

Action Plan 15 Managing Coastal Watersheets, Tidelands, and the Waterfront

Problem¹⁶²

In coastal waters, new docks, increased boating, new waterfront development, and dredging and coastal armoring to support those activities, continue to degrade water quality, destroy habitat, and affect marine plant and animal populations. Other activities, like aquaculture, are also expanding. All levels of government have some jurisdiction over activities on the water's surface (commonly called the watershed), on the seabed (tidelands under Massachusetts law), and on the waterfront. The Massachusetts Ocean Management Plan, adopted in 2009, better regulates activities in areas greater than 1/3 mile offshore. Municipalities, with home rule powers, remain a key manager of nearshore areas not covered by the Ocean Plan (and which includes most of the harbors and embayments; see EEA, 2009). These nearshore areas are now imperfectly managed principally through local and state waterways regulations and wetlands permitting. Most municipalities have failed to undertake comprehensive planning studies of their coastal waters to protect natural resources or address cumulative impacts.

To address these needs, towns must develop local embayment management plans based on spatial planning techniques to characterize conditions and recommend action. These plans must then be implemented through laws, regulations, and policies, together with non-regulatory approaches and education.

This action plan seeks principally to address conflicting uses and management priorities for the waterfront and near coastal watersheets 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 on the tidelands of Buzzards Bay in an integrated manner using sound assessments of natural resources, habitat, and water quality, to ensure sustainable recreational and commercial activities while protecting and improving ecosystem health and values.

Goal 15.2. Ensure that the effects of dredging activities are minimized on water quality, physical processes, marine productivity, and public health, and that the beneficial use of dredged sediments is maximized.

¹⁶² This action plan was not in the 1991 CCMP. There was however, a Dredging Action Plan with recommendations relating to dredging and beneficial use of dredged sediments now incorporated here.

Objectives

Objective 15.1. Develop and improve upon geographic databases identifying habitat, natural resources, seabed characteristics, and contamination or impairment hotspots of lands under the ocean to establish a strong technical basis for embayment watershed planning and management.

Objective 15.2. Promote the development and implementation of municipal embayment management plans to manage the watershed, protect water quality, vital natural resources, and tideland habitat, and increase shoreline resilience to storms and rising sea level, while allowing sustainable uses.

Objective 15.3. 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 15.4. To maximize the beneficial uses of dredged material by creating opportunities by pre-designating or pre-permitting receiving areas (e.g. beach nourishment zones) to expedite permitting, and through increased funding.

Approaches

Towns must evaluate spatial data and characterize coastal uses to develop comprehensive embayment management plans that define watershed and waterfront protection strategies. These plans will be fulfilled through town zoning, waterways regulations, wetland regulations, or town bylaws and city ordinances and non-regulatory approaches. Such plans may create conservation areas or activity exclusion zones, or create incentives for certain activities. While the cost to develop such plans is a hurdle, the key obstacle to implementation is developing a political consensus to pass the necessary zoning and nonzoning laws or regulations. With respect to dredging, the increased beneficial use of dredged materials could be facilitated by preselecting and pre-permitting receptor sites and through additional funding.

Costs and Financing

Based on recent town efforts, the cost of developing a resource protection based embayment 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.

Background

The waters of Buzzards Bay and its surrounding coast are subject to a complex mosaic of state, federal, and local laws and regulations. These laws and regulations may address activities on the surface of the water (sometimes referred to as the watershed), underwater or on the bottom (an area legally termed the Massachusetts Tidelands), or activities on land along shore (the waterfront).

All of Buzzards Bay consists of municipal waters, which are also state waters (Figure 97)¹⁶³. In a practical sense, both the municipalities and the state have strong interests, and regulatory authority, managing 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. Traditional uses such as commercial and recreational boating have increased, as have newer recreational activities such as kayaking and jet skiing. More commercial, industrial, and residential structures are being built on the waterfront. More shellfish aquaculture projects are being proposed in near coastal waters. Offshore, industrial activities such as power generation, once limited to the land, are now being proposed or considered in the form renewable wind, wave, and tide driven electrical generation turbines.

Actions to protect the natural resources of Buzzards Bay are not new. In the 19th century, seine fishing was banned to protect the recreational fisheries of the bay. Nearly a century later, in 1973, Buzzards Bay was protected through the Massachusetts Ocean Sanctuaries Act¹⁶⁴. In 1987, Buzzards Bay was designated as an Estuary of National Significance in the National Estuary

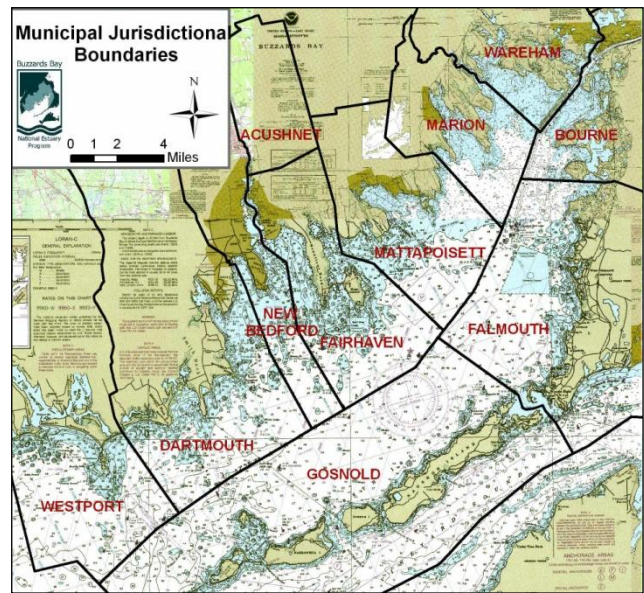


Figure 97. Buzzards Bay municipal jurisdictional boundaries of Buzzards Bay.

program as part of the Clean Water Act amendments¹⁶⁵. 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. After the 2003 *Bouchard 120* oil spill highlighted the pollution risks associated with shipping and fuel transport, the state and federal government enacted¹⁶⁶ shipping regulations to minimize the threat of future oil spills. Similarly, concerns about the disposal of contaminated sediments from New Bedford harbor led to the legislature passing, in 2006, a bay-wide ban on the disposal of dredged material in Buzzards Bay¹⁶⁷.

