

Action Plan 15. Managing Coastal Watersheds and the Waterfront

Problem⁹²

Coastal population and development pressures along the waterfront, new docks and piers, increased boating activities, and other uses of coastal waters, as well as dredging and coastal armoring to support those activities, continue to degrade water quality, destroy habitat, and affect marine plant and animal populations. All of Buzzards Bay is within the boundaries of its coastal municipalities, and therefore both the state and the municipalities have jurisdiction over activities on the water's surface (watershed) and on the bottom of the bay (tidelands). The Massachusetts Ocean Management Plan, adopted in 2009, better regulates activities areas greater than 1/3 mile offshore. Municipalities remain the lead in managing nearshore areas, including all embayments within Buzzards Bay, but most have failed to adopt any similar comprehensive planning strategies for managing waterfront and watershed uses and development. To address these needs, towns must develop local harbor and watershed management plans and adopt laws, regulations and policies that support them.

This action plan seeks principally to address conflicting uses and management priorities for the waterfront and near coastal watersheds not addressed by the Massachusetts Ocean Management Plan, including nearshore renewable energy facilities. Issues associated with discharges from boat operation and maintenance, and adverse impacts from boat mooring systems are addressed in Action Plan 6. Managing Impacts from Boating, Marinas, and Moorings.

Goals

Goal 15.1. To manage the uses and activities in the waters and coastal zone of Buzzards Bay in an integrated manner to ensure sustainable recreational and commercial activities while protecting and improving ecosystem health and values.

Goal 15.2. Ensure that dredging activities minimize adverse effects on water quality, physical processes, marine productivity and public health and to maximize the beneficial use of dredged sediments.

Objectives

Objective 15.1. Develop and improve upon geographic databases identifying habitat, sediment characteristics, and contamination hotspots of lands under the ocean to

establish a strong technical basis for coastal watershed planning and management.

Objective 15.2. Promote improved municipal watershed and waterfront planning to protect water quality and natural resources while allowing sustainable uses.

Objective 15.3. Promote the adoption and implementation of municipal watershed management plans that consider placement of piers, moorings areas, and other coastal activities and structures.

Objective 15.4. Improve implementation and enforcement of coastal and wetland laws, statutes and regulations at the local, regional, state and federal levels.

Objective 15.5. Promote increased cooperation among and between town boards and state and federal agencies on coastal projects with regional implications.

Objective 15.6. Ensure that dredging methods and timing be conducted to minimize adverse impacts, and where appropriate, transfer sensitive resources out of areas to be dredged.

Objective 15.7. To maximize the beneficial uses of dredged material by creating opportunities by pre-designating receiving areas (e.g. beach nourishment zones) to expedite permitting.

Solutions

Most of the solutions in this action plan require the development of comprehensive harbor management and watershed protection strategies that are fulfilled through the adoption of town zoning or general bylaws or city ordinances. Some, like beneficial use dredged materials, require changes in state and federal policies and regulations. The state and federal government have funded many new surveys of the bottom of Buzzards Bay, but towns must gather nearshore data for their own planning efforts. While the cost to develop such planning documents is a hurdle, the real obstacle to implementation is developing a political consensus to pass zoning and non-zoning laws that may be contentious.

Costs and Financing

Based on recent town efforts, the cost of developing a resource protection based harbor plan is typically \$50-\$100,000 per embayment. Some state and federal grant programs can be used to fund these efforts, but most often municipal legislative bodies appropriate the necessary funds.

Measuring Success

This action plan is evaluated by programmatic actions by towns developing and adopting needed waterfront and watershed management plans and policies.

⁹² This action plan was not in the original CCMP. There was however a Dredging Action Plan in the original Management Plan, and recommendations relating to dredging and beneficial use of dredged sediments are contained in the action plan along with offshore coastal waters.

Background

All of Buzzards Bay consists of municipal waters, which are also state waters (Figure 91)⁹³. In a practical sense, both the municipalities and the state have strong interests, and regulatory authority, on activities on and under these waters. There are no "federal waters" in Buzzards Bay, but all of Buzzards Bay is defined as Waters of the United States for the purpose of wetlands protection under the Clean Water Act.

As the population along the coast of Buzzards Bay has increased, so have the commercial and recreational uses of these coastal waters. These uses may include activities on the surface of the water (sometimes referred to as the watersheet), underwater, or on the bottom, an area legally termed Massachusetts Tidelands. Traditional uses such as commercial and recreational boating have increased, as have newer recreational activities such as kayaking and jet skiing.

Although seine fishing has been banned in Buzzards Bay for more than a century, New Bedford and surrounding areas continue to be an important maritime center supporting an offshore commercial fishing industry, particularly in areas of fish processing and shipping. Commercial shipping through Buzzards Bay and the Cape Cod Canal remains important, and the 2003 Bouchard oil spill highlighted the pollution risks associated with shipping and fuel transport.

More recently commercial interests have proposed other large-scale uses of the ocean, including wind farms, tidal energy turbines, dredged material disposal, and offshore liquid natural gas facilities.

Because of the prospect of new industrial scale offshore facilities, in 2008 the Massachusetts state legislature passed the Ocean Act requiring the Massachusetts Office of Coastal Zone Management to help resolve conflicts in waters mostly more than 1/3 mile offshore (Figure 92). Specifically the new law required that MCZM develop an Ocean Management Plan that established "goals, siting priorities and standards for ensuring effective stewardship of its ocean waters held in trust for the benefit of the public." The new law identified eleven other management concern goals including conformance to sound management practices, preserving natural, social, cultural, historic, and economic characteristics of the planning areas, and protecting biodiversity and ecosystem health sensitive areas and habitats.

MCZM completed the new Ocean Management Plan in December 2009. The plan particularly focused on setting standards for permitting and siting activities and facilities allowed under the Ocean Sanctuaries Act,

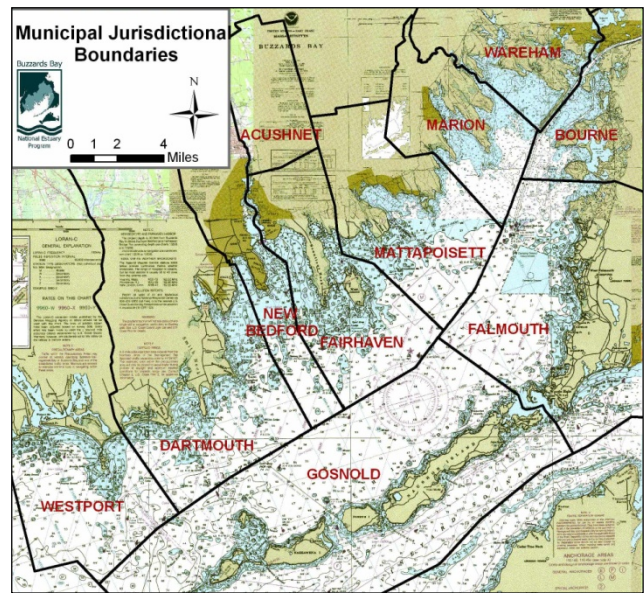


Figure 91. Buzzards Bay municipal jurisdictional boundaries of Buzzards Bay.

including renewable energy facilities, aquaculture, sand mining for beach nourishment, cables, and pipelines.

