

Evaluation Findings

Massachusetts Coastal Zone Management Program

June 2014 to April 2021

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Executive Summary

The Coastal Zone Management Act requires the National Oceanic and Atmospheric Administration's Office for Coastal Management to conduct periodic evaluations of the performance of states and territories with federally approved coastal management programs. This evaluation examined the operation and management of the Massachusetts Coastal Zone Management Program by the Massachusetts Executive Office of Energy and Environmental Affairs for the period from June 2014 to April 2021. The evaluation focused on two target areas: technical assistance and ocean planning.

The findings in this evaluation document will be considered by the NOAA Office for Coastal Management in making future financial award decisions concerning the coastal program. The evaluation came to these conclusions:

Accomplishment: The Massachusetts Office of Coastal Zone Management has developed technical assistance and grants programs to plan and implement programs to protect the environment, ensure economic prosperity, and address the impacts of climate change that are models for interagency collaboration in the commonwealth.

Accomplishment: The Massachusetts Office of Coastal Zone Management continued to provide excellent service to coastal communities while key program staff leadership positions were vacant and being recruited.

Accomplishment: The Massachusetts Office of Coastal Zone Management has continued to improve ocean planning and management by supporting the acquisition of the best available data and sharing it openly with partners to foster ocean-based economic development that minimizes impacts to the marine environment.

Accomplishment: The Massachusetts Office of Coastal Zone Management provides leadership to ocean resource planning and management efforts throughout the New England region by facilitating collaborative efforts with neighboring states, provinces, and federal agency partners.

Recommendation: The NOAA Office for Coastal Management recommends that the Massachusetts Office of Coastal Zone Management consider increasing staff resources to enhance technical assistance and training capabilities related to long-term monitoring following the completion of beach nourishment or other ecological restoration projects.

Recommendation: The NOAA Office for Coastal Management recommends that the Massachusetts Office of Coastal Zone Management consider methods to provide more localized data and information to local governments and community groups where that information is available.

Recommendation: Given the steady and predicted increase in demand for new ocean uses, the increasing pressure of climate change on coastal and ocean resources, and the Massachusetts

Executive Office of Energy and Environmental Affairs' reliance on the Office of Coastal Zone Management to provide critical expertise, the NOAA Office for Coastal Management recommends that the state provide additional staff positions and increased financial support to the Massachusetts Office of Coastal Zone Management.

Conclusion: This evaluation concludes that the Massachusetts Executive Office of Energy and Environmental Affairs' Office of Coastal Zone Management is satisfactorily implementing and enforcing its federally approved coastal program, adhering to the terms of the federal financial assistance awards, and addressing the coastal management needs identified in section 303(2)(A) through (K) of the Coastal Zone Management Act.

Program Review Procedures

The Coastal Zone Management Act (CZMA) of 1972, as amended (CZMA; 16 U.S.C. 1451 et. seq.), requires that state coastal management programs and national estuarine research reserves that are developed pursuant to the CZMA and approved by the secretary of commerce be evaluated periodically. Section 1458 of the CZMA and implementing regulations at 15 CFR Part 923, Subpart L, require that state coastal management programs be evaluated concerning the extent to which the state has 1) implemented and enforced the program approved by the secretary; 2) addressed the coastal management needs identified in 16 U.S.C. 1452(2)(A) through (K); and 3) adhered to the terms of any grant, loan, or cooperative agreement funded under the CZMA.

The NOAA Office for Coastal Management evaluated the Massachusetts Coastal Zone Management Program in fiscal year 2021. The evaluation team consisted of Ralph Cantral, evaluation team lead; Betsy Nicholson, North region director, and Rebecca Newhall, site liaison—all from the NOAA Office for Coastal Management; and Michael Friis, manager of the Wisconsin Coastal Management Program in the Wisconsin Department of Administration. The support of the Massachusetts Coastal Zone Management Program staff was crucial in conducting the evaluation, and their support is most gratefully acknowledged.

NOAA sent a notification of the scheduled evaluation to Secretary Kathleen Theoharides of the Massachusetts Executive Office of Energy and Environmental Affairs, on February 12, 2021, and published a notice of “Intent to Evaluate” in the *Federal Register* on March 12, 2021. The Massachusetts Office of Coastal Zone Management issued a press release and posted a notice of the public meeting and opportunity to comment on April 7, 2021.

The evaluation process included a review of annual federal financial assistance award reports, CZMA Section 309 Assessments, and information provided by the programs documenting how they are implementing their programs and addressing the programmatic requirements of the Coastal Zone Management Act. The review also included a survey of interested parties, which helped identify two target areas for the evaluation: technical assistance and ocean planning. A virtual site visit was conducted April 27-29, 2021, and the evaluation team held meetings with staff members and group discussions with program partners, interested parties, and staff members about the target areas. In addition, a virtual public meeting was held on April 28, 2021 to provide an opportunity for members of the public to express their opinions about the implementation of the coastal program.