Ocean Management Plan and “Offshore Waters”

During the 2000s, the potential impacts from proposed offshore wind turbines raised concerns among managers and residents about their effects on the environment, water quality, and on competing uses like aquaculture, shellfishing, scenic views, and recreational boating.¹⁶⁸ Collectively, all these issues have increased

¹⁶³ 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.

¹⁶⁴ The Massachusetts Legislature created five Ocean Sanctuaries. The Act (MGL c. 132A, Section 12A16F, 18, and as subsequently amended in 1984 and 2008) defined these sanctuaries as extending from MLW out to the limit of state waters. The Act prohibited 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. Some key elements were changed with the passage of the Ocean Act of 2008.

¹⁶⁵ The Buzzards Bay Project was actually established in 1985 through Congressional appropriations with similar designations and a mission to develop a management plan for Buzzards Bay.

¹⁶⁶ The [2004 Massachusetts Oil Spill Prevention and Response Act](#) was signed by the governor and the USCG promulgated new navigation rules.

¹⁶⁷ [Chapter 191 of the Acts of 2006](#).

¹⁶⁸ The state, not municipalities, owns public trust lands and rights in submerged lands (MLW to three miles offshore), but exercises considerable regulatory jurisdiction over trust lands within their boundaries. The limits of this jurisdiction are set by the Home Rule Amendment, which empowers towns to enact any by-law consistent 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 shell-

public interest in efforts to better manage activities in Buzzards Bay and other Massachusetts waters. Because of these concerns, in 2008 the Massachusetts state legislature passed the Ocean Act¹⁶⁹ (Figure 98). The Ocean Act required the Secretary of Energy and Environmental Affairs to develop a comprehensive ocean management plan, following a scientific and stakeholder process. Specifically the new law required that CZM 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.

CZM completed and promulgated the new ocean management plan in December 2009. Development of the plan was driven a spatial planning effort that characterized and mapped natural resources, public and private uses, and other interests in the coastal zone. This plan was especially focused on setting standards and spatial restrictions for permitting and siting activities and facilities allowed under the Ocean Sanctuaries Act. These activities included renewable energy facilities, aquaculture, sand mining for beach nourishment, and the placement of cables and pipelines. By law, this plan must be updated every five years¹⁷⁰.

The ocean plan added new oversight and management within the jurisdictional waters of the plan. Despite the benefits of this plan, it did not address the near coastal waters that municipalities are most concerned about, including the semi-enclosed embayments and nearshore areas within Buzzards Bay shown in Figure 98.

Most of this action plan focuses on how municipalities in particular can more effectively address impacts to the environment from activities on the waterfront, on the watersheet, and on the tidelands. In many cases, the local approaches will employ many of the same spatial planning techniques used to develop the Ocean Plan, but with a different set of management tools available to municipal government including zoning and non-zoning bylaws and ordinances.

fish grants and aquaculture permits, and conservation commissions issue permits for activities in wetlands, including activities on the bottom of the ocean within municipal jurisdictions.

¹⁶⁹ The Oceans Act of 2008 ([Chapter 114 of the Acts of 2008](#)) requiring the development of a comprehensive ocean management plan by December 31, 2009, amended elements of the Ocean Sanctuaries Act, and requiring certain regulatory updates.

¹⁷⁰ The current ocean planning area generally begins about 1/3 of a mile from shore and extends seaward. Among the issues to be reviewed are the geographic scope of the ocean planning area.

Docks and Piers

The management of docks and filled piers¹⁷¹ is one of the foremost management issues along the waterfront for all levels of government. Development pressures are increasing along coastal waterfronts making the land-sea interface one of the most intensively used portions of the Buzzards Bay watershed. Coastal waterfront properties are highly desirable because of opportunities for recreational boating and swimming, easy access to other water resources, and scenic views. Demand for recreational boating and water access leads to a demand for more docks.

Docks are a potential source of user conflicts, since they tend to restrict access along and to the shore for shellfishermen, anglers, 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 (Kelty and Bliven, 2003). Measures to mitigate a single issue may end up affecting something else (e.g., siting a dock to avoid salt marsh impacts may result in an increased impact to navigation or aesthetics).

Conservation commissions typically are the leading municipal board to review the permitting of docks and other coastal structures under the Massachusetts Wetland Protection Act, or in many cases, under local wetland bylaws and regulations as well. DEP generally will overrule dock denial decisions by a conservation commission made under the state regulations, if the denial is based on non-mitigatable or cumulative impacts to shellfish or fisheries habitat¹⁷². Consequently, it is vital that issues relating to cumulative impacts, or impacts not adequately addressed by the state Wetland Protection Act be addressed in local zoning and non-zoning bylaws.

In many instances, the presence of eelgrass beds (Goetsch, 2011) and depth of water at the end of the dock¹⁷³ are the primary siting criteria under local bylaws and regulations. Other municipal officials may also review these structures if a zoning bylaw provides authority to do so. For example, a municipality may adopt a zoning bylaw that limits the length of docks (as is the

¹⁷¹ Pier is a term sometimes used interchangeably with docks. Solid-filled piers are difficult to construct under current Massachusetts regulations and policies.

¹⁷² DEP can overrule decisions based on state regulations, but cannot overrule decisions based on municipal wetland laws and regulations.

¹⁷³ For example, under the Falmouth Wetland Regulations, “the water depth at the end of the dock shall be a minimum of four (4) feet at the time of mean low water or three (3) feet greater than the draft of vessels served by the dock or pier whichever is the greatest depth.”

