean plan, the 2015 ocean plan employs a compatibility assessment, screening analysis, and optimization tool to identify potential transmission corridor routes for further characterization, investigation, and assessment work, with the goal of synchronizing transmission planning and siting with the next stages in the Bureau of Ocean Energy Management process, including leasing, site assessment, and National Environmental Policy Act analysis.

To implement this approach, the lease areas within the Massachusetts Wind Energy Area (MA WEA) and the Rhode Island/Massachusetts Wind Energy Area (RI/MA WEA), as delineated by BOEM, were used as the areas of origin, and the Canal Substation in Sandwich was identified as the target top-tier substation destination, based on information and analysis contained in Offshore Wind Transmission Study Final Report commissioned by the Massachusetts Clean Energy Center (MassCEC) (Appendix 5 - Figure 1). The MassCEC transmission report is available at: mapping.masscec.com.s3.amazonaws.com/MassCEC-OSW-Transmission-Study-2014.pdf.

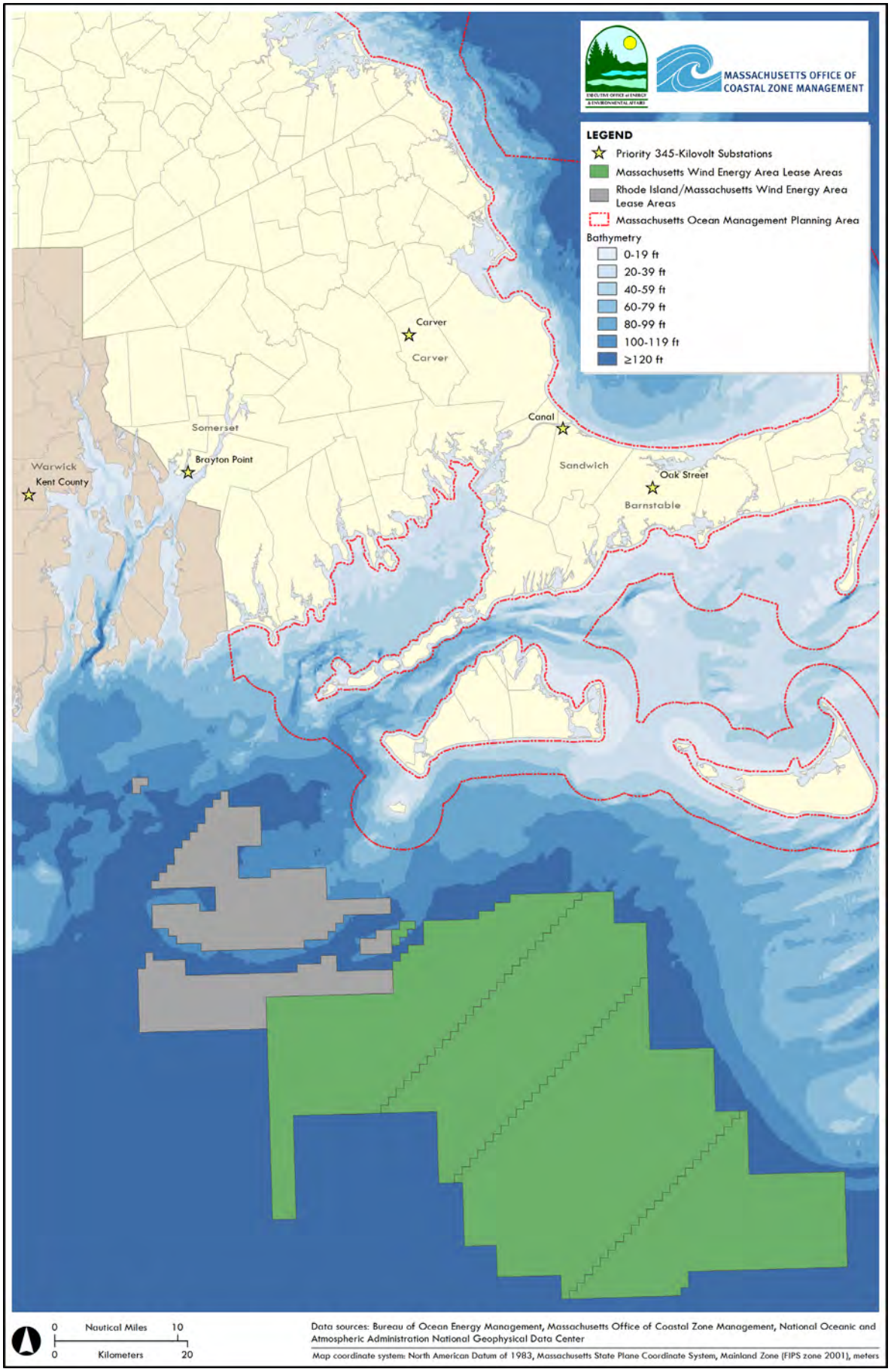
Based on an analysis of potential impacts, incompatibility and/or adverse interactions with existing uses and sites, as well as limitations and specifications of cable installation, spatial data and information on special, sensitive and unique (SSU) resources, habitats and fisheries, navigation and transportation, infrastructure uses, and bathymetry were assembled and identified as areas to avoid or areas of concern for siting of offshore wind transmission cable corridors, Appendix 5 - Table 1 and Appendix 5 - Figure 2.

An optimization analysis then generated routes that would steer clear of the areas to avoid, and the areas of concern where possible, while minimizing cable distance. Because potential landfall locations fall outside the Massachusetts Ocean Management Planning Area (planning area) and there are many available options (and therefore uncertainty) related to specific sites, the 2015 ocean plan focuses on the planning area and identifies routes that fall outside the areas to avoid. Based on the outputs, four 500-meter-wide corridors were mapped: (1) a northern route in Buzzards Bay, (2) a southern route in Buzzards Bay, (3) a route in Vineyard Sound, and (4) a route through Muskeget channel into the western part of Nantucket sound. In the corridor areas closer to the landward boundary of the planning area, the areas for further investigation were expanded to include wider planning area sections. The outputs of the analysis showing the areas to avoid, areas of concern, and preliminary areas for offshore wind transmission cables for further investigation are shown

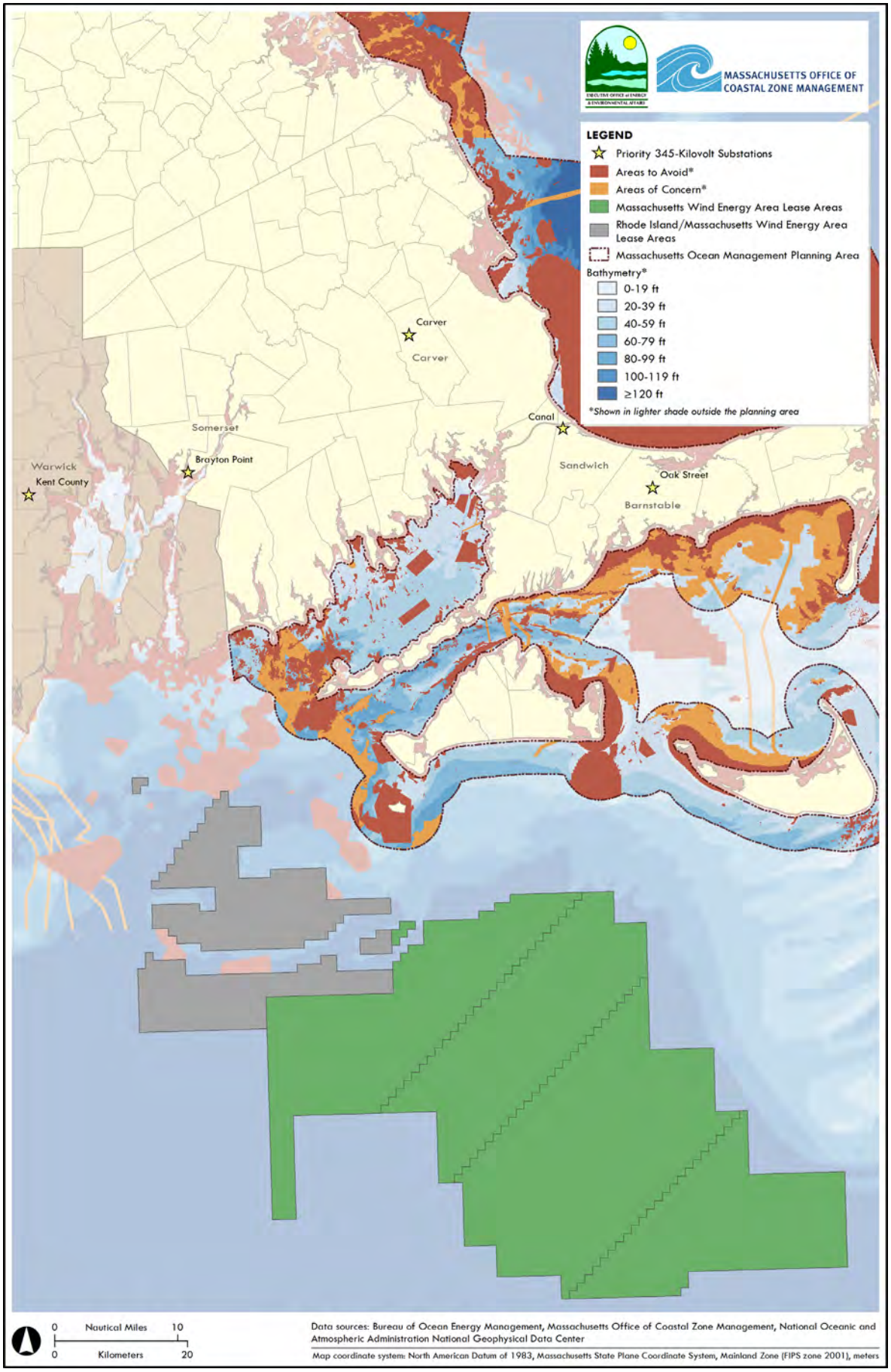
in Appendix 5 - Figure 3. Appendix 5 - Figure 4 shows a close-up. Appendix 5 - Figure 5 contains the preliminary areas for offshore wind transmission cable corridors.

Appendix 5 - Table 1. Areas to avoid and areas of concern for siting of potential offshore wind transmission cables corridors

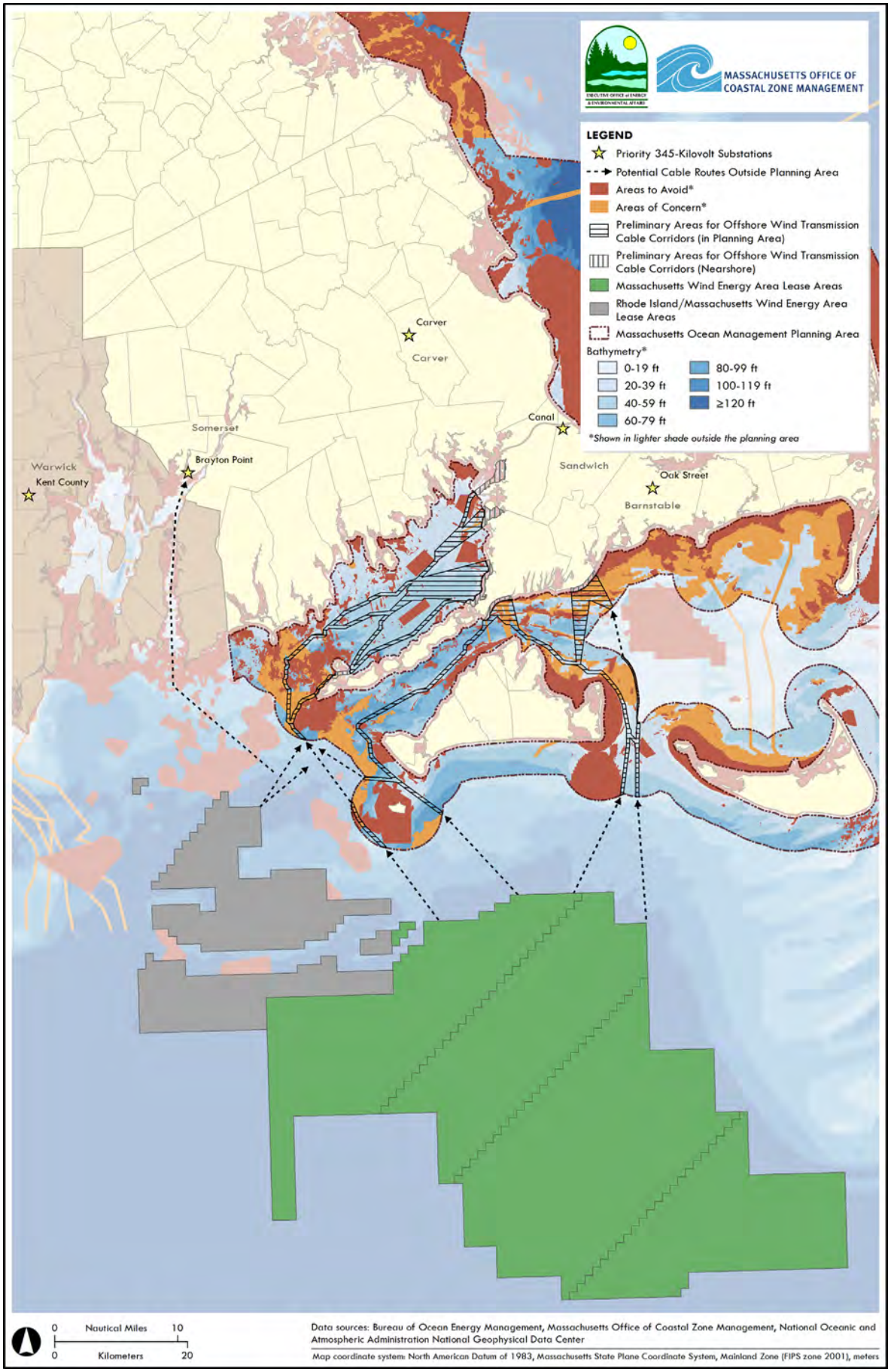
Category	Areas to avoid
Special, Sensitive, or Unique (SSU) Resources	North Atlantic right whale core habitat
	Humpback whale core habitat
	Fin whale core habitat
	Hard/complex seafloor
	Eelgrass
	Intertidal flats
Seafloor Substrate	Areas of rock from surficial sediment dataset
Transportation and Navigation Uses	Anchorage Areas (C, D, L, and M)
Aquaculture Uses	Aquaculture sites
Sites to Avoid	Nomans Danger Zone
	Cape Wind lease area
	U.S. Army Corps of Engineers disposal sites
Areas of Operational Limitation	Water depth <16 feet (limitations to cable installation vessels due to draft, currents, navigational hazards)
Category	**Areas of concern**
SSU Resources	Important fish resources
Infrastructure Uses	Cable areas and existing cables with 250-m buffers
	Pipeline areas and existing pipelines with 500-m buffers



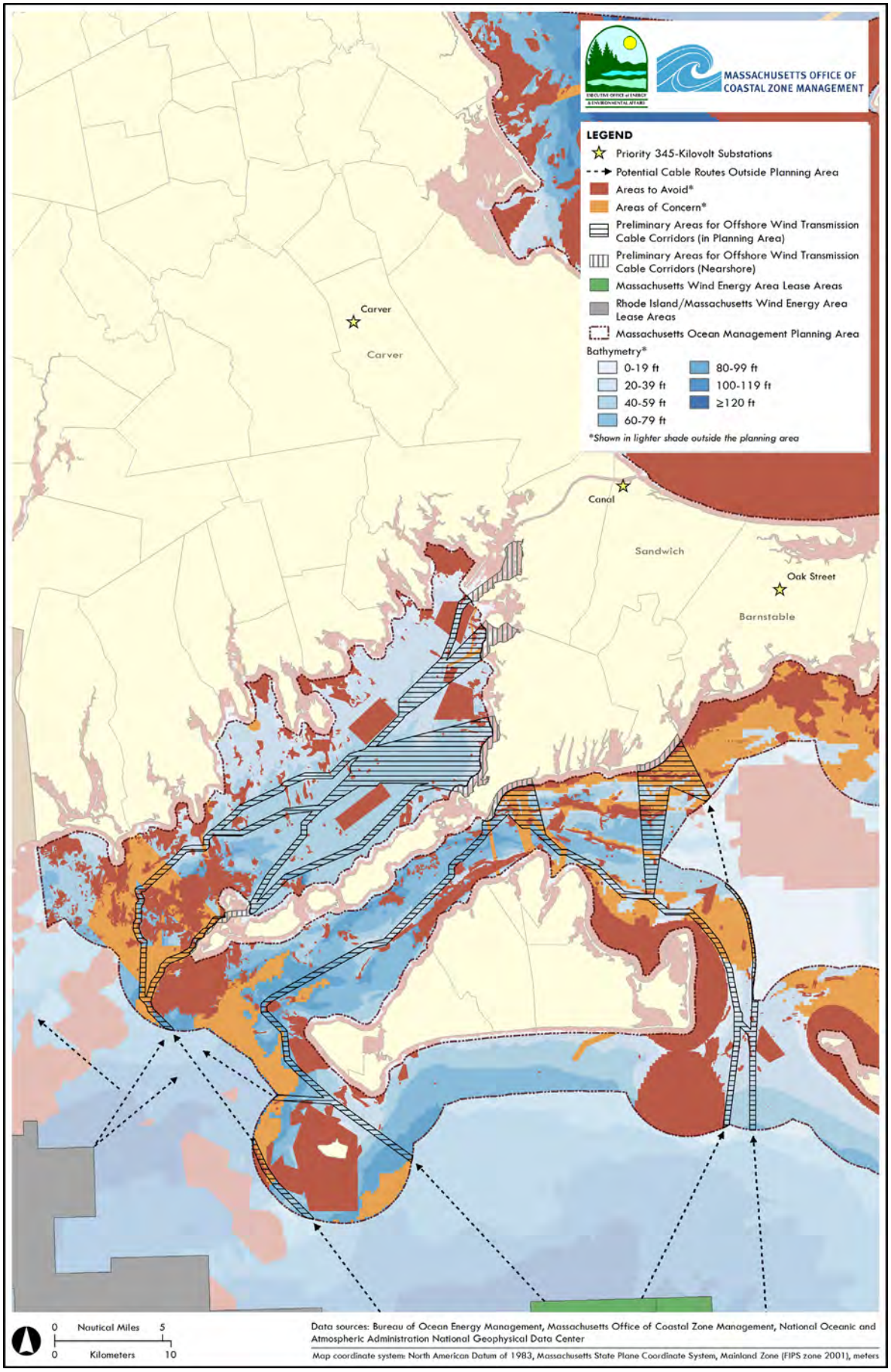
Appendix 5 - Figure 1. Lease areas within the federal Wind Energy Areas and priority 345-kilovolt substations



