

# Executive Office of Energy & Environmental Affairs

Submitted to: Secretary Matthew A Beaton  
100 Cambridge Street, Suite 900  
Boston, MA 02114



## Provincetown Harbor Management Plan Amendment 2018

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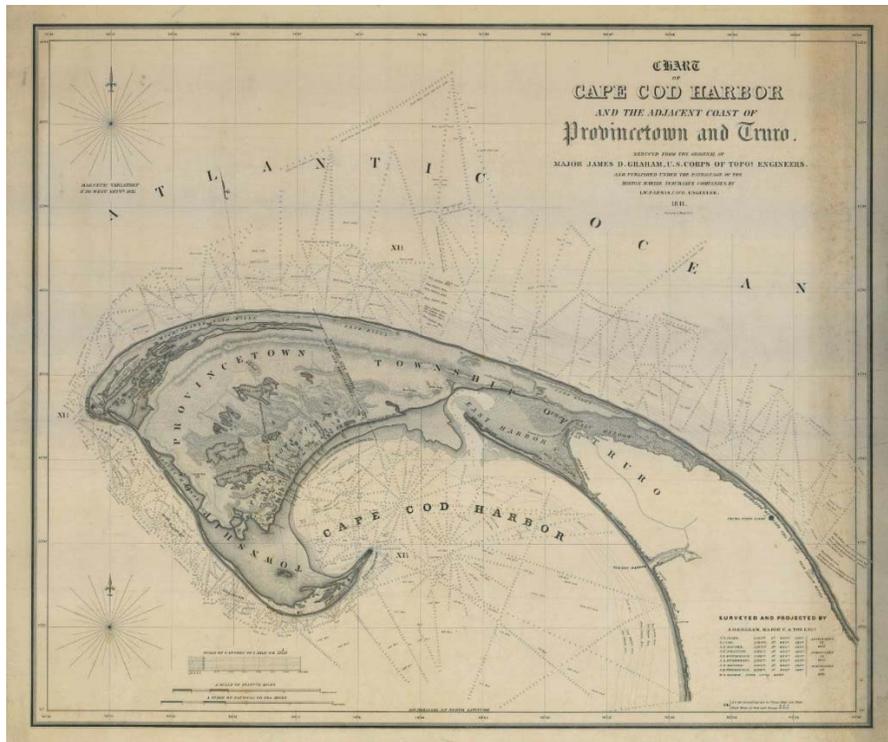


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Photo: Captain John Baldwin and the F/V Chase grounded on Long Point after the January 2015 blizzard



## LIST OF ACRONYMS

ADA – Aquaculture Development Area  
 BIG – Boating Infrastructure Grant  
 CARE – Creating a Responsible Environment for  
 the Cape & Islands  
 CMR – Code of Massachusetts Regulations  
 CVA – Clean Vessel Act  
 CZM – (Massachusetts) Coastal Zone  
 Management  
 DEP – (Massachusetts) Department of  
 Environmental Protection  
 DMF – (Massachusetts) Division of Marine  
 Fisheries  
 DPW – Department of Public Works  
 EOEEA – Executive Office of Energy and  
 Environmental Affairs  
 EPA – Environmental Protection Agency  
 FEMA – Federal Emergency Management  
 Agency  
 FMA – Flood Mitigation Assistance  
 GIS – Geographic Information System

HMA – Hazard Mitigation Assistance  
 HMGP – Hazard Mitigation Grant Program  
 LCP – Local Comprehensive Plan  
 M.G.L. – Massachusetts General Law  
 MassGIS – Massachusetts Geographic  
 Information System  
 MGD – Million gallons a day  
 MHP – Municipal Harbor Plan  
 MIS – Management Information System  
 NOAA – National Oceanic and Atmospheric  
 Administration  
 NFIP – National Flood Insurance Program  
 O & M – Operation and Maintenance  
 PDM – Pre-Disaster Mitigation  
 QPX – Quahog parasite unknown  
 SAFIS – Standard Atlantic Fisheries Information  
 System  
 WDUZ – Water-dependent use zone  
 WHOI – Woods Hole Oceanographic Institution