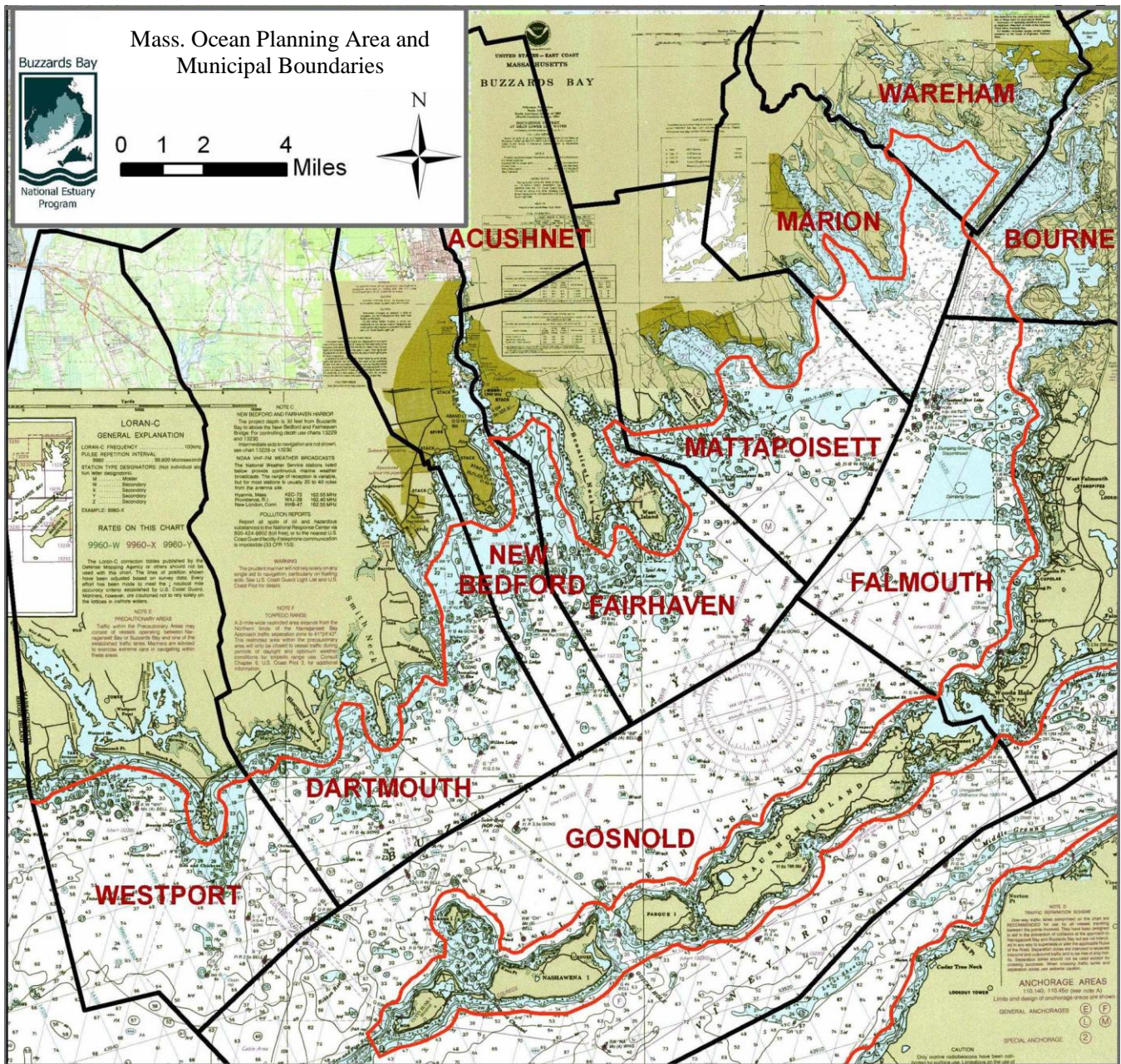


Figure 98. Mass. Ocean Planning Area (red) and municipal boundaries (black).

(Ocean planning area defined by a CZM report; area seaward of the red line.)

case in Fairhaven). A dock greater than the limit would then require ZBA approval and review by the building inspector. If building inspectors are involved in the review of dock applications under some local authority, it will be for structural and safety issues only, and not environmental or aesthetic issues.

The construction of docks and piers is often a focal point for municipal coastal management. In a sense, docks represent the tip of the iceberg of the complex issues surrounding coastal development. Like all forms of development, the challenge is how to address more effectively the cumulative impacts of the intense recreational, commercial, and residential uses of the coastal

zone in a coordinated manner that protects valuable natural resources and community values.

Shellfish and herring wardens can also be provided considerable additional authority in dock placement and construction in their duties to manage and regulate shellfish and fisheries habitat. For example, in the Falmouth Wetland Regulations, docks are prohibited where “there are significant quantities of shellfish... and the area has been historically used for shellfishing or has potential for shellfishing, and the sediment provides a viable shellfish

habitat."¹⁷⁴ Shellfish wardens typically ensure that shellfish are relayed out of the site to be disturbed by dock construction or associated dredging.

Falmouth is the only Massachusetts municipality where the board of selectmen review docks and coastal projects under a separate, older wetlands zoning bylaw (which has no performance standards). Falmouth is also the only example of a watershed town having two wetlands bylaws.

Under state law, DEP reviews the construction of docks in the Waterways Program, primarily ensuring compliance with the licensing requirements of [Chapter 91](#) of the Massachusetts General Laws, which primarily relates to public access, navigation, and public trust issues and not environmental impacts. At the federal level, dock construction and dredging to docks requires Army Corps permits and Water Quality Certificates (issued by DEP). These permits require avoidance of certain habitat (e.g. eelgrass beds), and if habitat loss cannot be avoided, mitigation must be provided.

Indirect and Cumulative Impacts of Docks

Wetland laws and regulations typically focus on regulating individual docks and piers on a lot-by-lot basis, but generally do not address cumulative impacts. Moreover, the cumulative impacts of dock structures are not the only concern. There can be many other indirect consequences of increased boating and other recreational and commercial uses of the waterfront associated with docks. For example, new docks accompany new residential or commercial development, which in turn creates more stormwater runoff and other discharges that government must manage to protect coastal water quality.

As recreational boating and commercial shipping increase, the chances of fuel spills or accidental or intentional discharges of marine sanitation devices will also likely increase. In Buzzards Bay, there are currently 37 boat pumpout facilities to receive and transfer boat wastewater. If the total number and/or passenger capacity of boats increases, the number and 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 (this issue is addressed in Action Plan 6 Managing Impacts from Boating, Marinas, and Moorings). 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. As navigation conflicts become more complex, harbor masters must provide greater oversight.

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. Coastal real estate values may increase, leading to higher property taxes to support the increased need for municipal services. Environmental outreach and protection efforts should benefit from increased coastal tourism.