Despite the benefits of this plan, it does not address the near coastal waters that municipalities are most concerned about, including all the embayments within Buzzards Bay. The Ocean Plan added new oversight and management within the jurisdictional waters of the plan, but neither the law nor the plan precludes any existing authorities municipalities have over these areas.

Potential "offshore" impacts from wind farms and other activities, together with the recent rapid development of waterfront properties and the proliferation of docks and their associated use has concerned many managers and residents about their effects on the environment, water quality, and on competing uses like aquaculture, shellfishing, scenic views, and recreational boating.⁹⁴ Increased recreational boating also leads to a demand for more docks and piers, which in turn tends to increase the value of coastal real estate, thus making the coastal zone attractive for coastal development and redevelopment, again creating conflicts with water dependant uses.

⁹³ Municipal boundaries in the Massachusetts coastal waters were established by Chapter 196 Acts of 1881. Massachusetts General Laws Ch. 42, sec. 1 establishes the boundary of state waters within the U.S. territorial sea which extends to 12 nautical miles.

⁹⁴ Municipal boundaries in the Massachusetts coastal waters were established by Chapter 196 Acts of 1881. Massachusetts General Laws Ch. 42, sec. 1 establishes the boundary of state waters within the U.S. territorial sea which extends to 12 nautical miles. The state, not municipalities, own public trust lands and rights in submerged lands (MLW to three miles offshore), but exercise jurisdiction over trust lands within their boundaries. The limits are set by the Home Rule Amendment, which empowers towns to enact any by-law not inconsistent with state law. The state also assigns important roles to municipalities in their waters. For example, harbor masters permit moorings and non-fixed structures, municipalities can issue shellfish grants and aquaculture permits, and conservation commissions issue permits for activities in wetlands, including activities on the bottom of the ocean within municipal jurisdictions.

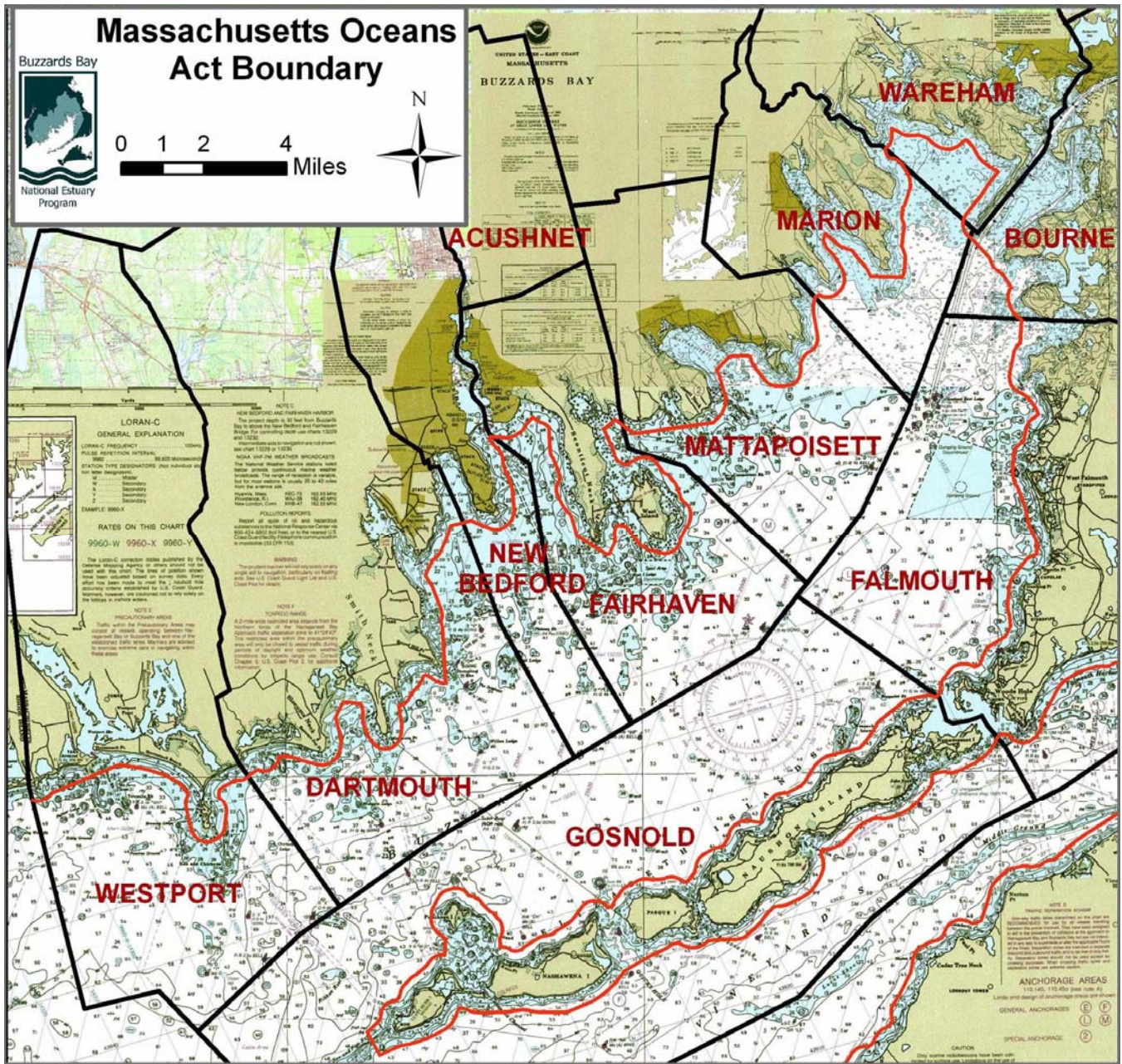


Figure 92. Jurisdictional boundary of the 2008 Ocean Act.
 (Defined by a CZM report; area seaward of the red line.)