# INTRODUCTION

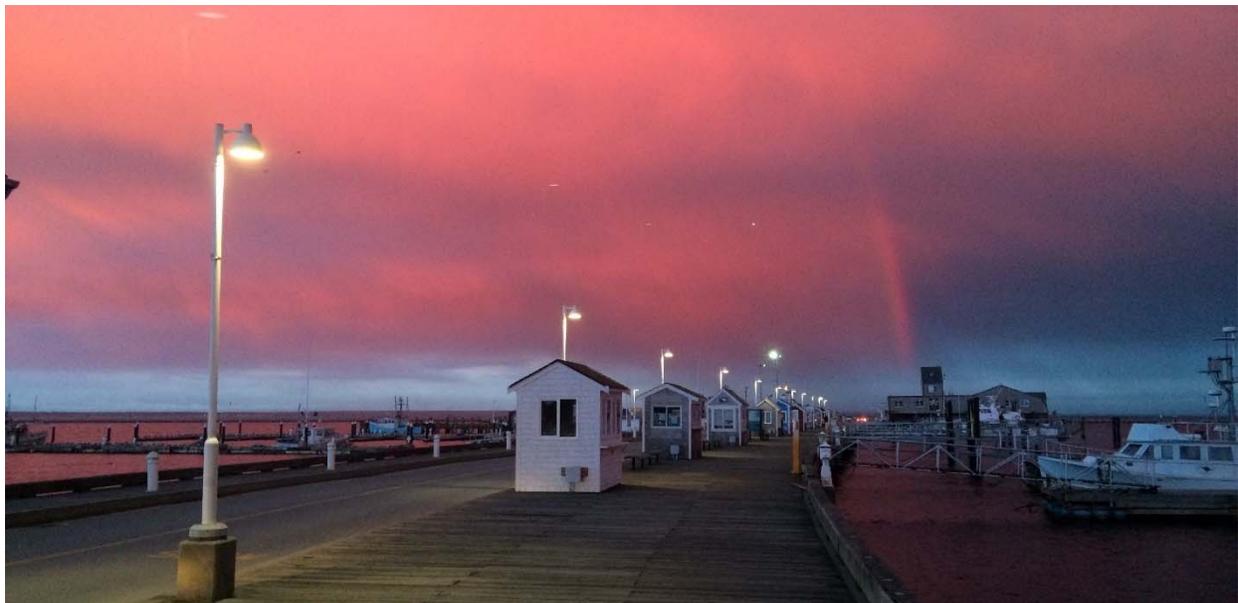
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The Town of Provincetown is uniquely defined by its natural surroundings: windswept and waterborne sand dunes, scrub pine heath, resilient cranberry bogs and glacial ponds—all surrounded by the ocean, all critical to its history as a destination and home. Perhaps none of the defining characteristics is more important than the Harbor, a water body as much a component of the Town as any terrain, permitting travel, recreation, and livelihood for more than four centuries.

As environmental, political and social circumstances become more impactful to the Town, and as challenges to the natural surroundings, such as flooding and erosion, continue to increase, it is incumbent upon the Town's citizens to recognize the value of the Harbor, manage its inputs and exponents with an eye to its future, and provide mechanisms for policy making, regulatory adjustments and sustained overall use of the Harbor, all the while preparing for inevitable environmental shifts. This Harbor Plan identifies many of the current and anticipated challenges and provides recommendations for policies, regulations, research, education, investments, and other actions to address the challenges.

The Harbor Committee developed an update to the 1999 plan in 2012, which can be found [on](#) the town's website.

Much like the 1999 and 2012 harbor plans, this 2018 update carries forward important issues and recommendations from previous plans, and incorporates new needs and opportunities for the planning area.



# I. PURPOSE, SCOPE, AND AUTHORITY OF THE PLAN

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The purpose of the Provincetown Harbor Management Plan is to provide the Town and other stakeholders with the information and resources needed to understand, protect, and enhance the harbor’s economic, cultural, and natural resources within the context of relevant laws, policies, and regulations.