Interested parties and members of the public were given the opportunity to provide written comments via email or US mail through May 7, 2021. One written comment was received from interested parties (see Appendix A). The NOAA Office for Coastal Management then developed draft evaluation findings, which were provided to the Massachusetts Executive Office of Energy and Environmental Affairs for review. The state’s comments were considered in drafting the final evaluation findings.

Evaluation findings for all coastal programs highlight the coastal program's accomplishments in the target areas and include recommendations that are of two types:

Necessary Actions address programmatic requirements of the implementing regulations of the Coastal Zone Management Act (CZMA) and of the state coastal program approved by NOAA. These must be carried out by the dates specified. Failure to address necessary actions may result in a future finding of non-adherence and the invoking of interim sanctions, as specified in CZMA §312(c).

Recommendations are actions that the Office for Coastal Management believes would improve the program, but which are not mandatory. The state is expected to have considered the recommendations by the time of the next evaluation or by the dates specified.

Evaluation Findings

The Massachusetts Coastal Zone Management Program is led by the Executive Office of Energy and Environmental Affairs. The program focuses on the state's Atlantic Ocean watershed and shorelines. Massachusetts has a varied shoreline ranging from extensive marshes to rocky coast and sandy shorelines. The coastal area is also home to extensive commercial activities including numerous urban centers, ports, and harbors.

The 2014 evaluation of the Massachusetts Coastal Zone Management Program found the program to be performing at a very high level. That evaluation made three recommendations to continue to implement and improve their programs related to community resilience and ocean planning and management, and required no necessary actions. This evaluation found that the progress noted at that time has continued to the present day.

Target Area 1: Technical Assistance

One of the core functions of the Massachusetts Office of Coastal Zone Management is the provision of technical information and assistance to local governments and nongovernmental organizations throughout the coastal area.

Examples of Key Efforts

The Massachusetts Office of Coastal Zone Management (CZM), beginning in 2014, implements a coastal resilience grants program that has delivered assistance to 51 of the 78 coastal communities in the state.

A key focus of the technical assistance efforts conducted by Massachusetts Coastal Zone Management is on helping coastal communities address their relationship with coastal-dependent uses. Designated Port Areas and Municipal Harbor Plans are two tools that have proven to be very useful for coastal communities. Massachusetts CZM provides technical assistance for both of these activities as well as dredge planning, and has funded numerous studies and surveys to better understand underlying conditions that may impact dredging or placement of underwater cables.

The state has 10 designated port areas that are established to protect features that are important for water-dependent industrial uses. These uses can be either industries directly related to water use such as fishing, shipping, and boat maintenance, or they may be set aside for research or manufacturing related to the ocean economy. This latter approach is receiving great interest at this time due to the expansion of the offshore wind industry, but is also designed to adapt to new ocean-related industries that may become necessary in the future. The planning process associated with the designated ports should make these areas attractive to development of staging areas for the construction and maintenance of offshore wind facilities.

Another tool provided to local communities is the development of municipal harbor plans. These plans allow for local communities to implement strategies to encourage mixed-use development while maintaining water-dependent uses. All plans must be consistent with the CZM program policies and management principles. One of the features of the municipal harbor planning process is that it gives communities the opportunity to incorporate a number of related plans into a common framework.

The City of Lynn updated its municipal harbor plan during the evaluation period, as well as its Waterfront Open Space Master Plan and the Waterfront Master Plan. By considering all three elements at one time, the city was able to ensure consistency. And, because the municipal harbor plan requires state CZM approval, CZM staff were able to advise on how to not only comply with requirements, but also help achieve state objectives at the local level. In discussing their experience, City staff expressed appreciation for the assistance of the CZM staff and stated that the Massachusetts CZM grants process and technical assistance were models of consistency and fairness to all communities. They also felt that the CZM program has been very good at helping local governments set priorities.

The Town of Cohasset Municipal Harbor Plan was approved during the evaluation period. Harbor planning has proven to be a very useful tool for a town such as Cohasset, as Cohasset does not have a designated port area. Preparing the harbor plan allowed the town to guide a variety of uses competing in a relatively small area. The plan addresses environmental protection, economic development, and harbor management, and does so with an eye on climate change.

Massachusetts CZM staff have also worked with the City of Gloucester to identify ways to incorporate ecologically friendly shoreline management into a port area that has been active with shipbuilding and commercial fishing since the early 1700s. City staff acknowledged the helpfulness of CZM grants and the ability of the staff to recognize unique local conditions and provide technical assistance to develop solutions to improve them, rather than assuming that one solution would work coastwide.

During the evaluation period, the CZM program provided funding to the Town of Duxbury to study historic shoreline change, physical properties of the beach, and current dynamics of Duxbury Beach, a six-mile-long barrier beach located within the town. This plan laid the crucial groundwork for the nourishment of the beach. The evaluation team met with a representative of the Duxbury Beach Reservation, a 501(c)(3) organization that owns a 4.5 mile stretch of the beach and that was a partner on this project, and learned that the assistance of the CZM program was essential to the success of the project. They regretted, however, that neither the town nor the reservation had the resources to monitor the project following its completion. Monitoring information could be very helpful not only to Duxbury, but to other communities that undertake restoration projects.

