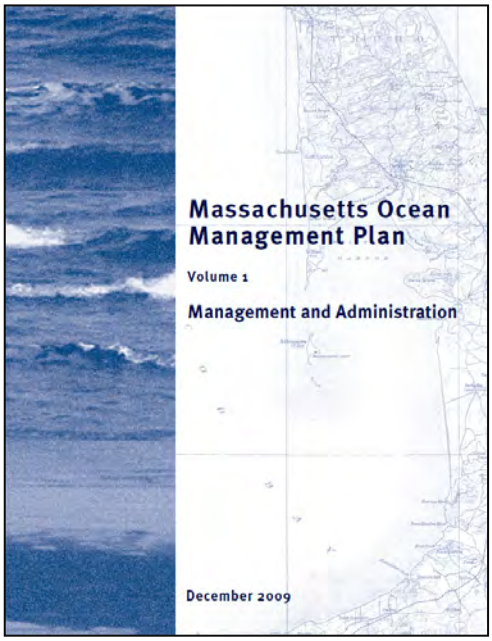
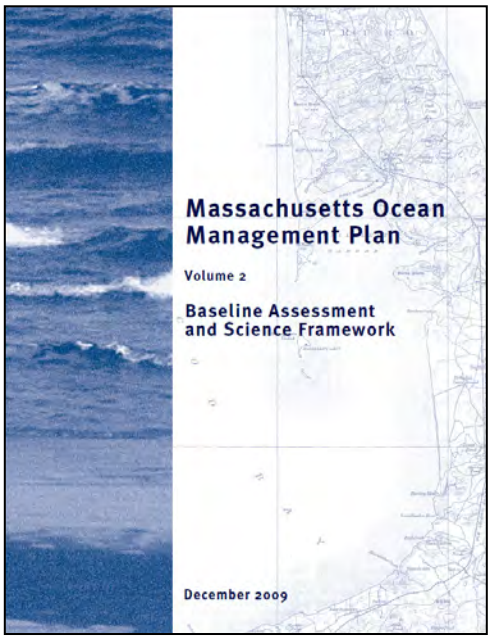
REVIEW OF THE

MASSACHUSETTS OCEAN MANAGEMENT PLAN





DRAFT

May 2013

Executive Summary

The purpose of this document is to fulfill the provision of the Oceans Act of 2008 which requires the review of the Massachusetts Ocean Management Plan, which was first released in December 2009. The Oceans Act requires such a review at least once every five years. While not all of the plan components have been fully tested and plan implementation is still ongoing, this review provides important insights into the content of the plan, as well as a look at the progress and performance of the plan's implementation.

The review document begins by briefly revisiting the history and context of ocean management in the Commonwealth, and the growing call for stronger and more pro-active policies and efforts. In the decade leading up to the enactment of the Massachusetts Oceans Act, in addition to project applications for dredging and dredged material disposal, desalination facilities, and electric and telecommunication cables, and the re-licensing of existing power and wastewater treatment plants, Massachusetts was also increasingly facing new proposals for major ocean-based development such as liquefied natural gas (LNG) pipelines and terminals, renewable wind and wave energy projects, and plans for the extraction of sand and gravel resources to be used for beach nourishment and shoreline stabilization. During this same period, the Commonwealth was witnessing the deterioration of marine habitats and ocean resources, including loss of eelgrass beds, major declines in diadromous and many commercial fish populations, increases in the frequency and duration of harmful algal blooms, expansion of marine invasive species, and rises in beach closures from bacterial water quality standard violations. Within this context of increasingly busy ocean space and growing concerns for the health and sustainability of marine ecosystems and the services they support, the Massachusetts Ocean Management Task Force was launched. From 2003 to 2004, the Task Force—comprised of ocean users and interests such as commercial and recreational fishermen, port and shipping managers, energy and utility company representatives, scientists, nonprofit organizations, and local, state, and federal officials—evaluated the adequacy of the existing legal and policy framework, assessed the science and information base available, and developed principles and recommendations to guide statewide planning and governance efforts for ocean public trust resources. In March of 2004, the Task Force released its report, *Waves of Change*, which included 16 recommendations for improving ocean management, including a call for new, comprehensive legislation that would mandate proactive ocean management planning and establish objectives and strategies for an ocean planning areas and activities within the waters of the Commonwealth.

Following the recommendations offered by the Task Force—and buttressed by the work and conclusions of the Pew Oceans Commission and the U.S. Commission on Ocean Policy—the first bills calling for a comprehensive statewide ocean planning process were filed in the Massachusetts legislature. From 2005 to 2008, the ocean planning bill made its way through the legislative process, and after passing both the state Senate and House of Representatives, on May 29, 2008, Governor Patrick signed the Oceans Act into law. The Ocean Act required the Secretary of Energy and

Environmental Affairs (EEA) to develop a comprehensive ocean management plan that was consistent with 15 statutory principles by December 31, 2009. The act created two formal consultative bodies—the Ocean Advisory Commission and the Science Advisory Council—and established an Ocean Resources and Waterways Trust Fund. The statute also stipulated that all state license and permit approvals for ocean-based projects be consistent with the plan to the maximum extent practicable, that the plan be formally incorporated by the Office of Coastal Zone Management (CZM) into the Massachusetts Coastal Program, and that the Division of Marine Fisheries (DMF) maintains the sole responsibility for developing and implementing any fisheries management plans or fisheries regulations.

After providing the background and context for ocean planning in Massachusetts, this review document then describes the various requirements, measures, and commitments as established by the Oceans Act, the planning process, and the plan itself. It reports on the progress and performance made on these items to date, covering the plan development process, the policies and management framework advanced by the plan, and the elements of plan administration and implementation, including the science and data priorities identified in the plan's Science Framework. The document also contains a section that incorporates and synthesizes the views and opinions of the members of the state's Ocean Advisory Commission and Science Advisory Council and summarizes other stakeholder and public input.

The primary summary points, or findings, of the review are contained in the final section of the document and listed below.

Planning Process

- Public participation in decision-making and a commitment to using the best available data and science regarding ocean resources and uses were foundational elements of the planning process, with significant and meaningful opportunity for both expert and stakeholder input and public participation throughout the plan development process.

- The legislatively created Ocean Advisory Commission and Science Advisory Council were actively engaged providing valuable input, viewpoints, advice, and constructive criticism through all three phases of the plan development process.

- The timelines and procedural requirements for public and formal review of the plan contained in the Oceans Act were met.

Plan Policy and Management Framework

- The ocean plan sets forth the Commonwealth's goals, siting priorities, and standards for allowed uses, activities, and facilities and creates a framework that combines elements of both designated-area and performance standard-based management, identifying two commercial Wind Energy Areas and a Prohibited Area and then allocating the remainder of the planning area as Multi-use where proposed projects must meet siting and management standards.

- The plan takes a streamlined regulatory approach with implementation through existing authorities and processes and requires close coordination between state agencies in both the review of project and also in other elements of plan administration.

- The plan identifies and contains strong protections for special, sensitive, or unique areas of marine and estuarine life and habitat and establishes siting criteria and performance standards that minimize conflicts between traditional uses of ocean resources and new uses and between allowable uses and natural resources.

- The plan identifies suitable areas and creates siting standards for ocean-based renewable energy projects, and affirms the authority of the Martha's Vineyard Planning Commission and Cape Cod Commission to define the appropriate scale of offshore renewable energy facilities and review such facilities as developments of regional impact.

Plan Administration

- In Fall 2011, the plan and its enforceable policies were formally incorporated into the Massachusetts Coastal Management Program.

- A draft set of implementing regulations was developed by an internal team of representatives of EEA agencies, revised based on the input and guidance from an Advisory Group, and reviewed by the Ocean Advisory Commission. In the first part of 2013, after a public comment and public hearing process, the final stages of rulemaking and formal issuance will occur.

- EEA agencies—including CZM, the Department of Environmental Protection, the Department of Fish and Game, and the Massachusetts Environmental Policy Act Office—have enhanced inter-agency coordination for review of projects subject to the plan. While the plan calls for the development of additional guidance to provide additional standards for characterizing SSU resources and important existing water-dependent uses, the approach currently being implemented is to address each proposed project on a case-by-case basis,

with agency direction and feedback provided to proponents based on specifics of the proposed project and site.

- To date, there have been three projects proposed whose activities and locations are subject to the plan. All three proposed projects are located in the Multi-use Area. One project—the Comcast/NStar bundled submarine fiber optic communications/electric cable—has completed MEPA review with confirmation in the Secretary's Certificate that the proponent had satisfactorily demonstrated that the project would not significant alter SSU resources or existing water-dependent uses defined in the plan. A Draft Environmental Impact Report is under development for the Muskeget Tidal Energy Project. A second cable project proposed to cross both Buzzards Bay and Vineyard Sound was scoped for the preparation of a Single Environmental Impact Report in 2010, but no further action has been taken on the proposal by the proponent.

- No wind energy projects, neither commercial nor community scale, have been proposed in the ocean planning area.

- An Ocean Resources and Waterways Trust Fund account has been established and administrative guidelines for use of and expenditures from the Trust Fund were developed. Two deposits have been made to the Trust, totaling $1,042,650, and a deposit of $20,000 is anticipated in 2013. There have been five expenditures from the fund for projects to enhance management of ocean resources, with a collective sum of $335,540.

Stakeholder and Public Input, Expert Advice, and Partnerships

- An extensive expert, stakeholder and public engagement effort—developed and implemented with strong support from the Massachusetts Ocean Partnership (now SeaPlan)—was a critical element of the planning process. The Ocean Advisory Commission and Science Advisory Council played strong roles in plan development and this function has continued during the implementation of the plan.

- Since the release of the plan, Massachusetts has been actively working with the Northeast Regional Ocean Council—which is comprised of state and federal agencies in the region—and other institutions and organizations involved in ocean science, research, and management in an ocean planning initiative for the Northeast pursuant to the Obama Administration's National Ocean Policy. The Northeast regional ocean planning initiative will benefit 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.

- SeaPlan—formerly the Massachusetts Ocean Partnership, an independent, nonprofit ocean science and policy group—conducted semi-structured interviews of current and previous members of the Ocean Advisory Commission and the Science Advisory Council about their perspectives on the development, implementation and future revision of the plan. Results from these interviews included:
  - Recognition of the focused effort to produce a quality plan responsive to Massachusetts conditions and as the first of its kind in the nation and a model for other regions.
  - Administrative execution and communication during the planning process were seen as effective and attributable largely to the time-limited context for plan development; maintaining an intense focus and engagement will be challenging as the plan transitions from development to routine implementation.
  - Plan implementation and performance is gauged primarily in terms of permitting outcomes, rather than administrative progress or progress on science and data priorities.
  - Key issues of interest to Commission and Council members for the plan revision process include: climate change issues, further goal and indicator development, and integration with regional ocean planning efforts.

Baseline Assessment and Science Framework

- The Baseline Assessment (Volume 2 of the plan) was developed by CZM and DMF, with important contributions from and review by the Science Advisory Council and other state and federal ocean subject matter experts. It establishes the natural, cultural, and socio-economic context for the plan and serves as robust point of reference for assessing change over time. In future revisions of the 2009 plan, the Baseline Assessment will be reviewed updated to examine and report on the status and trends in the physical condition, natural resources, and human uses of the Commonwealth's marine waters.

- Recognizing that our understanding of the ocean ecosystem and the human services it supports will evolve, the timeframe for plan development was relatively short, and the management framework of the plan could be advanced with additional science and data work, eight science and data actions were identified in the plan as top priorities that could be achieved in a five-year timeframe. Considerable progress has been made towards implementing these priority actions, including work to improve characterization of the ocean seafloor and benthic habitats, two intensive surveys of recreational boating activity, and significant updates to MORIS—the Massachusetts Ocean Resource Information System online mapping tool— in terms of both functionality and data contents.

- While the advancements of the science and data priorities noteworthy, more coordinated effort and resources are needed to continue progress on the improving the information base that underlies the plan's management framework.

Table of Contents

List of Figures

List of Tables

Section 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 by Governor Deval Patrick. The Oceans Act of 2008 gave the EEA Secretary the 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 the waters of the commonwealth to its 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.

The Massachusetts Ocean Management Plan was the product of an intensive and noteworthy planning process. Rigorous efforts were made 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. Similarly, throughout the entire process, EEA developed the Massachusetts Ocean Management Plan within the context of an extensive public and stakeholder participation program. These efforts included public listening sessions held across the state to gather initial information, public workshops to discuss the planning approach and solicit feedback on a draft plan, hundreds of meetings with stakeholders such as pilots, fishermen, nongovernmental organizations, and academia, and formal public hearings and comment periods. The members of the state's Ocean Advisory Commission and the Science Advisory Council also provided important and valuable advice, guidance, and contributions to the planning process and the final plan. The development of the plan documented 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 Oceans Act of 2008 included specific language that mandated the review of the plan, its baseline assessment, and the enforceable provisions of relevant statutes and regulations at least once every five years. This document presents a first review of the Massachusetts Ocean Management Plan. While not all of the plan components have been fully tested and plan implementation is still ongoing, this review will provide important insights into the basic content of the plan, as well as a review of the progress and performance of the plan's implementation.

1.1. Purpose of Review

With the Ocean Act provision that the plan be reviewed at least every five years, the legislative intent is clear: the development of a comprehensive ocean management plan is not to be a static, standing document; instead it should be revisited and revised periodically. The plan itself affirms this, stating explicitly:

> An integrated approach to ocean management is based on an understanding of the ocean ecosystem and the human services provided, such that management decisions incorporate ecosystem and human-use factors. Therefore, it is important that the ocean management plan adapt as better information and science are developed, policy goals evolve, and as experience in applying the ocean management plan framework is gained.
>
> — Massachusetts Ocean Management Plan, 2009.

An entire section of the plan is devoted to provisions that govern plan revisions, from routine updates that allow for the formal incorporation of new or updated data and maps to formal amendments to the plan that involve changes to management areas, protected resources or uses, or siting standards. These protocols provide an important administrative framework for the adjustment and further development of the plan, as the understanding of both natural systems and marine-based human uses advances and as policy goals and priorities evolve.

This review document was developed by the Office of Coastal Zone Management (CZM), on behalf of EEA, to provide a review and assessment of the Massachusetts Ocean Management Plan—from its roots in the Massachusetts Ocean Management Task Force's work in 2003-2004, which led to the passage of the Oceans Act of 2008, through the process of developing the plan, and on to the progress made on many elements of plan implementation. This document also reflects comments and input from stakeholders and the public and includes an independent, third-party survey conducted by SeaPlan (formerly the Massachusetts Ocean Partnerships), which elicits and synthesizes feedback and advice provided by the Ocean Advisory Commission and the Science Advisory Council. Finally, this review document provides important context and insight that will inform future revisions and growth of the state's ocean plan.

1.2. Overview of Document

This review document is organized into 5 sections:

- Section 1 serves as an introduction, providing basic background on the Massachusetts Ocean Management Plan and the need and purpose of the plan review.

- Section 2 provides more detailed information on the context for ocean planning in Massachusetts, from the work and recommendations of the Massachusetts Ocean Management Task Force (2003-2004) to the passage of the Oceans Act of 2008.

- Section 3 presents details and specifics on the progress and performance of the plan—from its development process to its content—with subsections on plan policies and management framework, plan administration, baseline assessment, and science and data priorities.

- Section 4 contains a synthesis of the feedback obtained from the Ocean Advisory Commission and the Science Advisory Council through an independent interview conducted by SeaPlan (formerly the Massachusetts Ocean Partnership). It also includes a summary of the comments and input received from key stakeholders and the public [Note: to be completed after stakeholder feedback from public meetings and comment].

- Section 5 concludes the document with general observations and findings of the plan review, suggestions for enhancing the plan, and initial recommendations for updates to the 2009 plan.

Section 2 - Plan Context

To examine evolving ocean uses and develop a comprehensive approach to managing ocean resources, the Massachusetts Ocean Management Task Force was launched in 2003 and charged with developing recommendations, which were released in the 2004 *Waves of Change* report. The following excerpt from the report provides illustrative insight into the need for forward-thinking ocean management in Massachusetts:

> Coastal and ocean waters have played a significant role in the history of Massachusetts, for fishing, shipbuilding, trade, recreation, and scientific research, among other things. These multiple uses of the ocean are well known and appreciated as part of the fabric of what makes our state so special.
>
> With the recent growth in … offshore development, together with a variety of other ocean-use technologies known to be on the drawing boards, the "first come, first serve" approach that characterized ocean use in the twentieth century has increased tensions and in some cases created conflicts among these activities and other, more traditional types of ocean uses and resource protection goals.
>
> Public decisions about whether to allow certain development activities often occur on a piecemeal basis, typically based on incomplete information and done in reaction to private project proposals as opposed to through a process that considers in advance the trade-offs among potential uses and the various public goals for ocean resource management. Traditional ocean users often feel threatened by potential new uses of this common area, and potential new users sometimes feel frustrated because they feel just as strongly about their rights to use the resource, especially in the absence of any advance notice that such developments are prohibited.
>
> We believe that Massachusetts' ocean resources are too valuable and important for their fate to be left to such a reactive and fragmented policy approach. Massachusetts should reexamine its public trust responsibilities for the ocean. The assets of any trust - whether a land trust, or natural resource trust, or financial trust, or a public ocean trust as is here the case - must be managed for the benefit of its beneficiaries, and sound management requires a thoughtful and strategic plan to guide the allocation and preservation of its capital. This concept is particularly true for the Commonwealth's oceans, whose resources are so important to our common heritage, livelihood, enjoyment and long-term sustainable prosperity. We believe that the health and welfare of our state is tied to the status of our oceans, and we think that more careful planning for the use and protection of our ocean resources is critical to our long-term interests.
>
> —Massachusetts Ocean Management Task Force, 2004

Throughout the end of the 20th century and into the new millennium, Massachusetts ocean waters have faced unprecedented development pressure. In addition to traditional uses—recreation and tourism, fishing and shellfishing, shipping and trade, scientific research, and the infrastructure such as offshore liquefied natural gas facilities, fiber optic and electrical cables, and natural gas pipelines—new proposals for renewable energy, deepwater aquaculture, off-shore sand mining, and other activities have emerged. These increasing demands highlighted the need to effectively manage the protection and use of ocean waters for the benefit of current and future generations. This section summarizes the recent history of ocean planning and management in Massachusetts to provide context for the development of the Massachusetts Ocean Management Plan.

2.1. Ocean Management Prior to the Plan

In the decade leading up to the enactment of the Massachusetts Oceans Act, in addition to project applications for dredging and dredged material disposal, desalination facilities, and electric and telecommunication cables, and the re-licensing of existing power and wastewater treatment plants, Massachusetts was also increasingly facing new proposals for major ocean-based development such as liquefied natural gas (LNG) pipelines and terminals, renewable wind and wave energy projects, and plans for the extraction of sand and gravel resources to be used for beach nourishment and shoreline stabilization. The graphic contained in Figure 1 illustrates the ocean-based projects proposed for new permits or permit renewals 1998-2008. During this same period, the Bay State was witnessing the deterioration of marine habitats and ocean resources, including loss of eelgrass beds, major declines in diadromous and many commercial fish populations, increases in the frequency and duration of harmful algal blooms, expansion of marine invasive species, and rises in beach closures from bacterial water quality standard violations.