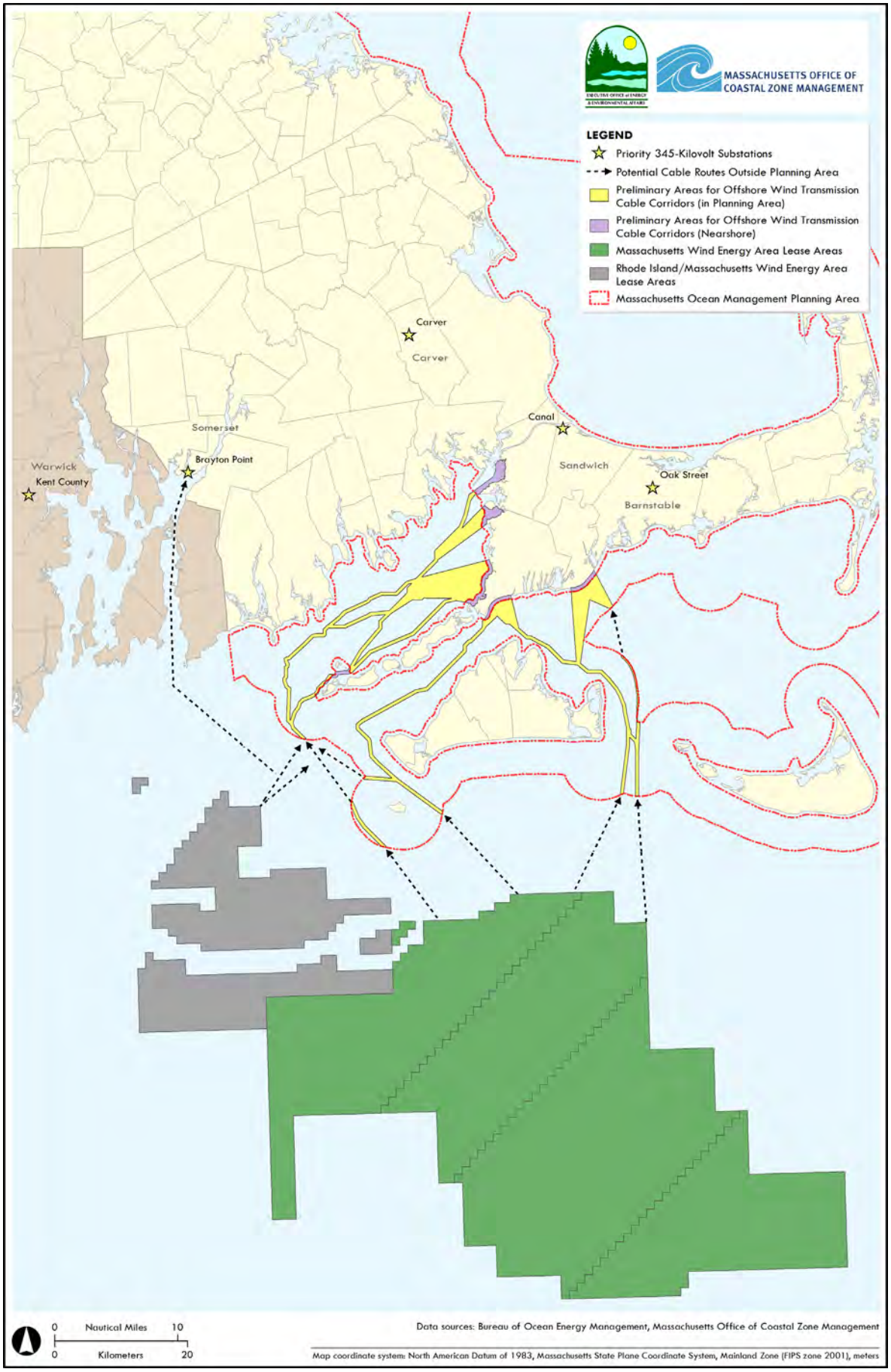
Appendix 5 - Figure 2. Areas to avoid and areas of concern for siting of potential offshore wind transmission cable corridors



Appendix 5 - Figure 3. Areas to avoid, areas of concern, and preliminary areas for offshore wind transmission cable corridors



Appendix 5 - Figure 4. Close-up of areas to avoid, areas of concern, and preliminary areas for offshore wind transmission cable corridors



Appendix 5 - Figure 5. Preliminary areas for offshore wind transmission cable corridors

Appendix 6 - Ocean Development Mitigation Fee

Background

Pursuant to the Ocean Act of 2008, projects subject to Ocean Management Plan and its implementing regulations at 301 CMR 28.00 shall be subject to an Ocean Development Mitigation Fee, as established by the Secretary. Section 301 CMR 28.06 states that the purpose of the fee is to:

- Compensate the Commonwealth for unavoidable impacts of ocean development projects on the broad public interests and rights in the lands, waters, and resources of the Ocean Planning Area; and
- Support the planning, management, restoration, or enhancement of marine habitat, resources, and uses pursuant to the Massachusetts Oceans Act (St. 2008, c. 114).

The Ocean Plan regulations require the Secretary to promulgate a fee structure for ocean development projects. The fee should reflect differences in the scope and scale of projects and their effects on protected resources or uses. The determination and application of the fee shall not modify or affect the requirement of a project proponent to provide mitigation (or compensation in lieu of mitigation) under separate authorities or as a condition of a separate permit or license.

With input from an advisory working group comprised of representatives from the regulated community (including an energy utility and a legal firm representative), commercial fishing and environmental interests, and state agencies, a proposed fee structure and accompanying guidance was developed. Chapter 3 of Volume 1 provides an overview of the proposed fee structure and its administration. This appendix contains more details and lists the proposed fee structure.

Fee Administration

- The fee serves to offset, in part, unavoidable impacts on the broad public interests and rights in the lands, waters, and resources of the Ocean Planning Area not otherwise mitigated under such separate authorities.

- Using the fee structure listed below as guidance, the project proponent will evaluate their project and provide information and analysis to inform the determination of the fee in the draft Environmental Impact Report (EIR) filing, or in the case of a single EIR, in the Expanded Environmental Notification Form (EENF).

- Information required by MEPA in an EIR submittal should be utilized to determine the proposed the fee class by project proponent. Such information includes the detailed description and analysis of:
    - The nature and location of the project;
    - Project alternatives;
    - Impacts of the project and its alternatives, including both short-term and long-term impacts for all phases and cumulative impacts;
    - Measures and management techniques to be taken to avoid, minimize, and mitigate potential impacts to the environment, water-dependent uses, and public trust interests;
    - Public benefits of the project, and other mitigation proposed, separate and distinct from the ocean development fee;
    - Proposed Section 61 Findings; and
    - Information for Public Benefits Determination, including nature of the tidelands affected by the project and the public benefit of the project.

- A proponent may request that the fee be paid over several years, but any such allowance shall not exceed a term of 10 years. A proponent may request a reduction or waiver of the fee based on a clear demonstration of need or hardship. The MEPA filing shall include a statement of the specific circumstances that constitute the need or hardship; and the relief requested.

- The Oceans Act and its implementing regulations state that commercial or recreational fishing permits and licenses are not subject to the fee.

- In comments on the MEPA EIR, agencies, stakeholders, and public may concur with the proponent's proposed fee class or advise a different class.

- Based on the MEPA filing; comments received; the evaluation of the proposed project and its effects, public benefits, and other mitigation proposed; and other information, the Secretary shall issue a determination of the final fee to be referenced in the final MEPA certificate.

- As administrator of the fee, the Secretary retains broad discretion in determining the fee amount and any conditions necessary to ensure that the "as-built" project is consistent with the project as described in the final MEPA EIR filing.

Fee Structure

The following schedule contains three classes of fee structure reflecting a hierarchy of projects based on their scope, extent, duration, and severity of impacts.

Activity Class	Project Scope, Scale, and Effects	Fee
Class I	• Project is limited in scale, size, footprint. • Project footprint generally less than 6 acres and project extent is generally confined to seafloor (i.e., does not also include or has only very minor footprint in water column, and water surface and space above). • Effects on habitat, natural resources, or water-dependent uses are generally negligible and limited in duration (i.e. primarily during construction/installation).	$10,000-$45,000
Class II	• Project is moderate in scale, size, footprint. • Project footprint generally between 6 – 20 acres and project extent may include limited water column, sea surface, or space above. • Effects on habitat, natural resources, or water-dependent uses are generally minor and may be more than temporary.	$85,000-$300,000
Class III	• Project is large and/or complex in scale, size, footprint. • Project footprint greater than 20 acres and project extent may include moderate/major water column, sea surface, or above. • Effects on habitat, natural resources, or water-dependent uses are generally moderate and may be re-occurring or continuous in duration.	$500,000-$5,000,000
Negligible - Effects are at the lowest levels of detection, barely measurable, with no perceptible adverse consequences to the resources. Minor - Effects are measurable or perceptible but are slight. Impacts are to very few resources. Most impacts to the affected resources are avoided or mitigate, and affected resources will recover quickly. Moderate - Effects are measurable and perceptible. Impacts are to more than a few resources. Impacts to the affected resources are unavoidable, and affected resources will recover.		

Appendix 7 - Ocean Resources and Waterways Trust Implementation Guidelines

[EEA Ocean Resources and Waterways Trust Implementation Guidelines; last modified: June 14, 2011]

Chapter 114 of the Acts of 2008 (the "Ocean Act") created a new Ocean Resources and Waterways Trust Fund (the "trust") in Section 35HH of MGL Chapter 10. The trust receives payments associated with projects subject to the Ocean Sanctuaries Act and Ocean Management Plan (ocean development mitigation fee) as well as other appropriations, grants, or investment income. The Ocean Act identifies the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) as trustee of the Trust and contains provisions pertaining to expenditures from the trust. The Massachusetts Ocean Management Plan provides additional guidance on the management of the trust. Based on the statutory requirements and Ocean Management Plan guidelines, these Ocean Resources and Waterways Trust Implementation Guidelines have been developed to direct the administration and management of the Trust.

I. Purpose

The trust was established by law for the purpose of accepting funds from projects subject to an ocean development mitigation fee and other appropriations, royalties, and grants to be used by the Commonwealth for managing, protecting, restoring and/or enhancing marine habitat, resources, and specified uses in state waters or adjacent ocean areas.

II. Trustee

The EEA Secretary serves as trustee of the trust. The Secretary may delegate certain trustee duties in order to assume or assist with elements of the trust administration and management. Such duties include, but are not limited to: project identification, planning, and implementation; recommendations for and approval of expenditures consistent with these guidelines; fiscal management and auditing; and reporting on progress of projects supported by the trust.

III. Ocean Management Plan

In addition to the designation of Trustee, the Ocean Act conferred the Secretary of EEA with the authority for oversight, coordination, and planning of the Commonwealth's ocean

waters, resources, and development and required the development of an integrated ocean management plan for the Commonwealth. Working with the Ocean Advisory Commission and the Ocean Science Advisory Council, an advisory body established in the Act to provide policy guidance, EEA developed specific strategies and targeted outcomes for the Ocean Management Plan, based on the goals of the Ocean Act. Along with integrated management and stewardship of marine ecosystems, a key principle for the ocean plan is to ensure that it can adapt to evolving knowledge and understanding of the ocean environment and its future uses. The ocean plan also provides a blueprint for ocean management-related science and research needs in Massachusetts. The blueprint, or Science Framework, was developed in consultation with the Ocean Advisory Commission and the Ocean Science Advisory Council, as well as public and stakeholder input, and identifies both long-terms goals and objectives as well as priority actions.

An interagency ocean management team was identified in the ocean plan to provide the Secretary with input and advice on ocean planning and management—including policy development, technical and scientific information and research, and regulatory decision-making. The interagency group is chaired by EEA's Office of Coastal Zone Management (CZM) and is comprised of personnel from CZM, the Department of Environmental Protection, the Department of Fish and Game, and the Massachusetts Environmental Policy Act Office.

IV. Trust Account

Pursuant to the Oceans Act, the trust was established as account #2000-0115 in the Massachusetts Management Accounting and Reporting System (MMARS). The effective date of the trust is May 28, 2008, the enabling date of the Ocean Act.

V. Deposits / Credits

The trust is eligible to receive revenue from appropriations or other funds authorized by specifically designated to be credited to the fund by the Legislature; other appropriations or grants that are explicitly directed to the fund; income derived from the investment of amounts credited to the fund; and payments resulting from any ocean development mitigation fee established pursuant to MGL c. 132A, section 18 or similar compensation/mitigation payments.

Checks for deposits/credits should be made out to *Commonwealth of Massachusetts - Ocean Resources and Waterways Trust Fund.*

VI. Trust Expenditure Criteria

The use of trust funds for proposed projects is subject to the following qualifications:

- No less than fifty percent of trust funds from renewable energy projects must be directed to the "host" community(ies) as defined in the ocean plan and implementing regulations. The host community(ies) must utilize such funds in a manner consistent with the provisions of these trust expenditure criteria.

- Trust funds are to be used for the restoration, enhancement, or management of marine habitat and resources impacted by the project. Within this framework, the following provisions apply:

    - Funds derived from impacts to public navigation by an ocean development project should be targeted to navigational improvements.

    - Funds derived from impacts to fisheries resources should be targeted to fisheries restoration and management programs.

- Other funds credited to the trust are to be used only for the purposes of environmental enhancement, restoration and management of ocean resources and uses generally consistent with the Act and the ocean plan.

- All approved expenditures from the trust shall follow all applicable Commonwealth procurement and finance laws, regulations, and guidelines. This would include direct procurement by EEA as well as fund transfers from EEA to another state agency via an Interagency Service Agreement.

VII. Trust Project Identification, Approval, and Implementation

As designated by EEA, CZM will lead the interagency ocean management group tasked with the review and approval of projects that are consistent with the expenditure criteria and will (1) advance the Commonwealth's identified ocean planning and management science, research, and informational needs such as those contained in the ocean plan and/or (2) restore, enhance, or manage the habitat and resources impacted by specific projects. In determining whether projects proposed for trust support are consistent with these Trust Implementation Guidelines, CZM will seek input on proposed projects from the interagency ocean management group. Such review will include an assessment of the following:

- Purpose – The proposed project's purpose must conform to the expenditure criteria above and must further an identified science, research, or informational need and/or must restore, enhance, or manage habitats and resources impacted by specific projects.

- Objectives – The project objectives, including the project's scope, methodology, tasks, and technology, must advance the stated goals of the ocean plan. Project objectives must exhibit technical and scientific merit.

- Deliverables – The products/outcomes/deliverables of the proposed project must demonstrate quantifiable benefits to improve the public use and protection of the Commonwealth's marine habitats and resources.

- Budget – The project must be cost-effective and represent a good value for the Commonwealth. Projects should seek to leverage financial resources from other sources or associations with sponsoring partners.

Based on the review of the proposed project, CZM will make a recommendation to the Secretary as to trust support for the proposed project. If approval from the Secretary or his designee is granted, the proposed project will move to final scoping, procurement of necessary services (if applicable) and implementation. A member of the interagency ocean management group will be designated as project manager and will be responsible for approving the final scope of work and outcomes/deliverables, overseeing the project through its completion, and reporting on progress and final results.

VIII. Tracking and Reporting

On behalf of the Secretary and in close coordination with EEA fiscal personnel, CZM will assume duties for monitoring trust deposits/credits and expenditures; as well as maintaining procurement/audit files.

CZM will maintain a registry of projects supported by the trust, with details on the budget, project purposes, primary tasks, and deliverables. This information will be shared with the Ocean Advisory Commission and the Ocean Science Advisory Council and made publicly available through EEA or CZM website or similar means. Additionally, since the trust projects are designed to advance ocean planning and management issues, CZM will include project summaries and updates in their regular communications (such as CZMail newsletter) as well as incorporating related content on relevant websites.