Dredging and Dredged Material Disposal

As noted above, in 2006 the Massachusetts legislature banned the disposal of dredged materials in Buzzards Bay. This law did little to alter dredging activities or mandate beneficial use of dredged materials, and other issues remain.

The harbors, channels, and embayments around Buzzards Bay require periodic maintenance and improvement dredging to compensate for natural sedimentation. In some cases, dredging is allowed for better access to permitted shoreline development (e.g. improved access of a boat to a private dock). Dredged material from these projects can have beneficial uses such as nourishing eroding beaches or capping contaminated deposits. Historically dredged material disposal has occurred at ocean dumping sites in Buzzards Bay (until 2006) 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 and 90s, the only active site in Buzzards Bay that received dredged material was the disposal site at Cleveland Ledge (see Figure 99). 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 systemic 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 Department of Conservation and Recreation), and the 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 receive clean dredged materials, as well as protocols for evaluating

¹⁷⁴ FWR 10.16 (1) (h) 2, although in practice, this provision appears to have been rarely invoked to prohibit the construction of a dock.

contaminant levels in sediments. This effort¹⁷⁵ was superseded in 2006, when the Massachusetts Legislature banned the disposal of dredged material in Buzzards Bay.

The dredged material ban legislation did encourage and allow for beneficial uses of dredged material including beach nourishment, salt marsh restoration, dune restoration, or use as capping material for underwater contamination. Despite these provisions, dredged materials from Buzzards Bay are now typically disposed of in either Rhode Island Sound or Cape Cod Bay. This is because coordinating timing between projects is difficult (for example, dredging permits and beach nourishment permits may have different timelines), material transport and land disposal costs can be high, or because it is technically difficult to collect sediment for transfer with some types of dredging equipment.

Despite these obstacles, given problems with shoreline erosion and future sea level rise, it would be preferable to use clean dredged sediments for beach nourishment projects and other beneficial uses wherever possible. The extra cost of land disposal must also be budgeted for in these projects.

A special situation remains 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 contaminated areas are unsuitable for ocean disposal. The issues surrounding this site are discussed in the Action Plan 16 Reducing Toxic Pollution.

Management Framework

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. Below is a brief overview of resources or activities and the key regulatory or management entities responsible for overseeing those activities.

General coastal development on the waterfront land

Development on waterfront lands is regulated by the local building commissioner who applies both local and state building codes, by conservation commissions for coastal wetland 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.). The geographical jurisdiction often varies among local regulations.

¹⁷⁵ In 2002, CZM 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, public concern led to the passage in 2006 of legislation that banned the disposal of dredged materials in all of Buzzards Bay.

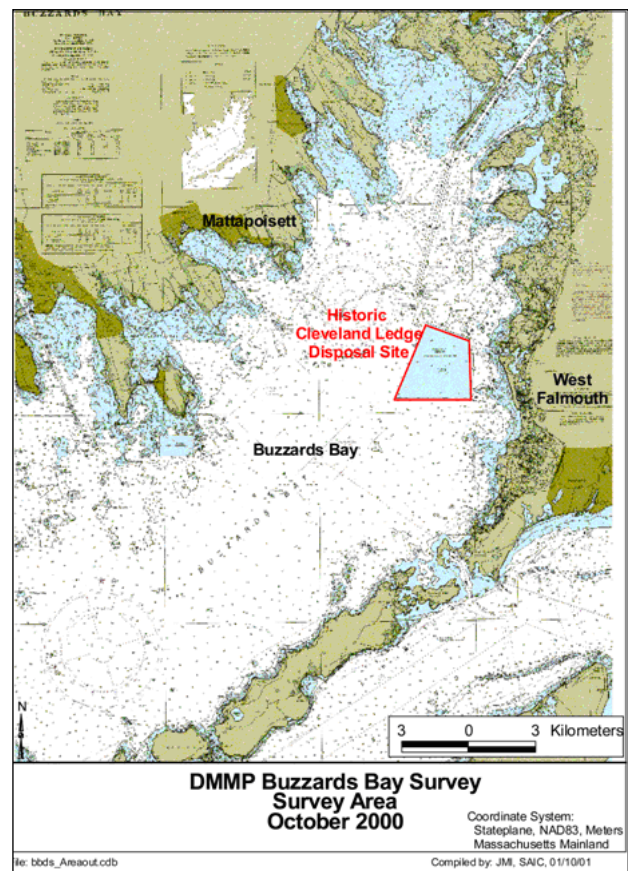


Figure 99. Location of the former Cleveland Ledge Disposal Site.

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

1. 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 2013 Buzzards Bay CCMP Update, and relevant remaining recommendations and topics are included in this action plan.

Structures and uses on filled tidelands are regulated pursuant to Chapter 91 and the state waterways licensing program, as are structures on flowing tidelands as explained in more detail in several sections below. Public access to the water and preserving water dependent uses are often key considerations in the review of projects on filled tidelands.

Wetlands protection

Municipal conservation commissions are the lead board that regulates most coastal activities and structures that may affect wetlands and the wildlife that depend on those wetlands. Most activities within wetland resources, or within a 100-foot buffer of those resource areas (or sometimes greater) are regulated. Conservation commissions administer the Massachusetts Wetlands Protection Act, which protects wetlands, and more broadly wildlife, shellfish and fisheries wetlands habitat. Many conservation commissions in the watershed have local wetland protection bylaws and wetland regulations that add additional levels of protection for shellfish habitat, eelgrass beds, and fisheries habitat, mostly through the siting of docks. Some commissions have also identified recreation, aesthetics, and/or commercial activities as protected interests. More details of the conservation commission authorities are found in Action Plan 7 Protecting and Restoring Wetlands, and in the Management Approaches section of this action plan. As noted below, certain larger projects may also require permits from Army Corps or DEP, and wetlands and habitat protection requirements may be incorporated in those permits.

Dock and filled pier construction

The permitting of dock construction (sometimes called piers) 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). The construction of new filled piers is difficult under existing laws and are now rarely built. Local building departments do not issue dock construction permits, unless there is a local zoning bylaw requiring such permits. Local zoning bylaws regulating dock construction exist in some Buzzards Bay towns. Regulation is generally limited to the dock structure and construction method, dock length, or water depth at the end of the dock. Most local bylaws do not address associated activities. Jurisdiction of bylaws typically extends either seaward from mean high water, the boundary of the most inland coastal resource area, or the FEMA floodplain boundary (land subject to coastal storm flowage).