Recommendation: The NOAA Office for Coastal Management recommends that the Massachusetts Office of Coastal Zone Management consider increasing staff resources to

enhance technical assistance and training capabilities related to long-term monitoring following the completion of beach nourishment or other ecological restoration projects.

The Office of Coastal Zone Management also administers the state's Coastal Resilience Grant Program that supports local and regional efforts to reduce the impacts of coastal storms and climate change. This program provides not only technical assistance, but also state funding to study and plan for the impacts of storm events and climate change, as well as funding to undertake capital projects to address the problems identified. Since the program's inception in 2014, the state has provided more than \$21 million that has been matched by nearly \$10 million in local match.

Another initiative started during the evaluation period is a CZM partnership with the Massachusetts Executive Office of Housing and Economic Development. This partnership has helped create and guide an annual grant program, providing funding for dredging that will enable coastal communities to maintain and enhance ocean-related economic activity. This program has helped fund more than 20 projects since its inception in 2018.

In another partnership focused on dredging, Massachusetts CZM has worked with the US Army Corps of Engineers, coastal communities, and the states of New Hampshire and Maine to identify appropriate locations for the beneficial use of dredged material from a dredging project on the Piscataqua River in those states. The Massachusetts Executive Office of Energy and Environmental Affairs also provided funding to support the permitting process for the three sites in Massachusetts.

Stakeholders interviewed by the evaluation team spoke of the important value of the coordination activities of the CZM office. These efforts fill the gap between planning and implementation by building connections between state agencies to achieve impacts that are greater than any single agency could achieve. Stakeholders described the CZM staff as the glue that joins individual community efforts into regional and statewide successes.

Accomplishment: The Massachusetts Office of Coastal Zone Management has developed technical assistance and grants programs to plan and implement programs to protect the environment, ensure economic prosperity, and address the impacts of climate change that are models for interagency collaboration in the commonwealth.

Coastal community partners informed the evaluation team that one of the most important elements of the CZM program has been that the CZM staff remains involved with the communities through all phases of projects. These staff members play an essential role in helping communities understand which sources of state and federal funding are available for which needs. Several of the stakeholders that the evaluation team interviewed mentioned that one of the key attributes of the CZM program is the hiring and retention of high-quality staff. A specific example of this was the departure and replacement of the CZM program manager and the subsequent hiring of an assistant director. Stakeholders reported that technical assistance to coastal communities was not impacted by these key personnel changes, and attributed much of that to the staff commitment to the communities.

Accomplishment: The Massachusetts Office of Coastal Zone Management continued to provide excellent service to coastal communities while key program staff leadership positions were vacant and being recruited.

Target Area 2: Ocean Planning

Massachusetts CZM provides leadership for ocean planning and management, not only in Massachusetts, but throughout the New England region. This is essential, as the need for data and management tools is increasing as offshore activities such as wind-generated energy and the need for sand resources to maintain beaches have increased sharply in recent years.

Examples of Key Efforts

Since the last evaluation, Massachusetts released and began implementation of the 2015 Massachusetts Ocean Management Plan. This plan has proven to be very useful as it has provided essential information on the state's policies to offshore wind energy developers and others seeking to better understand how state policy might impact their activities. In 2019, Massachusetts CZM began the required five-year review of that plan that examined every portion of the plan, including an update of the baseline assessment and the science framework, the delineation of critical ocean resources, and standards for siting facilities. This review was conducted with participation by the public, user groups, and the science community. The Draft Review of the Massachusetts Ocean Management Plan was released for formal public comment in November 2020. Stakeholders reported that the public review process worked very well.

Massachusetts CZM has continued to improve the availability of data and information about ocean resources through the Massachusetts Ocean Resources Information System. This data portal has proven to be helpful to a variety of users, including wind energy developers, natural resource managers, and extractive industries. The benthic mapping has been especially useful for state and regional marine resource managers as they plan for large-scale energy projects.

A major improvement in data availability has been achieved through several seafloor and habitat mapping efforts coordinated by the Massachusetts Office of Coastal Zone Management. A key element of the continuing seafloor mapping efforts is a partnership between Massachusetts CZM and the US Geological Survey. This collaboration, which began in 2003 and was renewed in 2019, has mapped nearly 1,000 square miles of seafloor in state waters and has yielded a number of academic papers, as well as information useful for a number of purposes, including placement of underwater cables.

Between 2013 and 2018 nearly 390,000 acres of area offshore of the Massachusetts coast were leased to wind energy developers. These leases were supported by a great deal of information collected through calls for information. Massachusetts CZM has played a coordinating role with the Department of the Interior's Bureau of Ocean Energy Management's planning and management staff throughout their efforts to identify suitable areas for leasing. The CZM program partnered with the Massachusetts Clean Energy Center to convene working groups on

possible impacts to fisheries and habitat, and also co-hosted meetings with stakeholders and the general public.

The placement of cables has become increasingly important not only for providing onshore connections between offshore wind generators and the electrical transmission system, but also for landing locations for transatlantic telecommunications cables. The CZM office has provided a valuable service by identifying underwater constraints for use by a variety of industries.