Within the context of the increasingly busy ocean space and the growing concerns for the health and sustainability of marine ecosystems and the services they support, the launch in June 2003 of the Massachusetts Ocean Management Task Force was a major milestone for the Commonwealth as it sought to explore options for more proactive and coordinated governance of valuable public trust ocean resources. The Task Force was convened by Governor Romney, chaired by former Environmental Affairs Secretary Susan Tierney, led by the Office of Coastal Zone Management, and comprised of 23 members representing a diverse group of ocean users and interests such as commercial and recreational fishermen, port and shipping managers, energy and utility company representatives, scientists, nonprofit organizations, and local, state, and federal officials. The Task Force's charge was to evaluate the adequacy of the existing legal and policy framework, assess the science and information base available, and develop principles and recommendations to guide statewide planning and governance efforts for ocean public trust resources. In March of 2004, the Task Force released its report, *Waves of Change*, which included 16 recommendations for improving ocean management in Massachusetts, including the keystone proposal calling for new, comprehensive legislation that would mandate proactive ocean management planning and establish

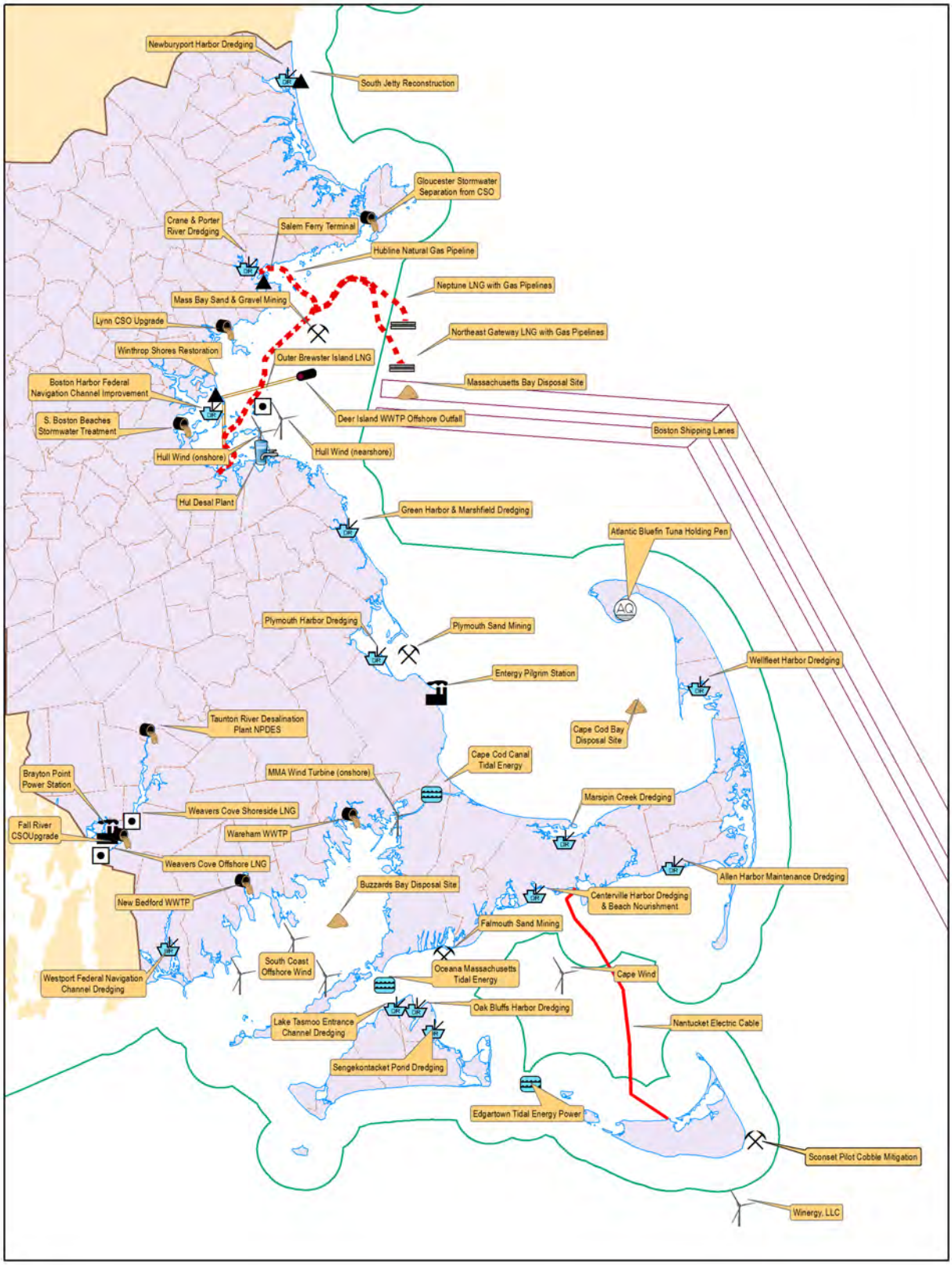


Figure 1. Ocean-based projects proposed for new permits or permit renewals 1998-2008.

objectives and strategies for an ocean planning areas and activities within the waters of the Commonwealth. In addition to the recommendation for ocean planning legislation, *Waves of Change* also called for improved inventories and characterization of ocean uses and resources; enhanced marine monitoring, mapping, and research; better inter-agency coordination; and the replacement of or revisions to the state's Ocean Sanctuaries Act.

At the same time as the Massachusetts Ocean Management Task Force was doing its work, two major national ocean policy commissions were examining similar issues. In June 2003, the Pew Oceans Commission issued its report calling for comprehensive ocean policy and management reform, and in September 2004, the U.S. Commission on Ocean Policy published its findings and recommendations for a coordinated and comprehensive national ocean policy. Both commissions stressed the need for coordinated efforts at the federal level as well among regions to address ocean and coastal needs that span state lines, articulated the need for improved marine science and research, and recommended permanent and sustained funding to support ocean and coastal research and management.

The recommendations offered by the Massachusetts Ocean Management Task Force and those developed by the two national ocean commissions provided compelling declarations with supporting evidence that more attention and effort were needed on ocean management and policy. In 2005, the Romney administration and members of the state legislature filed the first bills calling for a comprehensive statewide planning process to assess projects proposed for state ocean areas. From 2005 to 2008, the proposed bill made its way through the legislative process, with modifications along its path through committees and interactions with the new Patrick administration, and after finally passing both the state Senate and House of Representatives, on May 29, 2008, Governor Patrick signed the Oceans Act into law.

2.2. Oceans Act of 2008

The Oceans Act of 2008 has been characterized as groundbreaking legislation in that for the first time ever in Massachusetts, and arguably for the Nation, government was required to engage in pro-active planning to identify appropriate locations and standards for ocean-based development and uses and to assure long-term protection and sustainable use of ocean resources based on best-available science and stakeholder input.

The Oceans Act formally modified three existing General Laws by: creating a new section 4C in MGL Chapter 21A (Energy and Environmental Affairs) that deals with the ocean planning process; creating a new section 35GG in MGL Chapter 10 (State Treasurer) establishing an Ocean Resources and Waterways Trust Fund; and modifying several sections in MGL Chapter 132A (Ocean Sanctuaries Act) including, especially, Section 15 to allow the development of "appropriate scale" renewable energy facilities in ocean sanctuaries (except for the Cape Cod Ocean Sanctuary, where

such facilities are not allowed) provided such facilities are consistent with the Massachusetts Ocean Management Plan and other stipulations, and Section 14 conferring the oversight and control responsibility of Ocean Sanctuaries Act to CZM.

The Oceans Act also required the Secretary of Energy and Environmental Affairs to develop a comprehensive ocean management plan, with a draft plan issued by June 30, 2009, and a final plan promulgated by December 31, 2009. To assist in the planning process, the Act created an Ocean Advisory Commission and a Science Advisory Council. The Oceans Act included 15 directives for ocean planning, requiring that the plan:

1. 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.
2. Adhere to sound management practices, taking into account the existing natural, social, cultural, historic, and economic characteristics of the planning areas.
3. Preserve and protect the public trust.
4. Reflect the importance of the waters of the Commonwealth to its citizens who derive livelihoods and recreational benefits from fishing.
5. Value biodiversity and ecosystem health.
6. Identify and protect special, sensitive, or unique estuarine and marine life and habitats.
7. Address climate change and sea-level rise.
8. Respect the interdependence of ecosystems.
9. Coordinate uses that include international, federal, state, and local jurisdictions.
10. Foster sustainable uses that capitalize on economic opportunity without significant detriment to the ecology or natural beauty of the ocean.
11. Preserve and enhance public access.
12. Support the infrastructure necessary to sustain the economy and quality of life for the citizens of the Commonwealth.
13. Encourage public participation in decision-making.
14. Adapt to evolving knowledge and understanding of the ocean environment.
15. Identify appropriate locations and performance standards for activities, uses, and facilities allowed under the Ocean Sanctuaries Act.

In addition to these provisions, the Oceans Act contained other substantive requirements, including:

- All state certificates, licenses, permits and approvals for any proposed structures, uses, or activities must be consistent with the plan to the maximum extent practicable.
- The ocean management plan must be formally incorporated into the Massachusetts Coastal Program.
- The Division of Marine Fisheries (DMF) shall have sole responsibility for developing and implementing any fisheries management plans or fisheries regulations. Furthermore, commercial and recreational fishing shall be allowable uses subject to the exclusive jurisdiction of DMF.

Shortly after the formal enactment of the Oceans Act, then EEA Secretary Ian Bowles appointed Deerin Babb-Brott as Assistant Secretary for Oceans and Coastal Zone Management to oversee and manage development of the ocean management plan and tasked CZM as the lead agency supporting the planning process. With the first meeting of the Ocean Advisory Commission in August 2008, the state's ocean planning process was officially launched.

Section 3 - Plan Progress and Performance

The purpose of the Massachusetts Ocean Management Plan is to establish an integrated ocean plan that is responsive to the provisions and principles contained in the Oceans Act and advances the goals and meets the outcomes identified at the outset of the planning process. The plan itself sets forth a new ocean management framework and documents a suite of important actions, products, and commitments that were identified as necessary steps for effective implementation and administration of the plan or as desired efforts or products that would support, benefit, or enhance the plan or future iterations.

This section describes the different requirements, measures, and commitments made as a result of the Oceans Act, the planning process, and the plan itself and reports on the progress and performance made on these items to date. It is organized into three main subsections: the first part covers the plan development process and the policies and management framework advanced by the plan; the second part describes progress on elements of plan administration; and the last part explains the process for the review of the baseline assessment and provides updates on efforts made or underway to address the science and data priorities identified in the plan's Science Framework. In addition to describing progress and accomplishments, this section also identifies areas where there is more work to be done, additional effort necessary, or certain elements need further deliberation before implementation.

3.1. Plan Development and Management Framework

This section summarizes the process used to develop the Massachusetts Ocean Management Plan and the management framework created by the plan.

Plan Development Process

The Oceans Act, which was signed into law in May 2008, required a draft plan to be issued by June 30, 2009, and a final plan promulgated by December 31, 2009. To meet both the timeline requirements and be responsive to the substantive requirements of the legislation, a plan development process was delineated with three general phases: information gathering and goal setting, development of a draft plan, and formal review/final plan development.

In the first phase, four goals were developed for the Massachusetts Ocean Management Plan to be both responsive to the Oceans Act and provide the foundation for plan development and implementation. These goals were created with considerable participation from the Ocean Advisory Commission and the Science Advisory Council and were shaped by input from public listening sessions and workshops. Each goal is listed below, along with an accompanying outcome that represents the specific actions, products, or results to be achieved:

Goal #1: The Massachusetts Ocean Management Plan should facilitate careful and responsible management that balances and protects the interests of the marine ecosystem, including its natural, social, cultural, historic, and economic components.
Outcome: An integrated plan that: (1) is responsive to the Oceans Act; (2) is implemented in coordination across jurisdictional levels; and (3) achieves balance through the designation of areas for uses and activities allowed pursuant to the Oceans Sanctuaries Act and in the planning area.

Goal #2: The plan should facilitate careful and responsible management that recognizes and protects the interests of the marine ecosystem, including biodiversity, ecosystem health, and the interdependence of ecosystems.
Outcome: Special, sensitive, unique areas are identified and protected based on a first generation of an ecosystem-based management approach.

Goal #3: The plan should facilitate careful and responsible management that supports the wise use of marine resources, including renewable energy, sustainable uses, and infrastructure necessary to sustain the economy and quality of life.
Outcome: The identification of use areas and the promulgation of enforceable management measures such that: (1) locations and performance measures for allowable uses and infrastructure are identified; (2) renewable energy development is of appropriate scale; (3) conflicts with/impacts to existing uses and resources are minimized; (4) measures for reconciling use conflicts with fisheries are developed; and (5) permitting is streamlined.

Goal #4: The plan should incorporate new scientific knowledge as the basis for management that adapts over time to address changing social, technological, and environmental conditions.
Outcome: Development of an adaptive framework for the plan that: (1) establishes the plan as a key driver of future, ocean-related scientific research; (2) provides a basis for sound ocean policy, management, and science in the future; (3) results in science and research in response to identified management and policy issues and continues to engage stakeholders in future plan iterations; and (4) provides a foundation to communicate scientific information to the public.

Also in the first phase of plan development, intensive efforts were focused on identifying, compiling and synthesizing, and analyzing data and information pertaining to the many and various ocean resources and human uses. Six technical working groups focused on habitat; fisheries; sediment; transportation, navigation, and infrastructure; recreation and cultural services; and renewable energy were established to coordinate an intensive data scoping and gathering effort. Throughout this phase of plan development, these working groups—which included experts from state, federal, non-profit and academic organizations—proceeded to

scope, acquire, and review available data to assess its quality and applicability. Only data considered reliable through peer review and best expert judgment were included for further analysis and use. Numerous datasets characterizing important marine habitats and ecosystem components and current marine water-dependent uses were compiled as a result of this effort. This process was also important for identifying known data gaps.

> "As a Commission member, we could always connect the dots to efforts … information was always very understandable, thorough, made sense, and always had a context to it."
>
> —Massachusetts Advisory Commission member, 2013.

Similarly, in this stage—and throughout the process—there was a significant commitment to public participation and stakeholder engagement. The public and stakeholder engagement component included 18 public listening sessions held across the state to gather initial information, five public workshops to introduce the planning approach and solicit feedback before draft plan release, meetings of the Ocean Advisory Commission and Science Advisory Council, and more than 100 meetings with individual interest groups, advocates, industry representatives, and others to solicit direct input and answer questions. To provide the public with the necessary information to effectively participate in plan development, an ocean plan website was created and a public input portal component was developed to provide direct access to video/transcripts of public meetings, an online commenting form, and a log of the public comments submitted. Ocean planning alert emails—both electronic and in print—were also disseminated.

During the second phase of plan development, extensive analysis occurred regarding the spatial patterns of ocean resources and uses, including compatibility assessments, and examination and evaluation of siting alternatives and coarse-level trade-offs. Additionally, options for the plan's management approach were considered and refined. During the development and composition of the draft plan, expert input and public participation continued. In May 2009, the Ocean Advisory Commission held dual workshops in Woods Hole and Boston to discuss preliminary spatial analysis of existing ocean management data, compatibility and impact analysis of ocean uses, and conceptual management measures to be used in the plan. On June 30, 2009, EEA released the draft Massachusetts Ocean Management Plan.

In the last phase of plan development, copies of the draft plan were made available and notice of its availability for public review was provided in the *Environmental Monitor*. As specified in the Oceans Act, five formal public hearings were held and the testimony received was recorded. After the specified 60-day public comment period following the public hearings, EEA compiled the more than 300 comments received. During this period, the input and comments received

were reviewed and evaluated. The draft plan was then revised, finalized, and released on December 31, 2009.

> "The team did remarkable job of staying true to its mission . . . anchoring themselves in the legislation and guiding principles. That was helpful to me and commission members"
>
> —Massachusetts Ocean Advisory Commission member, 2013.

Management Framework of the Ocean Management Plan

Released in final form on December 31, 2009, the Massachusetts Ocean Management Plan is comprised of two volumes. Volume 1 details the integrated management approach for the ocean management planning area with accompanying maps and describes elements of plan administration and implementation. Volume 2 contains the Baseline Assessment and the plan's Science Framework. The Baseline Assessment, which was mandated by the Oceans Act, includes information cataloguing the current state of knowledge regarding human uses, natural resources, and other ecosystem components of Massachusetts ocean waters. The Science Framework builds on the Baseline Assessment, as well as science and data strategies developed for the plan's management measures, to identify and prioritize the future scientific research and data acquisition that will support continued evolution of the plan.

In terms of the policy and management framework developed in the plan, the approach taken combines elements of both designated-area and performance standard-based management by establishing three categories of management areas. As shown in Figure 2, the three designated management areas are:

- Prohibited Area - This area is coincident with the Cape Cod Ocean Sanctuary where a variety of uses, activities, and facilities are prohibited by the Oceans Sanctuaries Act, as amended by the Oceans Act, and therefore prohibited under the plan.
- Renewable Energy Areas - Two Wind Energy Areas are designated for commercial-scale wind energy facilities, constituting 2% of the planning area. Both commercial-scale and community-scale (as defined in the plan) wind energy development is allowed in the Gosnold Wind Energy Area subject to Massachusetts Environmental Policy Act (MEPA) review. The scale of wind energy development allowed in the Martha's Vineyard Wind Energy Area will be determined by the Martha's Vineyard Commission.

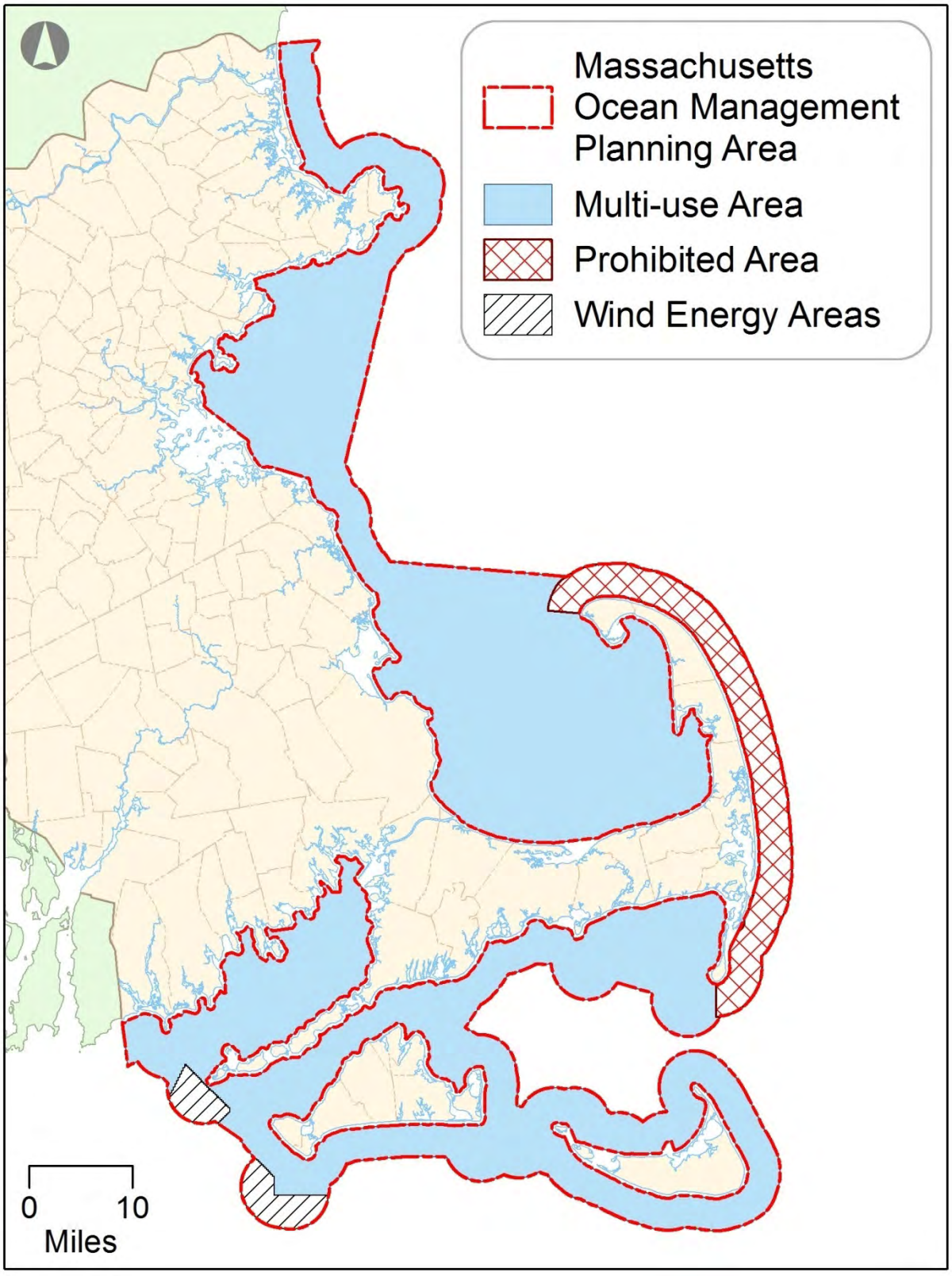


Figure 2. Ocean planning area and the designated management areas contained in the ocean plan.

- Multi-use Area - The majority of the planning area remains open to all uses, activities, and development as allowed under the Ocean Sanctuaries Act, including: cables, pipelines, sand and gravel extraction for beach nourishment, community-scale wind energy facilities of appropriate scale, wave and tidal energy facilities, and aquaculture.

For management standards, the plan identifies and provides enhanced protection for Special, Sensitive, or Unique (SSU) natural resources and important existing water-dependent uses in the siting, construction, and operation of new uses, facilities, and activities, directing such ocean-based development away from high value resources and areas of concentrated existing water-dependent uses. The vulnerability of each resource to new uses, activities, and development was determined and ranked through compatibility assessments. In addition, management guidance for balancing impacts to commercial and recreational fishing and recreational boating was developed and the compatibility of these existing uses with potential new uses such as renewable energy facilities was assessed.

Consistent with the intent of the Oceans Act, the plan was developed to maximize integration and coordination among state agencies and to encourage consistency and synchronization with federal, regional, and local levels of government. In addition, the management framework of the plan was designed to be implemented within the existing regulatory structure, relying on a networked approach where the scope and expertise of existing agency authorities can be harmonized for coordinated review and approval. The ocean plan adopts the MEPA review process as the primary and most applicable mechanism for providing and analyzing comprehensive information on proposed ocean uses, facilities, and activities. Proposed projects that are required to prepare an Environmental Impact Report (EIR) are subject to the plan's performance and siting standards. This EIR threshold was used to capture projects that are most likely to have potentially significant impacts. In MEPA review, project proponents must demonstrate consistency with the plan's siting and performance standards associated with SSU resources and existing water-dependent uses. The final MEPA certificate issued by the EEA Secretary will affirm compliance with the siting standards and evaluate consistency with management standards, and may direct agencies to address outstanding issues in permitting or licensing.

The Massachusetts Ocean Management Plan also defines "appropriate scale" to ensure that renewable energy development is consistent with the plan and details requirements for providing community benefits. The plan confirms that Regional Planning Agencies with statutorily derived regulatory authority—the Martha's Vineyard Planning Commission and Cape Cod Commission—are given the authority to define the appropriate scale of offshore renewable energy facilities and review such facilities as developments of regional impact.

Detailed further in the Plan Administration section below, Volume I of the plan also describes how the plan is administered, including sections on the ongoing planning structure, the plan modification process, proposed regulatory changes, the interaction between the Ocean Sanctuaries Act and the plan, and the Ocean Resources and Waterways Trust Fund.

3.2. Plan Administration

The development of the Massachusetts Ocean Management Plan was guided by the goals of integrated management, effective stewardship and protection of marine ecosystems, support for sustainable uses and services, and adaptive management. To carry these goals forward through implementation, the plan details various administrative mechanisms necessary for its successful execution and continued evolution.

Plan Implementation Measures

In addition to outlining provisions for formal revisions to the plan (updates and amendments) and measures to ensure continued stakeholder input, expert advice, and partnerships processes, the plan specifies some key elements for effective implementation including: interagency coordination for project review, incorporation of the plan into the Massachusetts Coastal Program, development of implementing regulations and modification of existing regulations, and the establishment of mitigation fees and trust fund guidelines.