The spacing and placement of docks can affect navigation and public access. DEP Chapter 91 licenses are the principal mechanism for addressing navigation and public access issues, and are especially important if no local requirements exist. Spacing between docks can be

set through local zoning bylaws or ordinances, and these can be more protective than any minimum requirements for navigation or resource protection established by state and federal laws. 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 (for Water Quality Certification and Chapter 91), 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 line seaward for most of these programs.

Boating activities

Municipal harbor masters control and enforce regulations pertaining to boating, boating safety, moorings, and general navigation on waterways. Jurisdiction is limited to the water and waterfront activities. Waterways bylaws and regulations are typically developed by waterways committees, and approved by town meeting, but in some cases, boards of selectmen have authority to change waterways regulations. With respect to this action plan, some of the most important controls within local waterways regulations are the establishment of no-wake zones and headway speed limits, reconfiguration of mooring fields, anchorage exclusion zones, waterskiing or jet skiing exclusion zones, and conservation management zones. Management of discharges associated with boating activities is covered in Action Plan 6 Managing Impacts from Boating, Marinas, and Moorings.

Shellfishing and fishing

The local municipal shellfish warden, herring warden, or natural resources officers (these duties are sometimes combined in a single individual) are 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. DMF and local shellfish wardens typically provide input to local wetland permitting hearings concerning proposed docks and piers, assessing whether the site could provide shellfish habitat. NOAA’s National Marine Fisheries Service (NMFS) regulates marine fisheries at the federal level, although much of this agency’s actions relate to offshore fisheries.

Stormwater management

Under the Massachusetts DEP Stormwater Policy, conservation commissions regulate stormwater discharges to freshwater wetlands, coastal wetlands, or in areas

where stormwater runoff may adversely affect wetlands. Development and redevelopment may also be regulated by other local stormwater bylaws and regulations. Under the federal Clean Water Act, all communities must now manage stormwater runoff and obtain a federal NPDES Phase II MS4 permit (see Action Plan 3 Managing Stormwater Runoff and Promoting LID). Eventually, all stormwater discharges contributing to degraded water quality (closed shellfish beds) will be required to be remediated under the MS4 permits, but enforcement actions may be years in the future. Similarly, many types of “industrial” activities, including marinas must comply with the EPA multi-sector general permits for stormwater discharges under Phase II of the NPDES program.

Large complex projects

For large and/or complex projects or projects that exceed certain review thresholds, the 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.

Harbor and embayment plans

Municipalities may develop state-approved harbor plans, or they may adopt locally approved plans or policies for their embayments. In Buzzards Bay, only the City of New Bedford and Town of Fairhaven have jointly developed a CZM-approved harbor management plan for a portion of New Bedford Harbor and its waterfront. This plan does not address the construction of private and commercial docks and piers. The Town of Wareham has adopted a locally approved (by selectmen) Dock Exclusion Zone. The differences between state-approved and local-approved embayment plans are discussed in detail below.

Embayment management plans can become the foundation of many local management programs. An example of a plan that includes a good assessment of natural resources and defining uses within an embayment is the draft Green Pond Harbor Management Plan in Falmouth (Urban Harbors Institute, 2009). As outlined in the current draft and anticipated to be more fully developed in the final¹⁷⁶, are recommendations for mooring tackle restriction, activity use areas, dock requirements and restrictions, and identification of marine spatial planning zones.

¹⁷⁶ See the minutes of the Coastal Pond Management Committee for 02-04-2013, retrieved from www.falmouthmass.us/meeting.php?depkey=cpmc&number=5290. Last accessed July 30, 2013.

Major Issues

Despite the apparent extensive regulatory framework highlighted above, there are some significant deficiencies and issues in existing approaches to managing docks, other coastal development along the waterfront, and watershed activities. The lot-by-lot regulatory review of docks and other projects generally discourages assessment of cumulative impacts and precludes holistic embayment protection strategies. Exacerbating the problem, towns generally do not have systems in place to track or monitor cumulative impacts. Local shellfish and herring wardens may observe general declines in their fisheries that appear related to (and may be caused by) certain types of activities, but they may have little opportunity to act on these concerns in the project permitting process.

Similarly, current regulatory approaches do not address potential boating impacts associated with docks. Generally the permitting process regulates dock dimensions (footprint), construction, navigation, and other direct impacts 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. Wetlands 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 wetlands 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.

Comprehensive coastal marine resource planning by local government remains an elusive goal¹⁷⁷. This is because local officials often do not fully utilize existing authorities, or because some of those authorities relative

¹⁷⁷ See the MIT Sea Grant proposal by John Duff titled “The Governance Role of Local Authorities in Marine Spatial Planning: A Legal Assessment of Prospects and Problems.” Project Number: 2012-R/RC-132-REG, Retrieved from seagrant.mit.edu/proj_desc.php?ID=1243. Last accessed June 28, 2013.

to state and federal control have not yet been fully defined. For example, with respect to existing authorities, 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 under the state Chapter 91 waterways licensing program (discussed further below). Similarly, some municipalities have wetland or other bylaws that do not have implementing regulations or clear performance standards that address specific activities on the watersheet, waterfront, and tidelands. Even where specific authorities or regulations exist to regulate or limit certain activities, local boards and commissions often do not fully implement or enforce them. In some cases, improved training or requirements for monitoring post construction performance would help to address this issue.

Monitoring data can be especially useful in defining or refining regulations and construction performance standards. For example, environmental data on pre- and post-dock construction conditions are generally not required as part of the permitting process, despite the fact this type of data is essential for understanding the cumulative impacts of docks. The exceptions to this generalization are regulatory requirements to map eelgrass beds or sometimes shellfish abundance before a dock is constructed. However, there are rarely requirements for monitoring these same resources after construction¹⁷⁸, or documenting fish habitat or sediments before and after construction of docks and during the use period following dock construction. Such information could provide useful information to better evaluate the environmental impacts of docks and associated boating activities. However, because monitoring is expensive, some local boards view such requirements as too burdensome for the applicant. If monitoring is required, a credible expert should perform monitoring in an objective manner, in order to yield useful data.