Because of concerns about the potential disposal of contaminated sediments in Buzzards Bay, in 2006, the state legislature passed and the governor signed legislation that banned the disposal of all dredged sediments into Buzzards Bay. The end result of this legislation is that most dredged sediments from harbors around Buzzards Bay will now be disposed of at sites in either Rhode Island Sound or Cape Cod Bay. Although beneficial use of these clean sediments is desirable, the cost of bringing ashore sediments, coupled with coordinating the timing of difficult permits (dredging and beach nourishment for example), have precluded the more widespread beneficial use of clean dredged materials. Given

problems with shoreline erosion and future sea level rise, it would be preferable to use clean sediments for beach nourishment projects and other beneficial uses wherever possible, but there are no incentives to promote beneficial use of sediments.

Docks and Piers

Coastal population and development pressures along the waterfront continue to build making the coastal land-sea interface one of the most intensively used portions of the watershed and of Buzzards Bay. Coastal waterfront properties are highly desirable because of their proximity to water, scenic views and the opportuni-

ties for recreational boating. Demand for recreational boating typically leads to a demand for more docks and piers, which in turn tends to increase the value of coastal real estate, thus making the coastal zone attractive for coastal development and redevelopment.

Docks and piers, however, pose many challenges for coastal management. Docks are a potential source of user conflicts, since they tend to restrict access along and to the shore for shellfishermen, fishermen and the public. Long docks can impede or hinder nearshore navigation. The environmental impacts of poorly sited docks and piers and associated motorized boating activities can include damage to salt marsh, shellfish habitat, eelgrass beds and water quality due to resuspended sediments. The visual and aesthetic impacts of a single small dock are arguable, but dense clustering or proliferation of docks and piers (“dock sprawl”) or large dock systems may have such visual impacts. Measures to mitigate a single issue may end up affecting something else (e.g., siting a dock to avoid salt marsh impacts may increase the navigation hazard or aesthetic impacts).

As recreational boating and commercial shipping increase, the chances of oil spills or accidental septic system discharges occurring will likely increase. In Buzzards Bay, there are currently 37 boat pumpout facilities to receive and transfer boat wastewater; if the number and/or passenger capacity of boats increases, the number and/or capacity of boat pumpout facilities must also increase to handle the additional waste. To service more boats, marinas and repair facilities must expand and/or increase in number. Offshore and nearshore mooring fields and anchorages for boats can affect bottom sediments, water quality and habitat through dragging anchors and mooring chains. Fish and shellfish habitat will most likely decline as docks, piers, and associated boating proliferate, despite use of best practices in dock design, simply due to the overall increase in intensity of use of coastal waters. Several species of commercially important fish spend at least part of their life cycles within shallow intertidal or subtidal waters. Navigation becomes more complex and requires greater oversight by harbormasters.

There can be many other consequences of dock proliferation and increased boating and recreational uses. On the positive side, coastal tourism, both on land and on the water, should benefit from more recreational uses of the ocean. The local economy may be revitalized due to an increased demand for services. Environmental outreach and protection efforts should benefit from increased coastal tourism. There may be opportunities for municipal income from dock taxes and recreational user fees.

Tourists, however, require accommodations, wastewater management, water supplies, fuel, food, roads, and a wide range of services and infrastructure. Municipal services related to marine uses include har-

bormaster patrols, mooring management, fire control and law enforcement; search and rescue. This may add to the municipal burden and responsibility, which may have consequences for year-round residents who provide property tax income to municipalities. Coastal development creates more stormwater runoff, which government must manage to protect coastal water quality. Coastal real estate values may increase, leading to higher property taxes to support the increased need for municipal services.

Docks therefore represent the tip of the iceberg in terms of coastal management. The real issue is how to address the cumulative impact of the intense recreational, commercial and residential uses of the coastal zone in a coordinated manner that protects valuable natural resources and community values.

Other municipal officials also review docks and coastal projects. Building commissioners must issue construction permits for structures, including docks and piers. Falmouth’s Board of Selectmen review docks and coastal projects under a separate, older wetlands zoning bylaw (which has no performance standards); this may be the only example in the watershed of a town having two wetlands bylaws. Shellfish and herring wardens exercise considerable authority in managing and regulating shellfish and fisheries habitat, respectively, and they provide input to local permitting reviews by conservation commissions.

Special legislation has also been enacted to protect Buzzards Bay from pollution and other impacts of human uses of the ocean. In August of 2000, Buzzards Bay was designated by CZM and the U.S. EPA as a “No Discharge Area” under the Clean Water Act, which makes it illegal to discharge boat septic wastes to the bay. The 2004 Massachusetts Oil Spill Prevention Act prohibits the discharge of oil to the bay. The Massachusetts Ocean Task Force has also issued recommendations for better protection and management of the coastal zone.

Each of these management responses have been helpful but have varied in scale, scope, location and success of implementation. Wetland bylaws typically focus on regulating individual docks and piers on a lot-by-lot basis, but generally do not address cumulative impacts. In addition, DEP often overrules conservation commission dock denial decisions under the state regulations if the denial is based on non-mitigatable or cumulative impacts to shellfish or fisheries habitat. Building commissioners review dock applications for structural and safety issues only, and do not have purview over environmental, community or aesthetic issues.

The overall problem is that Buzzards Bay communities have yet to implement comprehensive, community-wide coastal and ocean management plans that take into account the linkages between coastal land-based and water-based uses. In order to address effectively coastal activities in a comprehensive manner, Buzzard Bay

communities should be aware of the full suite of ocean management tools and techniques and adopt those that are best suited to their section of the coastline, yet consistent with a unified regional plan for the bay.

The Massachusetts Coastal Management Program provides a comprehensive framework and approach that allows for coordinated, comprehensive management of many resources. Recently, the MCZM Program has increased its focus to include more ocean management aspects. The Buzzards Bay NEP is already recognized as an important regional component of the MCZM and is well positioned to key into this new state initiative.

Dredging and Dredged Material Disposal

The harbors, channels, and embayments around Buzzards Bay require periodic maintenance and improvement dredging to compensate for natural sedimentation and to allow for appropriate shoreline development. Dredged material can have beneficial uses such as nourishing eroding beaches or capping contaminated deposits. However, historically dredged material disposal has occurred at ocean dumping sites in Buzzards Bay and elsewhere. Some dredged materials may contain large amounts of fine-grained sediments (silts and clays), and these sediments may contain one or more contaminants of concern. Often these sediments are disposed at appropriate land sites.