The plan identifies existing and anticipated issues and opportunities in Provincetown Harbor and Hatches Harbor, and provides short-term and long-term goals, objectives, and recommendations related to: beaches, sea level rise and climate change, flooding, water quality, public access, recreational boating, tourism, natural resources, commercial and recreational fishing, navigation, dredging, swimming, regulatory coordination, and Chapter 91 licensing.

As this is a municipal harbor plan, the Town will collaborate with entities identified throughout the document in order to complete the recommendations. An implementation matrix will be used to track and report progress for a variety of audiences including town leaders and the general public.

As a state-approved plan, this update will guide the decisions and actions of the agencies of the State’s Executive Office of Environmental Affairs, including the regulatory decisions of the Massachusetts Department of Environmental Protection (DEP) under M.G.L. Chapter 91, the Public Waterfront Act. Any project seeking a Chapter 91 license from DEP must be in conformance with this plan.

This plan is a valuable tool that the Town can use to guide use and enjoyment of the waterfront and waterways; however, given the wide range of topics addressed in this plan, some recommendations may require further public discussion prior to implementation.

This plan was funded by the Town of Provincetown through the Harbor Access Gift Fund.



## II. THE PLANNING AREA

The Provincetown Harbor Planning Area can be seen in Figure 1.

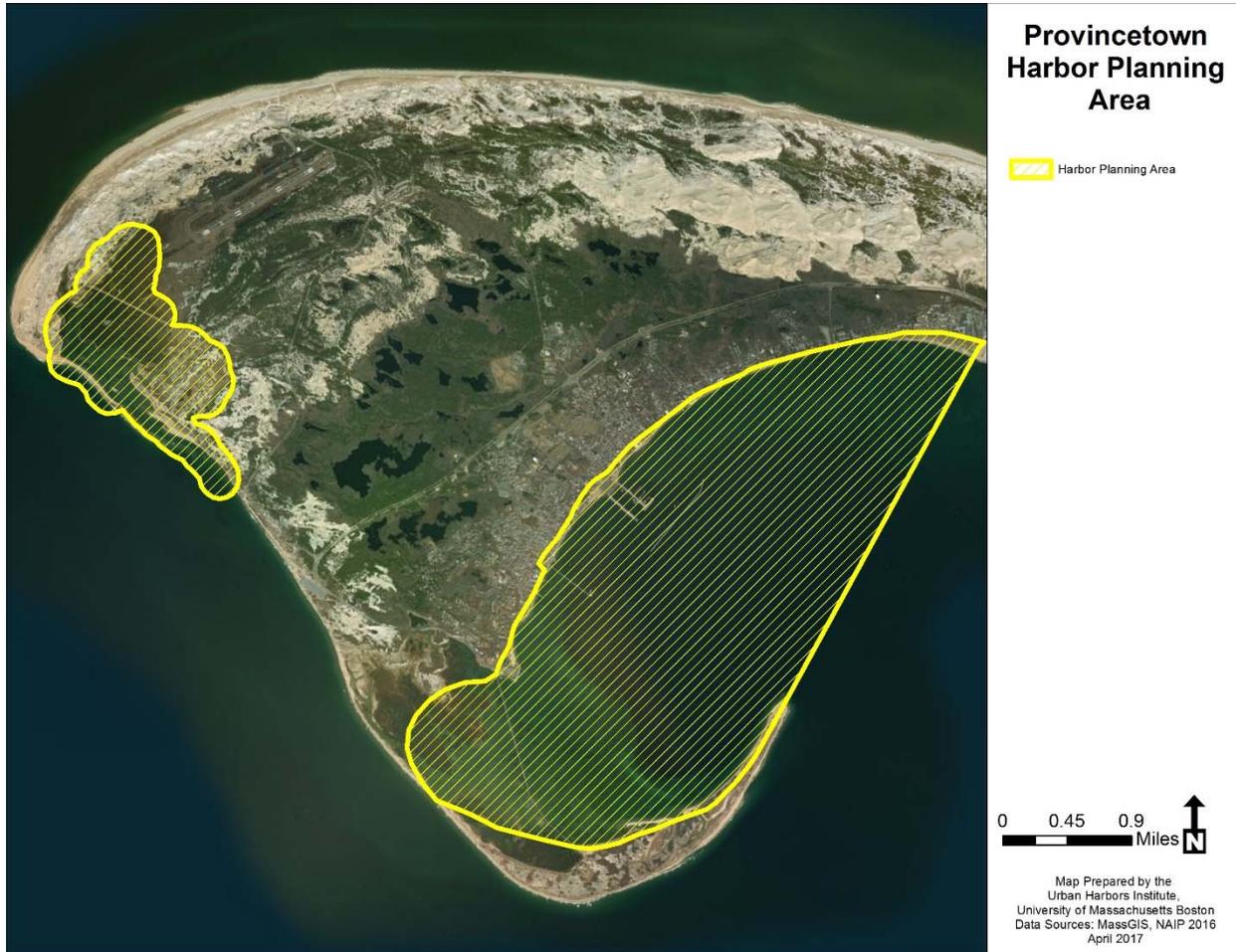


Figure 1: Provincetown Harbor Planning Area