The Massachusetts Office of Coastal Zone Management has also led a number of efforts to collect data on invasive species, providing useful information that has been long sought after by program partners. The Marine Invader Monitoring and Information Collaborative (MIMIC) brings volunteers together with experts to monitor for invasive species. The program was started in 2006 and has trained hundreds of volunteers to identify 18 common marine invaders. The program has attracted a long list of government, community, and nongovernmental organization partners across the region, including the Barnstable Clean Water Coalition, New England Aquarium, Massachusetts Division of Marine Fisheries, and Wells (Maine) National Estuarine Research Reserve. MIMIC conducts regular sampling at more than 140 sites in New England. During the evaluation period, the tracked species list was updated to reflect current science, and volunteers were provided with updated information to identify the species. Information on invasive species was also supplemented by rapid assessments conducted by CZM-led teams of experts that conducted a week-long visit to marinas throughout the Massachusetts coast. Reports of the 2013 and 2018 rapid assessments have been made available to the public on the CZM website.

Accomplishment: The Massachusetts Office of Coastal Zone Management has continued to improve ocean planning and management by supporting the acquisition of the best available data and sharing it openly with partners to foster ocean-based economic development that minimizes impacts to the marine environment.

Stakeholder comments indicate that there is a continuing need to have the wealth of information collected and distributed at the state and regional levels better defined for use by local government.

Recommendation: The NOAA Office for Coastal Management recommends that the Massachusetts Office of Coastal Zone Management consider methods to provide more localized data and information to local governments and community groups where that information is available.

The Massachusetts Office of Coastal Zone Management continues to provide advice and assistance on ocean planning to neighboring states, and also plays a key role in coordinating regionally focused ocean planning and management activities throughout the New England and Gulf of Maine regions.

The director of Massachusetts CZM currently co-chairs the Northeast Regional Ocean Council (NROC), a group founded by the governors of the New England states in 2005. In addition to the

New England states, the membership of NROC includes the Department of the Interior, NOAA (the current federal co-chair), US Environmental Protection Agency, Department of Agriculture, Department of Homeland Security, and US Army Corps of Engineers. The group serves as a forum to address coastal and ocean management issues that can best be addressed at the regional level. CZM staff participate on each of NROC's working groups and chair two of them, addressing such issues as ocean planning, resilience to coastal hazards, and ocean and coastal ecosystem health. One of the key elements of NROC is the sharing of information through the Northeast Ocean Data Portal, which greatly benefits from higher resolution data integrated from the Massachusetts Ocean Resource Information System.

Massachusetts also helps to provide leadership to implement the recommendations of the Northeast Ocean Plan that was certified by President Barack Obama's National Ocean Council in December 2016, as well as to the Gulf of Maine Council on the Marine Environment and the Northeast Regional Association of Coastal and Ocean Observing Systems (NERACOOS). The Council on the Marine Environment is an international coordinating group representing the States of Massachusetts, New Hampshire, and Maine, as well as the Provinces of New Brunswick and Nova Scotia. NERACOOS is the regional component of the US Integrated Ocean Observing System. Massachusetts CZM has shown a long-term commitment to the success of these regional efforts, actively participating and leading their efforts, and using these regional data for a for peer-to-peer knowledge transfer benefiting the commonwealth and neighboring jurisdictions.

Accomplishment: The Massachusetts Office of Coastal Zone Management provides leadership to ocean resource planning and management efforts throughout the New England region by facilitating collaborative efforts with neighboring states, provinces, and federal agency partners.

Implementation of Coastal Zone Management Program General Requirements

Section 6217 of the Coastal Zone Act Reauthorization Amendments requires Massachusetts, like all coastal states participating in the National Coastal Zone Management Program, to develop a coastal nonpoint program to control polluted runoff to coastal waters. The Massachusetts Coastal Nonpoint Pollution Control Program was approved on October 3, 2001.

Another requirement of the Coastal Zone Management Act is for participating states to conduct federal consistency determinations in a timely manner. The Massachusetts Office of Coastal Zone Management continues to effectively and efficiently issue federal consistency determinations.

The Massachusetts Coastal Zone Management Program routinely collaborates with the Waquoit Bay National Estuarine Research Reserve, both in the areas of training and education and in research. During this evaluation period trainings related to living shorelines have been developed collaboratively. From 2013 through 2018, CZM helped to plan and sponsor the Cape Coastal Conferences that provided opportunities for scientists, public officials, and residents to come together to learn about topics impacting Cape Cod. The Waquoit Bay Reserve also has provided input to the sentinel site project implemented by the coastal program.

Program Staffing

For many years, the commonwealth has relied on the Office of Coastal Zone Management to carry out state-level and regional priorities and initiatives, relying on the leadership, skills, and expertise of the office in a number of topical and functional areas. The office staff are organized in functional areas such as habitat, water quality, seafloor and habitat mapping, and coastal resilience. Because demands for development within the coastal and ocean areas have greatly increased during the evaluation period, both the subject areas and the demand for services have expanded, but funding for staff and positions has not. As an example, the planning, siting, leasing, and development of offshore wind energy requires contributions of staff throughout the office, and requires significantly more time, effort, and analysis than needed during the previous evaluation period.