Interagency Coordination - The Oceans Act vests the authority for oversight, coordination, and planning of the Commonwealth's ocean areas with the Secretary of EEA. The Secretary has responsibility for ensuring that state agency actions that relate to ocean management—including policy development, scientific research, and regulatory decision-making—are consistent with and advance the goals of the ocean management plan. During plan development, an internal team of EEA agency representatives was assembled to provide important input and ensure that the plan is in step with other state statutory and regulatory responsibilities. Led by CZM, a similar inter-agency group was identified to assist the Secretary in coordinating the implementation of the plan, including agency efforts on reviewing projects subject to the plan, developing regulations, and advancing priority elements as outlined in the Science Framework (discussed below). Since the plan was promulgated, an interagency group comprised of CZM, the Massachusetts Department of Environmental Protection (DEP), the Department of Fish and Game (DFG), including the Natural Heritage and Endangered Species Program and DMF, and the MEPA Office has been working on enhanced coordination for project review among the various agencies. This interagency coordination has resulted in a more synchronized and streamlined review process that benefits both project proponents and the authorizing agencies. These benefits extend to regional and local jurisdictions, such as the Cape Cod Commission and Martha's Vineyard Commission, who have similar regulatory standards and are assisted by the

coordinated MEPA review process that considers proposed project impacts and alternatives. A review of projects that have been subject to the plan since its promulgation is presented in "projects subject to the plan" below.

As a part of coordinated inter-agency work on elements of plan administration, it is important to note that the plan does contain language calling for the development of implementation guidance that would help to provide additional standards for: characterizing SSU resources and important existing water-dependent uses, developing and submitting data during project review, establishing appropriate criteria to assist with siting decisions for proposed community wind projects, and determining appropriate mitigation for unavoidable impacts. To date no specific guidance has been established. The collective thinking of CZM and the agencies is that more experience is needed with different types of projects subject to the plan to better understand what such guidance would cover that would assist both project proponents and agencies. The approach currently being implemented is to address each proposed project on a case-by-case basis, with agency direction and feedback as to whether there is additional data to characterize protected resources and uses required provided during pre-application/pre-filing consultation (preferably), or during MEPA review of an Environmental Notification Form. This approach allows agencies to provide guidance based on the specifics of the proposed project and the project site. Additionally, as there have been no proposed community wind projects, and in consideration of the current state of economics for such projects, this does not appear to be an area of activity in the foreseeable future. Finally, the issue of determining appropriate mitigation for unavoidable impacts was the topic of considerable discussion during the process of developing draft implementing regulations for the plan. The draft regulations call for EEA to develop a fee framework for projects that reflect differences in the scope and scale of proposed projects and their effects on protected resources or uses.

Incorporation of the Plan into the Massachusetts Coastal Program - Another of the requirements of the Oceans Act is that "upon adoption, an ocean management plan shall formally be incorporated into the Massachusetts coastal zone management program." After more than 18 months of coordination with and preliminary review by the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management (OCRM), on August 19, 2011, CZM submitted a formal request to incorporate the plan and its enforceable policies into the Massachusetts Coastal Management Program (CMP). The changes were submitted as part of a routine program change pursuant to the Coastal Zone Management Act regulations. On September 23, 2011, OCRM approved the incorporation of the changes into the Massachusetts CMP. The publication of the notice of this approval in the October 4, 2011, issue of the *Environmental Monitor* formally incorporated the Massachusetts Ocean Management Plan into the CMP, as presented in the *Massachusetts Office of Coastal Zone Management Policy Guide - October, 2011*, which is the official statement of

the Massachusetts coastal program policies and legal authorities. The enforceable standards of the plan are contained within Appendix 5 of the *Policy Guide*.

Development of Implementing Regulations and Modification of Existing Regulations - The Oceans Act specifically requires the EEA Secretary to promulgate regulations to implement and administer the plan. In 2010, after the plan release, an internal working group of state agencies convened to develop the first preliminary working draft of regulations. The group—comprised of representatives from EEA, CZM, MEPA, DEP, and DFG—met monthly to work through the process of converting, codifying, and clarifying the contents of the plan into regulatory language. In August 2011, an advisory group consisting of a broad cross-section of stakeholders and interests was convened to review and provide feedback on a working-draft set of regulations to administer and implement the plan. Chaired by CZM, the advisory group met for a series of seven meetings to provide EEA with input and feedback on draft regulations. In April 2012, the draft rules were presented to and reviewed by the Ocean Advisory Commission. The draft regulations then went through the state administrative review process, with review and approval from EEA, the Executive Office of Administration and Finance, and the Governor's Office. In the first part of 2013, after a public comment and public hearing process, the final stages of rulemaking and formal issuance will occur.

As part of the ocean plan regulations development process, MEPA, DEP, and DFG engaged in a process to review relevant parts of their applicable regulations. The outcome of the review was that, generally, no major changes to rules were required as a result of the plan, but that there were a few minor modifications and updates that would improve consistency, specifically to MEPA regulations, and to DEP's 401 Water Quality Certification and Chapter 91 regulations.

Projects Subject to the Plan - As of January 2013, there have been three projects proposed whose activities and locations are subject to the plan. All three proposed projects are located in the Multi-use Area. Two projects involve the installation of submarine fiber optic cables and one proposes the installation of a tidal energy project.

- *GPCS Fiber Communications Fairhaven to Martha's Vineyard Fiber Optic Feeder Cable Project* - In May 2010, GPCS Fiber Communications, Inc., submitted an Expanded Environmental Notification Form (EENF) to the MEPA Office for review. Although the project was planned and designed to have impacts that fell below the mandatory MEPA thresholds, the proponent submitted the EENF with the intention of voluntarily submitting a Single Environmental Impact Report (SEIR). The project proposed the installation of a fiber optic feeder cable from Fairhaven to Tisbury on Martha's Vineyard through Woods Hole in Falmouth (Figure 3). The proposed cable route enters the water at Sconticut Neck and crosses Buzzards Bay to

reemerge at Woods Hole. It then travels along roadway rights-of-way to Nobska Point, reentering the water to cross Vineyard Sound to Tisbury at Tashmoo on Martha's Vineyard. The preferred route incorporated 7,500 feet of horizontal directional drilling (HDD) from each entry point in Buzzards Bay and Vineyard Sound to eliminate impacts to eelgrass, intertidal flats, and hard/complex seafloor—three SSUs established by the plan. Installation of the cable in the center portions of Buzzards Bay and Vineyard Sound would be accomplished using a towed sled to place the cable approximately five feet below the sediment surface in a slice four-to-eight inches wide created by a blade on the sled.

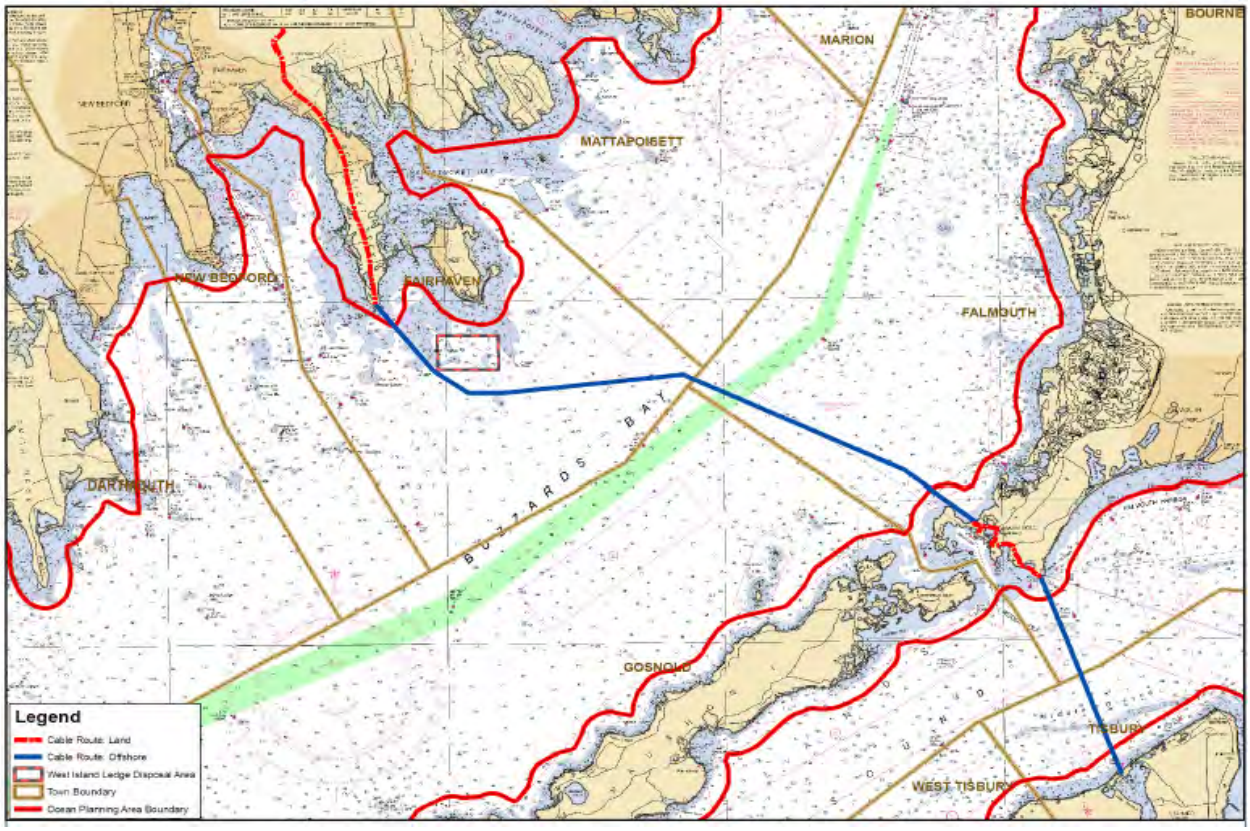


Figure 3. Proposed location of GPCS fiber optic cable project, Fairhaven to Tisbury.

As directed by the plan, the project was reviewed by an interagency workgroup including CZM, DEP, DMF, and the MEPA office. The result of this review was the issuance of a Secretary's MEPA Certificate authorizing the preparation of an SEIR. The Certificate instructed the proponent to gather and present information collected during a route survey of the seafloor, to verify the location of SSUs as defined in the plan and to ensure that there were no permanent impacts to ocean resources. GPCS was instructed to submit a survey plan, pre- and post-construction monitoring plan, and mitigation plan. Since the issuance of the Secretary's Certificate, no further action has been taken on the proposal by the proponent.

- *Town of Edgartown: Muskeget Channel Tidal Energy Project* - On March 31, 2008, the town of Edgartown on Martha's Vineyard was granted a preliminary permit by the Federal Energy Regulatory Commission (FERC) to explore the feasibility of generating hydrokinetic energy from tidal flows in Muskeget Channel. The Town submitted an EENF to the MEPA office in January 2011, followed by a draft license application and an application for a successive preliminary permit to FERC in February and March 2011, respectively. The successive preliminary permit was granted by FERC on August 2, 2011. The location of the proposed pilot project is shown in Figure 4. It includes installation of 14 tidal energy units with a nameplate capacity of five Megawatts (MW), suspended approximately 25 feet below the sea surface and anchored to the seabed in areas of the channel at least 100 feet deep. Each tidal energy unit contains eight turbines and measures 91 feet long, 14 feet wide, and 56 feet high. 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. The pilot project also includes baseline environmental studies prior to project construction and the installation of one tidal energy unit during the first year of deployment. The data collected from these studies and test deployment will provide information for the phased installation of the remaining 13 units. The project is proposed as an eight-year pilot with possible expansion to a commercial, utility-scale project of 20 MW in the future.

  This tidal energy project is located within the Multi-use Area designated by the plan. The Oceans Act allows for the development of renewable energy facilities "of appropriate scale" and recognizes the importance of providing opportunities to "achieve significant social benefits from the development of renewable energy in balance with other social values." The plan lists seven factors that projects are required to address in the determination of appropriate scale; however, as stated in the plan, projects that are reviewed by FERC as pilot projects and that meet existing state regulatory standards are presumed to be of appropriate scale and are allowed in the Multi-use Area. As such, the appropriate scale standards required for a commercial-scale tidal energy project are not applicable. Review of the EENF by the agencies resulted in comments concerning the need for additional survey data and monitoring and potential conflicts with existing marine water-dependent uses, especially commercial and recreational fishing. The Secretary's MEPA certificate 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 fisheries, marine mammals, large pelagic species, sea turtles, and avian species. Since the issuance of the Secretary's Certificate, the proponent has been conducting pre-deployment monitoring and preparing the DEIR. The DEIR is

expected to be filed with MEPA in the spring of 2013, once the pre-deployment studies of marine mammals and avian species are completed.

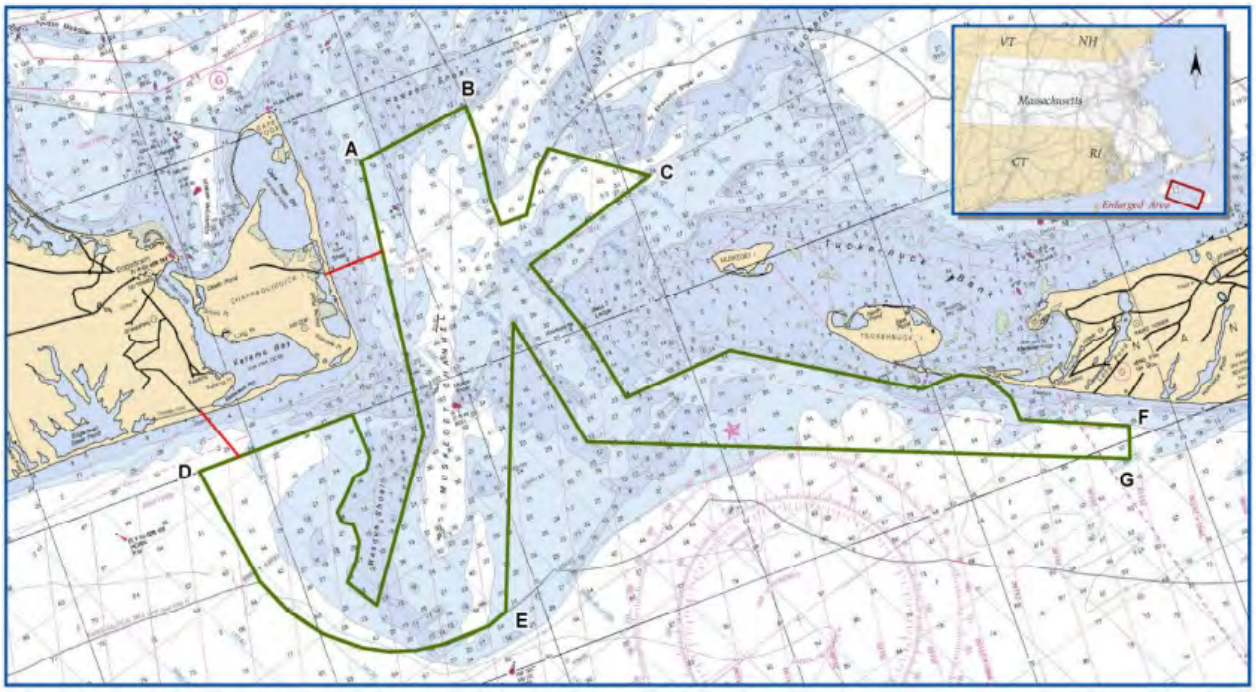


Figure 4. Proposed location of Edgartown Muskeget tidal energy project.

- *Comcast—Martha's Vineyard Fiber Optic Cable Project* - Comcast Cable proposed to install a submarine fiber optic communications cable across Vineyard Sound from the Town of Falmouth to the Town of Tisbury to provide security against cable outages to the existing single submarine cable providing internet and telephone service to Martha's Vineyard. The initial project proposal included installation of a new 0.45-inch submarine cable of approximately 4.6 miles in length from a location at the intersection of Mill Road and Beach Road in Falmouth (Mill Road Landing) to Squantum Avenue in Tisbury (Squantum Ave Landing). The cable is proposed to be routed in a sub-surface, high-density polyethylene conduit extending seaward approximately 2,000 feet from shore using HDD. The remaining 20,000 feet of cable will be installed approximately 4 to 6 feet below the seafloor using either a hydroplow or a jetplow. The shore-side cable route will utilize existing utility poles to connect to service hubs in Mashpee and Tisbury.

  The plan presumes that a project alternative located outside mapped SSU resources is a less environmentally damaging practicable alternative than a project located within a mapped SSU resource. According to the plan, SSU resources associated with cable projects are: North Atlantic Right Whale core habitat, Fin and Humpback Whale core habitat, areas of hard/complex seafloor, eelgrass, and inter-tidal flats. As

indicated by the plan, SSU resources in the vicinity of the proposed project are primarily areas of hard/complex seafloor, but there are also eelgrass beds. The SSU resource maps in the plan represent the best available information regarding the extent of SSU resources at the time of publication, but the plan acknowledges that on a project-specific basis, pursuant to an EIR scope issued by the Secretary, additional site characterization work may be required to confirm the presence or absence of an SSU resource. In the case of SSU resources such as areas of hard/complex seafloor or eelgrass, the plan specifically recognizes that certain projects may require higher resolution data through project-specific site characterization.

The proponent had two pre-application meetings with the representatives of the interagency workgroup to present the project, discuss marine survey efforts, and present survey results. These meetings provided guidance and suggestions for how the project could navigate the process and be responsive to the interests reflected in the plan. Subsequent feedback enabled the proponent to refine the survey for the proposed route and avoid impacts to SSU resources. After performing preliminary marine surveys, the proponent presented survey results to the workgroup and presented a refined route for the preferred alternative in the June 2011 EENF filing with the MEPA office. Following review of the EENF, the project was scoped for a SEIR to present information and analysis from a more complete survey of the proposed cable route, verify the location of SSU resources, and ensure that there are no permanent impacts to these resources. Following issuance of the Secretary's Certificate on the EENF, the proponent prepared and submitted to the workgroup a detailed marine survey and sampling plan designed to provide more comprehensive bathymetry and characterize benthic habitats, seafloor sediment types, marine archaeological resources, and geological features and processes within the proposed cable corridor. These detailed surveys were completed in September 2011 following approval of the marine survey plan by the agencies.

As directed by the Secretary, the proponent submitted an SEIR in April 2012. Several changes to the project were incorporated based on the detailed marine surveys. These changes included increasing the length of the HDD segments to avoid both eelgrass and hard/complex seafloor not present on the maps in the plan but subsequently identified during the surveys (Figure 5), and the use of a dynamically positioned surface vessel paired with a multi-mode seabed tractor to eliminate potential impacts caused by the anchor chain scouring of a typical surface barge/hydroplow installation. The proponent also indicated that during installation in areas identified as containing cobbles or boulders, the cable route would be modified slightly within the defined corridor to avoid those areas. As described in

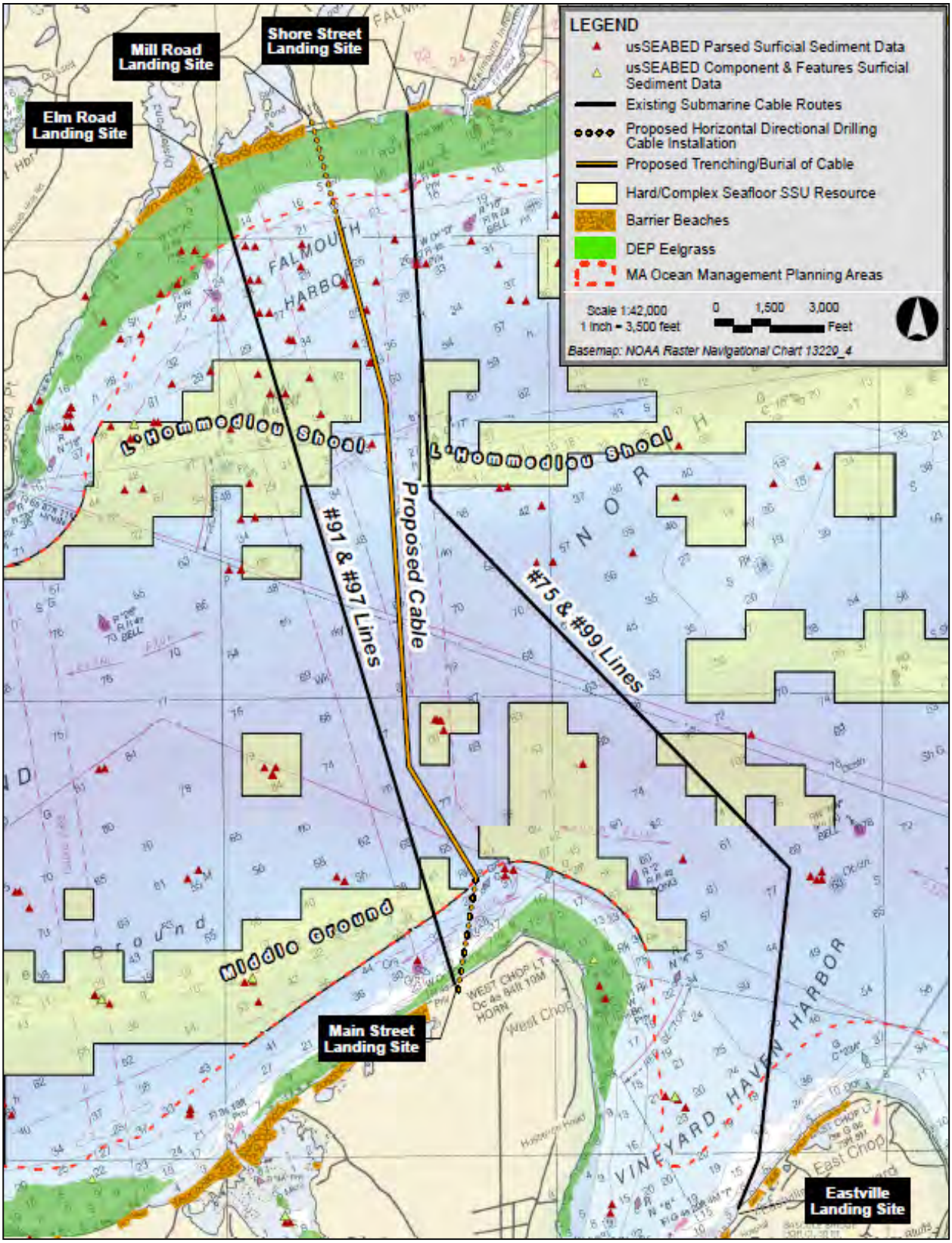


Figure 5. Proposed location of Comcast/NSTAR hybrid fiber optic/electric hybrid cable project.

the SEIR, the proponent proposed to perform a post-construction video survey of the cable route approximately four to six weeks after initial installation. This survey would consist of a one-day reconnaissance-level survey consisting of side scan, bathymetry, and video transects over the cable alignment to determine if any visible evidence of the cable trenching or significant disturbance is still present. If any is found, a subsequent survey would be conducted one year later consisting of the same reconnaissance-level data collection.