The Provincetown Harbor Management Plan focuses on the downtown Provincetown Harbor area and Hatches Harbor. More specifically, the boundary around Hatches Harbor encompasses designated shellfish growing areas (as identified through the Designated Shellfish Growing Areas GIS data layer available on MassGIS). The downtown planning area (starting at the easternmost point) begins at the municipal boundary with Truro and follows the Provincetown municipal boundary west along the coast until reaching Commercial Street near Snail Road. The planning boundary then follows Commercial Street through downtown to the rotary at Provincetown Inn, crossing the rotary to encompass the Moors and inner portion of Long Point. From the tip of Long Point, the planning boundary extends straight to connect back to the coastal municipal boundary between Provincetown and Truro.

The “planning boundary” is a tool to focus harbor planning activities. It is worth noting that the issues identified in this plan may extend beyond the planning boundary and that the impacts of recommendations may also extend beyond the plan’s boundary.

### III. THE PLANNING PROCESS

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The planning process for this 2018 harbor plan update was guided by Town staff and the Provincetown Harbor Planning Committee, which included:

- Susan Avellar
- Elise Cozzi
- David Flattery, Chair
- Bryan Legare
- Laura Ludwig
- Francis J. Santos
- Rex McKinsey, ex officio

Citizen and stakeholder input was collected at three public meetings:

- May 4, 2017
- June 15, 2017
- July 15, 2017

Approximately 45 members of the public participated in these meetings.