Scientists must improve the process of evaluating impacts of docks, boating, and the cumulative impacts of coastal development. This will require additional 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 cumulative 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 propeller turbulence, propeller 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

¹⁷⁸ Except in cases where eelgrass was transplanted or planted for mitigation of bed destruction.

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 (2004) 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).

communities and identify ways to avoid or mitigate adverse impacts.

Currently there are few or no incentives to encourage community or common docks. Few communities in Buzzards Bay have regulations that encourage or even 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 property 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.

The interests specified in most local laws and regulations are often narrow. Protection of aesthetic, recreation, aquaculture, and recreational and commercial values are specified in only a few municipal wetlands bylaws in the Buzzards Bay watershed. Adding these protected values, and adopting specific standards and definitions (although sometimes difficult), may help to manage docks and other coastal structures and activities more effectively.

As noted above, defining the impacts of docks and piers on shellfish and fish habitat in a particular estuary system, or the impacts of boating activities related to the placement of those docks and piers, can be difficult without site-specific studies. Many variables affect habitat including species, life cycle, seasonality, storms, sediment movement, and water quality, to name a few. In

general, managers and regulators rely on the findings of other studies to generalize about presumed actual and potential impacts.

Regulators typically have a narrow perspective in the permitting of docks and other coastal structures, and often do not consider 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.

The review of permits for coastal projects and activities by agencies at the same level of government (i.e., between state, federal, or local agencies) can be improved through better coordination and integration of concerns between agencies and departments. The same is true in reviews of the same permit by different levels of government. Perhaps one of the best examples of an integrated formalized permitting review process is those conducted by MEPA. The MEPA process identifies which state, regional, and local agency approvals and permits are required for larger projects, and incorporates comments by the agencies and the public into the permitting conditions. Because of the thresholds for review, the MEPA process applies only to larger projects. Similarly, reviews performed by the Army Corps of Engineers for certain permits include coordinated federal agency review for federal approvals for projects that meet specified thresholds.

In reality though, projects are not reviewed in a comprehensive way. Even projects that undergo MEPA review still must receive permits from numerous jurisdictions, for different purposes, and under different regulatory standards. Because of the many agencies and different jurisdictions involved, a large and complex coastal project involving different jurisdictions may be reviewed many times by local, state, and federal agencies. For the applicant, this can make for a lengthy, complex, and sometimes-repetitive review process. This has resulted in calls for "one-stop permitting," but such efforts have largely been unsuccessful because of the complex framework of laws at each level of government. Given this reality, the best opportunity to improve the process, and at the same time increase transparency and improve

public participation, is for each permitting authority to require electronic submissions of plans and permit applications, and to have these applications posted on line.

Other Issues

The proliferation of privately owned docks and piers along many sections of the Buzzards Bay coastline has resulted in presumed impacts on nearshore habitat, water quality, and in some cases, visual aesthetic values. The discharge of untreated or minimally treated sanitary wastes from commercial and recreational boats into Buzzards Bay is just one pollution source that may affect water quality, and longer term impacts of bottom paint, wood preservatives, accumulated PAHs, and chronic resuspension of sediments may contribute to long term and cumulative impacts (Barr, 1993; Crawford et al., 1998). Most of these issues need further study.

Similarly, marina and boatyard operations and activities, and their related stormwater run-off, have added to the nonpoint sources of pollution impacts in some sections of Buzzards Bay nearshore waters and habitats. Presently, few marinas currently comply with EPA's industrial stormwater (MSGP) NPDES program, and many power washing and boat-scraping activities may not comply with other state and federal discharge permits.

The damaging effects from the 2003 *Bouchard 120* oil spill demonstrated the vulnerability of Buzzards Bay natural resources to oil spills and the high costs of cleanup and recovery from such spills. Punitive actions against the barge company have resulted in new laws and funded plans and equipment that will better enable municipalities to be better prepared for the next inevitable event, but continued vigilance and adequate oversight of the shipment of hazardous cargoes is still required. Moreover, chronic small spills associated with fueling and maintenance activities, oily bilge water discharges, and discharges of 2-stroke engines remain management concerns without easy solutions. These and other issues are discussed in Action Plan 17 Preventing Oil Pollution.

Increased interest in shellfish aquaculture may have both economic and water quality benefits, especially in ameliorating eutrophication impacts (see Action Plan 1 Managing Nitrogen Sensitive Embayments). Despite these benefits, objections are sometimes raised to aquaculture by waterfront property owners, often because of aesthetic issues. Municipalities and communities should be prepared to evaluate both nearshore conflicting uses and offshore large-scale projects (e.g., proposals for ocean wind energy and liquefied natural gas facilities) that may occur in town waters. These projects must be evaluated to determine their suitability and acceptability both in the context of local environmental regulations, and local political and economic goals. This approach requires anticipating issues and addressing them through comprehensive planning and management. Defining

community goals is typically the most important first step in the process.

With respect to the Massachusetts Ocean Plan area, it is possible that conflicts may arise between state and municipal government in the management of the off-shore waters. It is likely that any conflicts will be resolved through updates of the Ocean Plan or through project review during the permitting process.

Management Approaches

The permitting and management of projects on the waterfront, on the watershed, and in tidelands is complex issue that touches upon environmental, economic, recreation, tourism, fishery, regulatory, and aesthetic issues, to name a few. It has been suggested that because of this complexity, these types of projects are prime candidates for application of integrated coastal management, or ICM, which calls for involvement by all relevant sectors (Crooks and Turner, 1999). Such an ICM approach could be applied to dock construction, aquaculture, renewable energy, and other activities in the near coastal waters outside the ocean plan jurisdictional area of Buzzards Bay. Similarly, the principals of ocean and marine spatial planning¹⁷⁹ used in the development of the Massachusetts Ocean Plan can be applied by municipalities to bays and harbors.

Existing regulatory approaches at the local, regional, and state level are often not fully utilized. As a supplement to existing regulatory approaches, municipalities should consider marine watershed 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 watershed zoning can provide a comprehensive regional approach to management of docks, piers, and associated activities.