In July 2012, the proponent submitted a Notice of Project Change (NPC) to MEPA. The changes include adding NSTAR Electric as a co-proponent, changing the cable from a 0.45-inch fiber optic cable to a 5.5-inch hybrid electric/fiber optic cable, increasing the HDD conduit from 6-inch to 12-inch diameter conduits, and adding a second HDD conduit from the Falmouth landing site to accommodate a future anticipated NSTAR submarine electric cable. The proposed project changes will not result in any significantly greater submarine environmental impacts than those reviewed in the SEIR and will reduce the impacts by co-locating cables. This is consistent with the plan, which states "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 'bundled' within common corridors to the maximum extent feasible." The Secretary's Certificate found the proponent had satisfactorily demonstrated that the project would not significant alter SSU resources or other environmental resources defined in the plan.

> "The positive aspect of the Ocean Management Plan is that it defines what the constraints are up front so we were able to conduct marine sampling that mapped those marine resources, and then develop a plan to avoid them. That predictability is very important and set the stage for the other permit agency reviews."
>
> —Consultant for Comcast/NStar hybrid electric fiber-optic cable, 2013.

Since the filing of the NPC, the proponent has filed a Notice of Intent (NOI) and is in discussions with the Tisbury Conservation Commission. The proponent has also been coordinating closely with the Martha's Vineyard Commission and will be making a full presentation to them on January 24, 2013. A filing has also been made to the Cape Cod Commission (CCC) under Limited Development of Regional Impact for scoping, which is anticipated to be completed by early January 2013. Once a decision has been issued by the CCC, a NOI will be filed with the Falmouth

Conservation Commission. This will be followed by applications to DEP for both a Chapter 91 license and 401 Water Quality Certificate, the U.S. Army Corps of Engineers for an individual permit, and CZM for federal consistency review.

Establishment of Mitigation Fees and Trust Funds - The Oceans Act required the establishment of an Ocean Resources and Waterways Trust Fund (the Trust Fund) to be administered by the EEA Secretary in consultation with DEP. In Fiscal Year 2009, the Trust Fund was established to accept revenues authorized by the General Court and any proceeds from ocean development mitigation fees. Administrative guidelines for use of and expenditures from the Trust Fund have been developed by CZM and EEA with input from the interagency team and are included in Appendix A. 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 plan.

To date, there have been two deposits to the Trust Fund. The first was $1,000,000 directed to the Trust Fund as a result of supplemental mitigation related to ongoing benthic impacts associated with construction of the Hubline natural gas pipeline project in Massachusetts Bay. The second was $42,650 associated with a DEP permit requirements for the placement of hard cover material by the Northeast Gateway pipeline lateral project. A third deposit in the amount of $20,000 is expected to be deposited into the Trust Fund in 2013 as compensation for the Comcast communications cable project between Falmouth and Tisbury (see above in "projects subject to plan" section). As summarized below in Table 1, there have been five projects supported by the Trust Fund for a total of $335,540 expended as of January 2013.

Revisions to Plan

The Massachusetts Ocean Management Plan explicitly recognizes that understanding of ecosystems and marine processes will continue to grow and evolve, as will the ability to map locations and intensity of human uses. The plan therefore contains specific provisions to address data gaps, update information, and take into account new uses proposed for ocean areas. The plan details two types of formal plan revisions: plan updates and plan amendments, described below.

Table 1. Projects supported by Ocean Resources and Waterways Trust.

Year	Expended Amount	Project
2010	$ 120,300	Sediment and infauna analysis to ground-truth seafloor maps and identify regions with statistically similar sediment types and infaunal communities. Project area included ocean area off of South Shore and northern Cape Cod Bay. Project managed by CZM, included external contractor.
2010	$ 15,469	Procurement of a high-definition video camera to ground truth seafloor and sediment maps and support habitat classification and fisheries management. Project managed by DMF.
2011	$ 145,359	Sediment and infauna analysis to ground-truth seafloor maps and identify regions with statistically similar sediment types and infaunal communities. Project area included southern Cape Cod Bay, Buzzards Bay, and south of Islands. Project managed by CZM, included external contractor.
2012	$ 36,315	Acquisition of seafloor imagery and analysis of benthos in the Massachusetts Wind Energy Area south of the Martha's Vineyard. Project managed by CZM through an ISA with UMass Dartmouth's School for Marine Science and Technology.
2012	$ 18,097 expended (total project is $105,622)	Sediment and infauna analysis to ground-truth seafloor maps and identify regions with statistically similar sediment types and infaunal communities (Science Framework priority #2). Project area included state waters of Massachusetts Bay from Boston harbor area north to New Hampshire border. Project managed by CZM , included external contractor.

Plan Updates - Distinct from plan amendments, updates are more frequent modifications made to keep the plan up-to-date with current information and other minor revisions or clarifications considered necessary for effective and efficient administration. Updates include incorporation of updated data and information related to the spatial extent of SSU resources and areas of existing water-dependent uses. Updates may also take the form of corrections to address technical discrepancies or errata, clarify intent or meaning, and make minor shifts in management area boundaries, and other such adjustments that do not result in significant changes to the management framework or geographic extent of the plan. The update process is described in Chapter 3 of the plan and contained in the draft regulations.

Since promulgation of the plan in 2009, no plan updates have been completed but efforts to implement one are underway. As described below in the "science and data priorities" section, significant effort has gone into filling a key data gap identified in the plan: improving the data quality and maps for recreational boating activity, an important existing water-dependent use in the planning area. During the plan development, there was strong

consensus that available data on this activity were limited and did not provide accurate nor adequate information on recreational boating spatial patterns or location of areas for particular activities, and the development of new spatial and economic data on recreation uses was identified as one of top priorities in the Science Framework of the plan. In 2010, a comprehensive survey of recreational boaters was conducted by the Massachusetts Ocean Partnership (now SeaPlan) in coordination with the Urban Harbors Institute, CZM, and the University of Massachusetts Boston. The results were used to identify spatial patterns for recreational boating in and around the planning area. The data were reviewed and then analyzed to identify areas of high concentration of recreational boating to replace the current map in the plan. The updated information and data were presented to the Ocean Advisory Commission and the Science Advisory Council, and after deliberation and guidance received from these bodies, two options for depicting the Areas of Concentrated Recreational Boating Activity were developed for a potential plan update: a map depicting the top 50% of highest boating density, and a map depicting the top 25% of highest boating density. A summary of the survey, data development and analysis procedures, and the two map options were noticed in the *Environmental Monitor* for a 30-day comment period, which closed on August 10, 2012.

Starting in May 2012, another survey of recreational boating activities was conducted, this time covering the entire Northeast region (see "science and data priorities" section below). The survey utilizes the same methodology as the 2010 study for Massachusetts marine waters and will provide slightly higher numbers of boaters surveyed, improve spatial coverage, include transient boating, and identify areas for specific activities related to recreational boating (e.g., fishing).

With the pending availability of the 2012 data and information, a determination had to be made whether to move forward with the proposed plan update with the 2010 maps, or wait a few months to expand the cumulative dataset by incorporating the 2012 results before implementing a plan update. Based on guidance from the Ocean Advisory Commission and Science Advisory Council, it was resolved that the best course of action was to pause and evaluate the larger dataset, which would cover more time and space and provide more robust information regarding boating patterns, navigational corridors, and areas of highest activity.

Plan Amendments - As described in the plan and codified in the draft regulations, the following changes to the plan shall be made only through an amendment:

- The revision of existing or the creation of new management area locations or boundaries, excepting minor adjustments;
- The substantial revision of existing or the creation of new management standards;

- The identification of new or removal of current protected Special, Sensitive, or Unique Resources;
- The identification of new or removal of current protected areas of Concentrations of Water-Dependent Uses; or,
- Other changes that would result in significant alteration to the management framework or geographic extent of the plan.

Since promulgation of the plan in 2009, no plan updates have been completed nor have any been contemplated. In accordance with the statutory requirement under the Oceans Act, the plan contains language that anticipates formal review and assessment leading to plan revision and amendments at least once every five years. This plan review and assessment is the first step of the process that will lead to a potential plan amendment. The review process will provide valuable information, evaluation, and feedback that will inform the scoping of potential plan revisions, inclusion of stakeholder and expert participation and public input, engagement of the Ocean Advisory Commission and Science Advisory Council, and process for ensuring the most current and robust data and information are included.

Expert Advice, Stakeholder Input, and Partnerships

As described above in the "plan development process" section, 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 two formal advisory bodies established by the act, the Ocean Advisory Commission and the Science Advisory Council, were valuable forums for stakeholder and expert dialogue during plan development, and continue to be very important sources for advice and guidance during plan implementation. An extensive public involvement effort—developed and implemented with strong support from the Massachusetts Ocean Partnership (now SeaPlan)—was also a vital component of the planning process. Other partners, such as federal agencies, regional organizations, and other institutions and agencies involved in ocean planning and related policy, science, and research, played strong roles in plan development, and during the plan implementation process, these relationships have continued and strengthened. This section provides an overview of the major sources of expert and stakeholder input into the Massachusetts Ocean Management Plan development, implementation process, and revision processes.

Ocean Advisory Commission

The Ocean Advisory Commission is comprised of 17 members representing communities and stakeholder interests, legislators, and public agencies, with mandated composition and terms (Appendix B). During development of the plan, the Ocean Advisory Commission met quarterly, providing input and helping to shape the plan's goals and outcomes, management and policy framework, and related issues throughout the entire plan development process. The

Commission also served as a vehicle for public workshops and general public input. To support plan development, two sets of stakeholder workshops were held by the Ocean Advisory Commission. During the workshop held in Boston in February 2009, stakeholders and the public were presented with information gathered and asked for input on the planning process and findings to date. At the workshop on Cape Cod in May 2009, feedback was solicited from stakeholder participants on preliminary maps, use compatibility, and conceptual management options.

After release of the final plan, the Ocean Advisory Commission continued to provide helpful input on aspects of plan implementation, meeting four times during 2011 and 2012 to provide input on draft regulations, plan update options, and progress on work related to science and data priorities. The meetings are public and provide opportunities for public input on particular subjects.

Pursuant to the provisions of the Oceans Act, the terms of the original slate of commission members expired in 2011. EEA worked with the Governor's office to identify and appoint (or re-appoint) members for a re-constituted Ocean Advisory Commission, which met for the first time in November 2012 for an update on plan implementation progress and to begin discussions on the review of the 2009 plan.

Science Advisory Council

The Science Advisory Council was established by the Oceans Act to provide support and advice on the science information compiled for the plan. The Science Advisory Council is made up of nine members from institutions or interests specified in the statute (Appendix B). During the development of the plan, the council met seven times to provide input and support to the planning team on specific issues and components of the plan related to science and data. One of the primary roles of the Science Advisory Council was provide guidance on the development a Baseline Assessment that serves as the plan's foundation for characterizing environmental and socioeconomic conditions of the Massachusetts ocean areas (described in more detail below). The council was also instrumental in the development of a Science Framework that identifies eight science priorities to be addressed following promulgation of the plan (also described in more detail below). As work on these priorities has been ongoing over the last three years, the Science Advisory Council has been periodically convened to provide input on work relating to habitat classification, seafloor mapping, spatial and economic data on recreational boating, and other topics.

The Science Advisory Council will continue to be valuable advisors on an update of the Baseline Assessment and play an important role in providing expert subject matter counsel on issues

related to implementing the science and data elements of the 2009 plan and improving the Science Framework for future plan revisions.

Regional Planning Agencies

As strong representatives of coastal communities, Regional Planning Agencies also have a role in ocean planning. Six Regional Planning Agencies (Merrimack Valley Planning Commission, Metropolitan Area Planning Council, Cape Cod Commission, Martha's Vineyard Commission, Nantucket Planning and Economic Development Commission, and Southeastern Regional Planning and Economic District) are members of the Ocean Advisory Commission, providing valuable insight on regional and local ocean management issues. Pursuant to the Oceans Act, Regional Planning Agencies with statutorily derived regulatory authority—the Martha's Vineyard Planning Commission and Cape Cod Commission—are given the authority to define the appropriate scale of offshore renewable energy facilities and review such facilities as developments of regional impact. These two Regional Planning Agencies have also been engaged in their own efforts on regional ocean planning. Regional Planning Agencies will continue to be consulted and provide valuable input to EEA on implementing the plan and in the scoping and development of future revisions.

Massachusetts Ocean Partnership/SeaPlan

The Massachusetts Ocean Partnership, an independent organization of ocean stakeholders, was a key partner during the development of the Massachusetts Ocean Management Plan. A memorandum of understanding (MOU) between EEA and the Massachusetts Ocean Partnership outlined the partnership's role in implementing a stakeholder and public input processes and for filling key data and science gaps during the plan development process. Through these efforts, the partnership supported a robust and extensive stakeholder involvement process, ensuring that the plan management strategies were based on sound public input. The Massachusetts Ocean Partnership also directly invested in foundational work that, among other things, examined other 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 the Massachusetts Ocean Resources Information System (CZM's online data mapping tool) that built on an open source mapping engine platform (GeoServer) to provide access to data about Massachusetts's coastal ocean areas and resources and repository for all the data and maps contained in the plan, and advanced efforts to address identified data and science needs (described more below).

In October 2011, the Massachusetts Ocean Partnership formally changed its name to SeaPlan as part of a transition to an independent organization that specializes in the science-based, stakeholder-informed, coastal and marine spatial planning around the nation and the globe.

SeaPlan is continuing its support for the Massachusetts Ocean Management Plan implementation and review and assessment process. It is also working in support of the regional ocean planning initiative in the Northeast and reaching out to assist other areas conducting coastal and marine spatial planning.

Stakeholder Groups

Between October 2008 and January 2009, EEA conducted meetings and interviews with a range of different groups, organizations, and individuals to learn more about their concerns, hear their ideas, and better understand the information and knowledge they could contribute to the planning process. More than 100 stakeholders were involved, covering government (local, state, tribal, federal), marine user groups (including fishing, recreation, energy, navigation), and non-governmental interests (including advocacy and conservation groups, academics, watershed protection associations). Since the promulgation of the plan, updates on the progress of plan implementation have been provided through presentations and talks at conferences, symposia, and workshops such as the Massachusetts Environmental Trust's Conference on Massachusetts Water Resources, the Environmental Business Council of New England's annual Ocean Management Conference, the Massachusetts Ocean Partnership's Annual Partners Meeting, the Boston Bar Association, Coastal Zone '11, the Baird Sea Grant Science Symposium on Marine Spatial Planning, Capitol Hill Ocean Week, and the National Academy of Science's Ocean Studies Board.

Interstate, Federal, and Tribal Government Coordination

Coordination with federal agencies was a key component of the ocean planning process. The U.S. Environmental Protection Agency (EPA), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and U.S. Army Corps of Engineers were all consulted to seek consistencies and maximize efficiency with federal regulatory programs that had been inadequate or absent prior to the development of the plan. This coordination was done directly and, in part, via the Northeast Regional Ocean Council (see below).

As described in the "plan administration" section above, NOAA OCRM was engaged to formally adopt the ocean management plan into the Massachusetts Coastal Management Program. As a result of this formal incorporation, enforceable provisions of the Massachusetts Ocean Management Plan can now be applied to the Commonwealth's review of federal actions and permitting decisions.

Since the plan release, EEA has also been working very closely with the new Bureau of Ocean Energy Management (BOEM) on the federal planning and analysis process for the potential leasing of areas in federal waters on the Outer Continental Shelf for offshore wind energy

development. The plan's data and information and public and stakeholder engagement processes inform the federal wind energy development planning and analysis process. In November 2009, at the request of Governor Patrick, an Offshore Wind Energy Task Force was established by the Department of Interior and serves as the formal consultative body for the federal process. The Task Force consists of state, federal, and tribal representatives, regional planning agencies, and municipal representatives. To augment the Task Force, EEA created two important stakeholder groups: a Fisheries Working Group comprised of representatives from different ports, fisheries, and organizations, and a Habitat Working Group with experts from non-governmental organizations, academic institutions, and state and federal agencies. To date, more than 50 public and stakeholder meetings have been convened on the offshore wind planning and leasing process.

During plan development, EEA also consulted with representatives of the Mashpee Wampanoag Tribe and the Wampanoag Tribe of Gay Head (Aquinnah) to learn of their concerns. The provisions in the plan provide an opportunity for formal tribal consultation as required under Section 106 of the National Historic Preservation Act (and other relevant laws or policies) to be conducted for projects subject to federal review.

Northeast Regional Ocean Council and the Northeast Regional Planning Body

The Northeast Regional Ocean Council (NROC) is 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 Governors of the New England states. In recognition of the importance of the national role in regional issues, NROC has since expanded its membership to include federal agencies. Massachusetts has been actively coordinating with NROC to address regional ocean issues, and the Massachusetts Ocean Management Plan is serving as a strong example for development of a regional ocean planning process.

Building on the work of an Interagency Ocean Policy Task Force, President Obama issued an Executive Order in July 2010 establishing a National Ocean Policy to enhance ocean and coastal management efforts, giving further momentum to NROC's regional efforts. This policy called for the formation of formal regional ocean planning bodies to implement a coastal and marine spatial planning process that will analyze current and anticipated uses of coastal and ocean resources. The Northeast Regional Planning Body was convened in November 2011 and is working closely with NROC on the foundational elements of a regional ocean planning initiative for the Northeast, including data and information gathering and public engagement efforts. The Massachusetts Ocean Management Plan process has provided the Commonwealth with unique insight and understanding in ocean planning and enables it to play an important role with both NROC and the Northeast Regional Planning Body.

The Northeast regional ocean planning initiative will benefit 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. With its role on both NROC and the Northeast Regional Planning Body, Massachusetts will seek to ensure that the content of any forthcoming regional plan or products are consistent with and can be integrated with the state's ocean plan.

3.3. Baseline Assessment and Science Framework

Volume 2 of the Massachusetts Ocean Management Plan contains the Baseline Assessment and Science Framework. The Baseline Assessment, which was required by the Oceans Act, includes information cataloguing the current state of knowledge regarding human uses, natural resources, and other ecosystem components of Massachusetts ocean waters. The Science Framework builds on the Baseline Assessment, as well as science and data strategies developed for the plan's management measures, to identify and prioritize the future scientific research and data acquisition that are identified as key measures that should be implemented to advance the plan.

Baseline Assessment

The Baseline Assessment (Volume 2 of the plan) establishes the natural, cultural, and socio-economic context for the Massachusetts Ocean Management Plan. The topics covered included: water column features, seabed features, habitat, archeological and cultural sites, human uses, economic valuation, and climate change. The Oceans Act required the appointment of a Science Advisory Council to assist in the development of a baseline assessment of the Massachusetts coast, along with other information necessary to support the development of a comprehensive ocean management plan. The majority of the Baseline Assessment was written by CZM and DMF, with important contributions by the Science Advisory Council and other state and federal ocean subject matter experts.

The Baseline Assessment is required to be reviewed and updated at least once every five years. The review and update of the Baseline Assessment will occur as part of a proposed plan revision process that will commence in the Spring of 2013. The update will examine and report on the status and trends in the physical condition, natural resources, and human uses of the Commonwealth's marine waters.

Science Framework

The Massachusetts Ocean Management Plan was developed with the best knowledge and data available at the time. Recognizing that some of the goals and the management framework could be advanced with additional science and data work, EEA established eight priority science

actions that could be achieved in a five-year timeframe. These priorities are: 1) refine fish resource Special, Sensitive, or Unique areas, 2) classify benthic and pelagic habitats, 3) develop new spatial and economic data on recreational uses in Massachusetts coastal waters, 4) develop new spatial and economic data on commercial fishing in Massachusetts coastal waters, 5) understand cumulative impacts and ocean resource vulnerability, 6) monitor climate change across Massachusetts coastal waters, 7) develop an indicator framework, and 8) develop a data network for sharing information about Massachusetts ocean resources and uses. Progress and further work required on each of these eight priority topic areas is described below.

Refine Fish SSUs

In the 2009 plan, the fish resource SSU area was derived from 30 years of DMF's spring/fall trawl survey data. The analysis of the trawl data included 22 species important to commercial and recreational fisheries in Massachusetts and vulnerable to the trawl survey gear. The data were analyzed according to the survey areas that were developed for the long-term assessment sampling design. The survey areas are defined by areas grouped by depth ranges, or strata, and regions of the state's ocean areas. The analysis ranked the different survey areas by aggregating summary statistics of many species to determine high, medium, and low fish resources areas, largely based on the biomass of species caught in each stratum. The high fish resource areas were identified as the SSU.