During the past hundred years, numerous sites in Buzzards Bay had received dredged materials. However during the 1970s, 80s 90s, the only active site in Buzzards Bay that received dredged material was the disposal site at Cleveland's Ledge (see Figure 93.). The site primarily received dredged material from the Army Corps' maintenance of the Cape Cod Canal, but also received materials from municipal sites, particularly from Falmouth. On these projects, local, state, and federal permitting of dredging and dredged material disposal were evaluated on a project-by-project basis.

Because this permitting system did not address the cumulative impacts of disposal, and because there had never been a system evaluation of needs and suitability of Buzzards Bay disposal sites, in the mid 1990s, the Army Corp of Engineers (COE), the Department of Environmental Management (now called the Division of Conservation Services), and the Massachusetts CZM began the process of evaluating the suitability of existing and potentially new Buzzards Bay Disposal Sites (BBDS). These studies were to culminate in the designation of a new site in Buzzards Bay to received clean dredged materials, as well as protocols for evaluating contaminant levels in sediments.

In 2002, MCZM released a Draft Environmental Impact Report (DEIR) on the designation of a new Buzzards Bay disposal site just south of the old Cleveland Ledge site, within the waters of the Town of Falmouth. Because the new site might have received sediments

from New Bedford that were deemed clean, this resulted in considerable local opposition from Falmouth residents and town officials who were concerned that contaminated sediments might accidentally be disposed in their waters.

This public concern, together with advocacy by The Buzzards Bay Coalition, led to the passage in 2006 of legislation that banned all of Buzzards Bay from receiving any dredged materials whether or not they were deemed "clean" for disposal, except beneficial uses. Beneficial uses described in the legislation may include beach nourishment, salt marsh restoration, dune restoration or use as capping material for underwater contamination. Although the legislation encourages beneficial reuse of sediments, because of issues related to timing and coordination among permits and land disposal costs, spoils from maintenance dredging, such as dredging in the Cape Cod Canal, are now be disposed of sites in either Rhode Island Sound or Cape Cod Bay. Given problems with shoreline erosion and future sea level rise, it would be preferable to require the use of clean sediments for beach nourishment projects and other beneficial uses wherever possible.

A special situation exists in New Bedford Harbor, a superfund site. There sediments have such elevated levels of PCBs and metals that the "hotspots" are unsuitable for most landfill sites, and even the lesser contami-

1991 Managing Dredging and Dredged Material Disposal

Goal

Establish a comprehensive framework to manage dredging and the disposal of dredged material for Buzzards Bay.

Objectives

To minimize the negative impacts of dredging and disposal of contaminated and uncontaminated dredged material throughout Buzzards Bay.

2. To develop a database of potential hot spots, sediment and biota contaminant levels, and general information obtained from dredging and disposal testing.
3. To maximize the beneficial uses of dredged material by creating opportunities for disposal of dredged material, for example, nourish beaches or cover contaminated areas.
4. To review permits for dredging and dredged material disposal more uniformly and efficiently.

Recommendation and Commitment

U.S. Army Corps of Engineers (COE), with assistance from EEA, will initiate and co-chair an interagency committee of local, state, and federal authorities to develop a dredged material disposal plan for Buzzards Bay.

Note: Because of the banning of sediment disposal in Buzzards Bay in 2006, the action plan was eliminated from the 2010 CCMP, and relevant remaining recommendations and topics are included in this action plan.

nated areas are unsuitable for ocean disposal. The issues surrounding this site are discussed in the New Bedford mega projects action plan.

Ocean Management Plan and "Offshore Waters"

The Oceans Act required the Secretary of Energy and Environmental Affairs to develop a comprehensive ocean management plan, following a scientific and stakeholder process. This plan was promulgated in December 2009.

Management Strategies

Buzzards Bay communities have individually responded to the challenge of managing the coastal zone in various ways. New Bedford has developed a CZM-approved harbor management plan for a portion of its waterfront, but this plan does not address docks and piers. The Town of Wareham has adopted a Dock Exclusion Zone. In the Town of Marion, a model watershed zoning bylaw to control docks has been suggested to the planning board, and Falmouth is working on developing a watershed zoning bylaw to control docks in its coastal embayments. Although planning boards in a number of municipalities have designated marine use zones on land, no planning board in the Buzzards Bay watershed has yet adopted marine watershed zoning to address structures and activities on the water.

Most if not all conservation commissions in the watershed have local wetland protection bylaws and wetland regulations that protect shellfish habitat and fisheries habitat, just as the MA Wetlands Protection Act does. Some commissions have also identified recreation, aesthetics, and/or commercial activities as protected interests. Conservation commissions also administer the Massachusetts Wetlands Protection Act, which protects shellfish and fisheries habitat. Conservation commissions may regulate docks in different ways, including:

Existing approaches

In the Buzzards Bay watershed, as in the rest of coastal Massachusetts, government regulates and manages coastal activities and development under a wide variety of existing local, state, federal and, in some cases, regional programs. Some examples of coastal activities and their corresponding regulatory agencies are listed below, and in some cases described in other action plans where noted.

Dock and pier construction

Permitting falls under local wetland protection bylaws, Massachusetts Wetlands Protection Act, DEP Chapter 91, Army Corps of Engineers, and MA CZM, with review by other local, state and federal agencies depending on the size of the project and the issues. Local building commissions issue construction permits. Local zoning bylaws regulating dock construction exist in some towns. Regulation is generally limited to the

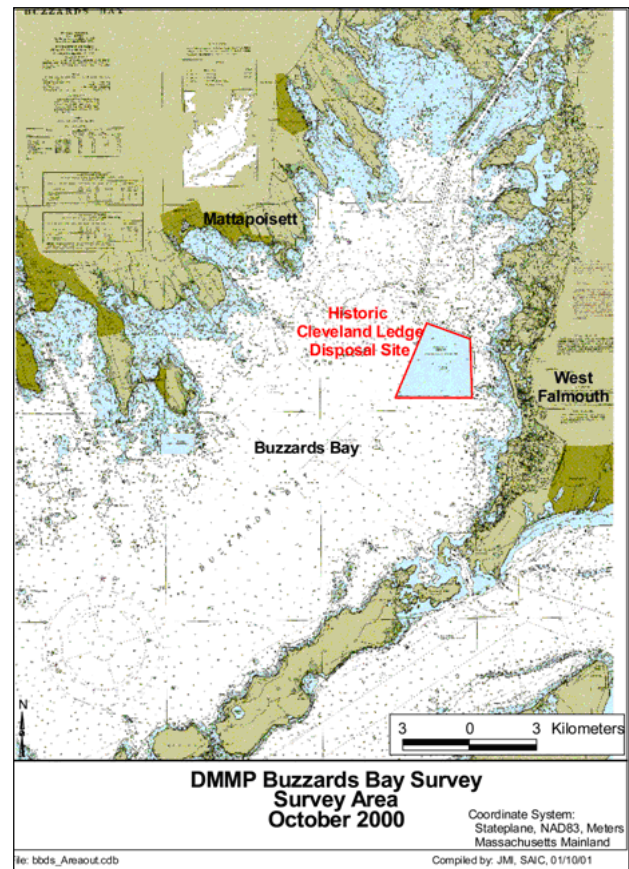


Figure 93. Former location of the Cleveland Ledge Disposal site.

dock structure and construction method, rather than associated activities. Jurisdiction typically extends seaward from mean high water, the boundary of the most inland coastal resource area, and/or FEMA flood zone boundary.