Similarly, community policies regarding Chapter 91 licensing of coastal structures, docks, and piers should be developed and sent to the DEP Waterways Program. These policies will be used by the state in their decision making process. Improved information exchange between regulatory agencies at different levels about regulations, policies, studies, findings, and impacts should further improve consistency in government decision making. Each of these themes and approaches are described more fully in the sections below.

More effective use of Chapter 91 provisions

Municipalities have considerable authority under local zoning and non-zoning ordinances and bylaws to control activities along their waterfront, on the

¹⁷⁹ See tools and discussion at: www.cmsp.noaa.gov/index.html.

¹⁸⁰ Definition of integrated coastal management, at www.oceansatlas.com/unatlas/uses/uneptextsph/infoph/gsglossary.html.

For Buzzards Bay municipalities, management and protection of their embayment watershed, waterfront, and tidelands areas can be summarized as:

- Employ integrated coastal management (ICM)¹⁸⁰ and marine spatial planning approaches to characterize land- and water-based coastal activities, water quality, natural resources and habitat. Use this information to formulate recommendations for supporting local laws, policies, and regulations.
 - Implement recommended local bylaws, ordinances, regulations, and policies to implement the goals and objectives of these local plans. Use these local plans to leverage state enforcement through programs like DEP Waterways and the Chapter 91 licensing process.
-

watersheet, and on tidelands. However, few municipalities have fully utilized such authorities, and instead rely on existing regulatory programs like the Chapter 91 waterways license program administered by DEP. This program requires that construction on Massachusetts tidelands (including historic tidelands that have been filled) obtain a license. Such licenses are designed to protect the public interest in fishing, fowling, and navigation, and public access to those activities (regulations defined in [310 CMR 9.0](#)).

In Massachusetts, some municipalities have developed state-approved harbor plans¹⁸¹. In Buzzards Bay, the only state-approved harbor plan is the joint New Bedford-Fairhaven plan for New Bedford Harbor. One of the benefits of these plans is that the municipality can modify certain discretionary standards within the Chapter 91 regulations. These harbor plans typically address designated port areas and other commercial, industrial, and non-commercial sites in a major harbor.

Where state-approved municipal harbor plans exist, municipalities can submit written recommendations (usually from the board overseeing the harbor management plan), as to whether a proposed project conforms to the harbor management plan. In such cases, DEP shall presume whether a harbor plan requirement is met or not met based on these written submissions by municipalities, as per 310 CMR 9.34(2) (a) 1. In the Chapter 91 permitting process, municipalities submit forms stating that the municipal planning board has received notification of the project and that the project does not violate local zoning ordinances and bylaws.¹⁸²

¹⁸¹ 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... 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.”

¹⁸² DEP (DEP Waterways Program) and CZM (under federal consistency) review projects proposed within municipal harbor planning districts. The proponent triggers these reviews when they

Separate from state-approved harbor plans, municipalities can control dock and pier construction through the Chapter 91 permitting process if they adopt a formal local (non-state-approved) harbor or embayment plan or policy as per 310 CMR 9.34(2) (b)¹⁸³. Such a plan could include spacing requirements between docks, exclusion zones, or construction standards. If a municipality adopts these local plans or policies, it is important that the town submit the written policy or plan to the DEP Waterways Program so that it is on file. Such plans or policies could cover just one bay or the entire coastal area of the municipality. In 2001, the Town of Wareham adopted such a policy¹⁸⁴ with maps specifying dock exclusion zones. This policy has been enforced by DEP's Waterways Program. Adoption of such a policy or plan requires public input and a public process.

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 with conditions, and prohibited,

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.

¹⁸³ This section 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 Waterways Program) 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.”

¹⁸⁴ “It is a policy of the Town of Wareham to maintain those areas designated as Recreational Shellfish Areas and Shellfish Grants, as indicated on the enclosed map, open and unobstructed for the purpose of shellfishing related activities as these activities are considered priority uses for these areas.” Retrieved from www.wareham.ma.us/Public_Documents/WarehamMA_BComm/Policies/01-01%20DOCK%20PIER%20PROJECTS.doc. Last accessed October 11, 2013.

respectively. Areas may also be designated for aquaculture. Strategies may include creating incentives to ensure that new development and redevelopment protects water quality and sensitive natural resources, is more resilient to storm surge, and will accommodate sea level rise (see the Nantasket Beach Overlay District example below).

The advantages of marine watersheet zoning is that it can provide effective management to address 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 wetlands 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.

Some of these zoning-like designations need not require passage of zoning bylaws or ordinances. For example, the designation of recreational-only “family” shellfishing areas can be made through existing local authorities to manage shellfish resources. No-wake zones and waterskiing exclusion zones can be designated through local waterways regulations.

Elements of zoning or non-zoning local bylaws and regulations that can be adopted 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 the 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 and Waterfront Zoning Examples

Marion Watersheet Zoning Model Dock and Pier Bylaw

This model watersheet bylaw, drafted by the Buzzards Bay NEP¹⁸⁵, but never adopted by Marion, builds upon an existing town zoning bylaw that disallows docks from very small lots based on non-conformance. The jurisdiction under the existing bylaw ends at low water. The jurisdiction of the model bylaw would add to the existing bylaw and begin at low water and extend offshore. The model bylaw specified areas where docks

¹⁸⁵ Marion watersheet zoning model dock and pier bylaw. Retrieved from the Buzzards Bay NEP website at: buzzardsbay.org/dockpiermodel.htm.

would be excluded based on the presence of shellfish habitat, eelgrass beds, rare species habitat, and swimming beaches. These areas would be 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

The Town of Edgartown adopted a surface waters district “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.”

The town adopted a surface water zoning approach, that extended seaward of the mean high water line. The bylaw established permitted water-dependent uses and uses allowed by special permit (from the planning board) are specified. Few non-water-dependent uses are allowed, and uses not specified are thus prohibited (Courtney and Wiggin, 2003).

Dock Limits in Barnstable Wetland Regulations

The Town of Barnstable adopted wetland bylaw regulations that address the size and length of docks, including a provision that prohibits docks from exceeding one-half the length of the waterfront frontage of the property. The Massachusetts Appeals Court upheld this regulation provision in 2003¹⁸⁶.