During the development of the plan, it was recognized that identification of important fish resource areas by the depth strata provided a solid foundation for the SSU, but that it would be preferable to develop finer-resolution data using the sampling trawl locations within each of these survey areas. In such an effort, two aspects of the fish resource SSU would be evaluated for revision. First, the biomass (or in some cases, the number) of individuals caught for each of the 22 species would not be analyzed by the survey strata areas and instead, the species abundances would be applied to the actual locations of the trawl as identified by the starting and finishing coordinates of each trawl, which would make the mapped location of fish resources in the plan more accurately reflect the actual distribution of the species. Second, within individual high fish resource areas, there are variations in the species composition. To improve the plan in the future, the underlying species composition of the mapped high fish resource areas would be examined for the compatibility of *each* of the various fish species to the different types of ocean-based projects (uses, facilities, activities). DMF has begun the analysis for this revision to the important fish resource area SSU, and it is anticipated that this effort will be an important part of potential plan revisions.

Classify Benthic and Pelagic Habitats

When developing the plan, the Commonwealth had only depth and surficial sediment to characterize marine waters. The depth data were used to derive seafloor terrain and rugosity (a measure of roughness), which together with seafloor sediment were used to produce 51 unique classes of seafloor. Since that time, CZM has been working to develop new seafloor terrain models (for determining geoforms), has received the most recent version of bathymetry data from the U.S. Geological Survey (USGS), and has worked with DMF to augment the data in the surficial sediment database by four-fold. CZM is also working with USGS to identify the stability of sediments and is working with the University of Massachusetts (UMass) Dartmouth and USGS on an assessment of water column characteristics. CZM is also developing a database of the locations of various fauna and flora species identified in the 11,000 photos that have been taken of the seafloor by USGS, CZM, DMF, UMass Dartmouth, and Woods Hole Oceanographic Institution.

A substantial amount of the additional sediment data and seafloor photos, as well as all of the infauna data that have been developed since 2009, came from three ocean research cruises; one each in 2010, 2011, and 2012 (Figure 6). In each year, from a pool of regional competitors, CZM was awarded an eight-day cruise aboard EPA's Ocean Survey Vessel *Bold*. With funds from the Ocean Resources and Waterways Trust Fund and the Seafloor Mapping Trust, CZM was able to purchase the necessary equipment, staff time, and analysis to gather several hundred sediment and infauna samples and several thousand seafloor images from the New Hampshire border to the Islands. These data have allowed CZM to refine the hard/complex seafloor SSU, begin to describe the species that are protected by the hard/complex seafloor SSU, and refine the Commonwealth's marine sediment map.

CZM and DMF are also examining the application of marine habitat classification frameworks for the ocean planning area. Currently the classification scheme is limited to the data that are available, namely surficial sediment, geoform, depth, and in some areas, infauna. CZM has begun applying portions of NOAA's Coastal and Marine Ecological Classification Standard to areas of Massachusetts that have sufficient data. CZM anticipates that the Commonwealth's seafloor classification scheme will include surficial sediment, the geoforms underlying this sediment, a description of the temporal stability of the sediment, a limited number of depth classes, a description of the physical characteristics of the water column (e.g., mean temperature, current velocity, and salinity) in a given location, and descriptions of the dominant macrofauna, macroalgae, and/or infaunal community.

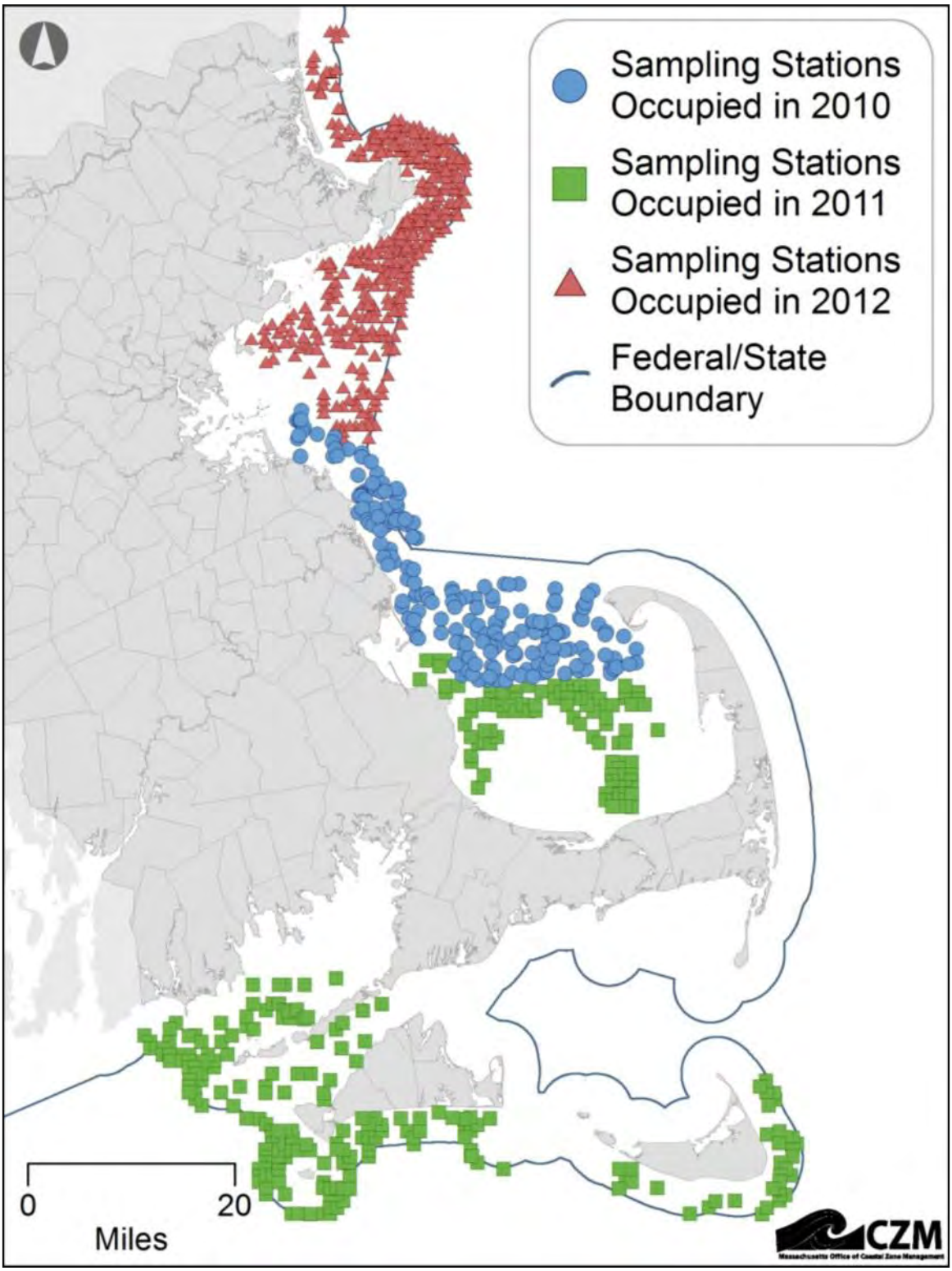


Figure 6. Sample stations from three research cruises on EPA's Ocean Survey Vessel *Bold*.

Develop New Spatial and Economic Data on Recreational Uses

In Volume 2 of the 2009 plan, recreational fishing areas derived from a DMF survey were included, along with recreational boating and fishing areas identified by a Massachusetts Marine Trades Association survey. A map of popular dive sites was also incorporated. These maps represented the best data available at the time, but since then, a significant amount of effort has been made to improve upon these data.

A major effort was undertaken to gather spatial and economic data on recreational boating activity. A partnership of many organizations led by SeaPlan (formerly Massachusetts Ocean Partnership) conducted two surveys (2010 and 2012). A 2010 survey invited 10,000 randomly selected Massachusetts registered boat owners to participate in a six-month study on recreational boating activity in Massachusetts coastal and ocean waters. Through monthly surveys, more than 22% of these boaters provided detailed information on their boating trips, including expenditures, recreational activities, and routes. Results gave an indication of recreational boating patterns in Massachusetts and provided an approximate estimate of the economic contribution of this activity to the Massachusetts economy—an estimated $806 million in 2010.

Using a similar methodology in 2012, 68,000 randomly selected registered boaters in the Northeast (NY, CT, RI, MA, NH, and ME) were invited to participate in a six-month study aimed at gathering data on recreational boating activity in the region's coastal and ocean waters. In addition to gathering spatial and economic data, the 2012 survey collected data on interstate boating traffic in Massachusetts waters and boating-based uses, such as recreational fishing, diving, and swimming. The data collected through this survey is currently being analyzed. Expected results include: 1) maps that display recreational boating patterns and important areas for a variety of recreational uses, such as fishing, diving, swimming, etc., and 2) the economic impact of saltwater recreational boating to each state and the Northeast. These data will be used in future ocean plan revisions to identify areas of the highest recreational boating activity and to identify the areas where boaters concentrate on specific recreational activities.

Develop New Spatial and Economic Data on Commercial Fishing

Information related to commercial fishing was used in the 2009 plan in several ways, including in the compatibility analysis and as criteria used in considering the siting of human activities. Although the Oceans Act specifies that the plan not regulate commercial fishing, consideration of commercial fishing was critically important for the plan's management approach. Because the nature of the potential conflict between human development in the ocean varies according to the type of fishing gear (mobile or fixed, e.g.), discerning the types

of fishing gear employed and target species was identified as a priority for the 2014 ocean plan update.

In 2011, the Massachusetts Clean Energy Center (MassCEC), in collaboration with CZM, contracted Applied Science Associates (ASA) to characterize the spatial distribution of catch, effort, and value for selected species and gear types in the Gulf of Maine and Georges Bank. For this project, vessel trip reports (VTRs) from 2000 to 2009 were analyzed. VTRs are submitted by federally permitted fishing vessels to NMFS and contain information on the area fished, gear type used, and species caught. Ten-year averages of the following datasets were created through this project: 1) total effort by ten-minute square for nine gear types, 2) total value by ten-minute square for nine gear types, 3) catch by ten-minute square for 13 species and species assemblages, and 4) value by ten-minute square for 13 species and species assemblages. These data may be used to identify the areas with the highest catch, effort, and value for select species and gear types for the marine waters around Massachusetts and into the Gulf of Maine. For example, some of the highest catch and value areas for cod from 2000 to 2009 are located off of the North Shore (Figure 7). While there is more work to be done on this priority action area, efforts currently underway by NROC to characterize commercial fishing in the region will advance this data need.

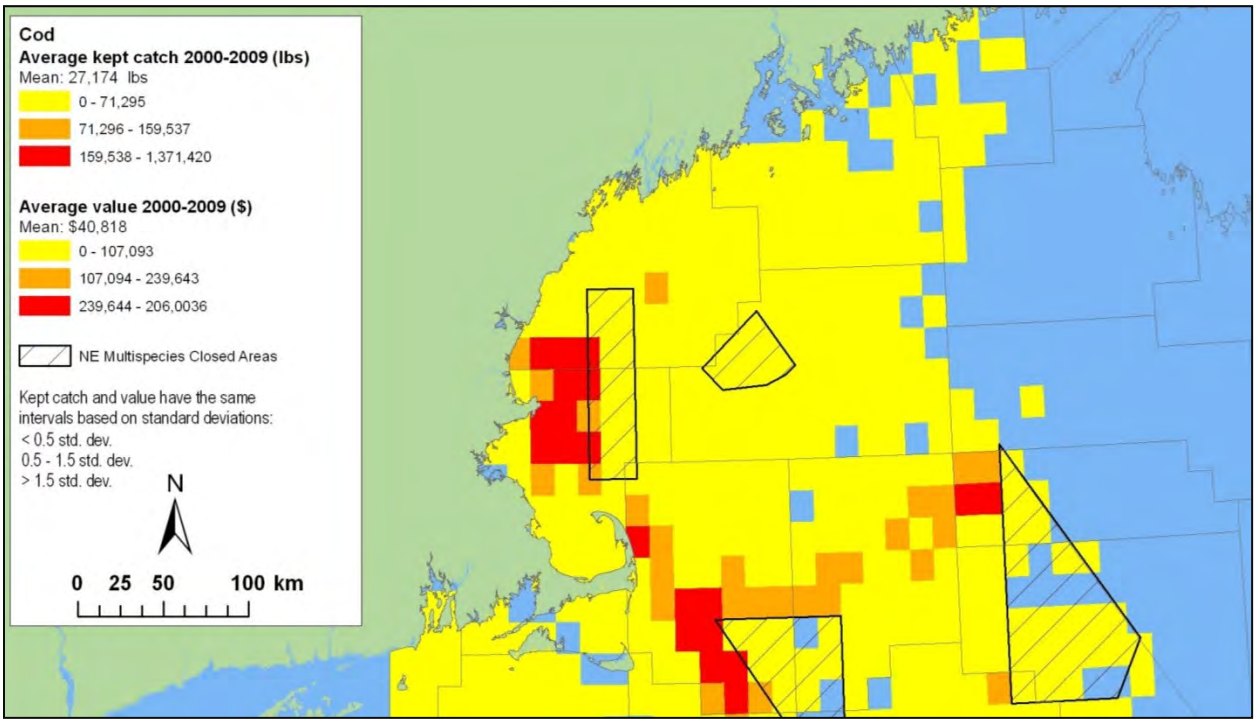


Figure 7. Cod average kept catch and value per ten-minute square for 2000-2009 with NMFS statistical reporting areas outlined in gray. Blue indicates areas with fewer than three vessel trip reports per ten-minute square. Map prepared by ASA.

Understand Cumulative Impacts and Ocean Resource Vulnerability

One of the stated objectives of the Science Framework is to better identify, characterize, and quantify impacts of anthropogenic stressors on coastal/marine ecosystems. SeaPlan, working with the National Center for Ecological Analysis and Synthesis (NCEAS) and CZM, produced an assessment of cumulative impacts in coastal Massachusetts and adjacent federal waters. The NCEAS methodology used expert judgment to characterize the vulnerability of the ecosystem to various human impacts. The vulnerability component was then combined with the intensity of the human use in any given location to produce a relative cumulative impact score for each location (grid cell) in the study area. The end result was a cumulative impact map highlighting the areas of highest impact.

Monitor Climate Change Across Massachusetts Coastal Waters

Another stated objective is to increase our understanding of the effects of climate change on the resources of the ocean planning area. Two effects of long-term climate change are that ocean temperature and the amount of carbon dioxide dissolved in seawater will both increase. Seawater temperature is important to marine organisms because it often serves as a cue for life history events (e.g., spawning, migration); it can affect the rate of feeding, development, and metabolic processes; and it helps define the spatial extent of preferred habitat of many species. The amount of carbon dioxide dissolved in seawater is critical to some shelled organisms because excessive carbon dioxide can decrease pH, which decreases the amount of minerals in seawater (e.g., aragonite) that are necessary to form and repair shells. CZM monitors these two critical parameters by using the data available through the Northeastern Regional Association of Coastal and Ocean Observing Systems (NERACOOS). Several NERACOOS buoys record seawater temperature, including two in Massachusetts Bay (buoy A01 and buoy 44013) and one in Nantucket Sound (buoy 44020). The University of New Hampshire maintains an oceanographic buoy off of Appledore Island that has several sensors on it, one of which measures the pressure of carbon dioxide in the ocean. The Appledore Island buoy is part of NERACOOS and thus the carbon dioxide data are readily accessible. CZM has also supported the piloting of carbon dioxide sensors on the existing acoustic monitoring buoys along the Boston Harbor Traffic Separation Scheme. These buoys are designed to warn mariners when whales are in the area, but the Stellwagen Bank National Marine Sanctuary and Cornell University are investigating the use of these buoys as platforms for other sensors, such as the carbon dioxide sensors.

Develop an Indicator Framework

The Oceans Act's requirement to review the plan at least once every five years is an iterative and adaptive approach to track plan implementation and measure progress toward achieving

the requirements of the act. In 2009, CZM worked with the Urban Harbors Institute, the University of Massachusetts Boston, and SeaPlan (then the Massachusetts Ocean Partnership) to develop a list of indicators or metrics that can be used to track specific environmental and socioeconomic conditions, and assess management conditions to provide feedback in an adaptive management approach. The process involved research and compilation of existing indicator programs pertaining to ocean management. The team subsequently worked with a group of experts from various organizations and through discussions and two workshops, screened a comprehensive list of indicators to select 20 preliminary performance and contextual (environmental and socioeconomic) indicators.

The list of indicators will be revised and kept updated based on available data and to ensure that these indicators will provide relevant and helpful information to measure progress in implementation of the plan. Environmental and socioeconomic indicators will be examined to help track current conditions in the planning area. This effort is intended to help in the review/update of the Baseline Assessment.

Develop a Data Network for Sharing Information on Massachusetts Ocean Resources and Uses

Two other objectives of the plan's Science Framework are to enhance data availability and inform managers, stakeholder, and the public of science and data related advancements. In February 2011, CZM released the updated version of MORIS, the Massachusetts Ocean Resource Information System, 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 (e.g., tide gauge stations, marine protected areas, access points, eelgrass beds, etc.) over a backdrop of aerial photographs, political boundaries, natural resources, human uses, bathymetry, or other data including Google base maps. Users can quickly create and share maps and download the actual data for use in a Geographic Information System (GIS). While designed for coastal management professionals, MORIS can be used by anyone interested in these data and maps.

In June 2011, a group of public and private entities, including CZM, collaborated on The Northeast Ocean Data portal, a website that can be used as a decision support and information system for people engaged in ocean planning in the region from the Gulf of Maine to Long Island Sound. The website provides access to data, interactive maps, tools, and other information needed for decision making. The data categories available through the mapping tool are: administrative and regulatory boundaries, ocean uses, biological resources, physical oceanography, demographics, and cartography. The primary audiences for this effort include regional managers, ocean stakeholders, and technical staff. The Northeast

Ocean Data website builds on existing efforts in the region and provides additional capacity for both state- and regional-level ocean planning.

Section 4 - Stakeholder and Public Perspectives

Strong and ongoing stakeholder and public input was a major component of the ocean planning process. As described in previous sections, during plan development, stakeholder and public input was sought through various outreach efforts including regular meetings with the Ocean Advisory Commission, as well as workshops and meetings with various interest groups and the public in general. After plan promulgation in December 2009, stakeholder and public engagement has continued through open meetings of the Ocean Advisory Commission and Ocean Science Advisory Council, public comment opportunities on projects subject to review and on proposed data updates, and at other forums and presentations.

As part of the plan review process, stakeholder and public input received is summarized here. Section 4.1 reviews feedback from members of the state's Ocean Advisory Commission and Science Advisory Council, as obtained from an independent assessment conducted by SeaPlan (formerly the Massachusetts Ocean Partnership). Section 4.2 summarizes input received from stakeholders during public meetings held in June 2013 and written comments on the draft of this review document.

4.1. Ocean Advisory Commission and Science Advisory Council Interviews

As key stakeholders groups, the input and advice of the Ocean Advisory Commission and Ocean Science Advisory Council is a critical part of a plan review process. To this end, SeaPlan, an independent nonprofit group, was asked to conduct an independent, third-party assessment through semi-structured interviews of the members of the Ocean Advisory Commission and Ocean Science Advisory Council. The purpose of these interviews was to gather feedback from the two bodies that were created under the Oceans Act to provide advice, direction, and support during the process leading to the development of the Massachusetts Ocean Management Plan. The experience and expertise of the members, as well as their in-depth knowledge of state and local issues, make their input an invaluable asset and strengthen the plan review by providing various perspectives on the planning process and suggestions for improvement from those directly involved in an advisory capacity. The views and input will also inform future revisions/updates to the plan.

The two principle areas of feedback sought from the Ocean Advisory Commission and the Ocean Science Advisory Council during this survey were, generally: (1) Is the Massachusetts Ocean Management Plan progressing toward achievement of its objectives? and (2) What are the opportunities to refine the ocean plan process?

Two-thirds of the Ocean Advisory Commission and all Science Advisory Council members responded to requests for interviews. In addition, input from some past members of the Ocean Advisory Commission was solicited based on their experience with the plan development process. A semi-structured interview method was selected and served to focus conversations with Ocean

Advisory Commission and Science Advisory Council members, making it possible to garner specific feedback on key issues while encouraging an open dialogue and the opportunity to discuss additional issues. The interviews consisted of 12 questions, posed to all interviewees, relating to the plan development process, final plan content, plan implementation, advisory members' involvement in the process, and preparations for future revisions of the plan. Prior to the interviews, the first draft of this review document was distributed to the Commission and Council members. The SeaPlan interview team consisted of four professionals who conducted the interviews and data analysis. The interviews were recorded for purposes of accuracy, but the responses were anonymous. Responses were analyzed, coded, and evaluated through a methodology that permitted the interview team to present data in three ways: responses by question, responses by theme, and noteworthy responses. The final report from SeaPlan, including the detailed analysis of responses, is provided in Appendix C. Some general observations and conclusions about the different aspects of the planning process are summarized in the following subsections.

Responses by Question

The most common positive responses from the interviewees were associated with the development of a sound plan framework, the effectiveness of plan administration to date, and the public and stakeholder engagement process. Plan implementation efforts were thought to be effective in general, and most of the positive comments referred to permitting processes, specifically referring to the Comcast/NSTAR cable project. In general, it was acknowledged that more time was needed to be able to determine effectiveness of the plan implementation process. Respondents felt that while the very tight timeline allocated by legislation for plan development posed a challenge to data and information collection efforts, it did serve to develop a plan in a timely manner, with a heightened level of engagement that may be hard to maintain as the process transitions to routine implementation. When asked if their "interests" were addressed in the plan, a significant majority of the respondents said "yes" (78%).