The high level of demand for technical expertise and assistance is expected to continue to grow in light of the national goal of achieving 30 gigawatts of offshore wind energy production by 2030. Adequate staffing is especially important due to the rapidly increasing demand for subaqueous wind power and telecommunication transmission lines, and initiatives to greatly expand open-water aquaculture, all of which will impact the commonwealth's coastal and ocean resources.

The federally approved Massachusetts Coastal Zone Management Program, through the federal consistency provision of the Coastal Zone Management Act, gives the state a unique ability to take a comprehensive approach in promoting the sustainable use of coastal and ocean

resources. The commonwealth's federal consistency review process ensures that federal activities comply with the policies of important state partners such as the Division of Marine Fisheries and Department of Energy Resources.

To adequately implement the federally approved Massachusetts Coastal Zone Management Program in light of the many increased demands for ocean activities in the commonwealth's coastal zone, a larger sustained Office of Coastal Zone Management staff is needed. Providing additional staff resources would enable the commonwealth to remain nimble in the face of emerging issues, while also maintaining the current quality of service to constituents, including stakeholder engagement, data products and tools, and technical assistance to coastal communities, that is essential to the implementation of the federally approved program.

Recommendation: Given the steady and predicted increase in demand for new ocean uses, the increasing pressure of climate change on coastal and ocean resources, and the Massachusetts Executive Office of Energy and Environmental Affairs' reliance on the Office of Coastal Zone Management to provide critical expertise, the NOAA Office for Coastal Management recommends that the state provide additional staff positions and increased financial support to the Massachusetts Office of Coastal Zone Management.

Evaluation Metrics

Beginning in 2012, state coastal management programs began tracking their success by tracking three activities specific to their programs. The evaluation metrics include a five-year target and provide a quantitative reference for each program about how well it is meeting the goals and objectives it has identified as important to the program.

2012–2017 Metric 1: Ocean Planning

Goal: The ocean resources of Massachusetts are comprehensively managed to:

- Balance and protect the natural, social, cultural, historic, and economic interests of the marine ecosystem through integrated management.
- Protect biodiversity, ecosystem health, and the interdependence of ecosystems.
- Support wise use of marine resources, including renewable energy, sustainable uses, and infrastructure.
- Incorporate new knowledge as the basis for management that adapts over time to address changing social, technological, and environmental conditions.

Objective: By 2017, the majority of the seafloor within commonwealth coastal and marine waters will be mapped.

Strategy: Massachusetts ocean waters are rich with natural resources and busy with human activity.

The marine environment supports recreation and tourism, fishing and shellfishing, shipping and trade, and scientific research. The commonwealth’s marine waters also contain infrastructure—such as offshore liquefied natural gas facilities, fiber optic and electrical cables, and natural gas pipelines—that supports the economic well-being and standard of living of Massachusetts citizens. Today, ocean resources face unprecedented development pressure and also provide potential solutions for new challenges, such as climate change. In addition to existing ocean uses, new proposals for renewable energy, deep water aquaculture, offshore sand mining, and other activities highlight the need to effectively balance the protection and use of ocean waters.

To address these issues, CZM leads key ocean planning and policy initiatives for the Massachusetts Executive Office of Energy and Environmental Affairs, including the effort to develop the Massachusetts Ocean Management Plan. Released on December 31, 2009, this plan represents the nation’s first comprehensive plan to protect critical marine resources and foster sustainable uses in state ocean waters. Recognizing that ocean planning is an ongoing and iterative process, the plan included—in its Volume II Science Framework—a suite of priority science and data needs. Included in this list of priorities was the need to continue seafloor mapping to support important ocean management and planning elements. CZM continues to lead efforts to implement and update the plan.

Generally, these mapping efforts will include the collection of remotely sensed data (e.g., depth and the seabed's reflected acoustic signature) and in situ data (e.g., sediment and benthic infauna), followed by the development of mapping products derived from these data, such as certain habitat types, "hard and complex bottom," and geomorphology maps. Four metrics will be used to quantify CZM seafloor mapping progress, based on the total area of state waters, approximately 6,560 square kilometers based on NOAA's Medium Resolution Vector Shoreline and the Bureau of Ocean Energy Management Submerged Lands Act Boundary (State Seaward Boundary):

- High-resolution bathymetric data in waters deeper than 30 feet.
- High-resolution backscatter data collected by sonar in waters deeper than 30 feet.
- Sediment type using the best available data and mapping techniques.
- Potential habitat type using the best available data and mapping techniques below Mean Lower Low Water. Potential habitat is defined in general terms as a combination of the physical and biological conditions on the seafloor that are associated with a population of interest. This term is used due to the extreme difficulty in ground-truthing the presence or absence of many marine organisms.