Nantasket Beach Overlay District

In 2013, the Town of Nantasket passed a zoning bylaw create a Nantasket Beach Overlay District waterfront and near coastal lands “to stimulate mixed use redevelopment of commercial and multi-family property at scales and densities appropriate for an historic beachfront community in order to revitalize the economy and help balance the commercial and residential tax base while protecting people, property, and resources.” Some of the adopted measures are meant to reduce development sprawl, protect barrier beach and dune system functions of storm and flood protection and wildlife habitat, and create “incentives for development that can withstand sea level rise and increased flooding and frequency and intensity of storms caused by climate change, and thereby; protect persons and property from the hazards

that may result from unsuitable development in areas subject to flooding, extreme high tides, and rising sea level.”

The specific mechanism of authority was in the creation of a special permit procedure administered by the planning board, with the ability of the town to collect fees for consultants. The district establishes prohibited uses, setback and dimensional standards, requirements for open space, and other performance and design standards. Local incentives are provided in the form of building permit rebates and variances from certain dimensional requirements and performance standards if certain conditions are met.

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 pursuant to Chapter 91

As noted in more detail above, a community can develop and adopt a policy or plan for construction activities on tidelands that would be enforced by the DEP Waterways Program in their issuance of Chapter 91 licenses. Special area management plans can also serve this purpose if they address activities and areas subject to Chapter 91 jurisdiction (filled and flowed tidelands). 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.

District of Critical Planning Concern

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 wetlands bylaws. Falmouth has one DCPC on Buzzards Bay, the Black Beach/Sippewissett Marsh

¹⁸⁶ Dubuque v. Conservation Commission of Barnstable No.01-P-1152. August 18, 2003. Retrieved from buzzardsbay.org/download/dubuque-et-al-case.pdf. Last accessed October 9, 2013.

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

House Boat Prohibitions and Floating Dock Expansions

There are some special circumstances that apply to houseboats and floating docks that warrant a separate discussion. 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 in section 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 Section 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 be im-

posed. The chief weakness of Falmouth's approach is the selectmen have not adopted support regulations or performance standards.

Financial Approaches

The cost of developing harbor management plans will be generally supported through local appropriations and town meeting, although grants may sometimes be available through CZM or the Buzzards Bay NEP. The Seaport Advisory Council can also provide funding for harbor planning efforts. 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.

References

- 310 CMR 9.00 Waterways Regulations. Section 9.38(2)(b) provides use standards for "Private Recreational Boating Facilities" and allows municipalities to have input to the Chapter 91 licensing or approval process through adoption of a local policy, plan, local zoning ordinance or bylaw. Retrieved from www.mass.gov/eea/docs/dep/service/regulations/310cmr09.pdf.
- Barr, B. 1993. Environmental impacts of small boat navigation: vessel/sediment interactions and management implications. Proceedings of the Coastal Zone '93 Conference, New Orleans, Louisiana, 19-23-July, 1993.
- Bliven, S., and R. Kely. 2005. Visual impact assessment of small docks and piers: Theory and practice. NOAA Coastal Ocean Program technical report, decision analysis series No. 25. September 2005.
- Burdick, D. M., and F. T. Short. 1995. The effects of boat docks on eelgrass beds in Massachusetts coastal waters. Submitted to Waquoit Bay National Estuarine Research Reserve and Massachusetts Coastal Zone Management.
- Burdick, D. M., and F. T. Short. Dock design with the environment in mind: Minimizing dock impacts to eelgrass habitats. Interactive CD. University of New Hampshire.
- Castellan, A. 2003. Management tools to minimize the impacts of residential docks and piers. White paper, NOAA Office of Ocean and Coastal Resource Management. November 2003. Retrieved from coastalmanagement.noaa.gov/initiatives/media/Mgmt_tools_w_ksdp.pdf.
- Courtney, F., and J. Wiggin. 2003. Ocean zoning for the Gulf of Maine: A background paper. Prepared for the Gulf of Maine Council for the Marine Environment. January 2003.
- Crawford, R. E., N. E. Stolpe, and M. J. Moore. 1998. The environmental impacts of boating: Proceedings of a workshop held at Woods Hole Oceanographic Institution, Woods Hole, MA USA, December 7-9, 1994. Woods Hole Technical Report, WHOI-98-03.

- Crooks, S., and R. K. Turner. 1999. Integrated coastal management: sustaining estuarine natural resources. *Advances in Ecological Research*, 29, 241-289.
- Goetsch, B. J., "Massachusetts town bylaws as they relate to restricting or conditioning human activities in and around eelgrass beds" (2011). Sea Grant fellows publications. Paper 19. Retrieved from http://docs.rwu.edu/cgi/viewcontent.cgi?article=1019&context=law_ma_seagrant. Last accessed July 11, 2013.
- Kelty, R., and S. Bliven. 2003. Environmental and aesthetic impacts of small docks and piers. Workshop report: Developing a science-based decision support tool for small dock management, Phase 1: Status of the science. NOAA Coastal Ocean Program, decision analysis series No. 22. January 2003. Retrieved from noaa.ntis.gov/view.php?pid=NOAA:ocm53207475.
- Massachusetts Department of Environmental Protection. September 2003. Small docks and piers: A guide to permitting small, pile-supported docks and piers.
- NOAA National Ocean Service. 2004. Residential dock and pier management, Recent activities by NOAA's National Ocean Service.
- Ridley & Associates. 2005. Town of Chatham South Coastal Harbor management plan. Prepared for Stage Harbor Management Plan Implementation Committee. Retrieved from Town of Chatham website at: www.town.chatham.ma.us/Public_Documents/ChathamMA_Coastal/toccpdocs.
- Urban Harbors Institute. 2009. Draft Harbor Management Plan for Green Pond in Falmouth. July 2009. Prepared for the Town of Falmouth's Coastal Ponds Management Committee.
- Zimmer, B. J., J. S. Weiss, and P. Weiss. 1998. Effects of CCA wood docks and resulting boats on bioaccumulation of contaminants in shellfish resources. New Jersey Department of Environmental Protection, Division of Science and Research, P.O. Box 409, Trenton, NJ 08625-0409.