Volume 1 - Figures

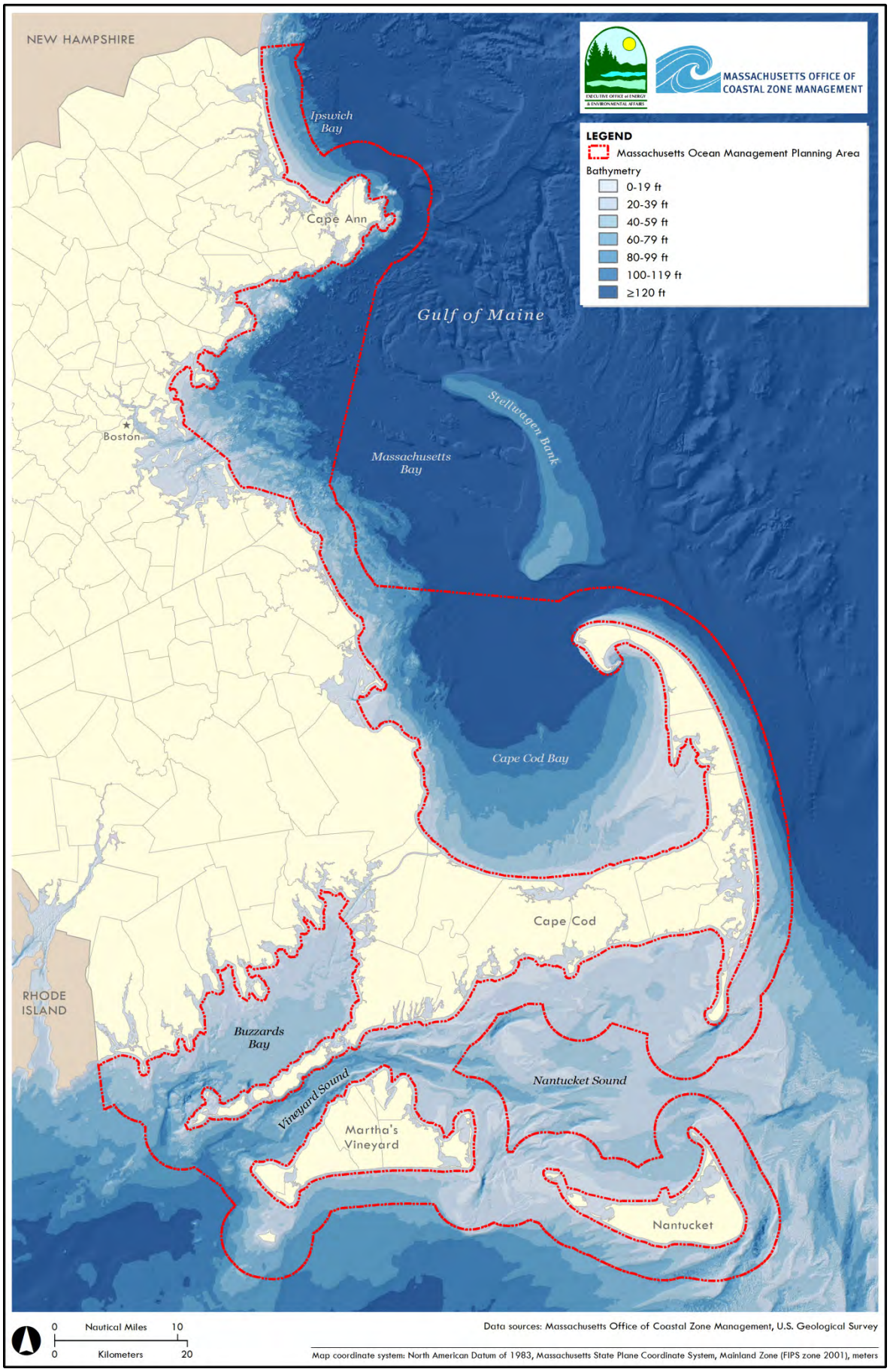


Figure 1. Massachusetts Ocean Management Planning Area

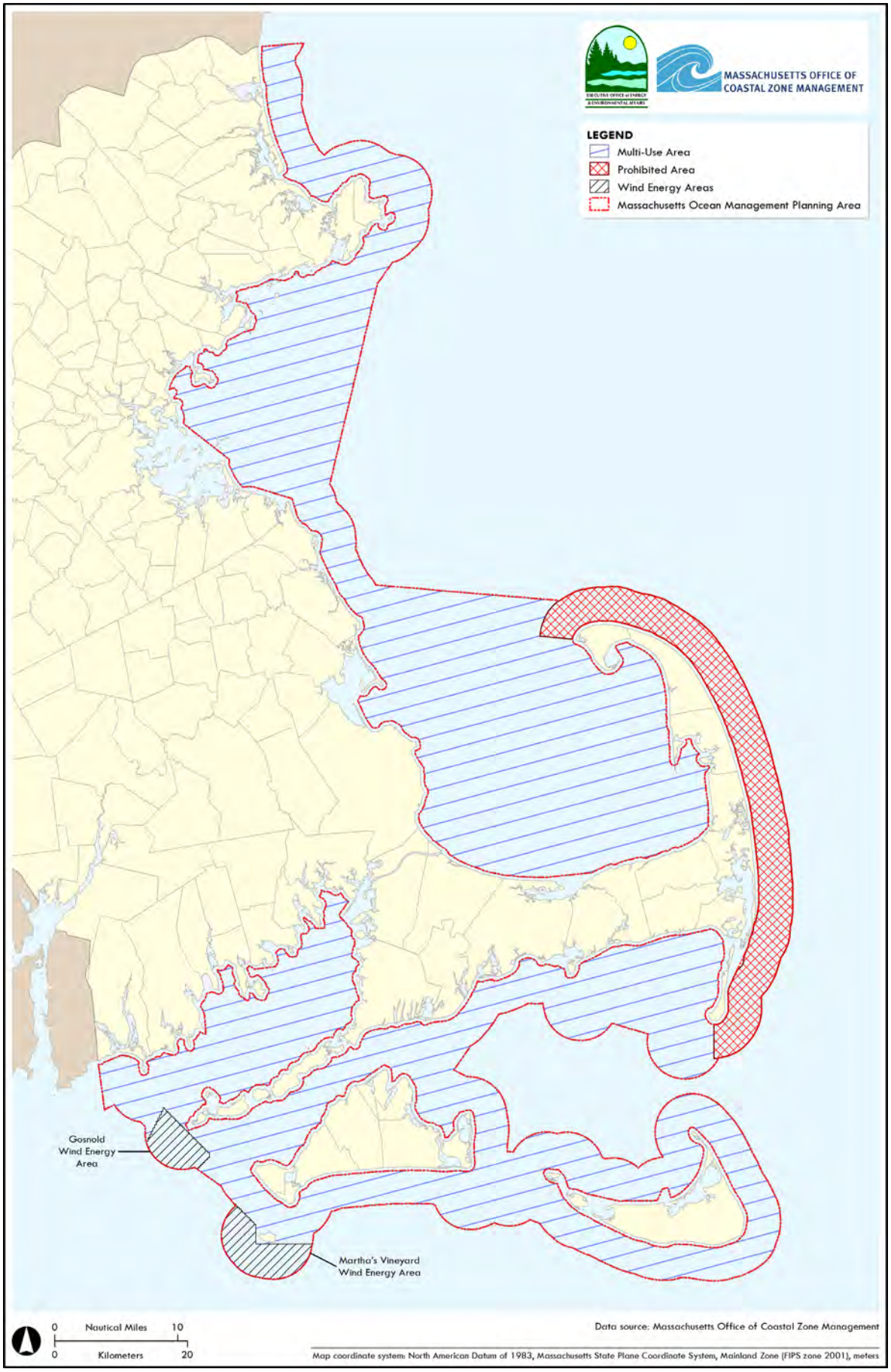


Figure 2. Management areas designated in the ocean plan

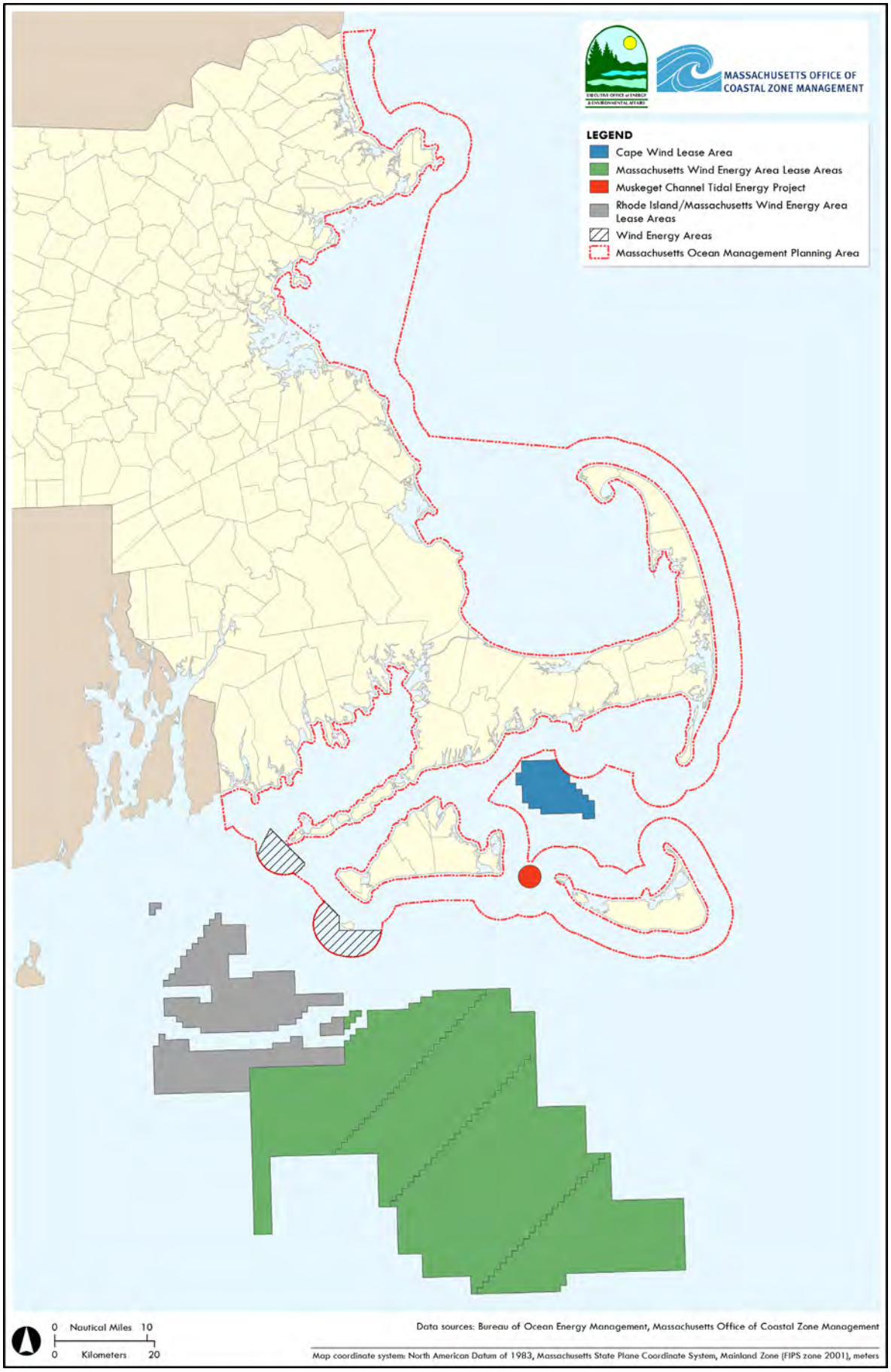


Figure 3. Renewable energy areas in the planning area and adjacent federal waters

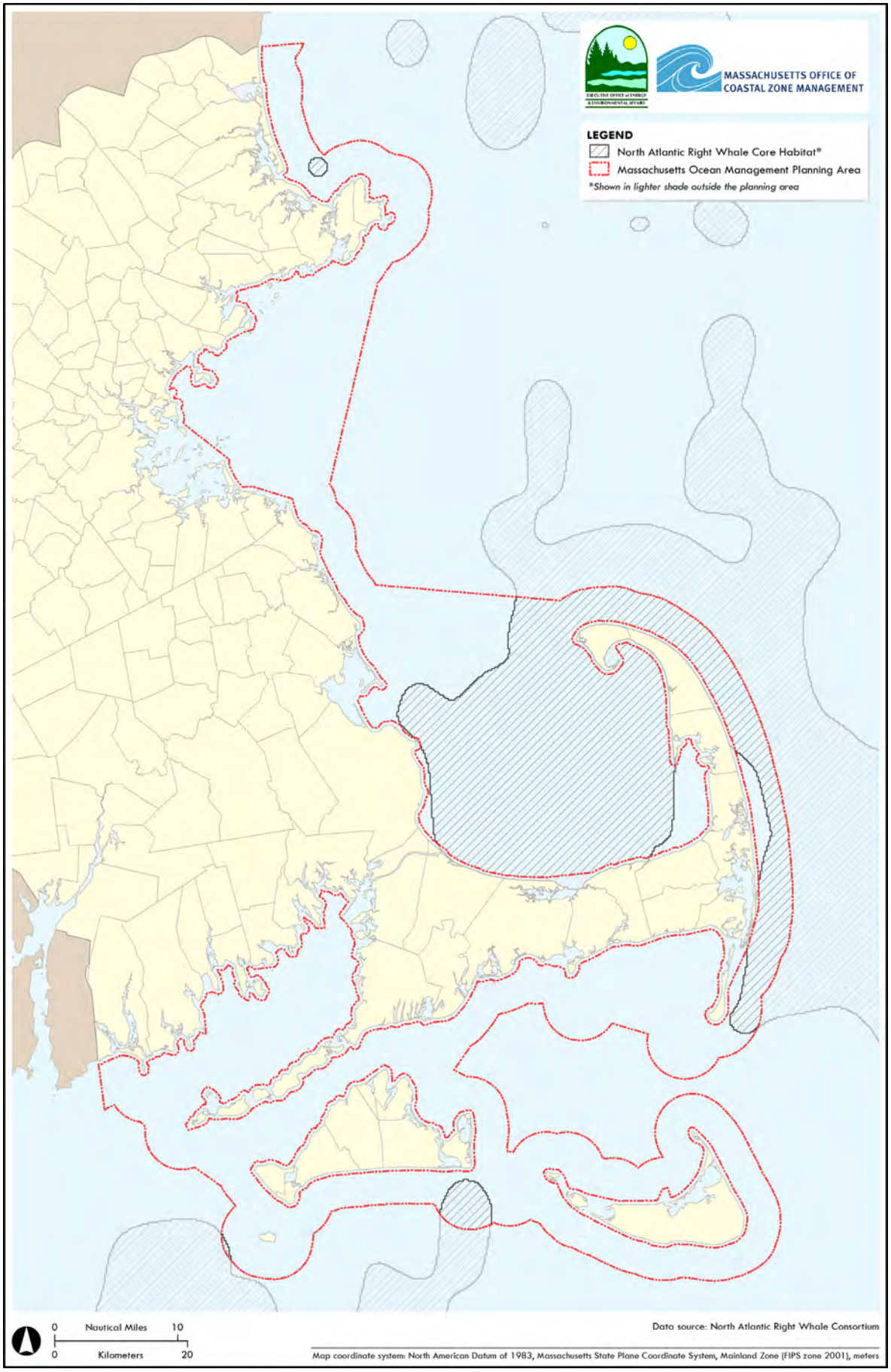


Figure 4. Special, sensitive, or unique resource: North Atlantic right whale core habitat