Boating activities

Municipal harbor masters control and enforce regulations pertaining to boating, boating safety, moorings, and general navigation. Jurisdiction is limited to the water and waterfront activities. Management of discharges associated with boating activities are covered in Action Plan 6. Managing Impacts from Boating, Marinas, and Moorings.

Navigation, spacing between docks, public access, and inter-agency coordination

For larger docks and piers, marinas or coastal projects, the Army Corps of Engineers is the lead regulatory agency that also coordinates inter-agency review by local, state and federal agencies such as EPA, NOAA National Marine Fisheries Service, U.S. Fish and Wildlife Service, MA CZM, MA Division of Marine Fisheries, DEP Water Quality Certification, and others. For small projects, the Army Corps review may be limited and Chapter 91 instead serves as a permitting "gatekeeper", requiring that all other licenses and approvals be

obtained first before issuing a Chapter 91 license. Jurisdiction is typically from mean high water seaward.

Coastal development

Development on land is regulated by the local building commissioner who applies both local and state building codes, by conservation commissions for coastal resource areas, and by other municipal boards and agencies depending on the issues involved (e.g., health department for wastewater issues, planning board for zoning, board of selectmen for special issues, etc.). Jurisdiction varies from anywhere a structure is being built (building commissioner) to the most seaward coastal resource area (conservation commission).

Shellfishing and fishing

The local municipal shellfish warden, herring warden or natural resources officer, who may be a single individual, is responsible for managing and protecting shellfish and fisheries resources within their municipalities. Both state and local regulations provide for shellfish and fisheries management and protection. At the state level, the MA Division of Marine Fisheries and MA Division of Fisheries and Wildlife regulate marine and freshwater fish, respectively. NOAA's National Marine Fisheries Service (NMFS) regulates marine fisheries at the federal level. Jurisdiction is generally limited to water and nearby wetlands and coastal resource areas. DMF and local shellfish wardens typically provide input to local wetlands permitting hearings concerning proposed docks and piers, assessing whether the site could provide shellfish habitat.

Stormwater management

Under the Massachusetts DEP Stormwater Policy, conservation commissions regulate stormwater management within wetlands or coastal wetlands jurisdiction or where stormwater runoff may impact wetlands. Under the federal Clean Water Act, all communities must now manage stormwater runoff and obtain a federal NPDES Phase II permit (see Action Plan 3. Managing Stormwater Runoff and Promoting LID).

Large complex projects

For large and/or complex projects or projects that exceed certain review thresholds, the state Massachusetts Environmental Policy Act (MEPA) provides multi-agency review and gives other local, regional, state and federal agencies the opportunity to identify which permits and approvals are needed. It is up to the project proponent to apply for and obtain the permits and approvals. Jurisdiction includes wetlands, water supply, water quality, rare species, wastewater, transportation, infrastructure, historical/cultural, air quality, hazardous materials, and other review areas.

Activities and proposed projects in coastal waters

Other legislation has been adopted by the Commonwealth from time to time in order to protect Buzzards Bay. Examples include:

- Designation of Buzzards Bay as a National Estuary of Significance in 1985 enabled specific measures and planning to protect and improve the bay through the development of this Buzzards Bay CCMP and the establishment of the Buzzards Bay Estuary Program and citizen advisory committee (Buzzards Bay Action Committee).
- Designation of Buzzards Bay as a "No Discharge Area" for boat septic wastes in 2000;
- 2003 Massachusetts Oil Spill legislation making it illegal to discharge fuel into Buzzards Bay;
- Massachusetts Ocean Sanctuaries Act (M.G.L. c. 132A, Section 12A-16F, 18) designates several ocean sanctuaries along the Massachusetts coastline, extending from MLW out to the Commonwealth's 3-mile limit. The Act prohibits activities involving building structures, energy facilities, drilling or mining (except for beach nourishment), disposal of wastes, commercial advertising, and waste incineration on vessels within these waters, and prohibits activities if they would significantly alter the ecology or appearance of the ocean, seabed or subsoil. All of Buzzards Bay lies entirely within the Cape and Islands Ocean Sanctuary. The Department of Conservation and Recreation (DCR) is the state agency that reviews projects under the Act, assisted by DEP's Chapter 91 Waterways licensing program, which refers projects within jurisdiction to DCR.

Major Issues

Despite the extensive regulatory coverage, there are some significant deficiencies and issues in existing approaches to coastal management. There are also competing interests between the state and municipal government in the management of the offshore waters that will likely remain unresolved without further legislation or legal decisions. Management issues can be separated in part by land based parcel specific permit review and broader permitting and planning activities on the watersheet and on offshore Massachusetts tidelands.

Lot-by-lot regulatory review of docks and other projects discourages whole-embayment protection and assessment of cumulative impacts. While local shellfish wardens and herring wardens may manage entire coastal embayments and coastal ponds to protect shellfish and fisheries, towns permit docks and coastal development on a lot-by-lot basis that generally do not support whole-embayment management approaches. Moreover, towns cannot track or monitor cumulative impacts easily using a lot-by-lot permitting approach.

Similarly, current regulatory approaches do not address potential boating impacts associated with docks.

Docks and piers are generally regulated based on their structural and navigation impacts and their direct (i.e., “footprint”) impact on shellfish habitat and eelgrass beds, not the potential impacts of the associated boating activity which may affect water quality, shellfishing, fishing, wastewater, coastal tourism, appropriate uses, “viewsheds,” coastal development, and other uses.