Metrics 1-3, high-resolution bathymetry, backscatter, and sediment type, represent the most important fundamental data types necessary to derive all subsequent data products including metric 4, potential habitat.

An area will be considered mapped when it is successfully characterized, mapped, and ground-truthed, to the extent possible given the state of the science and technological limitations, for each metric.

For areas deeper than 30 feet, "mapped" is defined as having:

1. High-resolution bathymetric data
2. High-resolution backscatter data collected by sonar
3. Sediment type
4. Potential habitat type

For areas below Mean Lower Low Water to 30 feet, "mapped" is defined as having:

1. Sediment type
2. Potential habitat type

Performance Measure: The percentage of area of Massachusetts seafloor mapped.

Target: By 2017, 75 percent of Massachusetts seafloor mapped.

	>30' depth Hi-res Bathy	>30' depth Hi-res Backscatter	>30' depth Potential habitat type	<30' depth Hi-res Bathy	<30' depth Sediment type	<30' depth Potential habitat type
Year 1	62%	62%	0	0	0	0
Year 2	0	0	87%	0	48%	0
Year 3	4%	4%	0	0	0	0
Year 4	2%	0	1%	0	2%	0
Year 5	5%	0	0	0	2%	0
Cumulative total	73%	66%	88%	0	52%	0

Discussion: Because the target was for total mapped, but the results were for a number of subcomponents, it is very difficult to assess the total area completely mapped. Nevertheless, it is clear that the Massachusetts Office of Coastal Zone Management has made major strides in completing seafloor mapping within state waters during this evaluation period, especially at depths greater than 30 feet, which is the larger area within state waters.

2012–2017 Metric 2: Climate Change Adaptation

Goal: Local communities are prepared to adapt to coastal challenges arising from climate change.

Objective: By 2017, 10 community-level projects that address sea level rise, storm damage protection, or other climate change adaptation issues will be successfully completed.

Strategy: The Massachusetts coastline and ocean are tremendous resources that have shaped the state's economy, history, and way of life. Today, these resources are threatened by a host of issues, including erosion of public beaches, costly storm damage of homes and businesses, habitat loss, pollution of waterways from land runoff, and the spread of invasive species. Climate change—with its resulting acceleration of sea level rise, potential increased frequency and intensity of storms, and shifts in ocean temperature, currents, and chemistry—is altering these already dynamic environments, exacerbating coastal management challenges.

Through efforts in coastal hazards management, ocean planning, habitat restoration, fisheries assessment and management, and land protection, Massachusetts has taken many important steps and is poised to become a national leader in coastal climate change adaptation. CZM takes a leading role in these efforts, focusing not only on state-level planning and policy development, but on local initiatives to implement strategies to reduce the anticipated coastal impacts from climate change.

Projects that will be counted as part of this measure will include all community-level efforts supported through CZM technical assistance and funding that address coastal climate change adaptation issues. Specific types of projects will include, but not be limited to, vulnerability

assessments, sea level rise visualizations, coastal planning and policy recommendations, and public infrastructure modifications.

Performance Measure: The number of climate change adaptation projects completed at the local level with CZM assistance.

Target: By 2017, 10 climate change adaptation projects completed at the local level with CZM assistance.

Year 1: 0

Year 2: 5

Year 3: 20

Year 4: 30

Year 5: 18

Cumulative Data: 73

Discussion: The Massachusetts Office of Coastal Zone Management has been very successful in supporting local government adaptation to climate change, far exceeding the target.

2012–2017 Metric 3: Coastal Water Quality Protection

Goal: The coastal waters in Massachusetts are clean and healthy.

Objective: By 2017, 10 nonpoint source pollution control projects will be successfully completed (i.e., constructed and operating) through the Coastal Pollutant Remediation Grant Program.

Strategy: Without clean water, the value of the Massachusetts coast would be vastly diminished. High levels of water quality are necessary for fishing, shellfishing, aquaculture, swimming, and most of the other activities that draw people to the coast. To effectively promote coastal water quality protection at the local level, CZM administers the Coastal Pollutant Remediation (CPR) Grant Program. Since 1996, more than \$6 million in CPR grants have been awarded to improve coastal water quality that has been impaired by runoff pollution and boat sewage.

To improve coastal water quality by reducing or eliminating nonpoint source pollution, specifically from transportation-related sources, the CPR Grant Program funds projects that:

- Characterize and treat urban runoff from municipal roadways.
- Improve coastal resources, such as shellfish beds, bathing beaches, and diadromous fish runs.
- Demonstrate traditional and innovative nonpoint source pollution control methods.
- Educate the public about stormwater runoff problems.

Three categories of projects are eligible for funding:

- Assessment, identification, and characterization of nonpoint source pollution from paved surfaces, which can include determining the sources of roadway-related pollution, identifying appropriate stormwater control methods (also known as Best Management Practices or BMPs), and siting these BMPs.
- Design and construction of BMPs to remediate runoff from paved roads, highways, bridges, and municipal parking lots.
- Design and construction of boat-waste pumpout facilities to reduce pollution related to discharges from vessel holding tanks.