In general, both Ocean Advisory Commission and Science Advisory Council members felt that they had ample opportunities for keeping engaged in the process and staying current with plan implementation and science and noted that communication about the process is very good. However, some members noted that following the promulgation of the plan in 2009, it has been somewhat difficult to keep up with things. With regard to science and data priorities, many responses indicated that they did not know enough to comment. However, several interviewees were aware of work on benthic habitat data and discussions on recreational boating data.

When asked to identify opportunities to improve the plan, addressing climate change and enhancing coordination with federal efforts on wind energy development were two responses that were shared by many interviewees. Many respondents affirmed the importance of updating and improving data as part of a plan revision process. In terms of suggestions for plan revisions, many responses were centered on stakeholder communication and goal setting, with

recommendations for stakeholder engagement efforts similar to those of the initial plan development process.

Responses by Theme

In order to assess the collective outlook to the question "Is the Massachusetts Ocean Management Plan progressing toward achievement of its objectives?," SeaPlan conducted an analysis to examine responses by "theme" (i.e., issues, topics, subjects that were raised in reply to any of the questions). Five themes rose to the top: (1) communication, (2) limited time, (3) goals, (4) implications beyond Massachusetts, and (5) wind energy.

A robust and ongoing communication effort was deemed to be vital to the planning process and a significant majority of interviewees (90%) indicated that the communication process was excellent and engaged the majority of stakeholders and the public in the process from the start. A majority of respondents (55%) also indicated that the issue of "limited time" was a significant factor in the plan development process. The setting and tracking of goals was raised by 40% of the interviewees (especially Science Advisory Council members) as key to facilitating and enabling decision-making. The implications of the plan beyond Massachusetts was raised by 55% of the respondents, including references to regional and federal ocean planning and also praise for the Massachusetts Ocean Management Plan as a model for other efforts. As one of the main uses addressed in the ocean plan, wind energy was raised by 55% of the interviewees, who indicated the plan adequately addressed this issue. Suggestions for improving wind energy management included ensuring commercial wind areas are multi-use, removing provisional wind areas, and clarifying jurisdiction (state, federal, local) of wind energy areas. Some interviewees expressed disappointment at the lack of proposed wind projects and that the plan did not go far enough in promoting viable wind areas (i.e., only 2% of state waters defined for commercial wind areas).

The SeaPlan report indicates the next four themes most frequently raised during the interviews were (6) accessibility/transparency, (7) climate change, (8) benthic habitat, and (9) SSUs. The comments pertaining to these themes are discussed in more detail in Appendix C.

Noteworthy Issues

During analyses of the responses, some noteworthy points came to light. For example, some interviewees felt that the planning area's nearshore boundary should be revised to coincide with mean low water, thereby ensuring continuity for both natural resource management and the management of water-dependent marine uses. There was also strong interest in details pertaining to mitigation and the Ocean Trust, including establishment and use of mitigation funds. Another interesting issue raised was related to the perceived limited impact that the plan had on fisheries management. While some felt that this was not problematic (especially since

statute clearly mandated fisheries management to the Massachusetts Division of Marine Fisheries), others felt that no integration had occurred (in spite of the language in the legislation) and that such integration should be addressed in the plan revision process.

Conclusions

The SeaPlan report contained the following summary of findings:

- Ocean Advisory Commission and Science Advisory Council members appreciated the focused effort by CZM and partners to produce a quality plan responsive to specific Massachusetts conditions. Most members were keenly aware of the plan's significance as the first plan of its kind in the nation and a model for other regions.

- Ocean Advisory Commission and Science Advisory Council members view CZM and the ocean plan team staff as very competent and are generally very satisfied with plan development and implementation.

- Plan implementation and performance is gauged primarily in terms of permitting outcomes, rather than administrative progress or progress on science and data priorities.

- The effectiveness of plan administration and communication during the planning process were seen as successful Maintaining an intense focus and engagement will be challenging as the plan transitions from development to routine implementation.

- Key issues of interest to Ocean Advisory Commission and Science Advisory Council members for the plan revision process include: climate change adaptation issues, further goals and indicators development, and integration with regional ocean planning efforts.

- Ocean Advisory Commission and Science Advisory Council meeting structure and schedule is generally adequate, although certain improvements were suggested, including clearer communication of meeting objectives, longer-term scheduling, and increased interactions between the Ocean Advisory Commission and Science Advisory Council through more intra-group and inter-group communications. There was limited interest in conducting meetings through a webinar.

4.2. Stakeholder Input and Public Comment

An important part of the plan review process is to obtain input from stakeholders through comment on the draft plan review document and through dialogue at public meetings and other forums. [*NOTE: This section will be completed to reflect the input and perspectives received.*]

5. Findings and recommendations

This section summarizes the key points made in Sections 3 and 4 and then makes several recommendations for enhancing the ongoing implementation of the ocean plan and for guiding future plan revisions.

5.1. Review findings

Planning Process

- Public participation in decision-making and a commitment to using the best available data and science regarding ocean resources and uses were foundational elements of the planning process, with significant and meaningful opportunity for both expert and stakeholder input and public participation throughout the plan development process.

- The legislatively created Ocean Advisory Commission and Science Advisory Council were actively engaged providing valuable input, viewpoints, advice, and constructive criticism through all three phases of the plan development process.

- The timelines and procedural requirements for public and formal review of the plan contained in the Oceans Act were met.

Plan Policy and Management Framework

- The ocean plan sets forth the Commonwealth's goals, siting priorities, and standards for allowed uses, activities, and facilities and creates a framework that combines elements of both designated-area and performance standard-based management, identifying two commercial Wind Energy Areas and a Prohibited Area and then allocating the remainder of the planning area as Multi-use where proposed projects must meet siting and management standards.

- The plan takes a streamlined regulatory approach with implementation through existing authorities and processes and requires close coordination between state agencies in both the review of project and also in other elements of plan administration.

- The plan identifies and contains strong protections for special, sensitive, or unique areas of marine and estuarine life and habitat and establishes siting criteria and performance standards that minimize conflicts between traditional uses of ocean resources and new uses and between allowable uses and natural resources.

- The plan identifies suitable areas and creates siting standards for ocean-based renewable energy projects, and affirms the authority of the Martha's Vineyard Planning Commission and Cape Cod Commission to define the appropriate scale of offshore renewable energy facilities and review such facilities as developments of regional impact.

Plan Administration

- In Fall 2011, the plan and its enforceable policies were formally incorporated into the Massachusetts Coastal Management Program.

- A draft set of implementing regulations was developed by an internal team of representatives of EEA agencies, revised based on the input and guidance from an Advisory Group, and reviewed by the Ocean Advisory Commission. In the first part of 2013, after a public comment and public hearing process, the final stages of rulemaking and formal issuance will occur.

- EEA agencies—including CZM, DEP, DFG, and the MEPA Office—have enhanced inter-agency coordination for review of projects subject to the plan. While the plan calls for the development of additional guidance to provide additional standards for characterizing SSU resources and important existing water-dependent uses, the approach currently being implemented is to address each proposed project on a case-by-case basis, with agency direction and feedback provided to proponents based on specifics of the proposed project and site.

- To date, there have been three projects proposed whose activities and locations are subject to the plan. All three proposed projects are located in the Multi-use Area. One project—the Comcast/NStar bundled submarine fiber optic communications/electric cable—has completed MEPA review with confirmation in the Secretary's Certificate that the proponent had satisfactorily demonstrated that the project would not significant alter SSU resources or existing water-dependent uses defined in the plan. A Draft Environmental Impact Report is under development for the Muskeget Tidal Energy Project. A second cable project proposed to cross both Buzzards Bay and Vineyard Sound was scoped for the preparation of a Single Environmental Impact Report in 2010, but no further action has been taken on the proposal by the proponent.

- No wind energy projects, neither commercial nor community scale, have been proposed in the ocean planning area.

- An Ocean Resources and Waterways Trust Fund account has been established and administrative guidelines for use of and expenditures from the Trust Fund were developed.

Two deposits have been made to the Trust, totaling $1,042,650, and a deposit of $20,000 is anticipated in 2013. There have been five expenditures from the fund for projects to enhance management of ocean resources, with a collective sum of $335,540.

Stakeholder and Public Input, Expert Advice, and Partnerships

- An extensive expert, stakeholder and public engagement effort—developed and implemented with strong support from the Massachusetts Ocean Partnership (now SeaPlan)—was a critical element of the planning process. The Ocean Advisory Commission and Science Advisory Council played strong roles in plan development and this function has continued during the implementation of the plan.

- Since the release of the plan, Massachusetts has been actively working with the Northeast Regional Ocean Council—which is comprised of state and federal agencies in the region—and other institutions and organizations involved in ocean science, research, and management in an ocean planning initiative for the Northeast pursuant to the Obama Administration's National Ocean Policy. The Northeast regional ocean planning initiative will benefit 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.

- SeaPlan, an independent, nonprofit ocean science and policy group, conducted semi-structured interviews of current and previous members of the Ocean Advisory Commission and the Science Advisory Council about their perspectives on the development, implementation and future revision of the plan. Results from these interviews included:
  - Recognition of the focused effort to produce a quality plan responsive to Massachusetts conditions and as the first of its kind in the nation and a model for other regions.
  - Administrative execution and communication during the planning process were seen as effective and attributable largely to the time-limited context for plan development; maintaining an intense focus and engagement will be challenging as the plan transitions from development to routine implementation.
  - Plan implementation and performance is gauged primarily in terms of permitting outcomes, rather than administrative progress or progress on science and data priorities.
  - Key issues of interest to Commission and Council members for the plan revision process include: climate change issues, further goal and indicator development, and integration with regional ocean planning efforts.

Baseline Assessment and Science Framework

- The Baseline Assessment (Volume 2 of the plan) was developed by CZM and DMF, with important contributions from and review by the Science Advisory Council and other state and federal ocean subject matter experts. It establishes the natural, cultural, and socio-economic context for the plan and serves as robust point of reference for assessing change over time. In future revisions of the 2009 plan, the Baseline Assessment will be reviewed updated to examine and report on the status and trends in the physical condition, natural resources, and human uses of the Commonwealth's marine waters.

- Recognizing that our understanding of the ocean ecosystem and the human services it supports will evolve, the timeframe for plan development was relatively short, and the management framework of the plan could be advanced with additional science and data work, eight science and data actions were identified in the plan as top priorities that could be achieved in a five-year timeframe. Considerable progress has been made towards implementing these priority actions, including work to improve characterization of the ocean seafloor and benthic habitats, two intensive surveys of recreational boating activity, and significant updates to MORIS—the Massachusetts Ocean Resource Information System online mapping tool— in terms of both functionality and data contents.

- While the advancements of the science and data priorities noteworthy, more coordinated effort and resources are needed to continue progress on the improving the information base that underlies the plan's management framework.

5.2. Recommendations

The following recommendations are based on the experiences and observations from implementing agencies, input from Ocean Advisory Commission and Science Advisory Council members via meetings, and the independent SeaPlan interviews, and will be revised/expanded to include stakeholder feedback from meetings and public comment. The recommendations are intended to enhance the ongoing implementation of the ocean plan and for guiding future plan revisions.

Data and Science

As a spatially based plan grounded on the principle of utilizing the best available information, one of the top priorities moving forward should be a continued, if not enhanced, effort to address identified data and science gaps of primary concern. Work over the past three years to advance understanding on important aspects of the marine ecosystem, such as seafloor surficial geology and water column characteristics, and on patterns of human uses, such as recreational boating, will improve management and decision-making. Data and information from state and

federal agency programs, as well as other academic and partner sources, will allow for a comprehensive update of all of the "protected areas" identified and mapped in the 2009 plan: special, sensitive or unique (SSU) resource areas and concentrations of water-dependent uses. The technical work groups comprised of subject matter experts who assisted in the first version of the plan should be reconvened to identify any changes to the spatial extents of the "protected areas" and any changes in the status or condition of resources and uses in the planning area. The update of the Baseline Assessment section of the plan should examine and describe significant, notable, and other important trends that have been measured and/or observed since the 2009 "baseline." The identification of priority actions in the plan's Science Framework was important to setting and advancing the plan's applied science agenda, and in the plan update, similar or revised priorities should be developed.

Communication/Stakeholder Engagement

Throughout the process of developing the 2009 plan, there was a significant commitment to public participation and stakeholder engagement, which included listening sessions, workshops, Ocean Advisory Commission and Science Advisory Council meetings, and more than 100 meetings with individual stakeholders and stakeholder groups. Communication was one of the top themes identified by the Ocean Advisory Commission and Science Advisory Council in the SeaPlan survey, and many interviewees felt that EEA did an excellent job communicating during the development process. Ensuring robust communication and opportunities for stakeholders and the public to engage and participate should continue to be a fundamental priority for the plan update process and ongoing implementation. During the update process, there should be regular updates through such means as CZM's e-newsletter (CZ-Mail), the EEA ocean plan website and webpages, and direct emails. In addition to public meetings, Ocean Advisory Commission and Science Advisory Council meetings, hands-on workshops, and other opportunities for stakeholder engagement should be sought, such as "piggy-backing" on other planned meetings.

Management Framework

The management framework established in the 2009 plan adopts an approach that combines elements of both designated-area and performance standard-based management, identifying two commercial Wind Energy Areas and a Prohibited Area and then allocating the remainder of the planning area as Multi-use where proposed projects must meet siting and management standards. While there are different views about certain aspects of the plan's management framework (e.g., such as the treatment of renewable energy), general feedback regarding the plan's management approach has been very supportive. Ocean Advisory Commission and Science Advisory Council members found that the plan's framework was sound, improved governmental transparency, provided applicants clearer direction, and was being implemented effectively. It is important to recognize that the plan has only been in effect for three and a half

years, and that during this time, both the Nation and the Commonwealth were in economic recession where a notable slow-down in proposed projects was evident. With a relatively short timeframe for evaluation, no major changes to the overall management approach are recommended. There are several areas, though, where additional work on siting priorities and the identification of appropriate locations for foreseeable, priority use activities should be advanced. In particular, with significant advancements in the federal offshore wind planning, analysis, and leasing process in federal waters adjacent to Massachusetts, attention must be given to how best to locate the transmission lines that will connect potential projects to the landside grid. Additionally, as evidenced by the impacts of a series of severe storms in the fall and winter of 2012-2013, areas of many coastal communities are especially vulnerable to erosion and flooding and the resulting risks to public health and safety and damage to property and infrastructure. With accelerated rates of sea-level rise, low-lying coastal areas will be particularly vulnerable to increased erosion and inundation. The use of ocean sand resources for beach nourishment is an important and viable option for increasing the protective and many other beneficial services afforded by healthy beach and dune systems. However, sand extraction for this use needs to be balanced with the protection of marine ecosystems—with particular attention to sensitive or vulnerable areas like critical spawning or juvenile fish habitat—and existing water-dependent uses.

Administration

One of the key findings from the plan review was the enhanced inter-agency coordination among EEA agencies in the development of the plan and in ongoing implementation, including review of projects subject to the plan and in science and data priorities. While findings also point to certain progress on elements of plan administration, including development of draft implementing regulations and incorporation of the enforceable components of the plan into the state's formal Coastal Program, there is more work to do. One of the key next steps is the finalization and promulgation of the implementing regulations, as the Ocean Act requires. Another important area of work that needs attention is the development of an ocean development fee structure and additional guidance for the determination of mitigation fees for ocean development projects. While not an issue that can be addressed through an update to the plan, there was feedback from a number of Ocean Advisory Commission and Science Advisory Council members who expressed interest in expanding the ocean planning area to include near-shore areas to coincide with mean low water and ensure continuity for management. It should be noted that any modification to the planning area would require legislative action.

Coordination with Regional and Adjacent State Ocean Planning Efforts

Since the release of the plan, Massachusetts has been actively working with other state and federal agencies in the region—and other institutions and organizations involved in ocean science, research, and management—on an ocean planning initiative for the Northeast pursuant

to the Obama Administration's National Ocean Policy. Feedback from the plan review process indicated that the Massachusetts Ocean Management Plan should serve as a model for other efforts, and there was a strong preference to see tight connections between the state and regional planning processes. The Northeast regional ocean planning initiative will benefit 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, and the Massachusetts plan will serve as a solid, working model to guide and assist the regional effort as it takes shape. Integration and coordination between the 2009 plan update and the regional planning process should be maximized.

Appendix A –
Ocean Resources and Waterways Trust Implementation Guidelines

Ocean Resources and Waterways Trust
Implementation Guidelines

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 Ocean Management Plan, promulgated pursuant to the Ocean Act on December 31, 2009, 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 (OAC), 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 Management Plan is to ensure that it can adapt to evolving knowledge and understanding of the ocean environment and its future uses. The Ocean Management 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 OAC, 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 Management 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 Management 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 Management 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 Management 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 OMP. 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 whether the Trust should support 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 Science Advisory Council at least annually and made publicly available through EEA or CZM website. 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.

Appendix B –
Ocean Advisory Commission and Science Advisory Council members

Ocean Advisory Commission

Current Members (as of January 2013)

Jack Clarke (Chair), Massachusetts Audubon Society; environmental member
Senator Dan Wolf
Senator Anthony Petruccelli
Senator Bruce Tarr
Representative Frank Smizik
Representative Viriato DeMacedo
John Miller, Marine Renewable Energy Center; renewable energy member
John Pappalardo, Cape Cod Commercial Hook Fishermen's Association; commercial fishing member
Mayor Carolyn Kirk of Gloucester; Metropolitan Area Planning Council
Heather McElroy, Cape Cod Commission
Alan Macintosh, Merrimack Valley Planning Commission
JoAnn Taylor, Martha's Vineyard Commission
Andrew Vorce, Nantucket Planning and Economic Development Commission
Ken Kimmell, Commissioner, Department of Environmental Protection
Paul Diodati, Director, Division of Marine Fisheries, Department of Fish and Game
Bruce Carlisle, Office of Coastal Zone Management, Executive Office of Energy and Environmental Affairs

Members 2008-2012

Susan Tierney (Chair), Analysis Group; renewable energy member
Senator Robert O'Leary
Senator Anthony Petruccelli
Senator Bruce Tarr
Representative Frank Smizik
Representative Demetrius Atsalis
Representative Viriato DeMacedo
Mayor Carolyn Kirk of Gloucester; Metropolitan Area Planning Council
John Bullard, Sea Education Association; Southeastern Regional Planning and Economic Development District
Paul Niedzwiecki, Cape Cod Commission
Alan Macintosh, Merrimack Valley Planning Commission
JoAnn Taylor, Martha's Vineyard Commission
Jack Clarke, Massachusetts Audubon Society; environmental member
John Pappalardo, New England Marine Fisheries Council; commercial fishing member
Laurie Burt, Commissioner, Department of Environmental Protection
Paul Diodati, Director, Division of Marine Fisheries, Department of Fish and Game
Deerin Babb-Brott, Executive Office of Energy and Environmental Affairs

Science Advisory Council

Current Members (as of January 2013)

Priscilla Brooks, Conservation Law Foundation
Todd Callaghan, Office of Coastal Zone Management
Kathryn Ford, Division of Marine Fisheries, Department of Fish and Game
Robyn Hannigan, Environmental, Earth and Ocean Sciences, UMass Boston (John Duff, Anamarija Frankic, alternates)
Carlton Hunt, Battelle
Scott Kraus, New England Aquarium
Steven Lohrenz, School of Marine Science and Technology, UMass Dartmouth (Wendell Brown, alternate)
Bill Schwab, U.S. Geological Survey
David Terkla, Department of Economics, UMass Boston

Members 2008-2012

Priscilla Brooks, Conservation Law Foundation
Todd Callaghan, Office of Coastal Zone Management
Kathryn Ford, Division of Marine Fisheries, Department of Fish and Game
Carlton Hunt, Battelle
John F. Looney Jr., Environmental, Earth and Ocean Sciences, UMass Boston (John Duff, Anamarija Frankic, alternates)
Scott Kraus, New England Aquarium
Frank Muller-Karger, School of Marine Science and Technology, UMass Dartmouth (Wendell Brown, alternate)
Bill Schwab, U.S. Geological Survey
David Terkla, Department of Economics, UMass Boston

Appendix C –
SeaPlan Report:
OAC and SAC Perspectives on MA Ocean Management Plan

Goal Setting, Monitoring and Plan Performance

ASSESSMENT

Doc #315.01.13

SEAPLAN
VIBRANT ECONOMIES • HEALTHY OCEANS

OAC and SAC Perspectives on Massachusetts Ocean Management Plan Performance

Prepared by:

Dave Kellam
Stephanie Moura
Kim Starbuck

April 2013

ABSTRACT

In 2013, the Massachusetts Office of Coastal Zone Management (MA CZM) undertook an assessment of the 2009 Massachusetts Ocean Management Plan (Plan) in preparation for a Plan Amendment. As one phase of the Plan Assessment process, MA CZM coordinated with SeaPlan to conduct semi-structured interviews with members of the Massachusetts Ocean Advisory Commission (OAC) and Massachusetts Ocean Science Advisory Council (SAC) to assess their perspectives on Plan performance. Interviewers from SeaPlan's assessment team contacted advisors and asked questions about the Plan, focusing on the Plan's development process, the Plan's implementation and recommendations for a future amendment to the Plan. The assessment team coded and analyzed responses to identify perspectives and insights held by OAC and SAC members. Overall, OAC and SAC members were very satisfied with the CZM staff's competency to develop the 2009 Plan and the staff's administrative execution. OAC and SAC members appreciated the focused effort to produce a quality plan specific to Massachusetts' habitats, economy, and stakeholders. Results of this assessment, coupled with a review of the Massachusetts Ocean Management Plan conducted by CZM, provides valuable context and insight for the plan amendment process.

ACKNOWLEDGEMENTS

SeaPlan wishes to thank Dr. Verna DeLauer of Clark University for advice on data analysis for this assessment; the staff of MA CZM for for helping coordinate the interviews and providing input in the interview design; and the members of the OAC and SAC for their participation in the study.