Applicants typically must file dock permits under a local wetlands bylaw, which may have largely qualitative performance standards. Wetlands bylaws specify protected interests such as protection of fish and shellfish habitat, and may protect aesthetic values, aquaculture, or recreational and commercial uses as well, depending on the municipality. Wetland regulations may have vaguely defined or qualitative performance standards that allow for varying degrees of impact and/or mitigation, which requires application of subjective judgment (e.g., “Notwithstanding the above prohibition on causing impacts, the issuing authority may approve such structures if mitigation allows the project to meet performance standards”). Such wetland bylaws and regulations that allow for varying degrees of impact and mitigation are more difficult to administer and enforce than zoning bylaws which generally have quantitative criteria and “yes-or-no” standards (e.g., “is it or is it not located within a zoning district that allows such structures”, “does it meet dimensional requirements or not?”, etc.). As a result, there is much litigation surrounding dock projects.

Local officials often do not fully utilize existing regulations. Most communities do not appear to have utilized the provision of the state waterways regulations (310 CMR 9.38(2)(b)) that allows municipalities to adopt a local policy, plan, or local zoning ordinance or bylaw that could control docks and piers. In addition, many may not be aware that municipal signoff is required on Chapter 91 license applications for docks and piers and other structures. Similarly, some municipalities have bylaws that do not have implementing regulations or performance standards; such performance standards would not only provide clear criteria for permitting but would also improve the municipality’s standing in legal challenges. Local boards and commissions often do not carry out full and correct implementation of existing regulations; training and performance monitoring would help to address this issue.

Monitoring data on pre- and post-dock construction conditions are generally not required. Credible monitoring data on shellfish and fish habitat before and after construction of docks and during the use period following dock construction could provide useful information for better evaluating environmental impacts of docks and associated boating. However, monitoring of benthic sediments, bathymetry, shellfish larval setting and growth, fish stocks and habitat conditions is expensive. A credible expert should do monitoring in an objective manner, in order to yield useful data.

Scientists must improve the process of evaluating impacts of docks and boating. This will require funding of independent and meaningful research in Buzzards Bay and elsewhere. Docks and piers are one of the most regulated activities; yet few understand their environmental impacts or their potential impacts on community planning, community character, socioeconomic structure, infrastructure needs and effects on essential services. Research should investigate the effects of prop turbulence, prop dredging, boat wakes and dragging anchors on water quality and habitat. Planning and resource economic studies should investigate effects of docks and boating (both pro and con) on the social, economic and demographic characteristics of local communities and identify ways to avoid or mitigate adverse impacts.

There are few or no incentives to encourage community or common docks. Few communities in Buzzards Bay have regulations that encourage or allow community or common docks. Although the definitions can vary, generally the concept of a community dock is that it serves a neighborhood or a number of coastal owners, while a common dock may serve two adjacent owners. Objections to community docks include the need to have deed restrictions or covenants for a subdivision, how to restrict (or expand) the number of users, how to regulate activities (as marinas are regulated) and how to define community and common docks. In principle, community docks and common docks could potentially reduce the number of possible docks along the waterfront.

Protection of aesthetic values, recreation, aquaculture, and recreational and commercial values are speci-

Strategies for managing impacts of docks

- limiting length to minimize footprint impacts; limiting the boat draught to control prop dredging;
- limiting the types of dock materials to prevent pollution by pressure-treated wood or other substances;
- specifying the degree of light transmission between deck planks to minimize impacts on salt marsh growth;
- avoiding productive shellfish areas; limiting dredging or fill activities to times when shellfish larval settling or fish breeding activities are not occurring;
- minimizing the piling footprint area to minimize permanent loss of habitat; minimizing dock width to reduce shading of salt marsh vegetation, and so on.

Both NOAA and the DEP have provided guidance on measures to minimize dock impacts on shellfish, eelgrass and salt marsh habitat (Burdick and Short interactive CD; DEP 2003).

fied in only a few municipal wetlands bylaws in the Buzzards Bay watershed. Adding these protected values and adopting specific standards and definitions may help to better manage docks and other coastal structures and activities.

Measuring impacts on shellfish and fish habitat is difficult. Many variables affect habitat including species, life cycle, seasonality, storms, sediment movement, water quality, to name a few.

Regulators typically have a narrow perspective of the permitting of docks and other coastal structures, and not considering wider community issues or other environmental impacts outside of shellfish and fish habitat impacts. Existing regulatory review processes generally do not consider community goals and community character, and instead focus on site-specific, structurally based physical impacts of coastal structures like docks and piers. As a result, while the regulated community resents the degree of permitting review they must undergo, community residents do not feel town officials hear their voices. Community-based performance standards would require visioning, planning, alternatives analysis, testing and refining of regulatory and management approaches, and a public process of input and approval. Having a comprehensive community-wide set of goals and a common vision for the coastal neighborhood could help streamline the regulatory review process and provide more meaningful management and protection than currently exists.

Permitting review of coastal projects and activities between agencies at the same level of government (i.e., one state agency to another, one federal agency to another, one local agency to another) may be coordinated and integrated. However, different levels of government could improve their coordination and information exchange. The most integrated formalized permitting review processes include those conducted by MEPA, which identifies which state, regional and local agency approvals and permits are required for larger projects, and reviews performed by the Army Corps of Engineers, which coordinates federal agency review of large projects requiring federal approvals. However, because of the many agencies and different jurisdictions that may be involved, a large and complex coastal project involving different jurisdictions may be reviewed many times and to varying degrees by different local, state and federal agencies. This can make for a lengthy, complex and sometimes repetitive review process. Sharing of information between local, regional, state and federal agencies can suffer as a result due to time constraints on busy municipal and agency officials.

Other Issues

The proliferation of privately owned docks and piers along many sections of the Buzzards Bay coastline

has resulted in increased impacts on nearshore habitat, water quality, and in some case, visual aesthetic values.

The discharge of untreated or minimally treated sanitary wastes from commercial and recreational boats into Buzzards Bay has had significant local impacts and long term regional and cumulative impacts.

Marina and boatyard operations and activities, and their related stormwater run-off, have added to the non-point sources of pollution impacts in some sections of Buzzards Bay nearshore waters and habitats.

A damaging oil spill in 2003 from a barge accident demonstrated the vulnerability of Buzzards Bay natural resources and the costs of recovery. Punitive actions against the barge company have created opportunities for towns to be better prepared for the next inevitable event, but continued vigilance and implementation of preparatory steps is required now.

Existing local, state and federal regulatory approaches to permitting docks and piers tend to focus on site-specific issues at a very small spatial scale, rather than taking into consideration embayment-scale characteristics. Government often overlooks or ignores the cumulative effects of many small projects.

Docks and piers represent a complex issue that involves many sectors: environmental, economic, recreation, tourism, municipal, fisheries, community, and governmental, to name a few. However, because of this complexity, it appears to be a prime candidate for application of integrated coastal management, or ICM, which calls for involvement by all relevant sectors. An ICM approach should be considered for other coastal and ocean uses within Buzzards Bay.