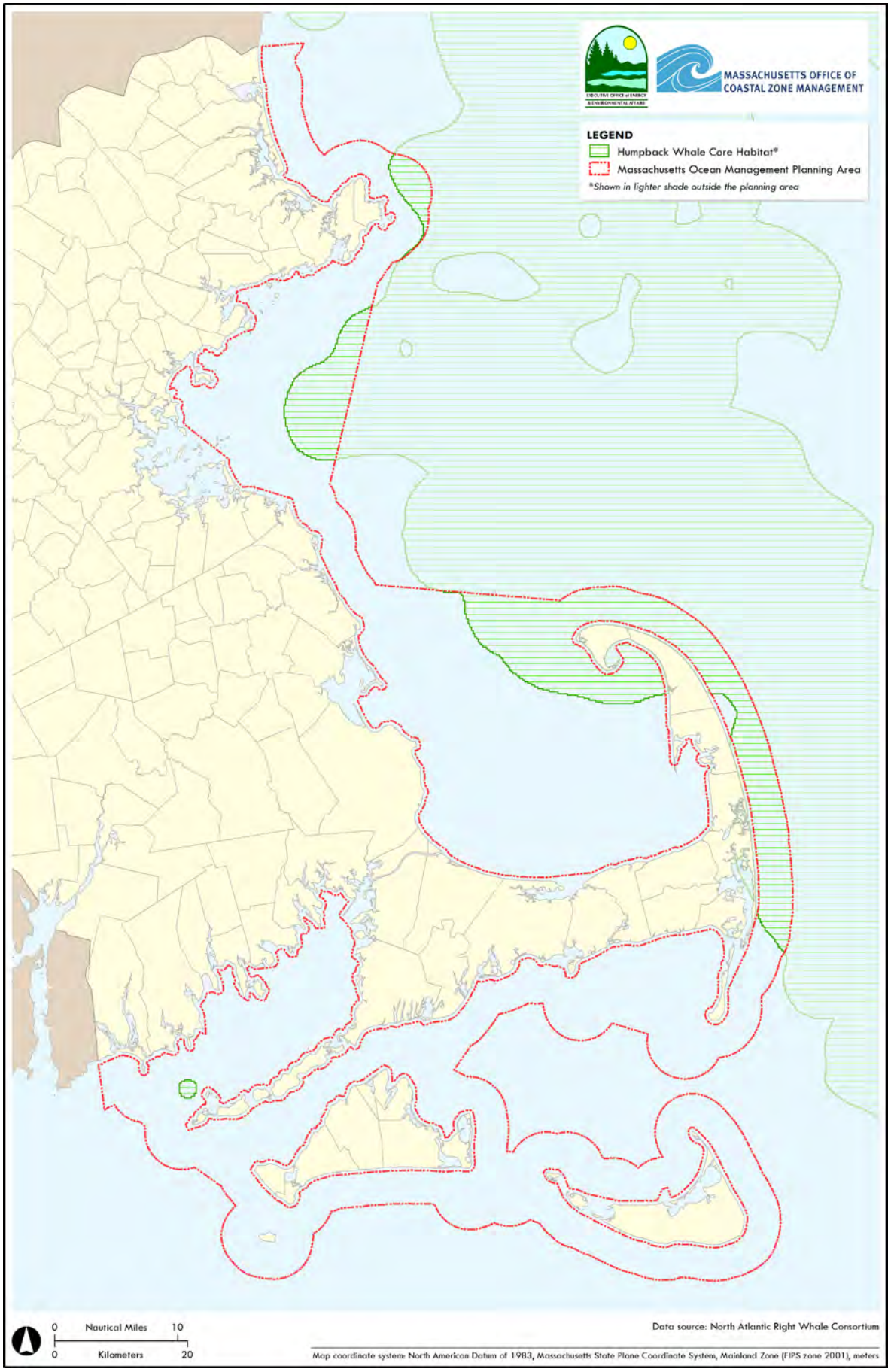


Figure 5. Special, sensitive, or unique resource: Humpback whale core habitat

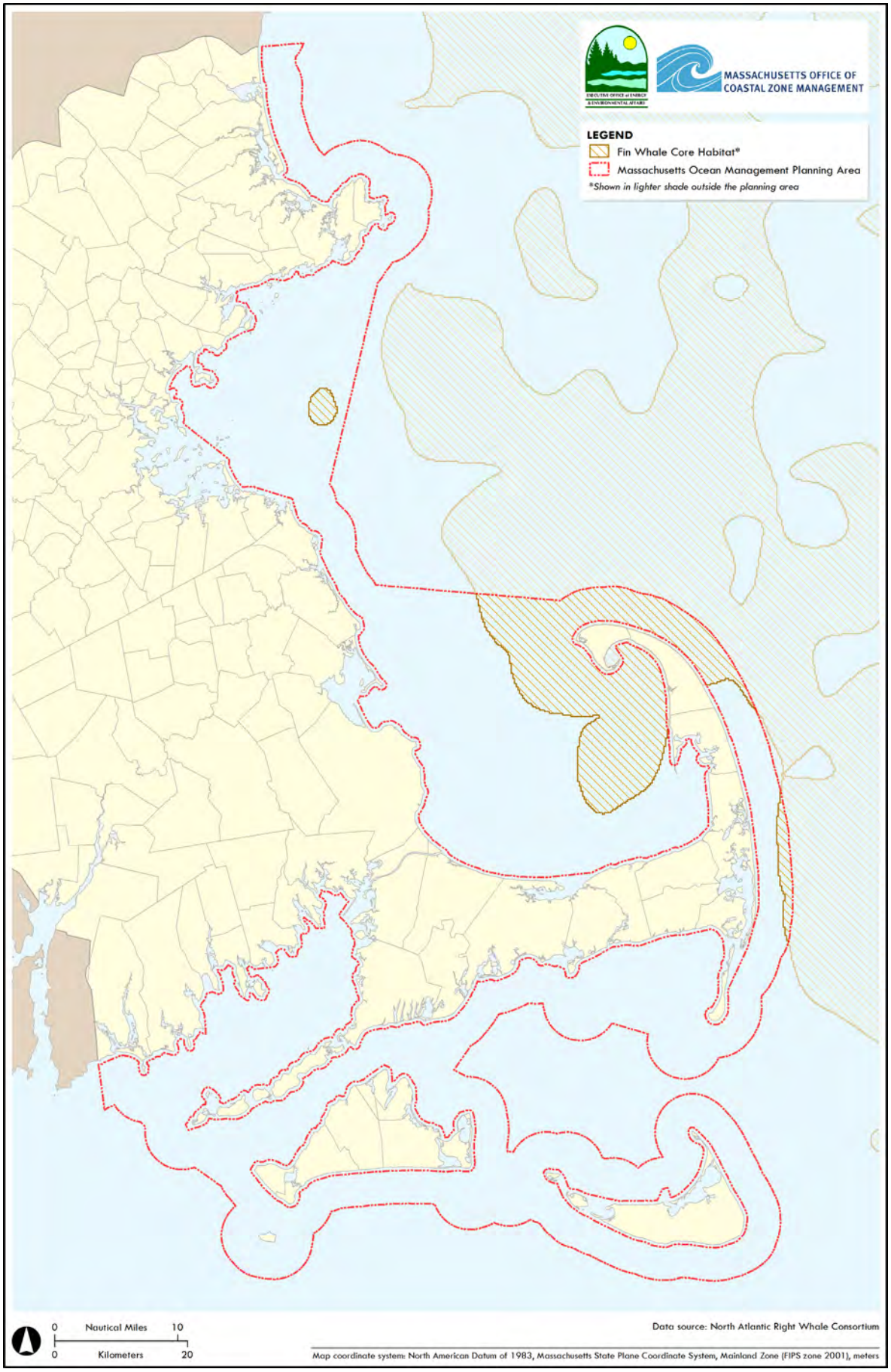


Figure 6. Special, sensitive, or unique resource: Fin whale core habitat

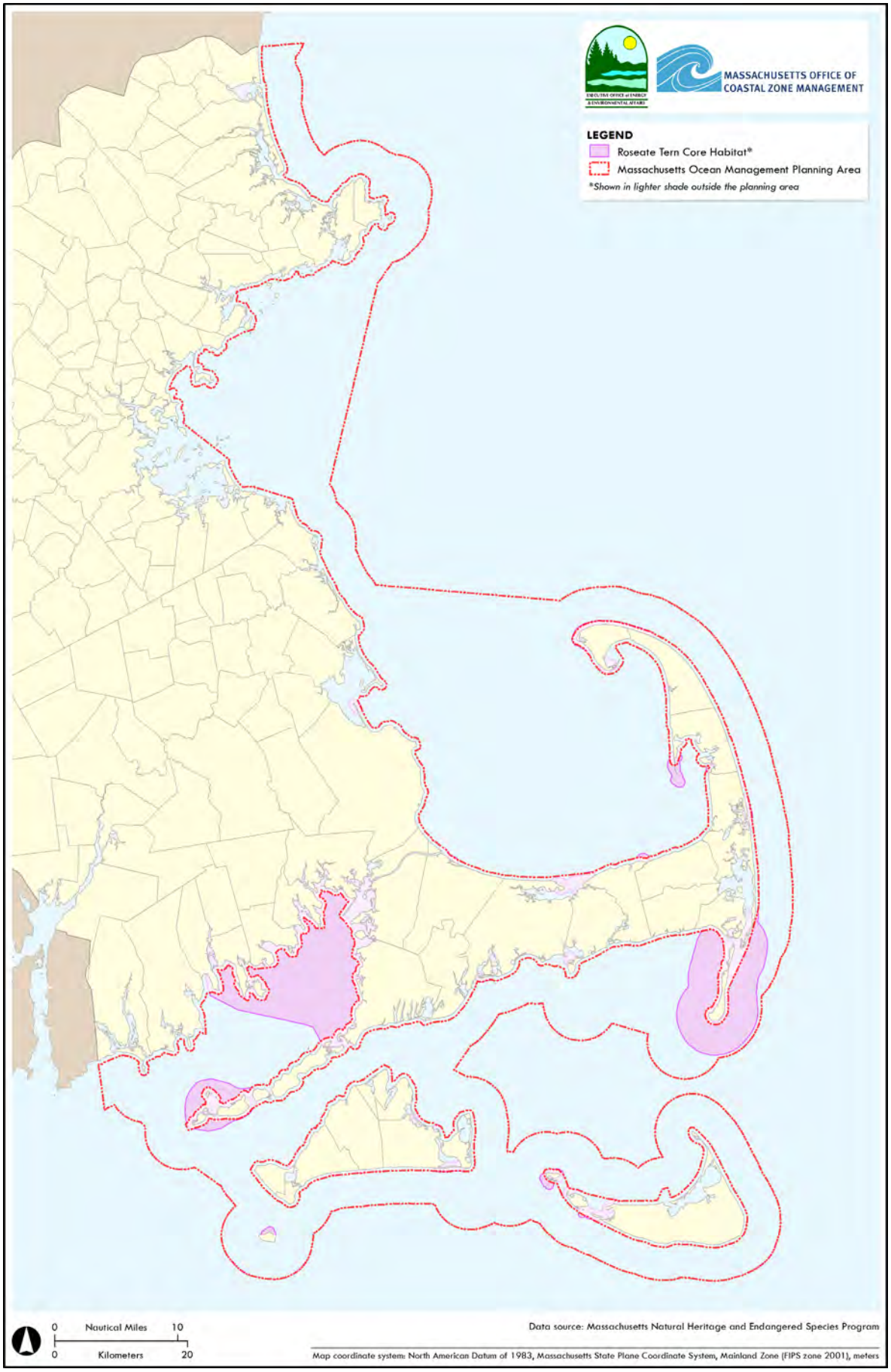


Figure 7. Special, sensitive, or unique resource: Roseate Tern core habitat

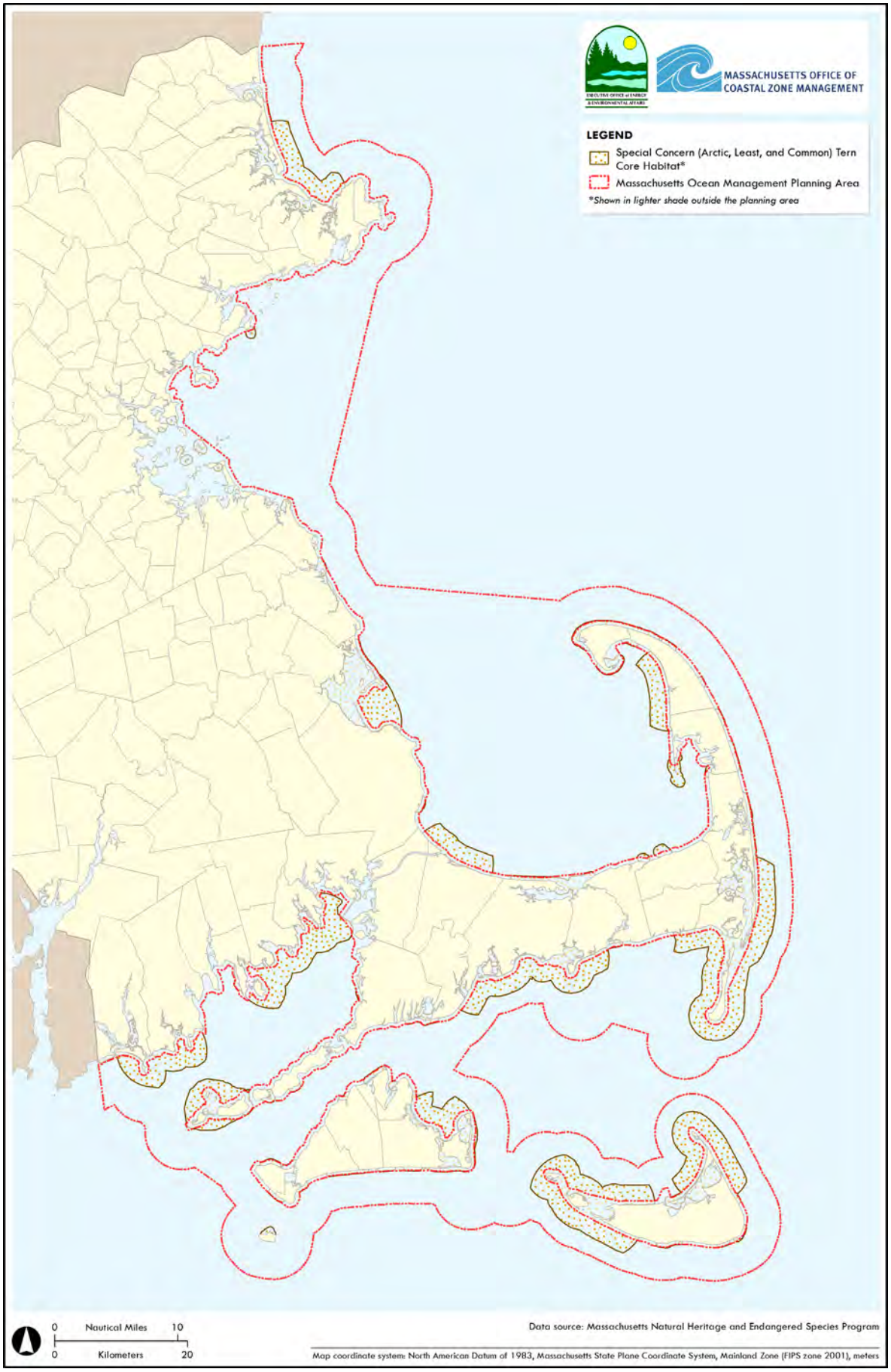


Figure 8. Special, sensitive, or unique resource: Special concern (Arctic, Least, and Common) tern core habitat

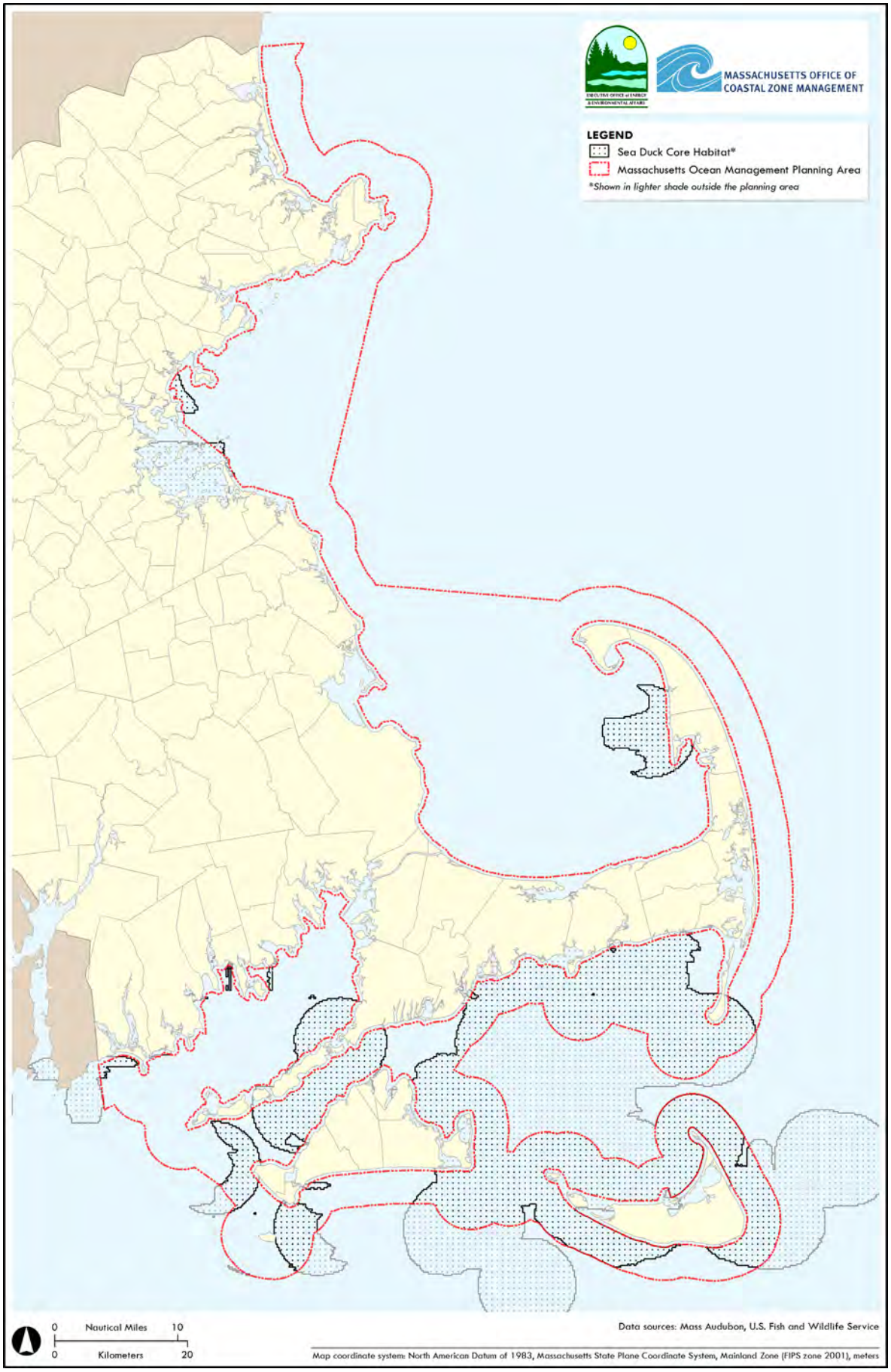


Figure 9. Special, sensitive, or unique resource: Sea duck (Long-tailed Duck, Common Eider, Black Scoter, Surf Scoter, and White-winged Scoter) core habitat

Figure 10. Special, sensitive, or unique resource: Leach's Storm-Petrel important nesting habitat

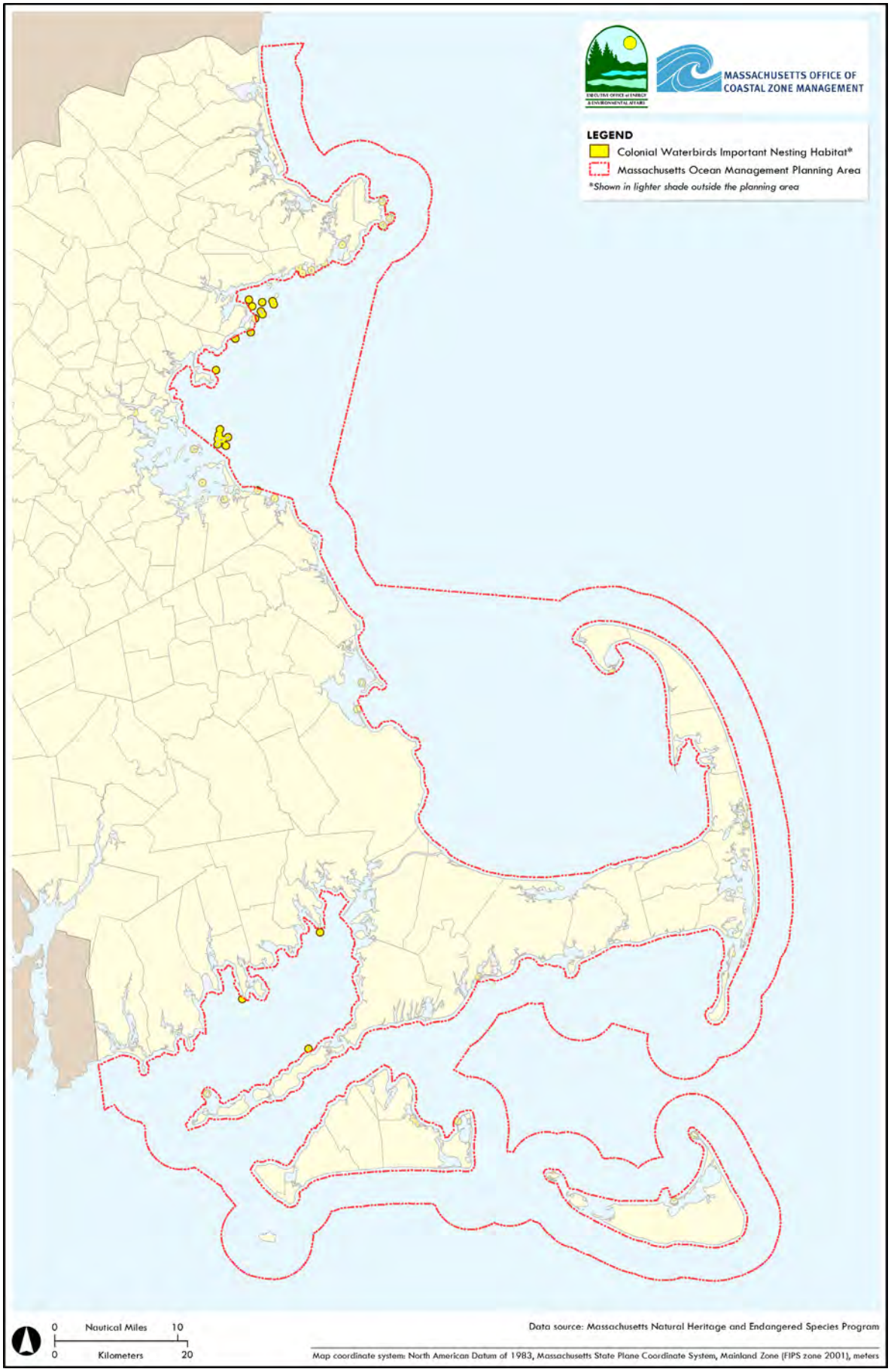


Figure 11. Special, sensitive, or unique resource: Colonial waterbirds important nesting habitat