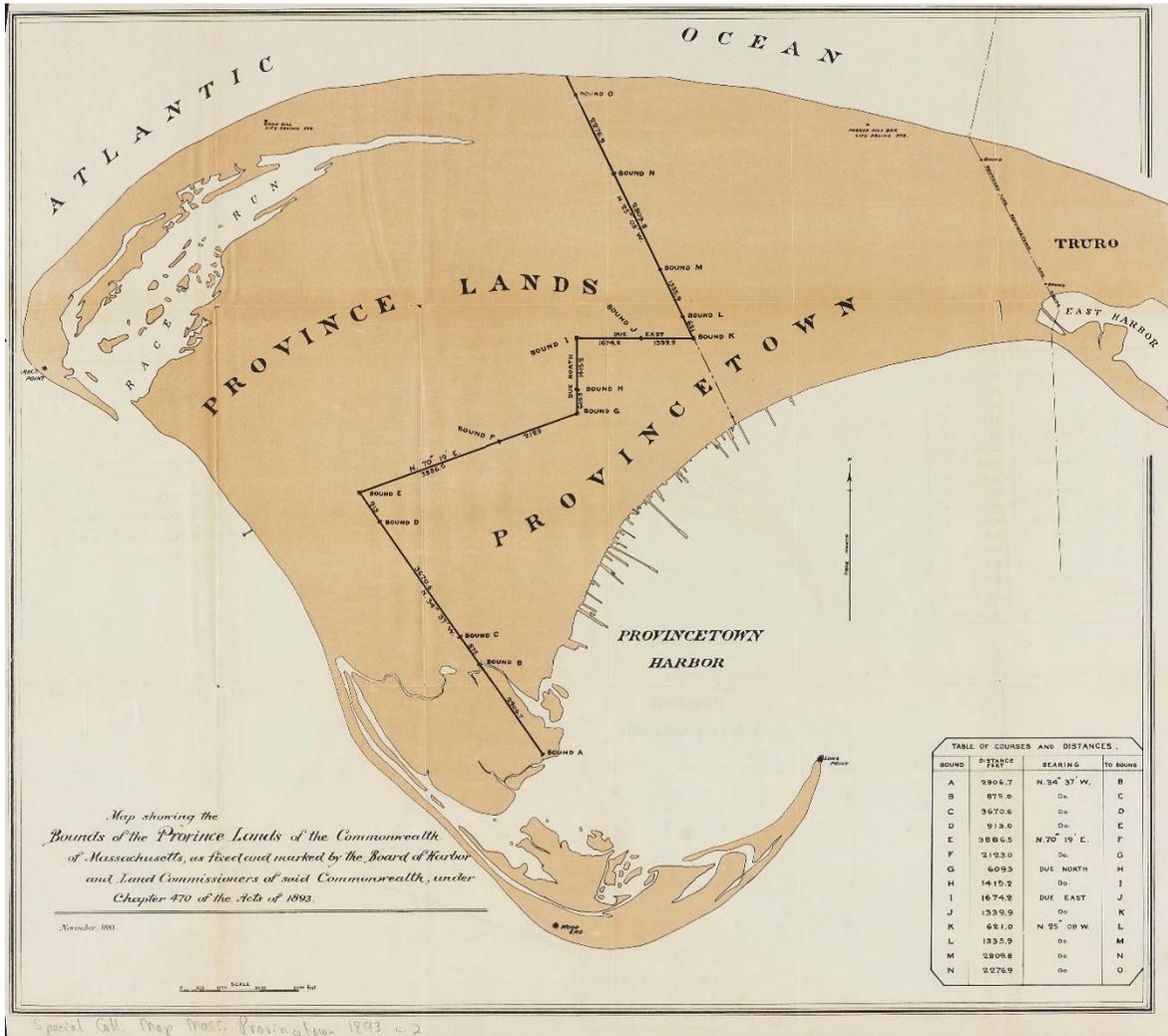
In addition to the public meetings, throughout the planning process, the plan was generally an item on the regularly-scheduled twice-monthly meetings of the Provincetown Harbor Committee, which are open to the public. Information about the planning process was available on the Provincetown Harbor Management Plan website at [www.umb.edu/uhi/provincetown\\_harborplan\\_2017](http://www.umb.edu/uhi/provincetown_harborplan_2017). Stakeholders could also provide input to the Harbor Committee and the Urban Harbors Institute via email and phone.



The planning team also interviewed harbor stakeholders and town officials to ensure all key issues were captured and that the plan reflected current and anticipated projects.

A new feature of this updated plan is the inclusion of sidebars discussing how climate change-related events could impact the various components of the plan.

A draft of the plan was released for public comment in April 2018.



## IV. GOALS, OBJECTIVES, AND RECOMMENDATIONS

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The order of the following topics and recommendations does **not** reflect any prioritization.

# Water Quality

Water quality in Provincetown can be considered both in terms of land-based issues and water-based issues. The following section is broken down into land and water components.

## Water Quality – Land-Based

Water quality is an important issue that affects marine habitats, tourism, and economic development. Most of Provincetown’s previous water quality issues stemmed from the land, including septic system failures, marine sanitary waste, stormwater runoff, and pet waste. Previously, when a storm would pass through Provincetown, the Harbor would regularly experience high levels of bacteria, resulting in beach closures. Prior to 2011, Provincetown was experiencing more than ten beach closures per season, as shown in Figure 3.