Performance Measure: The number of nonpoint source pollution control projects completed at the local level through the Coastal Pollutant Remediation Grant Program.

Target: By 2017, 10 nonpoint source pollution control projects completed at the local level through the Coastal Pollutant Remediation Grant Program.

Year 1: 5

Year 2: 5

Year 3: 5

Year 4: 5

Year 5: 9

Cumulative Data: 29

Discussion: The Massachusetts Office of Coastal Zone Management has exceeded the target for this performance measure, as the office has been very successful in encouraging communities to undertake pollution control projects and in funding them through the Coastal Pollution Remediation Grant Program.

2018–2023 Metric 1: Coastal Hazards and Climate Change Adaptation

Goal: The commonwealth and communities are adapting to coastal challenges from rising water levels, increased frequency and intensity of storms and erosion.

Objective: By 2023, develop policies and plans, and complete projects that address erosion, sea level rise, storm damage protection and other climate issues.

Strategy: The Massachusetts coastline and ocean are tremendous resources that have shaped the state's economy, history, and way of life. Today, these resources are threatened by a host of issues, including erosion of public beaches, storm damage of homes, businesses and infrastructure, and habitat loss. Climate change—with its resulting acceleration of sea level rise, increased frequency and intensity of storms, and shifts in ocean temperature and currents—is altering these already dynamic environments, exacerbating coastal management challenges.

Through efforts in coastal hazards management, Massachusetts has taken many important steps and has worked regionally and nationally to advance climate change adaptation. CZM takes a lead role in these efforts, focusing not only on state-level planning and policy development, but on local initiatives to implement strategies to reduce coastal impacts from climate change.

Policies, plans and projects counted in this measure will include all state and community-level efforts supported through CZM technical assistance and funding (e.g., CZM Coastal Resilience Grant Program) that address coastal climate adaptation. Specific types of efforts will include, but not be limited to, vulnerability assessments, sea level rise visualizations, coastal planning, retrofit of public infrastructure, and nature-based shoreline restoration and enhancement projects.

Background / rationalization for target numbers: During this period, CZM will work to engage coastal communities that have not been actively managing coastal hazards and climate issues through CZM technical assistance and funding. CZM will also prioritize the construction of nature-based shoreline stabilization projects that have been designed and permitted with CZM support. This focus will likely decrease the total number of policies, plans and projects supported. Anticipated numbers: a) 2 state-level policies and plans; b) 18 local-level policies and plans; c) 0 projects completed at the state level; and d) 10 projects completed at the local level to reduce future damage from coastal hazards with assistance from CZM funding or staff.

Performance Measure: From 2018 to 2023, number of a) state-level policies and plans; b) local-level policies and plans; c) projects completed at the state level; and d) projects completed at the local level to reduce future damage from coastal hazards with assistance from CZM funding or staff.

Target: From 2018 to 2023, a total of 30 a) state-level policies and plans; b) local-level policies and plans; c) projects completed at the state level; and d) projects completed at the local level to reduce future damage from coastal hazards with assistance from CZM funding or staff.

Year 1: 19

Year 2: 21

Cumulative Data: 40 (133% of target)

Discussion: The Massachusetts Office of Coastal Zone Management has been very successful working with local governments to prepare and adopt climate adaptation and hazard mitigation plans and projects, exceeding the 5-year target in the first two years.

2018–2023 Metric 2: Coastal Water Quality Protection

Goal: The coastal waters in Massachusetts are clean and healthy.

Objective: By 2023, fund nonpoint source pollution control projects through the Coastal Pollutant Remediation Grant Program to improve water quality.

Strategy: Without clean water, the value of the Massachusetts coast would be vastly diminished. High levels of water quality are necessary for fishing, shellfishing, aquaculture, swimming, and most of the other activities that draw people to the coast. To effectively promote coastal water quality protection at the local level, CZM administers the Coastal Pollutant Remediation (CPR) Grant Program. Since 1996, more than \$10 million in CPR grants have been awarded to improve coastal water quality that has been impaired by runoff pollution and boat sewage.

To improve coastal water quality by reducing or eliminating nonpoint source pollution, specifically from transportation-related sources, the CPR Grant Program funds projects that:

- Characterize and treat urban runoff from municipal roadways.
- Improve coastal resources, such as shellfish beds, bathing beaches, and diadromous fish runs.
- Demonstrate traditional and innovative nonpoint source pollution control methods.

Three categories of projects are eligible for funding:

- Assessment, identification, and characterization of nonpoint source pollution from paved surfaces, which can include determining the sources of roadway-related pollution, identifying appropriate stormwater control methods (also known as Best Management Practices or BMPs), and siting these BMPs.
- Design and construction of BMPs to remediate runoff from paved roads, highways, bridges, and municipal parking lots.
- Design and construction of boat-waste pumpout facilities to reduce pollution related to discharges from vessel holding tanks.

Background / rationalization for target numbers: The funding for the grant program is sourced from state capital funds, which are not guaranteed and the levels of which can fluctuate. While we continually work to meet the nonpoint source needs of coastal communities, these funds have a required match of total project cost which can limit participation in the grant program. We have based the target numbers on past performance of average total number of projects funded each year and feel this represents a reasonable maintenance level of program performance.