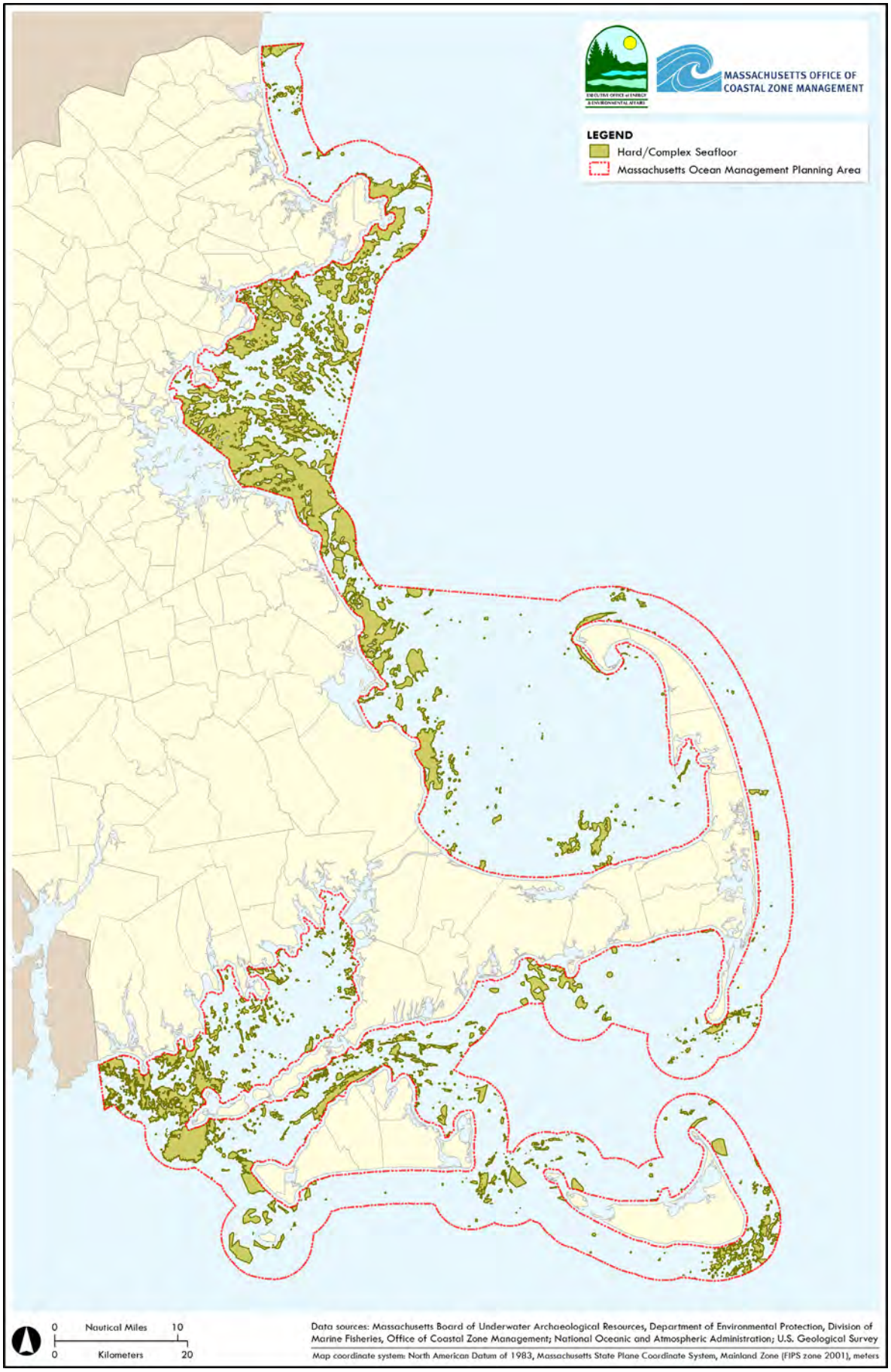


Figure 12. Special, sensitive, or unique resource: Hard/complex seafloor

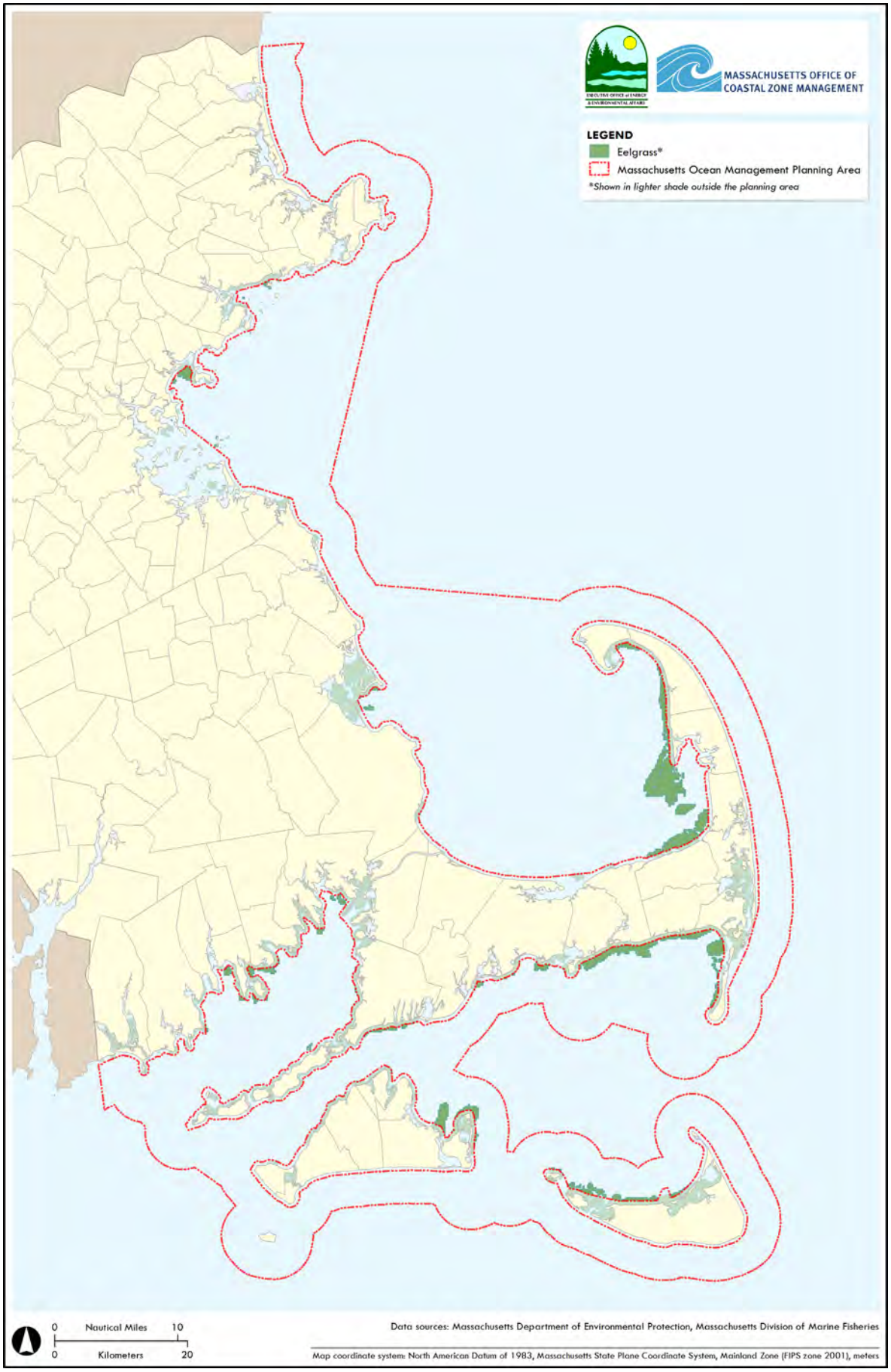


Figure 13. Special, sensitive, or unique resource: Eelgrass

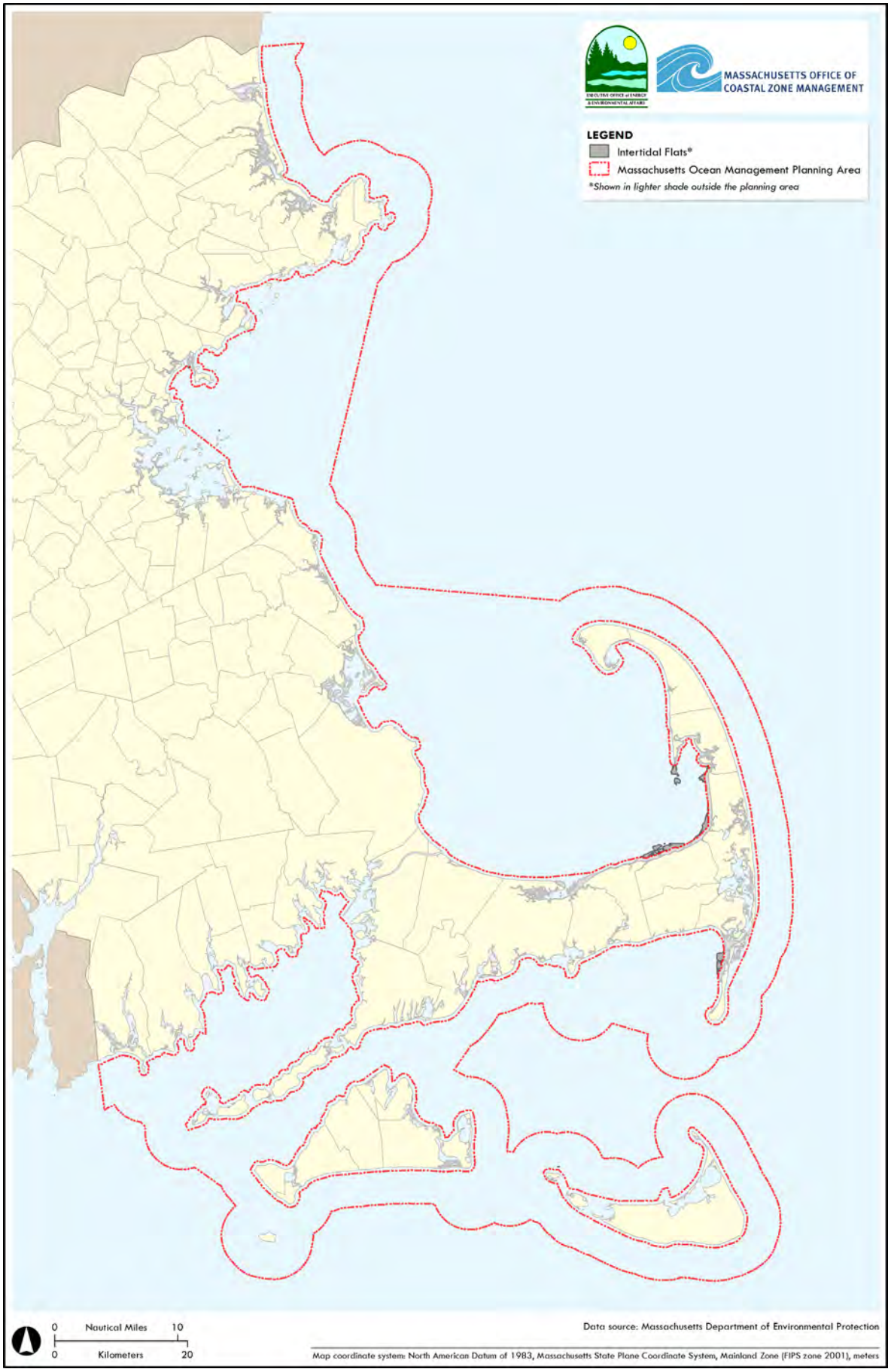


Figure 14. Special, sensitive, or unique resource: Intertidal flats

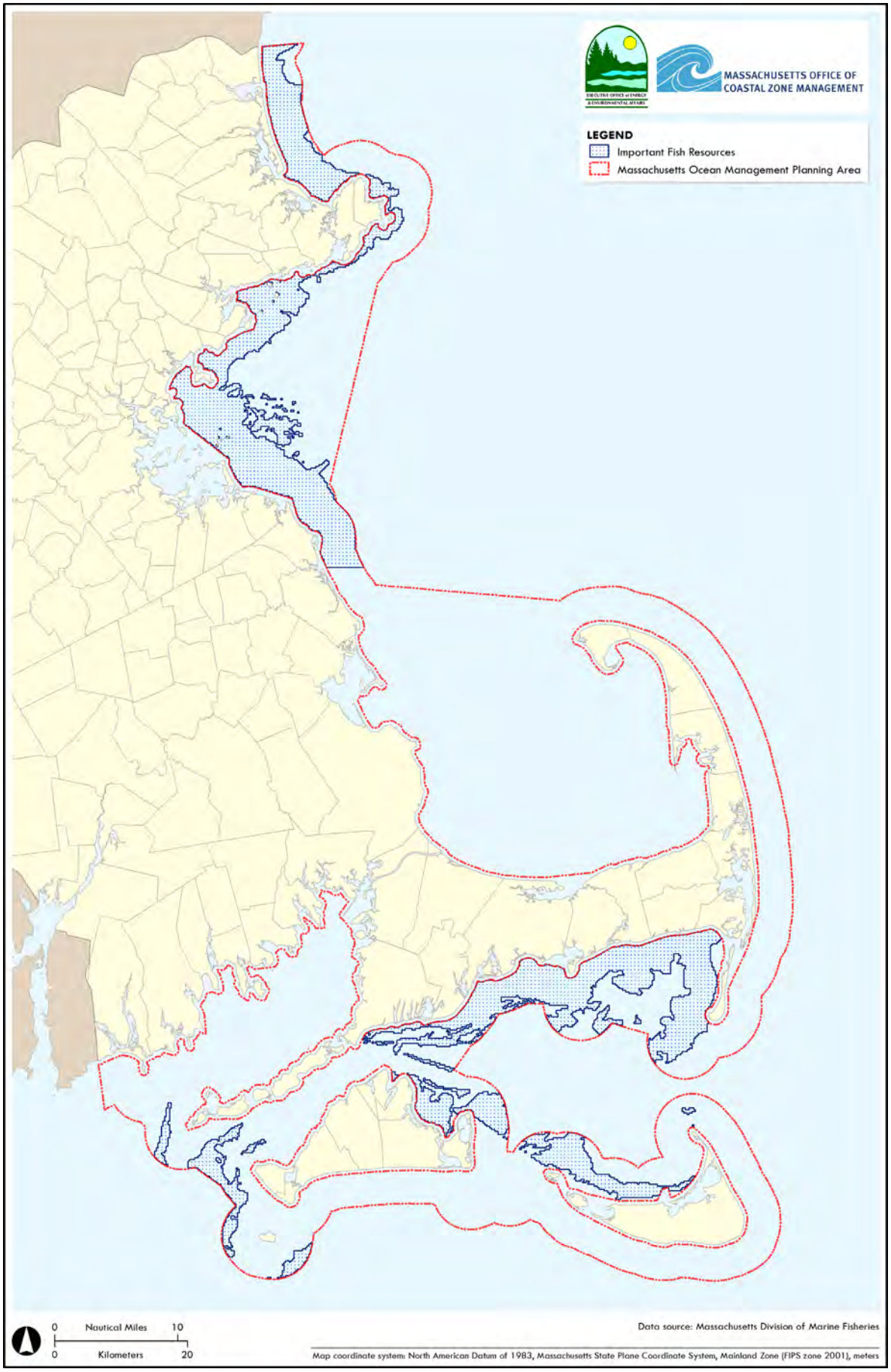


Figure 15. Special, sensitive, or unique resource: Important fish resources

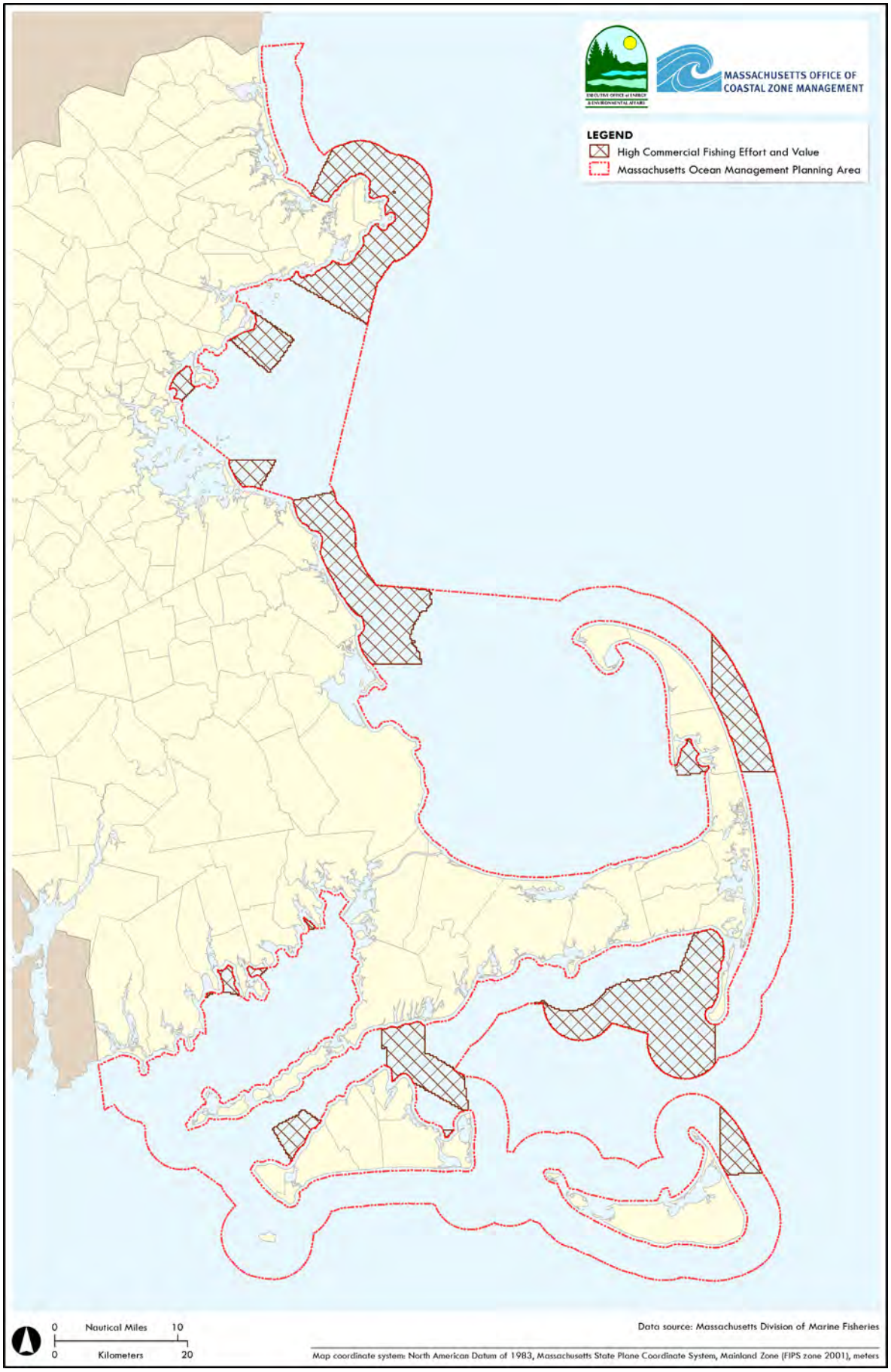


Figure 16. Concentrations of water-dependent use area: High commercial fishing effort and value

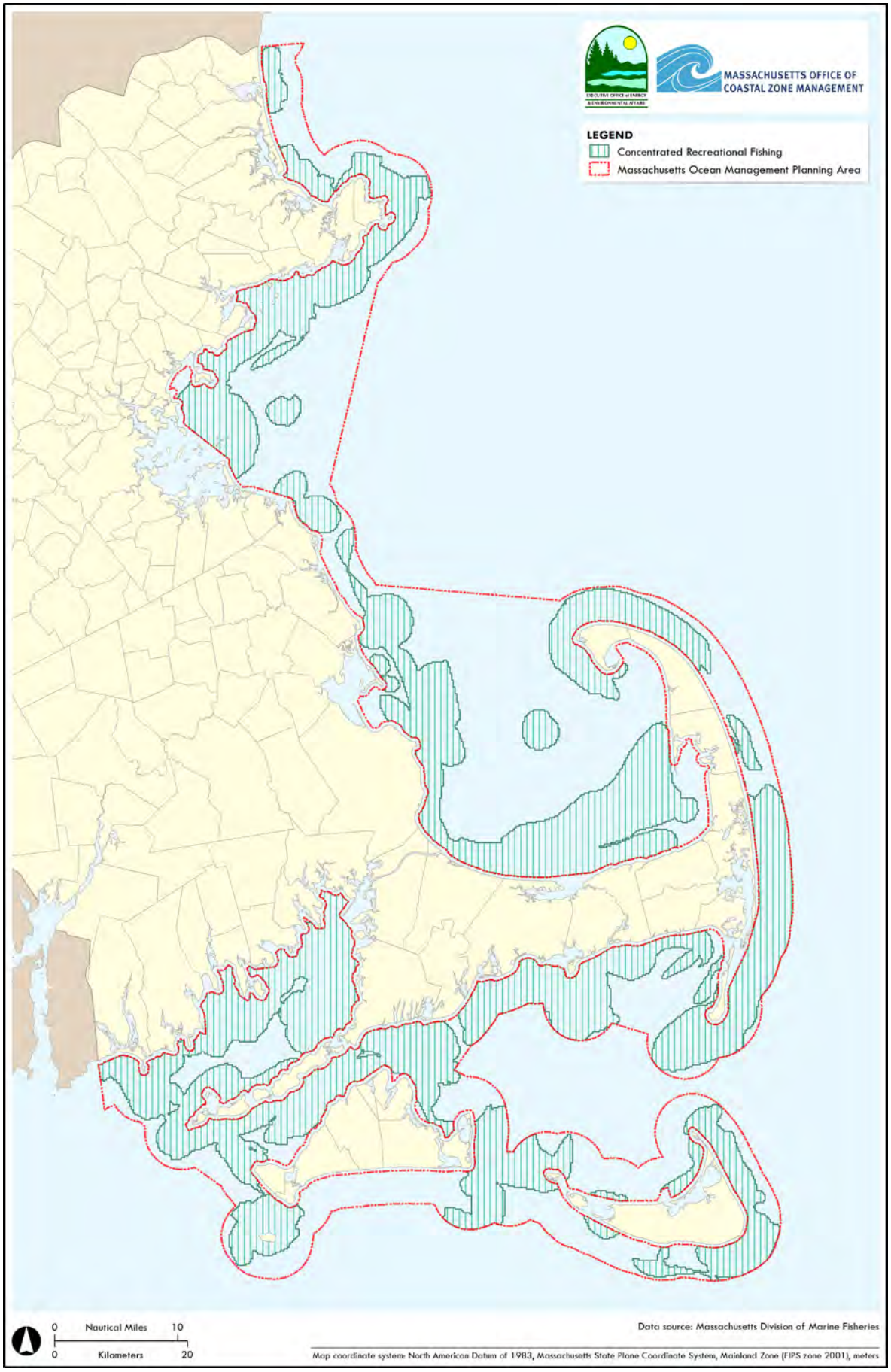