Since 2001, Provincetown (in collaboration with partners) has initiated and/or completed a number of land-based projects that have gradually and greatly improved the harbor’s water quality:

- Replaced old and failing septic systems: Failing septic systems can leak nutrients and bacteria into the Harbor, which can lead to disease and can harm the harbor’s natural resources. With the installation of the sewer system in the downtown area, owners of failing septic systems were required to connect to the sewer, thereby removing those sources of pollution.
- Fixed leaking or damaged sanitary sewers.

## Climate Change & Water Quality

The water quality in Provincetown Harbor could be negatively impacted by increased storm intensity and warming ocean temperatures caused by climate change. Scientists anticipate, not necessarily *more* storms, but an increase in the destructive potential of storms because of climate change. Among other issues, more intense precipitation from storms would likely cause more runoff, which would carry pollutants into the harbor, thereby negatively impacting water quality. Pollutants could include nitrogen, herbicides, pesticides, and street debris (*e.g.*, trash).

Additionally, the water temperature in Provincetown Harbor will likely rise as a result of climate change. Globally, sea surface temperatures have risen by about 0.1 degrees Celsius each decade since 1970. Increased water temperature, along with potential nitrogen loading from runoff, could cause harmful algal blooms, fish death, and destruction of habitat, as well as threats to human health.

In addition, storm and flooding related impacts to infrastructure such as pump-out facilities, septic systems, and sewer lines may result in water quality impairments.

- Built a new wastewater treatment facility: The wastewater treatment and collection system was built in 2013 and, at a current capacity of 0.75 MGD, is able to meet the present sewer needs.
- Implemented a pet waste education program to inform pet owners of the importance of cleaning up pet waste. It is illegal to leave pet waste on any public sidewalk, street, beach, or Town-owned land or structure. Pet waste can contain bacteria and parasites, and cause significant water quality issues that could lead to beach closures. Free bags and trash cans are available at town landings so that pet owners can easily collect and dispose of their pets' waste.
- Installed porous pavement: From 2012 – 2014, Provincetown installed porous pavement along 1.5 miles of Commercial Street, which reduced stormwater runoff onto the beaches and into Provincetown Harbor. Rather than water traveling over the impervious asphalt and into storm drains that lead to beach outfalls, or directly to the ocean, stormwater is now filtered through the porous pavement. This porous pavement has greatly improved water quality within Provincetown Harbor. Additionally, the Town cleans the pavement by vacuuming streets daily during the summer. The porous pavement project is not yet complete; the Town will complete Phases 4 and 5 of the porous pavement project upon securing funding.
- Removed or repaired stormwater outfalls: After the installation of porous pavement, the Town removed 4 of the 25 stormwater outfalls, and remediated others. The Franklin Street outfall was slip-lined to keep liquids flowing. Other outfalls (including Ryder Street outfall) might be good candidates for removal.
- Instituted a no-smoking ban on town beaches and installed cigarette collection receptacles to minimize cigarette litter on land and in storm drains.
- Installed curb plaques at storm drains which state, "No dumping – drains to ocean".

The Barnstable County Department of Health and Environment and the County Water Lab tests the water quality in Provincetown Harbor every Monday during the bathing beach season. The results are reported to the Provincetown Health Department the next day (Tuesday). Water quality is monitored for safety during the bathing beach season under the Massachusetts State Sanitary Code, Chapter VII, 105 CMR 445: Minimum Standards for Bathing Beaches. Bathing or swimming is not allowed in waters when water quality is impaired.

Figure 2 displays bathing beach water quality testing sites tested by the County. This testing is part of MassDEP's water quality monitoring program. Water quality within Provincetown



Harbor greatly improved as a result of the actions noted, contributing to an overall decline in beach closures.