As a supplement to existing regulatory approaches, municipalities should consider marine watersheet zoning as one tool for comprehensive management and permitting of coastal activities, including dock and pier construction, shellfish and fisheries management, coastal development, and other issues. Marine watersheet zoning can provide a comprehensive regional approach to management of docks and piers and associated activities.

As a supplement to existing regulatory approaches, community policies regarding Chapter 91 licensing of coastal structures, docks and piers should be developed and sent to DEP Chapter 91.

Existing regulatory approaches at the local, regional and state level are not fully utilized.

Information exchange between regulatory agencies at different levels should be improved to increase efficiency.

Human uses of the ocean are increasing. Municipalities and communities should be prepared to evaluate large-scale ocean use projects (e.g., ocean wind energy proposals, liquefied natural gas facilities, dredged material disposal areas) and determine their suitability and acceptability. This requires anticipating issues and plan-

ning to address them through comprehensive planning and management. Defining community goals is important.

Management Approaches

Buzzards Bay municipalities can improve the management of their watershed areas and protection of their ocean resources in a number of ways. These include:

- Adopting a Coastal Management (ICM) approach for land- and water-based coastal activities;
- More effective use of existing regulations (e.g., Chapter 91 and DEP Waterways regulations; revise or update local wetlands bylaw; adopt regulations and performance standards under existing wetlands or other bylaws if none exist now);
- Adopting a local watershed zoning bylaw and regulations;
- Adopting and submitting a local plan or policy to DEP Waterways (Chapter 91 program);
- Adopting a state-approved Harbor Management Plan.

More effective use of existing regulations

A community can effectively control docks and piers and other water-based activities if it utilizes existing Commonwealth waterways regulations at 310 CMR 9.00 and adopts a local plan, policy, zoning ordinance or bylaw. The key provision of the waterways regulations concerning private recreational boating facilities which gives municipalities this authority is found at 310 CMR 9.38(2)(b), which states that *“No project shall include a private recreational boating facility with fewer than ten berths on Commonwealth tidelands or Great Ponds, if the Department (i.e., DEP Chapter 91) receives written certification from the municipal official or planning board of the municipality in which the project is located that such facility does not confirm to a formal, area-wide policy or plan which establishes municipal priorities among competing uses of the waterway, unless the Department determines that such certification:*

*is arbitrary, capricious, or an abuse of discretion; or
conflicts with an overriding state, regional, or federal interest.”*

The *“formal, area wide policy or plan which establishes municipal priorities among competing uses of the waterway”* may be a state-approved Harbor Management Plan, local zoning ordinance (such as watershed zoning or other zoning addressing docks and piers) or other policy or plan that is adopted by the municipality.

A municipality can notify DEP that a proposed project that requires Chapter 91 licensing also complies with local municipal policies or zoning requirements in two ways:

Submit a written policy or plan to Chapter 91 covering the entire coastal area of the municipality or a sub-

area. A written policy or plan, as stated above, could be a state-approved or state-accepted Harbor Management Plan, or it could be a policy or plan adopted by the municipality.

Submit written comments on individual Chapter 91 applications to DEP. Every Chapter 91 license application contains two forms: Form G (“Municipal Zoning Certificate”) and Form H (“Municipal Planning Board Notification”). The municipal clerk or appropriate municipal official (e.g., town or city planner, town administrator or mayor) must sign both forms. Form G asks the town to certify that the proposed project “is not in violation of local zoning ordinances and bylaws.” Form H asks the town to certify that the planning board has received a copy of the Chapter 91 license application.

The requirement for applicants to obtain written signatures from town officials on Chapter 91 applications provides one way for municipal officials to review and manage docks and other activities requiring Chapter 91 licensing or approval. Of course, a municipality must also have a policy, plan or zoning ordinance or bylaw in place that addresses the activity or structure requiring Chapter 91 approval.

Watersheet zoning and ocean zoning

Watersheet zoning is similar to land zoning in that it “involves a method for dividing a marine area into districts and within those districts regulating uses to achieve specified purposes.” (Courtney and Wiggin, 2003). Local managers must delineate a specific area based on objective factual criteria, and then document the characteristics of the districts within it to provide the scientific and factual basis for regulation. Local officials then develop zoning regulations for the districts within the planning area. For example, managers may base the delineation of the area on the presence or absence of significant shellfish habitat based on shellfish surveys or other habitat indicators. Several districts may be designated within the zone based on shellfish habitat ranging from poor to moderate to excellent, and in these districts, docks and piers could be allowed, allowed with conditions, and prohibited, respectively.

The advantages of marine watersheet zoning is that it can provide effective management to prevent cumulative impacts, provides regional and large scale management, it is efficient, comprehensive community and planning issues are considered, and zoning regulations are typically more clear-cut and of the “yes-no” variety than wetland regulations. The disadvantages are that it requires delineation of a specific area, and the zoning bylaw is administered by the planning board or zoning board, who may be less experienced in dealing with marine and coastal environmental issues than the conservation commission. This can be remedied by having the planning or zoning board request input from the conservation commission regarding a specific project or area.

Examples of zoning regulations that can be adopted for a watershed zoning bylaw that addresses docks can include:

- Community or common dock to serve several lots rather than a single dock per lot (Castellan, 2003);
- Prohibiting docks within valuable shellfish or fisheries habitat;
- Promoting use of marinas rather than multiple docks (marinas are subject to more stringent permitting than residential docks) (Castellan, 2003);
- Lot dimension requirements that must be met before a dock can be built, thus prohibiting a dock being built on a tiny lot (see Marion model bylaw);
Use zoning standards to address aesthetic issues such as “viewshed” and community character.

Watersheet Zoning Examples and Approaches

Marion Watersheet Zoning Model Dock and Pier Bylaw

This model watershed bylaw builds upon an existing Town zoning bylaw that disallows docks from very small lots based on non-conformance. The existing bylaw ends at low water. The model bylaw’s jurisdiction would begin at low water and extends out into municipal waters. The model bylaw would specify areas where docks would be excluded based on the presence of shellfish habitat, eelgrass beds, rare species habitat, and swimming beaches. These areas were identified in the field, scored for relative value and delineated on a map. Habitat and use values were scored according to a published scoring system, and those areas with highest scores (i.e., highest values) were delineated as “no pier construction zones”. Existing nonconforming piers could be maintained or modified under a Special Permit process.