Authors:

Dave Kellam, SeaPlan

Stephanie Moura, SeaPlan

Kim Starbuck, SeaPlan

April 2013

Recommended Citation:

Kellam, D., Moura, S., & Starbuck, K., *OAC and SAC Perspectives on Massachusetts Ocean Management Plan Performance*, 2013, SeaPlan, Boston, MA

This report may be downloaded at www.SeaPlan.org/projects

This work is funded by the Gordon and Betty Moore Foundation.

SeaPlan
89 South Street
Boston MA 02111
www.SeaPlan.org

Contents

Executive Summary

To assess the performance of the 2009 Massachusetts Ocean Management Plan and prepare for initiating the first formal Plan revision in 2014, the Massachusetts Office of Coastal Zone Management (CZM) undertook a review of the Plan in 2012-13. As a component of this review SeaPlan — an independent nonprofit ocean science and policy group — conducted a formative evaluation using semi-structured interviews of current and previous members of the Ocean Advisory Commission (OAC) and the Ocean Science Advisory Council (SAC) about their perspectives on Plan development, implementation and future revision.

The SeaPlan team designed the study, conducted OAC and SAC interviews, and compiled and analyzed responses. The data reveal certain shared perceptions and themes among advisory members and other noteworthy, though less widely held, reflections. Overall, OAC and SAC members were very satisfied with CZM staff competency to conduct marine spatial planning and the staff's administrative execution. OAC and SAC members appreciated the focused effort to produce a quality plan responsive to the specific Massachusetts context.

The table below provides a brief overview of findings based on OAC and SAC perceptions about Plan performance and future revisions. The body of the report describes the methodology in greater detail and presents a thorough discussion of the team's findings. The assessment concludes with suggestions for further research to evaluate Plan performance and improve the revision process.

Summary of Findings

OAC and SAC members appreciated the focused effort by CZM and partners to produce a quality plan responsive to specific Massachusetts conditions. Most members were keenly aware of the Plan's significance as the first plan of its kind in the nation and a model for other regions.
OAC and SAC members view CZM staff as very competent. OAC Commissioners and SAC Councilors are generally very satisfied with the Plan development and implementation.
Plan implementation and performance is gauged primarily in terms of permitting outcomes, rather than administrative progress or progress on science and data priorities.
Administrative execution and communication during the planning process were seen as effective and attributable largely to the time-limited context for Plan development. Maintaining an intense focus and engagement will be challenging as the Plan transitions from development to routine implementation.
Key issues of interest to OAC and SAC members for the Plan revision process include: climate change adaptation issues, further goals and indicators development, and integration with regional CMSP efforts.
OAC and SAC meeting structure and schedule is generally adequate, although certain improvements were suggested, including clearer communication of meeting objectives, longer-range scheduling, and increased interactions between the OAC and SAC through more intra-group and inter-group communications. There was limited interest in conducting meetings through a webinar.

Introduction

Report Overview

This report begins with the background and impetus for this assessment, a description of the interview subjects and justification for the assessment approach. The Methodology section includes the research questions, the interview protocol, and a characterization of the assessment team. In the Results section, the interview data are presented in the three different ways, or "slices". The first slice organizes responses by question, in the order that they were asked in the interview script (Appendix 1). This shows how interviewees answered specific questions and is especially useful for summarizing close-ended questions. The second slice organizes the data using a cross-cut filter of themes identified in responses. This common qualitative research approach helps illustrate the overarching themes noted by interviewees during their discussion of the Plan. The third slice highlights noteworthy insights, which are responses made by one or two interviewees that the SeaPlan assessment team believe warrant acknowledgement based on the team's collective knowledge of marine spatial planning and first-hand experience with the Plan development process. The Discussion section includes the assessment team's broader observations from the interview data, a table of conclusions and potential areas for further investigation.

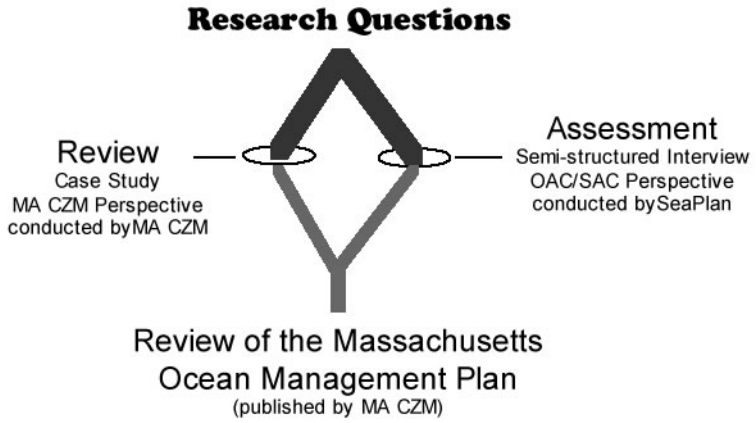
Background

As part of the "Review of the Massachusetts Ocean Management Plan" (Review) conducted by CZM, SeaPlan— an independent nonprofit ocean science and policy group — conducted a formative evaluation of the Plan using semi-structured interviews of current and previous members of the OAC and SAC about their attitudes on Plan development and implementation. This third-party assessment was intended to strengthen the Review by providing various perspectives on the strengths of the Plan process and suggestions for improvement from those directly involved in an advisory capacity. The assessment team's analysis of the interview data will likely help inform a future revision process to be conducted by CZM.

To enrich the Review, SeaPlan coordinated with CZM and conducted a semi-structured interview with the majority of OAC and SAC members regarding plan development, implementation, updating and possible refinements to the revision process (Figure.1). The analysis of the OAC and SAC interviews will be included in the Review published by MA CZM. The semi-structured interview method is well-suited for this assessment because it focused conversations with OAC and SAC members enough to garner specific feedback on key issues while encouraging an open dialogue and the possibility for discovery of issues and noteworthy insights.

The SeaPlan assessment team recommended a formative evaluation, which is a type of assessment that takes place before or during a program's implementation with the aim of improving the program's design and performance.[1] A formative evaluation complements a summative evaluation that focuses on outcomes rather than process. Formative evaluations helps managers understand why a program works or doesn't, and what other factors (internal and external) could influence program effectiveness. Triangulating SeaPlan's qualitative interview data with the systematic Review by CZM will create a rich understanding of the Plan process and areas for improvement (see Figure 1).

Figure 1: Triangulation of Assesment for *Review of the Massachusetts Ocean Management Plan*



Given the experience and expertise of the OAC and SAC members, as well as their knowledge of local and state issues, the assessment team believed their opinions would be extremely valuable to help guide CZM during the assessment and revision process. Furthermore, SeaPlan's neutral status during this assessment enabled OAC and SAC members to provide candid and insightful comments on plan effectiveness and suggestions for Plan revision.

Since the Massachusetts Ocean Management Plan is the one of the first examples of marine spatial planning in the country, many groups are paying attention to the effectiveness of the planning process, enhancing the utility of this assessment. Also, prompted by the establishment of the National Ocean Policy in 2010, efforts are currently underway by the Northeast Regional Ocean Council, the Regional Planning Body, and others to develop a regional ocean plan to support ecosystem-based management of the Northeast's marine environment and its human uses. The recommendations that stem from this report could help with planning on a regional scale.

---

[1] From "Community Sustainability Engagement Evaluation Toolbox" website, http://evaluationtoolbox.net.au/index.php?option=com_content&view=article&id=32&Itemid=140

Finally, it should be noted that, at the same time as CZM was drafting the Review and SeaPlan was conducting this assessment, a separate effort led by Mass Audubon was underway to create an extensive white paper to help inform the review process. Mass Audubon worked with Catherine Leland, a Harvard University John F. Kennedy School of Government student, to examine the Oceans Act of 2008 and implementation strategies. Ms. Leland interviewed many OAC members during her research in late 2012. The white paper is expected to be published by the summer of 2013.

Methodology

To conduct this assessment, SeaPlan staff first conducted a literature review to better understand preferred methods of evaluation of similar ecosystem-based, spatial management plans. Because the Plan was finalized in 2010 and thus only had been implemented for about two years, SeaPlan recommended that the interviews acquire participants' perspectives on *both* the development and implementation processes associated with the Plan, rather than solely the direct outputs of the Plan, which were very limited at this stage of implementation. In consultation with CZM, SeaPlan staff designed an assessment approach that utilized a semi-structured interview[2] to document advisory members' opinions. SeaPlan staff proposed that two main research questions be pursued: Is the *MA Ocean Plan progressing toward achievement of its objectives?* and *What are the opportunities to refine the MA Ocean Plan process*?

Assessment Team

The SeaPlan assessment team consisted of four SeaPlan staffers playing a role in the assessment (Table 1).

Table 1: SeaPlan Assessment Team

	Interviewer	Note Taker	Data Analysis	Data Coder
Stephanie Moura	X	X	X*	
Dave Kellam	X*	X	X	X*
Kim Starbuck		X*	X	X
Kate Longley		X		

* Primary lead staff member

[2] Semi-structured interviews are a qualitative method of inquiry that combines a pre-determined set of open questions (questions that prompt discussion) with the opportunity for the interviewer to explore particular themes or responses further. A semi-structured interview does not limit respondents to a set of pre-determined answers (unlike a structured questionnaire). Semi-structured interviews are used to understand how processes work and how they could be improved; and allows respondents to raise unexpected issues.

Assessment Team Roles

- Interviewer— Followed the interview script and clarified or explored issues and comments as they arose.
- Note Taker — A second SeaPlan staffer on the telephone during the interview that was typically silent and dedicated to the task of taking notes and in many cases transcribing key comments.
- Data Analysis— A person who participates in a group meeting to review interview dataset, identify themes and develop conclusions stemming from the data.
- Data Coder— A person who characterizes responses and codes them in an Access database for analysis.

Survey Participants

SeaPlan staff worked with CZM to select an appropriate list of current and former advisory members. For the OAC, CZM provided a list of 18 members, of which SeaPlan was able to interview 12 (67%). Of the 8 SAC members provided by CZM, SeaPlan interviewed all 8 (100%). Of the 20 interviews conducted, Dave Kellam (Communications Manager) conducted 16 (80%) and Stephanie Moura (Executive Director) conducted 4 (20%). A second SeaPlan staff person also silently listened to the interviews and took notes (see Table 1).

While the OAC and SAC members received regular updates on Plan implementation, most members are occupied with other responsibilities, making it understandably difficult for members to be knowledgeable of all the details of Plan development and implementation. Also, some OAC and SAC members are new appointees and were not involved in the development process of the Plan. Because of this, CZM staff provided OAC and SAC members with a Preliminary Draft of the document "Review of the Massachusetts Ocean Management Plan" (not including Section 4, which is meant to contain the results from the OAC/SAC interviews), for their review prior to the interviews. The team recommended that OAC and SAC members review this document to provide them with the background needed for an effective and efficient interview process. To gauge survey participants' level of understanding of the Plan, the first question of every interview asked participants how much of the document they were able to read.

Interview Procedure

SeaPlan staff conducted all the interviews over the phone, though an in-person option was available. Interviews were intended to last approximately 45 minutes, but in actuality, ranged from 20 to 1 hour and 6 minutes in duration. All participants agreed to allow the interviewer to record the conversation for accuracy, but one interview was not recorded due to technical issues. All interviews were anonymous to ensure privacy and candid responses.

SeaPlan staff developed an interview script that consisted of 12 questions, including questions related to the Plan development process, the final Plan promulgated in 2010, implementation of the Plan, and advisory members' involvement in planning processes, and preparation for a future revision of

the Plan (Appendix 1). During the interview, both the interviewer and note taker took detailed notes on responses to these questions.

Data Analysis

The semi-structured interview enabled interviewers to collect data and subsequently code responses based on common reoccurring themes. This is a standard approach to analyze interview data.[3] Coded responses could then be easily grouped, sorted and cross-referenced in the Microsoft Access database. To screen for significant themes that deserved analysis, SeaPlan staff grouped and summed the codes and then weighed the response rate by calculating the percentage of the total response count per theme code (Table 2 in Results).

It should be noted that not all codes could be screened in this way. Theme codes that were directly a result of prompting by interviewers were omitted, such as "Public/ Stakeholder Input" and "Administrative Process".

Limitations

Because a number of OAC members were not available for an interview, the data may not fully represent the perceptions of public officials.

Results

The following results section presents the interview data in three ways: responses by question, responses by theme, and noteworthy responses. The discussion section that follows will include analyses supported by a combination of findings from these groups.

SLICE ONE: Responses by Questions

SeaPlan staff asked every interviewee the same set of questions to facilitate discussion, with some questions being closed-ended and others designed to initiate a discussion on a topic. The results that follow were gleaned from response notes taken during the interview. For closed-ended questions, the responses are simply totaled. The assessment team also felt it was important to understand the context of the interview when considering the responses.

Interviewers read the interview script (Appendix 2) to OAC and SAC members and followed the interview protocol described in the methodology section.

---

[3] From Gorden, Raymond (1992). "Coding Interview Responses" from Basic Interviewing Skills. Itasca, IL: F. E. Peacock http://www.indiana.edu/~educy520/sec5982/week_5/qual_data_analy_ex2.pdf

Question 1: Did you read the draft Plan Assessment recently sent to you by CZM?

Of the 20 respondents who answered this question, 10 (50%) said yes, 6 (30%) said skimmed it, 4 (20%) said no.

Question 2: Describe your overall impression of the MA Ocean Management Plan development process; what worked well, or could have been improved?

Regarding "what was exceptional about the development process", the most common positive responses were associated with administrative execution and public/stakeholder engagement. Advisory members were complimentary of the way CZM conducted the process, describing that the CZM staff was very good at moving the process forward. This sentiment was conveyed by one respondent saying "The team did remarkable job of staying true to its mission . . . anchoring themselves in the legislation and guiding principles. That was helpful to me and commission members". Another respondent simply said "CZM staff was amazing." Outreach to stakeholders was also praised and was described by a number of interviewees as "exceptional" and "excellent". The topic of data acquisition during the planning process elicited positive comments about the data quality and general approval of the process, with the caveat that the timeframe was short.

Every interviewee was asked prompting questions about their opinion of advisory member knowledge of the ocean management options available identified during the process. This question required explanation and interviewees in general seemed confused. Most interviewees reported they were satisfied with the management options presented to them. A few interviewees reported they felt that their role was not to provide management options for consideration, but to refine and help implement the approaches CZM staff had selected and in some cases the legislation required.

Suggestions for improvement of the Plan development process varied more among interviewees than the positive responses, with most suggestions centering on not having adequate time for the development process, administrative challenges with needing to schedule meetings with more advanced notice and maintaining communication with all advisory members either through email or announcements through media like CZ-mail.

One respondent commented that the short timeframe dictated by the legislation was actually "genius", forcing CZM and others to move the process along and develop a plan in a timely manner. The respondent emphasized the point by saying that without the tight deadline, the Plan might not have been completed.

Question 3: What is your overall impression of the final Plan - exceptional areas, opportunities for improvement?

Overall, positive comments were related to the administrative process, highlighting that the framework was sound and "a good start". Wind energy siting was discussed relatively often, either noting that the Plan was a step towards enabling wind energy or avoiding negative issues with siting

wind farms, such as those associated with the Cape Wind project. Suggestions for improvement were variable, although the issue of the Ocean Trust was cited by several respondents who desired clarity in how the funds will be administered and disbursed.

Question 4: Broadly speaking, were your "interests" addressed in the Plan?

Of the 18 respondents who answered this question, 14 (78%) said yes, 1 (5%) said somewhat, 3 (17%) said no. Those that said "no" noted that the Plan had not addressed consistency with other state and federal activities, ocean literacy issues and climate change adaptation.

Question 5: Do you feel the Plan has been implemented effectively??

Of the 19 respondents who answered this question, 11 (58%) said yes, 1 (5%) said somewhat, 7 (37%) said he/she did not know. Most of the positive comments referred to the permitting process, specifically referring to the effective permitting process of the Comcast/NSTAR cable project. Several interviewees noted that this project was an excellent example of successful implementation. Other respondents were unwilling to offer an opinion on implementation, saying that it was too early in the process to determine effectiveness.

Question 6: What parts of the updating process do you think are working well or could be improved?

The majority of the positive responses to the updating process cited recent data products being developed, most notably the benthic habitat data. Through a prompted question, interviewees were asked to comment on interagency coordination aspects of the updating process and most reported positively, typically noting that increased interagency communication facilitated better coordination. Suggestions for improvement to the updating process related primarily to identifying clear goals and management priorities for the Plan and ensuring timely and informative communication about the updating activities.

Question 7: Do you think the Plan has improved the permitting process?

Of the 19 respondents who answered this question, 6 (32%) said yes, 4 (21%) said somewhat, 0 (0%) said no and 9 (47%) said "I don't know". A third of the respondents reported that they believed the permitting process was working and they typically felt strongly about this conviction. Many of those people said they believed the Plan improved governmental transparency and provided applicants clearer direction. Nearly half of the respondents were not comfortable with commenting on how the permitting process has been changed, citing most often their lack of time to keep up to date with the process.

Question 8: Do you feel you have adequate information and opportunities to know what is going on with the Plan?

Of the 20 respondents who answered this question, 17 (85%) said yes, 1 (5%) said somewhat, 2 (10%) said no. Responses indicate that typically OAC and SAC members feel that they have excellent opportunities to be engaged in the process, and noted that communication about the process is very good. Suggestions for improvement were few, mostly focusing on improved electronic

communication such as more timely and informative email notices, website updates, and production of an e-newsletter.

Question 9: How often do you feel the OAC or SAC should meet?

Of the 19 respondents who answered this question, 11 (58%) said "quarterly", 6 (31%) said "twice a year", 2 (11%) said" as needed". When asked for suggestions on how to improve the meetings, responses were mostly about the structure of the meetings and communication supporting the meetings. Specifically a number of respondents, mostly in the SAC, called for clarity on the goals of the meetings and Plan, and a prioritization of data gaps to fill in the Plan. Logistical suggestions to improve the communication around the meetings included updating and improving CZM website information, video presentations on some topics for stakeholder groups to share and encourage board member communication by scheduling more agenda time for discussion.

Early in the interview process, an SAC member suggested the use of a webinar for meetings. The SeaPlan assessment team decided to include this concept as a prompting question when appropriate and asked about half of the participants if webinars could occasionally be used instead of in-person meetings. About half of those asked felt that webinars could be effective if the meeting was altered to work with a webinar. The others felt either that webinars were not as effective as the face-to-face interaction needed at the meetings or suggested offering every other meeting as a webinar. Interestingly, distance needed to travel to Boston did not seem strongly related to attitudes towards a webinar broadcast for the OAC or SAC meetings.

Question 10: The Plan has science & data priorities. Do you feel the state and partners have made adequate progress these?

In general, interviewees were not able to say how all of the science and data priorities were being met in the Plan and eight (40%) responded clearly that they did not know enough to comment on any of the science and data priorities. It was unclear from the responses as to why this was the case. Respondents who did have an opinion on the issue would most often cite the benthic habitat data, and to a lesser extent recreational boating data as evidence that progress was being made. Most interviewees could not recall many of the priorities listed in the Plan, but instead focused on areas currently being updated, such as benthic habitat classification. Some respondents identified sand mining, migratory birds, visual impacts, and climate change as issues and/or data that should be included in the upcoming Plan revision.

Question 11: During the revision process, what opportunities do you see to improve the Plan?

There was a relatively strong recommendation to address climate change issues from advisory members and to better coordinate and evaluate state wind energy areas in the context of federal wind energy development areas. A relatively large number of participants affirmed the importance of updating and improving data as an overall part of the Plan revision process. A few respondents suggested that the revised plan should include a connection to regional ocean planning efforts.

Question 12: Do you have suggestions for improving the revision process?

Suggestions were quite diverse although relatively large number of responses centered on stakeholder communication and goal setting. In general, respondents recommended stakeholder engagement efforts similar to those during the Plan development process for the revision process; although a few people cautioned that stakeholder desire and effort to work on the Plan revision may be less than during creation of the original Plan. A number of respondents urged that CZM develop clear goals for the Plan revision, among which should include prioritization of data gaps to be filled. One respondent suggested that the revision document include a side-by-side comparison of the original Plan and highlighted changes in the revised Plan to clearly identify what has changed and why.

SLICE TWO: Responses by Themes

In the previous section, the responses were grouped by question, which places them in the context of the interview, thus aiding reporting of specific concepts. This type of analysis is especially useful when summarizing closed ended questions or interpreting perceptions about specific topics. However, to assess the collective attitude regarding the research question "Is the MA Ocean Plan progressing toward achievement of its objectives?", it is useful to examine responses *across* the entire dataset. This crosscut analysis can yield unexpected insights and reveal themes that may warrant further investigation.

It is important to note that the response frequency data in Table 2 merely suggest likely significant themes and do not in isolation provide definitive information on OAC and SAC perceptions. To further clarify how these coded responses were distributed among the 20 interviewees, Table 1 lists the % of interviewees that gave a response to that theme code. This cross-cut screening process, coupled with the standard deviation of the interviewee commenting, is a better way to indicate significant themes than simple frequency counts.

To focus the analysis, the assessment team chose to examine themes with *both* a relatively high count rates (> 6.5%) and relatively high percentage of interviewees commenting. Below are the top five themes selected for primary analysis and four themes selected for secondary analysis using this crosscut screening process.