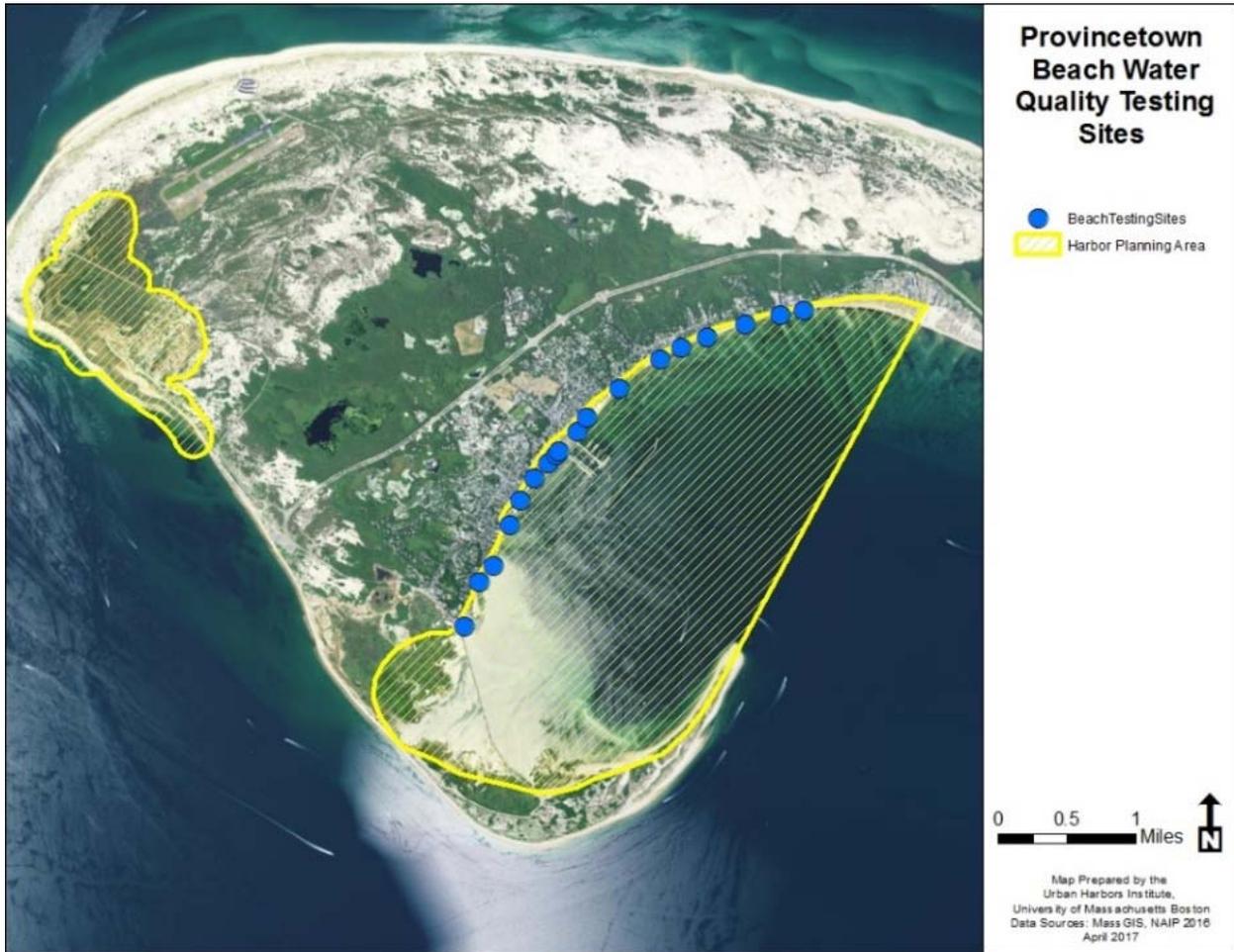


Figure 2: Bathing Beach Water Testing Sites in Provincetown Harbor.

Figure 3 below shows the number of beach closures in Provincetown Harbor. Not shown in this chart are two beach closures from 2017, which were the result of runoff from storms.