Edgartown Surface Water District, Martha’s Vineyard

This surface water zoning approach, extending seaward of MHW, was enacted to “*encourage appropriate water-dependent uses of the Town’s harbors, bays and ponds; to protect and enhance the environmental quality of those waters; to minimize potential adverse effects on marine flora and fauna and wildlife habitat; to promote the safety of navigation on said waters and to minimize flooding and other storm-related hazards*”. Permitted water-dependent uses and uses allowed by Special permit are specified; few non-water-dependent uses are allowed. (Courtney and Wiggin, 2003).

Barnstable Dock Bylaw

Barnstable has adopted a bylaw that addresses the size and length of docks including a provision that prohibits docks to exceed one-half the length of the waterfront frontage of the property. The Massachusetts Supreme Judicial Court has recently upheld this bylaw.

New Jersey Marine Conservation Zoning

In 2001, New Jersey adopted its first Marine Conservation Zone, by granting new site-specific jurisdictional authority to state land management agencies to control intertidal activities and recreational activities in order to protect natural resources and passive recreation. The key provision in the zoning regulations bans motorized vessels (e.g., jet-skis, others) within the Zone, to prevent damage to wetlands and impacts on wildlife and recreational uses. (Courtney and Wiggin, 2003).

Adopt a policy or plan

A community can develop and adopt a policy or plan specifying the issues, goals of the policy or plan, allowed and prohibited uses and activities, and responsible authorities. Municipalities can then submit such a policy or plan to the DEP Waterways (Chapter 91) program (see above). The Town of Wareham has adopted a succinct policy that addresses docks and piers. In this case, the Board of Selectmen authorized a 2-paragraph policy that prohibits docks and other projects in certain designated productive shellfish areas and forwarded this policy to DEP Waterways requesting that no further Chapter 91 licenses be issued for docks or piers within these designated areas. Adoption of a policy requires public input and public process.

Special area management plans

Special area management plans can also serve this purpose if they address activities and areas subject to Chapter 91 jurisdiction (filled and flowed tidelands). Adoption of special area management plans requires public input and public process. One example of a special area management plan that includes dock management for the purpose of shellfish habitat protection is the Pleasant Bay ACEC Management Plan developed for the Towns of Orleans, Eastham and Chatham. This ACEC management plan addresses dock sprawl through designation of different zones within Pleasant Bay, based on shellfish habitat value and uses. The different zones specify whether docks are allowed or not. The wetland regulations of the towns located within the Pleasant Bay ACEC are consistent with and help to implement the Management Plan.

DCPCs

For municipalities on Cape Cod, another kind of special area management plan is available through the Cape Cod Commission’s Regional Policy Plan, called a District of Critical Planning Concern (DCPC). A municipality nominates the DCPC to protect specific interests. The Cape Cod Commission and Barnstable County Assembly of Delegates review this nomination, and if approved; they provide the municipality additional authority to designate a special area and adopt implementing zoning or wetland bylaws. Falmouth has one DCPC on Buzzards Bay, the Black Beach Sippewissett Marsh

DCPC, which prohibits new docks and piers and regulates building envelopes.

State-Approved or Accepted Municipal Harbor Plan

State law allows municipalities to submit municipal harbor plans to establish “a community’s objectives, standards and policies for guiding public and private utilization of land and water within Chapter 91 jurisdiction. Plans provide for an implementation program, which specifies the legal and institutional arrangements, financial strategies, and other measures to be taken to achieve the objectives of the harbor plans. Harbor plans may, for example, establish siting and design criteria for projects within a harbor, or designate certain parts of a harbor as off-limits to in-water construction and mooring placement. Plans are developed under MA CZM regulations and implemented under Chapter 91 regulations.” DEP (Chapter 91 Program) and CZM (under federal consistency) review projects proposed within municipal harbor planning districts. The proponent triggers these reviews when they submit their Chapter 91 application. CZM regulations require that a proposed harbor plan go through an extensive public process requiring a number of public hearings and a lengthy period. Because of the extensive public process, the legal standing of municipal harbor plans that are approved by CZM is very strong.

House Boat Prohibitions and Floating Dock Expansions

State and local wetland laws require permits for the construction of docks and piers, but a wetlands permit is not required for a vessel, barge, or floating device to tie to that dock, irrespective of its use. This situation has led to some interesting temporary and permanent structures being tied to docks including houseboats, floating restaurants, docks storage areas, floating dock attachments, and recreational platforms.

These expansions, however, may conflict with the state's Chapter 91 license for those docks and piers. In fact, Chapter 91 Waterways regulations (310 CMR 9.00) include a number of categorical restrictions on these structures and add-ons, and for others require an amendment to the Chapter 91 permit. Existing Chapter 91 licenses may also contain additional limitations on uses and activities specific to that site.

Because of concerns about the impact of these expansions on water dependent uses and the environment, the lack of past comprehensive enforcement of the Chapter 91 law, and to better assert local control, many cities and towns have adopted harbor regulations or laws addressing issues like these relating to houseboats:

- Section 5.5 (Harbor Pollution Control) of New Bedford's Code 4(d) states: "*Houseboats used as residences shall not dock in waters covered by this section unless approved by the board of health.*"

- The Town of Barnstable adopted a waterways General Bylaw regulating boats with this provision: *40-12, Docking and mooring of houseboats restricted to licensed slips. "No person shall moor or dock a houseboat in the waters of the Town except at a pier, slip or dock for which a valid current marina license has been issued under § 59B of Chapter 91 of the General Laws.*

- The Town of Chatham adopted a "Protective [General] Bylaw" which states: "*4. Prohibited Uses d. No person shall construct a residential dwelling unit, or use a houseboat or barge designed or used as a dwelling unit in the Conservancy District.*"

With respect to floating docks and boat impacts, when new docks are permitted, conservation commissions are increasingly establishing size limits on boats, or setting limits on boat drafts to ensure that vessels do not rest on the bottom at low tide and affect benthic habitat and species. These limitations are written into Orders of Conditions, which are then recorded against the property deed. In the Town of Falmouth, the board of selectmen must also issue a permit for the construction of docks and seawalls, and additional requirements may also be imposed. The chief weakness of Falmouth's approach is the selectmen have not adopted support regulations or performance standards.

Financial Solutions

The cost of developing harbor management plans will be generally supported through local appropriations and town meeting, although grants may sometimes be available through CZMM or the BBNEP. Most of the strategies relating to the adoption of laws and regulations will impose a modest financial burden to municipal government.

Monitoring progress

More than most other action plans, this action plan will be evaluated by tracking programmatic actions, especially in the formulation and adoption of waterfront and watershed management plans and policies.

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