Figure 17. Concentrations of water-dependent use area: Concentrated recreational fishing

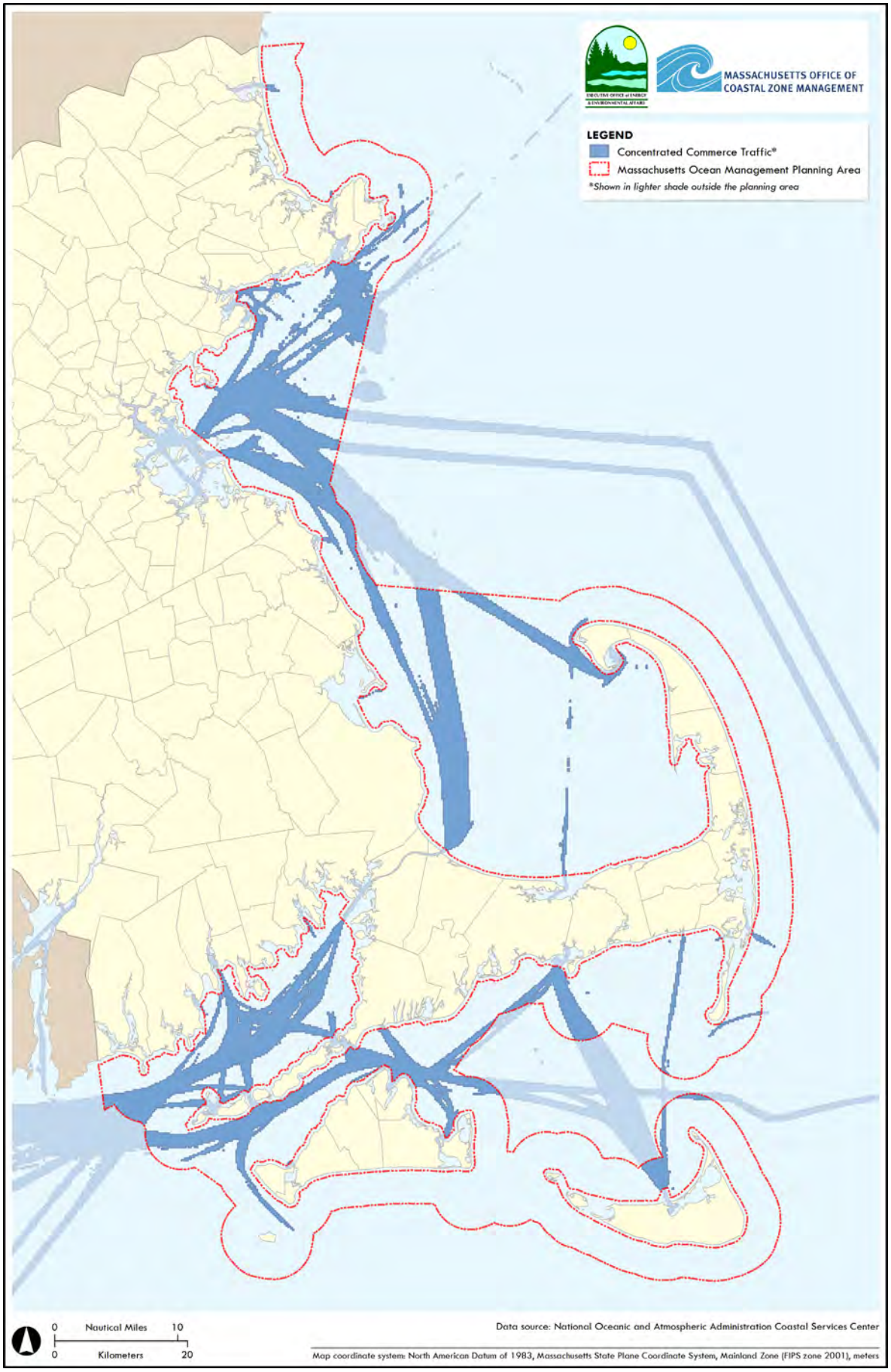


Figure 18. Concentrations of water-dependent use area: Concentrated commerce traffic

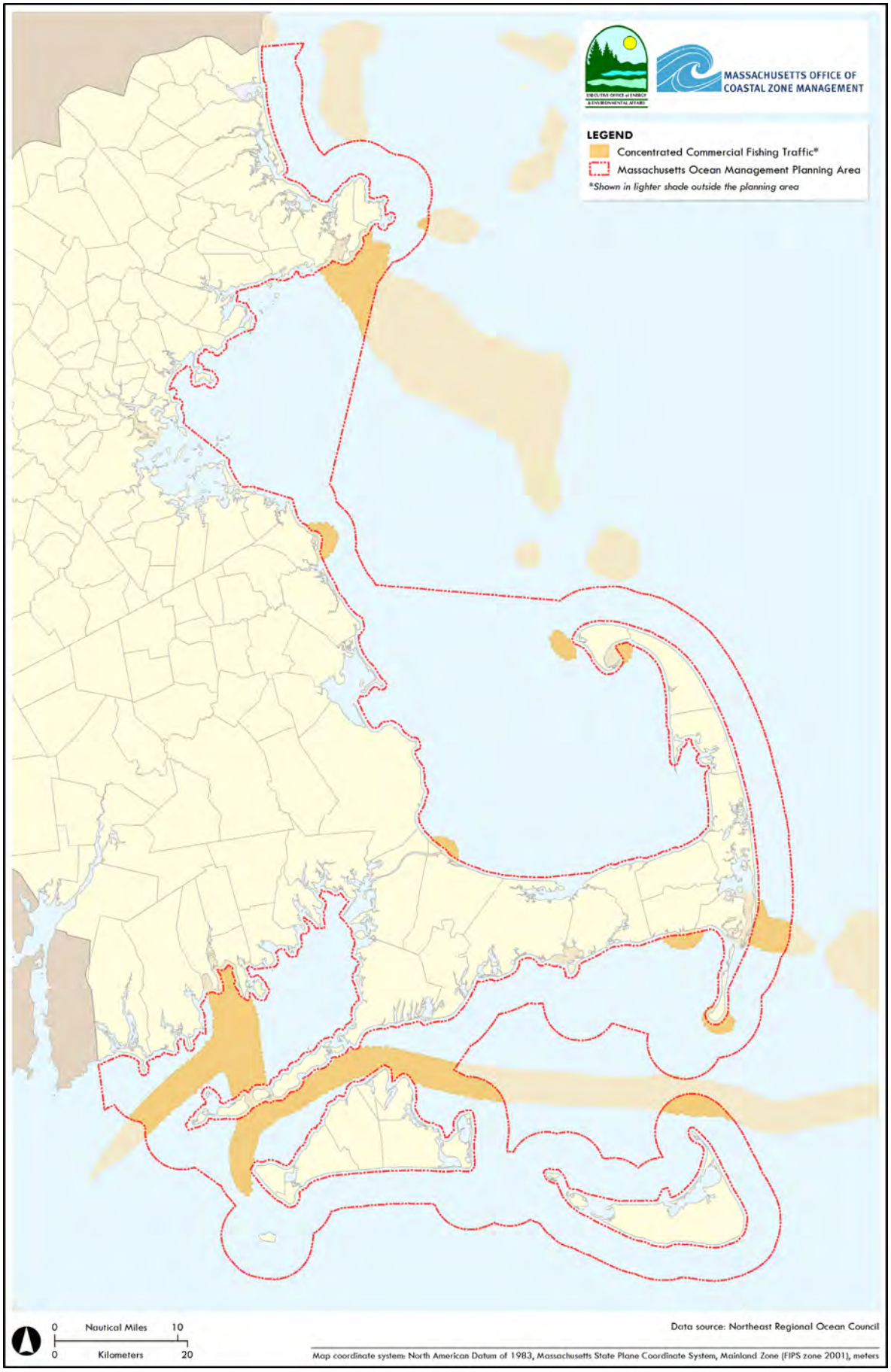


Figure 19. Concentrations of water-dependent use area: Concentrated commercial fishing traffic

Figure 20. Concentrations of water-dependent use area: Concentrated recreational boating

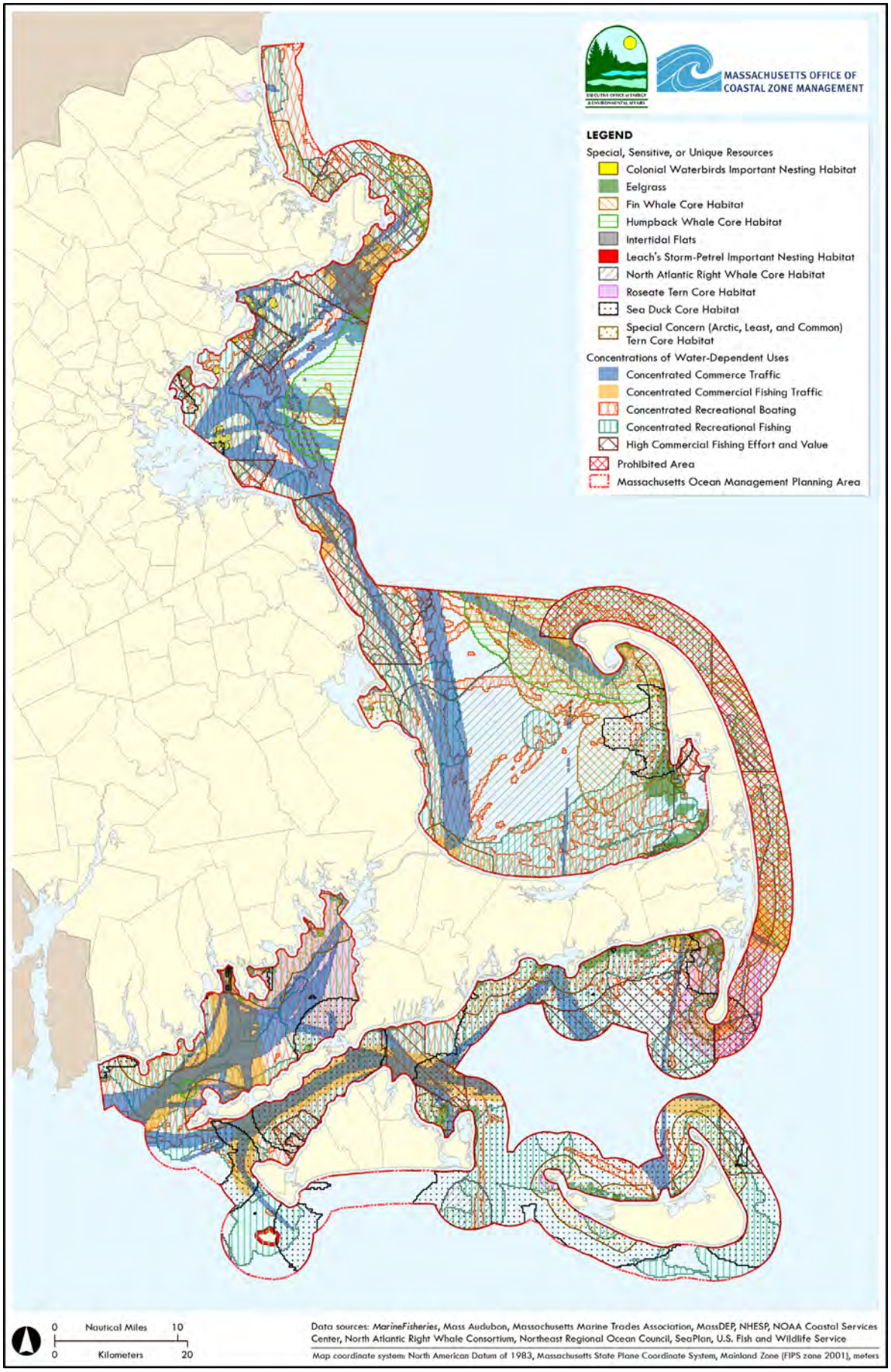


Figure 21. Special, sensitive, or unique resources and concentrations of water-dependent uses to be addressed for community-scale wind energy facilities