Performance Measure: From 2018 to 2023, number of coastal communities that completed projects to implement polluted runoff management plans with assistance from CZM funding or staff.

Target: From 2018 to 2023, 15 coastal communities completed projects to implement polluted runoff management plans with assistance from CZM funding or staff.

Year 1: 7

Year 2: 5

Cumulative Data: 12 (80 percent of target)

Discussion: The Massachusetts Office of Coastal Zone Management has been very successful in supporting local governments in the implementation of nonpoint source pollution control programs. With continued effort, the program should exceed the 5-year target.

2018–2023 Metric 3: Waterfront Planning

Goal: Coastal communities implement plans which ensure that developed port and harbor areas in Massachusetts grow in a way which balances impacts to natural resources, economic viability, and resilience to anticipated climate change impacts.

Objective: By 2023, develop port or waterfront redevelopment ordinances, policies, or plans that balance impacts to natural resources, economic viability, and resilience to anticipated climate change impacts.

Strategy: CZM works with coastal communities to ensure that waterfront areas grow in an environmentally sound and economically prosperous manner by promoting harbor planning and encouraging the creation or expansion of water-dependent facilities in developed port and harbor areas. This approach maximizes the value of these developed ports and ensures that businesses that require close proximity to harbors, such as shipping and fishing facilities, remain viable. CZM supports proactive planning to promote maritime development, prevent user conflicts, and accommodate supporting industrial and commercial uses. To promote and protect water-dependent industrial uses, Massachusetts has established 10 Designated Port Areas. The primary goals of the CZM Port and Harbor Planning Program are to:

- Help ensure that waterfront areas in the commonwealth grow in a safe, environmentally sound, and economically prosperous manner.
- Balance potentially competing uses within a port or harbor.

Through CZM’s port and harbor planning program, CZM provides technical assistance as municipalities initiate; engage stakeholders; set municipal priorities; and envision development within the state regulatory framework for specific planning areas along their waterfront. CZM provides input relating to state waterways and wetlands jurisdiction and permissibility; state planning resources; coordination with nonprofit; state and federal organizations; and potential impacts relating to sea level rise and the increased frequency and intensity of storm events.

Plans that will be counted as part of this measure will include all municipal-led planning efforts supported through CZM technical assistance and funding that address port and harbor areas along the Massachusetts coast.

Background / rationalization for target numbers: As many communities have completed or updated plans in the past 10 years it is anticipated that the demand for technical assistance and funding will be lower than the previous five years.

Performance Measure: From 2018 to 2023, number of coastal communities that developed or updated port or waterfront redevelopment ordinances, policies, and plans with assistance from CZM funding or staff.

Target: From 2018 to 2023, 5 coastal communities developed or updated port or waterfront redevelopment ordinances, policies, or plans with assistance from CZM funding or staff.

Year 1: 4

Year 2: 0

Cumulative Data: 4 (80 percent of target)

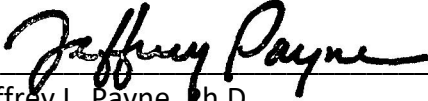
Discussion: As mentioned previously in this evaluation, the Massachusetts Office of Coastal Zone Management has developed a solid program of assistance to local governments in the area of waterfront redevelopment planning. The program has achieved 80 percent of the target within the first two years of this measurement cycle.

Conclusion

For the reasons stated herein, I find that the State of Massachusetts Executive Office of Energy and Environmental Affairs is successfully implementing and enforcing its federally approved coastal management program, adhering to the terms of federal financial assistance awards, and addressing coastal management needs identified in section 303(2)(A) through (K) of the Coastal Zone Management Act in the operation of its approved Massachusetts Coastal Zone Management Program.

These evaluation findings contain three recommendations and no necessary actions. The recommendations must be considered before the next regularly scheduled program evaluation, but they are not mandatory at this time. Program recommendations that must be repeated in subsequent evaluations may be elevated to necessary actions.

This is a programmatic evaluation of the Massachusetts Coastal Zone Management Program that may have implications regarding the state's financial assistance awards. However, it does not make any judgment about or replace any financial audits.



Jeffrey L. Payne, Ph.D.
Director
NOAA Office for Coastal Management

02/08/2022

Date

Appendix A: Response to Written Comments

One public comment was received.

David Dow, a retired fisheries scientist from East Falmouth, had several suggestions, including:

- Revising the Massachusetts Ocean Management Plan to include human activities in coastal watersheds (the 0-3 mile jurisdictional boundary).
- Reducing nitrogen levels in coastal waters through better enforcement of comprehensive wastewater management plans and septic tank laws.
- Pursuing an ecosystem-based management approach to resource management including feedback loops to encourage adaptation and refinement over time.
- Developing strategies to convert new scientific research and monitoring more quickly into state coastal zone management policies.

The evaluation team thanks Dr. Dow for his comments and has shared his comments with the Massachusetts Office of Coastal Zone Management.