Table 2: Theme codes that were not prompted during interviews, sorted by response frequency

Theme Codes	Response Count	Response %	# of Interviewees Commenting	% of Interviewees Commenting	Standard Deviation*
Communication	**34**	**9.1%**	**18**	**90%**	**1.22**
Limited Time	**26**	**7.0%**	**11**	**55%**	**1.19**
Goals	**25**	**6.8%**	**8**	**40%**	**1.35**
Implications Beyond MA	**25**	**6.8%**	**11**	**55%**	**1.35**
Wind Energy	**24**	**6.5%**	**11**	**55%**	**1.10**
Accessible/transparency	**18**	**4.9%**	**9**	**45%**	**0.87**
Climate Change	**18**	**4.9%**	**7**	**35%**	**2.57**
Benthic/ Habitat	**17**	**4.7%**	**7**	**35%**	**1.27**
SSU	**17**	**4.7%**	**10**	**50%**	**0.67**
Evaluation	**15**	**4.1%**	**7**	**35%**	**1.86**
Fisheries	**15**	**4.1%**	**9**	**45%**	**0.71**
Few Projects Reviewed	**14**	**3.8%**	**7**	**35%**	**1.11**
Comcast Cable Project	**12**	**3.3%**	**8**	**40%**	**0.76**
Recreational Boating	**10**	**2.7%**	**7**	**35%**	**0.79**
Adaptive	**9**	**2.5%**	**6**	**30%**	**0.55**
Coastal, Land, Estuaries	**8**	**2.2%**	**5**	**25%**	**0.55**
Cumulative Impacts	**7**	**1.9%**	**6**	**30%**	**0.41**
Marine Mammals	**7**	**1.9%**	**4**	**20%**	**0.96**
MOP/SeaPlan/GBMF	**7**	**1.9%**	**4**	**20%**	**1.50**
Regulations	**7**	**1.9%**	**4**	**20%**	**0.50**
Oceans Trust Fund	**7**	**1.9%**	**6**	**30%**	**0.50**
Balance Development & Protection	**6**	**1.6%**	**4**	**20%**	**0.58**
Ecosystem	**6**	**1.6%**	**3**	**15%**	**1.00**
Meeting Locations(outside Boston)	**6**	**1.6%**	**4**	**20%**	**0.58**
Oceans Trust Fund	**6**	**1.6%**	**5**	**25%**	**0.50**
Protection	**5**	**1.4%**	**4**	**20%**	**0.50**
Oceans Act of 2008	**4**	**1.1%**	**3**	**15%**	**0.50**
Local Control	**4**	**1.1%**	**2**	**10%**	**0.58**
Money a limiting factor	**4**	**1.1%**	**4**	**20%**	**1.41**
Too early to tell	**4**	**1.1%**	**2**	**10%**	**0.00**
Sand Mining	**4**	**1.1%**	**3**	**15%**	**0.58**
Birds	**4**	**1.1%**	**4**	**20%**	**0.00**

*Standard Deviation indicates the extent of deviation for a group as a whole, i.e. the lower the standard deviation, the more evenly distributed the responses are among interviewees. For example, in the table above four interviewees provided the same number of responses coded "Birds" – thus the standard deviation is 0. In contrast, most of the seven people who provided responses coded "Climate Change" only mentioned it once, except one person mentioned it eight times during the interview – thus the standard deviation is 2.57.

Communication

Communication about the Plan and during the planning process was identified by interviewees as an important component. Many interviewees noted that CZM did an excellent job communicating during the development process. One OAC member said "As a commission member, we could always connect the dots to efforts. . . . [Information] was always very understandable, thorough, made sense, [and] always had a context to it." A number of interviewees noted that communication could be improved during the updating process. One OAC member said "If we had more press releases and media coverage — that would be helpful. Do people know the plan is being updated?" Others suggested more outreach on new data products.

Goals

A striking number of responses from the SAC were focused on goal setting and the related notion that indicators need to be established, evaluated and monitored. SAC member responses included "What affects the food chain? How do we look at information for decision making? We should think more about the end game" and "They should define the process for the meetings. Put someone in charge, develop goals and missions. What is the purpose of the SAC?" Interestingly, only one OAC member referenced indicators in a response.

Implications beyond MA

References to regional or federal marine spatial planning were noted occasionally. Often the Plan was praised for being a model for other efforts. Suggestions on how to improve the Plan process were related to coordinating the state with regional systems and management initiatives.

Limited Time

Pervasive in nearly every response was the caveat that time was a limiting factor or the timeframe was too short to expect that sufficient evaluation outcomes could be created. Time was a significant factor for the development process, but also appeared relatively often when respondents discussed the Plan itself, e.g. "The Plan was really a great document created in a short period of time." Allowing for enough time was also mentioned in a number of suggestions for the revision process.

Accessibility/Transparency

Positive responses associated with accessibility to the process and data, as well as transparency of the process, were prevalent in discussions of the development process, final plan and permitting. In general, advisory members gave widespread praise for the transparency of the process. A number of OAC and SAC members noted that transparency must be maintained during implementation and revision.

Wind Energy

Wind energy issues were most often mentioned as being adequately addressed in the Plan, especially compared to the pre-Plan conditions in place when the Cape Wind project was proposed. There were several suggestions on how to improve the treatment of wind energy in the Plan, such as

determining if commercial wind areas are multi-use, eliminating provisional wind areas and clarifying local, state, and federal jurisdiction of wind energy areas. Some interviewees expressed disappointment at the lack of proposed wind projects since the Plan's promulgation and that the Plan did not go far enough in defining viable wind areas, as evidenced by one interviewee saying "I was disappointed at the end of everything, we only defined 2% of state waters that could support renewable energy."

Climate Change

The issue of climate change was prevalent in responses from a relatively sizable group of respondents, especially when suggesting how to improve the Plan during the revision process. These respondents tended to have either a scientific background or a coastal community resiliency perspective. In general, climate change was viewed as an overarching factor that needed to be accounted for in every aspect of the planning process.

Benthic Habitat

A number of participants praised CZM for the "excellent" progress being made with seafloor mapping in the planning area. On the other hand, a few participants noted that the term, "hard and complex seafloor", still needs to be defined. Furthermore, one participant commented that the process for integrating hard complex seafloor data into the Plan is currently unknown, and more outreach to share the seafloor data with stakeholders and experts should be conducted.

SSU

Overall, interviewees were positive about the establishment of Special, Sensitive, Unique Areas (SSUs) and the ability of SSUs to accommodate multiple uses. When interviewees suggested improvements to SSUs, most favored better delineation of areas and clarification of approved uses. Several interviewees noted that SSUs should be strengthened through regulation.

SLICE THREE: Noteworthy Responses

During the course of the interviews, occasionally one or a few respondents would make a suggestion or provide insight that seemed noteworthy to the interviewer. Even though these types of responses did not stand out in the frequency analyses of coded themes, the assessment team felt that the responses warranted mention.

Expand the area of the Plan

The Massachusetts Oceans Act of 2008 has been called a "blue water plan", addressing the planning area between 0.3 miles from shore out to 3 miles. Five respondents expressed interest in expanding the planning area to include near shore areas. Reasons to expand the area were either directly development-based (aquaculture siting and energy infrastructure connectivity with offshore generation) or ecosystem management-based (water quality management).

Mitigation

A small, but adamant subset of respondents noted that they were very interested in the details of the Ocean Trust and how mitigation funds will be allocated. One interviewee said "We need transparency on the criteria and disbursement of Ocean Trust Fund" and another said "I would like to see a closer connection between this Plan and the subcommittees that are looking at mitigation for the MA coast water."

Fisheries Management

Eight respondents made a total of ten comments about the issue of fisheries management as it relates to the Plan. This issue may warrant further investigation since fisheries management in the Plan was a lively topic during the early stages of Plan development. A subset of the fisheries management responses indicated that the Plan has had little to no impact on the fisheries management, but they did not feel this was a problem. Another subset, however, felt Plan implementation was lacking in this area and that little integration had occurred, with most referencing the related language in the Act that notes fisheries management plans "shall be integrated, to the maximum extent practicable, with an ocean management plan." A few felt that the issue should be revisited during the amendment process. One respondent said "One of the areas that needs discussion is implications of fishing, without violating the statue where fisheries is in the hands of DMF."

Evaluation Bias

Overall, evaluation bias did not appear to be a concern of OAC or SAC members. There were two interviewees that questioned the role of CZM as the lead author of the Review. One person said "Should be a third party assess the Plan vis-à-vis stated goals?", and another said "Authors of the document [Review] were also judging the direction of the decisions. Conflict of interest? Perhaps Science Council members should have written it."

Exploration of Innovative Ocean Uses

One interviewee noted that the Plan revision should accommodate emerging technologies and said "The ocean economy and activities taking place on ocean through marine science and technology are barreling forward. . . . Biomimicry, green chemistry, robotic tuna, . . . There are so many ocean opportunities as world changes. The Plan will have to keep up with that."

Other Issues

A number of other noteworthy issues or specific suggestions were mentioned by one or two people. They were:

- Collect data on visual impacts
- Incorporate ocean literacy
- Focus on aquaculture data and sites
- Incorporate more cultural resources data
- CZM should research a Center for Coastal Studies grant to do survey near shore areas
- The Martha's Vineyard wind area — who designates use, Martha's Vineyard Commission or the State?
- Do maps in the Plan or data collected by project proponents take precedence? Does CZM adopt the project proponent data?
- CZM should address the issue of redefining complex hard complex bottom data layer; (e.g., should CZM include slipper shell reefs, pilings, and worms?)
- Examine the whole distribution network of cables. How do you support these sites in the future?

Discussion

In this section, the assessment team presents broader observations extrapolated from the three slice analysis approach of the interview data. Then a summary of conclusions and suggestions for further investigation are presented.

Broader Observations

Plan implementation and performance

OAC and SAC members understand that the Plan is a work in progress. Even though conceptually interviewees universally believe the plan's approach is sound, when pressed to comment on its performance, the majority of interviewees felt that the Plan has not been in place long enough or sufficiently tested to determine its effectiveness.

This perspective seems consistent with the way OAC and SAC members define Plan "implementation". While there is some variation, most interviewees consider ocean use permitting as a proxy for plan implementation, i.e. Plan performance was often described in relationship to project review and permitting. The view of outcomes as a measure of Plan performance is important to remember when communicating about the Plan and suggests that tangible stories about project applications are more effective than descriptions of process. This attitude was summed up by one interviewee who said, "A good plan should inform real decisions".

It is worth noting, however, that a broader definition of implementation, to include carrying out the full range of actions set forth in the Plan, may offer additional benefits. For example, the Plan identified eight priority data needs, yet most respondents were not aware of these and whether there has been progress in filling these data gaps (with the exception of benthic habitat characterization and recreational boating information). Other examples might include the Plan's stated intent to sustain ongoing stakeholder engagement and to develop and promulgate implementing regulations. Using a broader definition of "Plan implementation", beyond reviewing and permitting specific ocean development proposals, suggests additional measures of plan performance that can be evaluated in the near-term and opportunity to communicate less obvious benefits of CMSP (e.g. improving the scientific basis for future ocean planning decisions).

Drivers and Enabling Conditions

Massachusetts' experience appears to demonstrate the significance of drivers to catalyze and sustain ocean planning initiatives. Interviewees pointed to one or more of three particular factors as essential conditions driving or enabling development of the Plan - a controversial offshore wind proposal, the state legislative mandate with a deadline and agency staff leadership. A few advisory members also cited availability of supplemental private resources as important for the state's success. As one interviewee described it "Without MOP [Massachusetts Ocean Partnership], this never would have been a stakeholder influenced process. It would have been a government process. MOP was essential."

These observations suggest that CMSP still needs momentum to overcome the inertia of status quo ocean management and highlight the importance of strategic situation analysis for Massachusetts going forward, other states, and broader regional ocean planning processes being initiated under the National Ocean Policy. Identifying key supporters and detractors and understanding time-sensitive opportunities and threats in an ever-evolving political and institutional landscape can help governmental and nongovernmental ocean planning leaders capitalize on key drivers and conditions to make CMSP the new norm.

Communication Paradox

A common phenomenon in public policy is the tendency for the public and stakeholders to pay attention mainly when a significant decision or action is imminent. In Massachusetts, helped by the novelty of CMSP and the short duration planning period, the state was able to sustain stakeholder engagement at a relatively high level. However, an interesting paradox appears when we look across OAC and SAC members' responses. While a vast majority of interviewees expressed satisfaction with opportunities to be engaged and with communication about the plan, a preponderance of OAC and SAC members also indicated that, since the plan's release, they have not kept up with it and/or have not heard much about it. In response to a question about the revision process, one interview said "I thought the first go around had more energy. There was commitment from the cabinet to get this thing done. Is that happening? It may be, but I don't know." Another responding to progress on science and data priorities said, "I would have liked to have a better sense on what was going on a

regular basis, but maybe it was available and I wasn't aware." This raises a question about the optimal level of communication at different points in the ocean planning, implementation and revision processes and suggests the utility of an overall strategic communications framework that considers the cost-benefit of different levels of and vehicles for communication at different phases of the process.

Summary of Conclusions

Based on insights from the three slices of analysis and deeper discussions of the data, the SeaPlan evaluation team developed a list of general conclusions about the perceptions of the OAC and SAC about Plan performance and their suggestions for a future revision process (Table 3).

Table 3: Conclusions

OAC and SAC members appreciated the focused effort by CZM and partners to produce a quality plan responsive to specific Massachusetts conditions. Most members were keenly aware of the Plan's significance as the first plan of its kind in the nation and a model for other regions.
OAC and SAC members view CZM staff as very competent. OAC Commissioners and SAC Councilors are generally very satisfied with the Plan development and implementation.
Plan implementation and performance is interpreted primarily in terms of permitting outcomes, rather than administrative progress or progress on science and data priorities.
Administrative execution and communication during the planning process were seen as effective, attributable largely to the time-limited context for Plan development. Maintaining this intense focus and engagement will be challenging as the Plan transitions from development to routine implementation.
Key issues of interest to OAC and SAC members for the Plan revision process include: climate change adaptation issues, further goals and indicators development, and integration with regional CMSP efforts.
OAC and SAC meeting structure and schedule is generally adequate, although certain improvements were suggested, including clearer communication of meeting objectives, longer-range scheduling, and increased interactions between the OAC and SAC through more intra-group and inter-group communications. Interest is limited in conducting meetings through a webinar option.

Suggestions for Further Investigation

The analysis of the interview data highlighted some shared perceptions among OAC and SAC members and revealed some areas worthy of deeper examination. Further analysis of the data may reveal more insights. For example, the data could be sorted by responses from OAC and SAC members to highlight differences between the two groups. Data could also be sorted by duration serving of the Commission or Council, thus illuminating opportunities and needs for new member orientation and knowledge transfer.

To better answer the question of Plan performance, more assessment of those stakeholders directly affected by the plan would be useful. An assessment using a similar semi-structured interview approach would help characterize the experience of ocean developers, both those who were awarded permits under the Plan and those that were denied. Interviewing ocean developers early in their planning process and then again after completing the permitting process would yield valuable information on developer expectations and experiences. Interviews with the conservation and ocean research communities would also help inform Plan performance to see how they perceive the Plan impacting their work.

Crosswalking this analysis with other research would also improve overall understanding of Plan performance. Once Catherine Leland has completed her examination of the Oceans Act of 2008 and implementation strategies, it would be useful to synthesize the results of the two efforts and see if further insights emerge.

Appendices

1. Survey Script

2. Complete List of Theme Codes

3. Acronyms and Glossary

Appendix 1: Survey Script

Thank you for agreeing to be interviewed today,

The purpose of this interview is to document advisory board members' perspectives on the Mass Ocean Management Plan: from the development process, to implementation and updating, to help inform the future revision process.

The interview should take 45 minutes. Responses are confidential and will not be directly attributable to you. To help accurately document your comments, I would like to record this conversation. Is that ok with you?

[If YES] Great, let's begin

[If NO] No problem, I will not record the conversation, but please bear with me as I carefully take notes during our conversation.

Main Questions	Prompting Questions	Interviewer Notes
1.a.) Recently, MA CZM sent you a DRAFT Plan Assessment. How much of it did you get a chance to read? 1. All or Most of it 2. Skimmed it 3. Did not read it		
2. a.) Describe your overall impression of the MA Ocean Management Plan **development process**; what worked well, or could have been improved?	[if asked the dev. Process is from 2008 through 2010 when the Plan finalized) b). [if not identified] what are your thoughts on: 1. data acquisition process 2. stakeholder engagement 3. Options available to you when considering management approach	Note that often people end up Giving the same response to several answers. That is ok.
3.) What is your overall impression of the **final Plan** - exceptional areas, opportunities for improvement?		
4.) Broadly speaking, were your "interests" addressed in the Plan		If asked to clarify, say "interests" can be of the seat they represent or other interests he/she represent**.**
5.) Do you feel the Plan has been implemented effectively?		
6.a.) What parts of the **updating process** do you think are working well or could be improved?	6.b.) [if not identified] How effective is the process to: 1. integrate new data 2. solicit expert guidance and stakeholder input	[if interviewee cannot come up with example, prompt with 6b. questions]

	3. improve interagency coordination	
7.) Do you think the Plan has improved the permitting process?		
8.a.) Do you feel you have adequate information and opportunities to know what is going on with the Plan?	[If Yes or No] 8.b.) Suggestions to improve opportunities or communication?	
9.a.) To be effective, do you think the OAC should meet: • About quarterly • Twice a year • Yearly • As Needed	9.b.) Suggestions to improve meetings? 9.c.) What do you think about webinars?	
10.a.) The Plan has science & data priorities. Do you feel the state and partners have made adequate progress these?		
11.a.) During the revision process, what opportunities do see to improve the Plan?	[if not identified] 11.b.) Opportunities for more data? 11.c.) More stakeholder engagement?	
12.a.) Do you have suggestions for improving the revision process?		i.e., meeting structure, approach, stakeholder engagement?

That concludes the interview. Thank you for your time. We will summarize all interviews and provide it to MA CZM for inclusion in the final Plan Assessment. If you have questions at any time, feel free to call me (your name) at (your number).

Bye.

Appendix 2: Complete List of Theme Codes

Codes	Notes
Accessibility/transparency	Access to information about the planning process
Adaptive	The plan can change to accommodate new formation
Administrative Execution	Knowledge of CZM, leadership, meeting management
Administrative Process	e.g., structure, stakeholder meetings, review of data
Balance Development and Protection	
Benthic/ Habitat	
Birds	includes migratory birds and seabirds
Cape Wind	reference to the Cape Wind Project
Climate Change	
Coastal, Land, Estuaries	Land- sea interface
Comcast Cable Project	
Communication	Related to presentations, announcements and outreach
Confusion/Unclear	
Cumulative Impacts	
Data Acquisition	Gathering data about different uses
Data Quality	
Ecosystem	
Evaluation	
Few Projects Reviewed	Refers to the three projects submitted for MA approval
Fisheries	
Goals	
IDK/ Can't Say	
Implications Beyond MA	
Interagency	
Limited Time	
Local Control	
Marine Mammals	
Meeting Locations (outside Boston)	
Money a limiting factor	
MOP/SeaPlan/GBMF	Private-funded support for MSP
Oceans Act of 2008	
Oceans Trust Fund	
Other issues (unique)	
Permitting	
Protection	
Public/Stakeholders Input	
Recreational Boating	
Regulations	
Sand Mining	includes beach nourishment
SSU	special, sensitive, unique areas
Too early to tell	
Webinars	
Wind Energy	

Total: 43 theme codes

Appendix 3: Acronyms and Glossary

Acronyms

OAC: Ocean Advisory Commission

SAC: Science Advisory Council

CZM: Coastal Zone Management

NROC: Northeast Regional Ocean Council

CMSP: Coastal and Marine Spatial Planning

Glossary

Cape Wind Project: An offshore wind farm project proposed by private developer, Cape Wind Associates, on Horseshoe Shoal in Nantucket Sound off Cape Cod, Massachusetts.

Coastal and Marine Spatial Planning: Coastal and Marine Spatial Planning (CMSP) addresses a full range of human uses across sectors, is supported by credible science, incorporates public and user-group input, is adaptable to changing needs, and ultimately, supports sustainable marine industries and resilient ocean ecosystems.

National Ocean Policy: The 2010 Executive Order adopts a National Policy that includes a set of overarching guiding principles for management decisions and actions toward achieving the vision of "an America whose stewardship ensures that the ocean, our coasts, and the Great Lakes are healthy and resilient, safe and productive, and understood and treasured so as to promote the well-being, prosperity, and security of present and future generations."

Ocean Advisory Commission: Established by the Oceans Act of 2008 in the following section:

(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. The Act required that the OAC would meet at least quarterly, hold public meetings and make recommendations to the Secretary of Environmental Affairs with the technical support of the Office of Coastal Zone Management and Division of Marine Fisheries.

Ocean Resources and Waterways Trust Fund: The Trust will receive all proceeds from ocean development mitigation fees as well as appropriations or other credits.

Ocean Science Advisory Council: Established by the Oceans Act of 2008 and in the following section:

(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.

Oceans Act: Governor Deval Patrick signed the Oceans Act on May 28, 2008, requiring the Secretary of Energy and Environmental Affairs (EEA) Ian Bowles to develop a comprehensive ocean management plan, with a draft plan by June 30, 2009, and a final plan promulgated by December 31, 2009.

Plan implementation: The execution of the 2009 Massachusetts Ocean Management Plan.

Provisional wind areas: Three potential commercial-scale wind areas that passed the exclusionary screening process but appear to have potentially more significant technical limitations, cumulative impacts, and/or less suitability for wind energy.

Regional Planning Body: The Regional Planning Body consists of federal, state, and tribal representatives and they are tasked with developing regional goals, objectives, and ultimately regional CMS plans.

Semi-structured Interviews: Semi-structured interviews are a qualitative method of inquiry that combines a pre-determined set of open questions (questions that prompt discussion) with the opportunity for the interviewer to explore particular themes or responses further. A semi-structured interview does not limit respondents to a set of pre-determined answers (unlike a structured questionnaire). Semi-structured interviews are used to understand how processes work and how they could be improved. It also allows respondents to discuss and raise issues that the interviewer may not have considered.

Stakeholders: A person, group, organization, member, or system who can be affected by the results of that in which they have a stake.