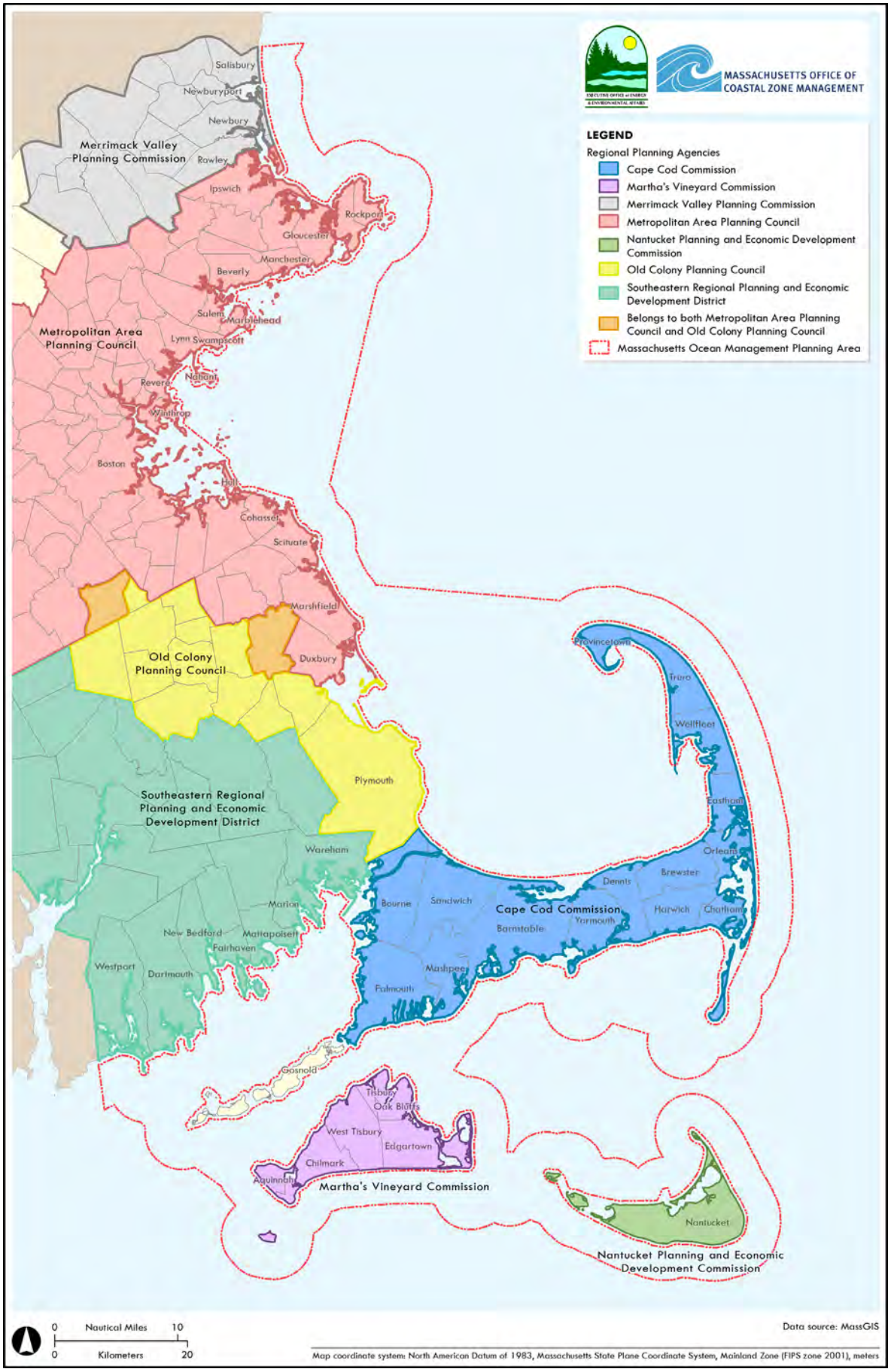


Figure 22. Regional planning agencies and municipalities adjacent to the planning area

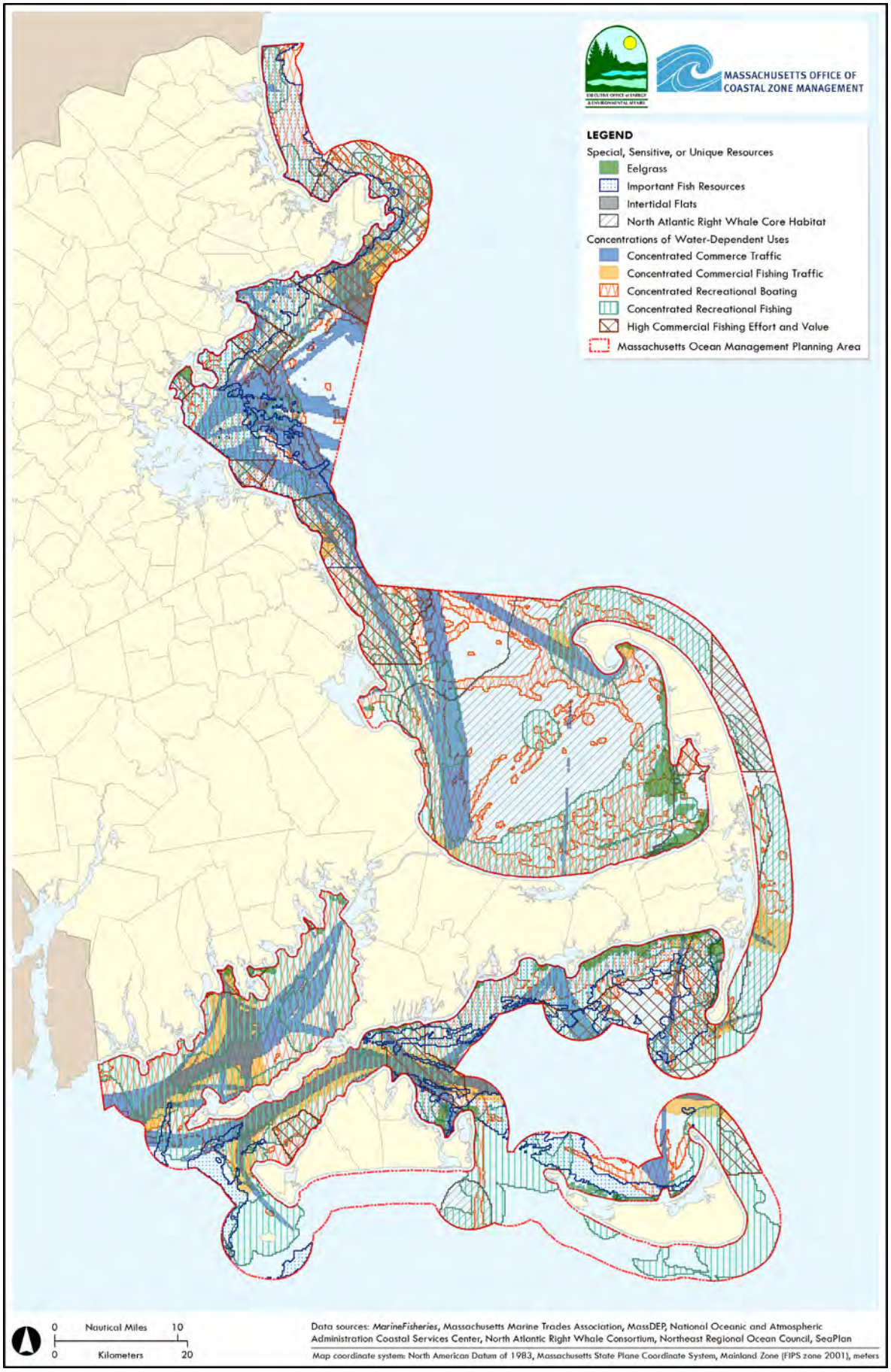


Figure 23. Special, sensitive, or unique resources and concentrations of water-dependent uses to be addressed for commercial-scale tidal energy facilities

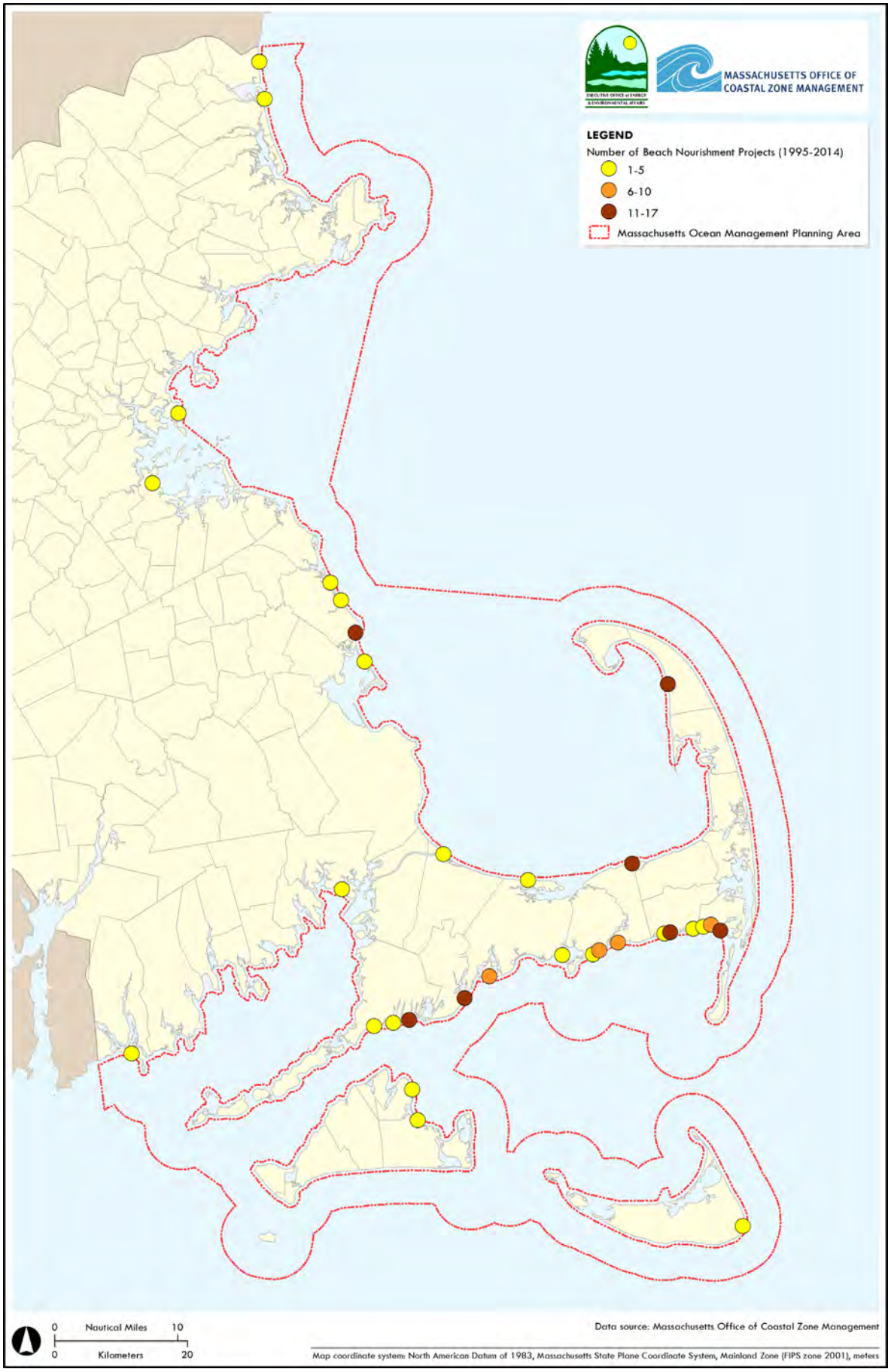


Figure 24. Beach nourishment projects in Massachusetts from 1995-2014

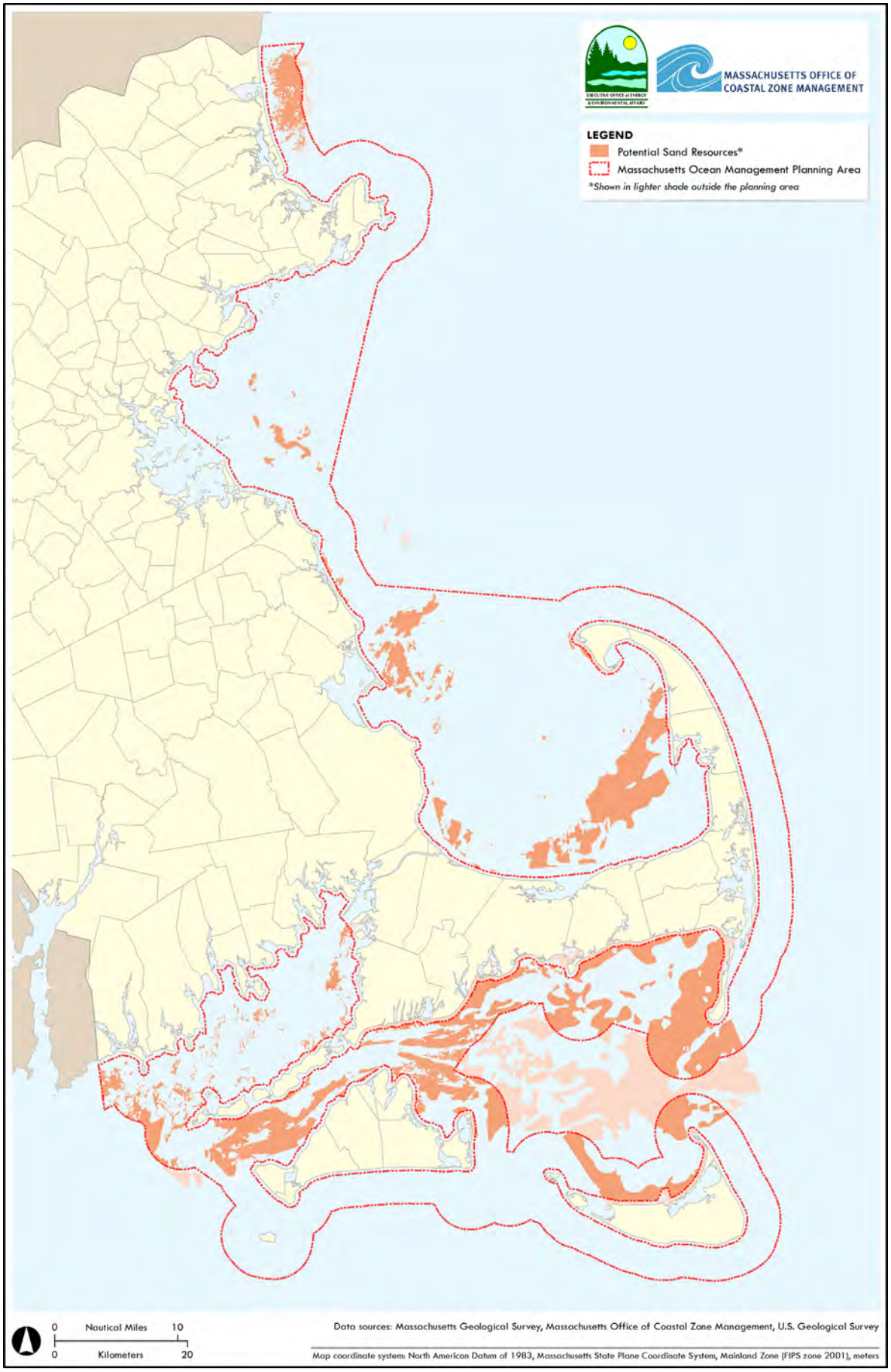


Figure 25. Potential sand resources

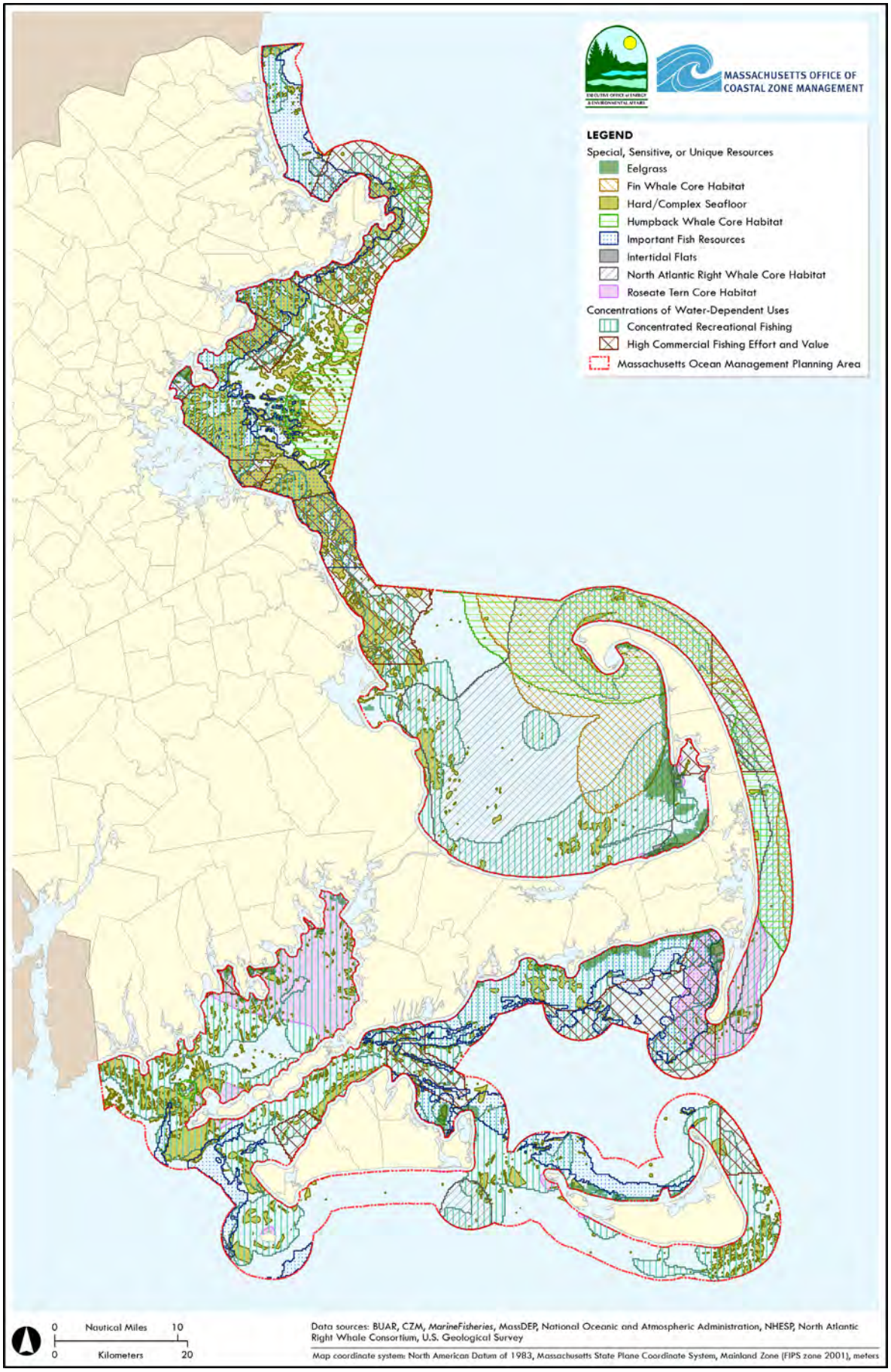


Figure 26. Special, sensitive, or unique resources and concentrations of water-dependent uses to be addressed for offshore sand projects for beach nourishment

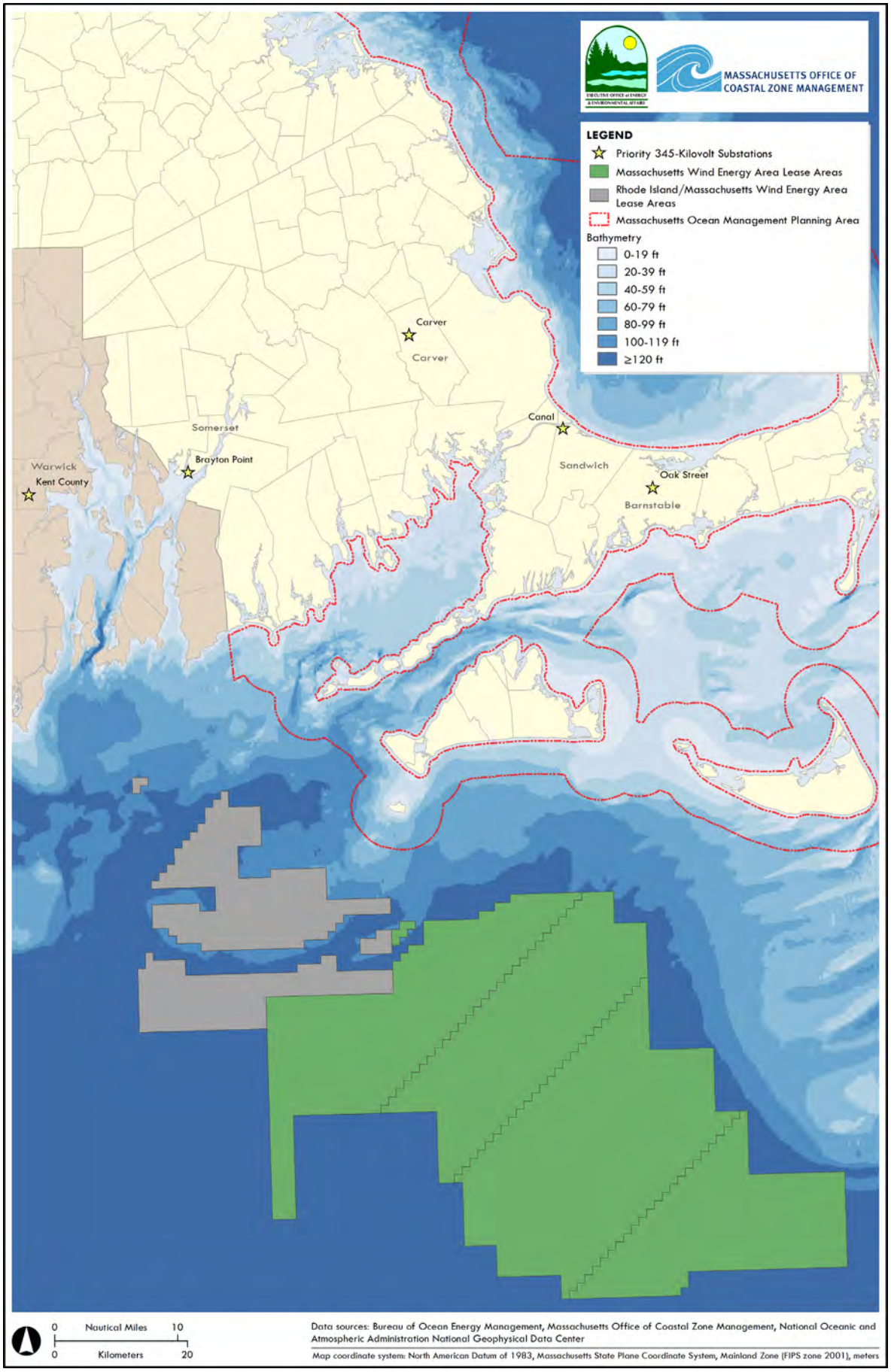


Figure 27. Lease areas within the federal Wind Energy Areas and priority 345-kilovolt substations

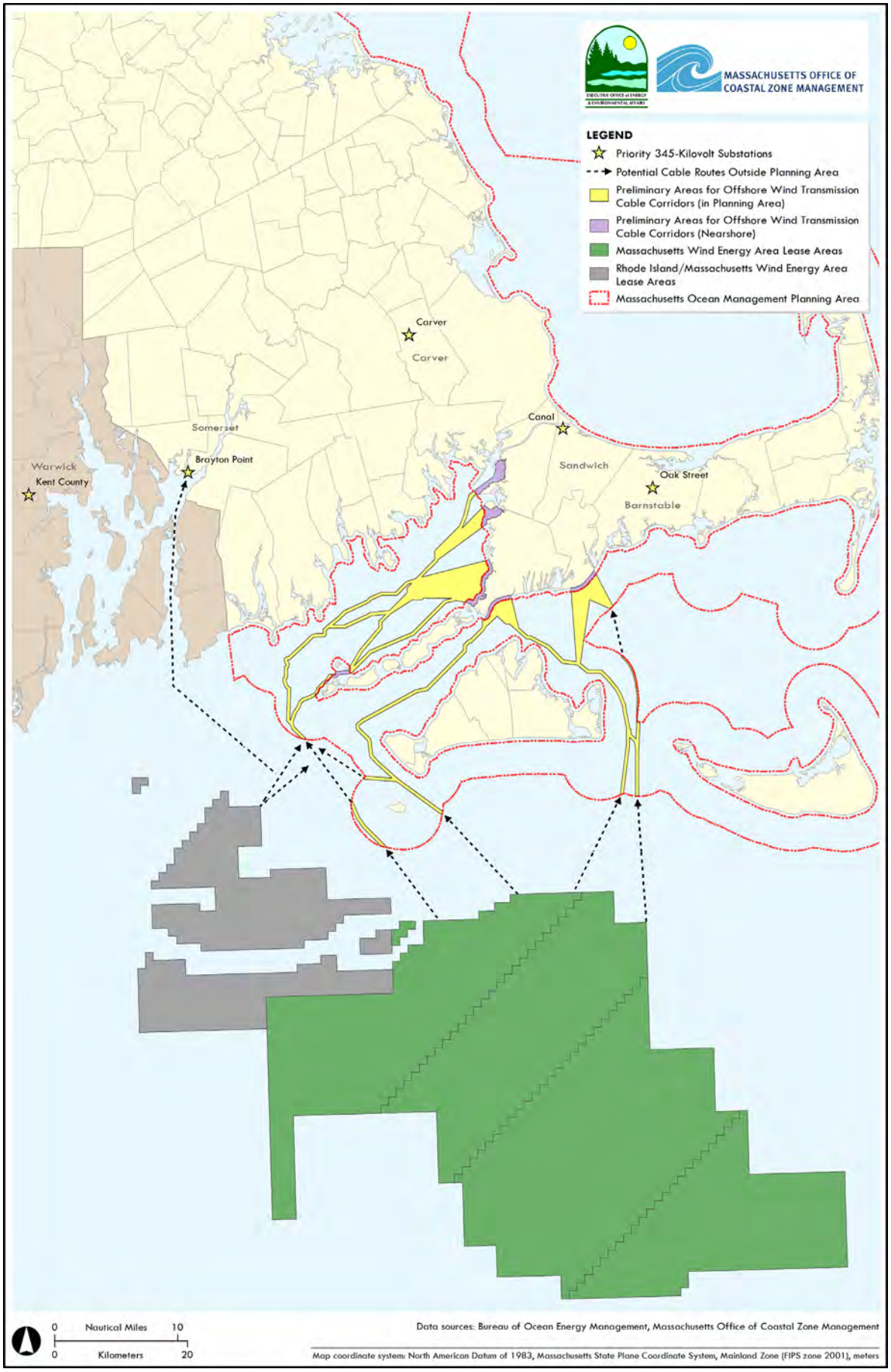


Figure 28. Preliminary areas for offshore wind transmission cable corridors

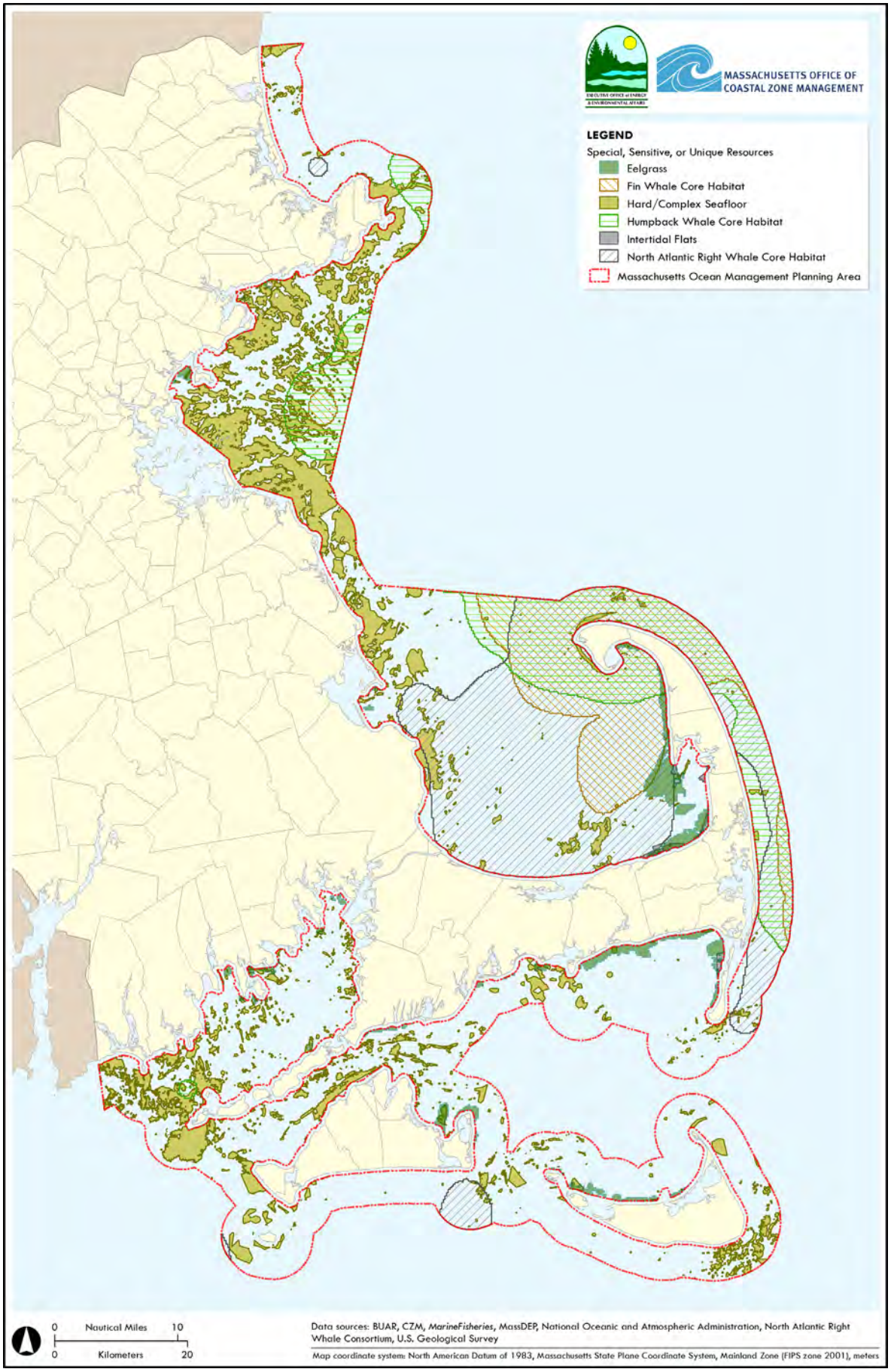


Figure 29. Special, sensitive, or unique resources to be addressed for cables

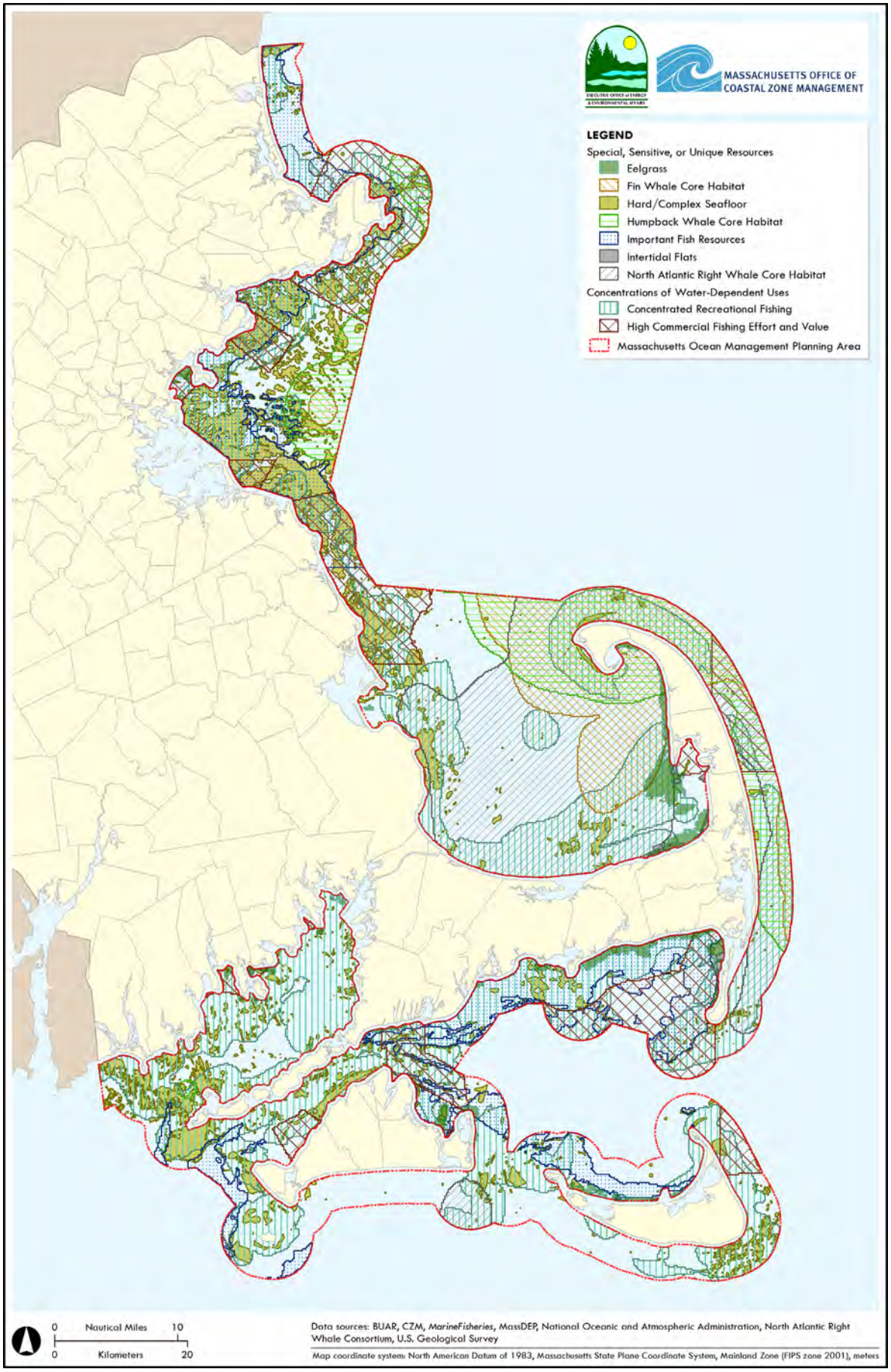


Figure 30. Special, sensitive, or unique resources and concentrations of water-dependent uses to be addressed for pipelines