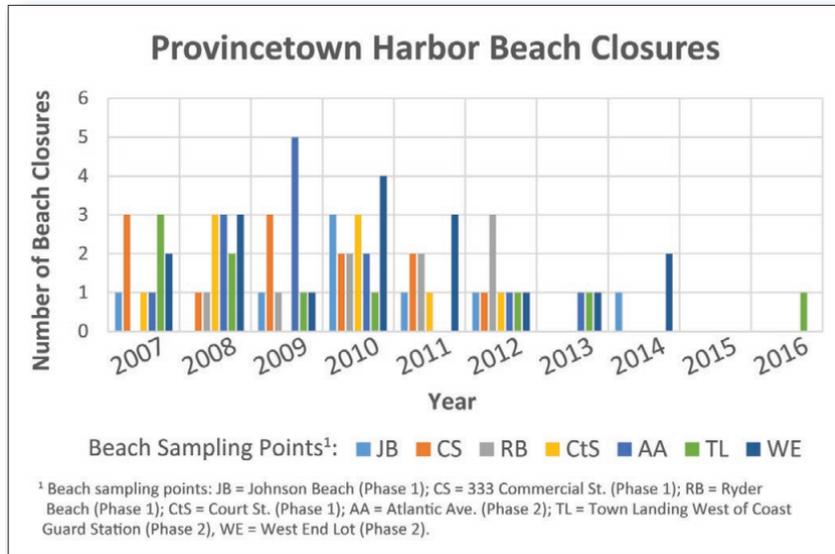


Figure 3: Number of Provincetown Harbor Beach Closures by Year. Source: [https://www.epa.gov/sites/production/files/2016-12/documents/ma\\_provincetown\\_508.pdf](https://www.epa.gov/sites/production/files/2016-12/documents/ma_provincetown_508.pdf)

The University of Massachusetts Dartmouth has also conducted three years of water quality testing to assess total nitrogen loads. Figure 4 displays the sampling stations. These tests have shown that the Harbor is generally very clean because of the water quality projects mentioned previously and because of good tidal exchange within the Harbor. Mass DEP expects that Provincetown will meet all of its water quality goals by 2020 (EPA 2016).





Figure 4: Water Quality Stations Sampled by UMass Dartmouth within the Provincetown Harbor System (2007 – 2009).<sup>1</sup>

## Issues

While water quality has improved over the last decade, there are still some land-based issues related to water quality that need to be addressed, including the following:

1. Marine debris is occasionally found in the Harbor and on the beaches, which includes plastics, fishing gear, anchors, and other boating and fishing equipment. (See the Beach Maintenance section for related issues and recommendations.)
2. Despite extensive efforts to reduce stormwater runoff, a large amount of stormwater still enters the outfall pipes, which are often clogged by sand or plastic debris. When clogged, water cannot leave the pipes and they can backup.
3. Per informal arrangements with the Conservation Commission, the DPW currently moves the sand cleared from outfalls to the outer sides of the pipe. This is not an effective long-term strategy because the sand will often clog the same pipe again.

<sup>1</sup> Summary of Water Quality Monitoring Program for the Provincetown Harbor, East Harbor Lagoon, Pamet Harbor, and Hatches Harbor Embayments Systems (2007 – 2009).

4. Coastal structures in the Harbor are causing sediment to build-up around outfall pipes (especially near Ryder Street and Gosnold Street), impeding storm water flow.
5. Select septic systems and other structures are located in vulnerable areas, and storms and erosion could compromise the structures (e.g., on Court Street). More specifically, there are cesspools, septic systems, and grease traps for properties on the water-side of Commercial Street, which could be vulnerable to damage and result in contamination of the Harbor.
6. The Town's sewer is almost at capacity, and any remaining capacity is reserved by the Town for emergencies and affordable housing projects. Additionally, not all waterfront properties are connected to the sewer. The Town is currently working to expand the sewer system.
7. Despite efforts to minimize runoff, there is still some street and beach runoff that carries pollution, including oil and fuel, cigarette litter, dog and other animal feces, and building discharges such as paints, asbestos, and cleaning compounds, into the Harbor. Given the increase in storm intensity expected because of climate change, stormwater runoff will likely worsen in years to come.
8. While pet waste remains a potential source of water pollution, pet owners have been generally good about picking up after their dogs, especially during summer months when peer-enforcement is strongest. During winter months, however, the decline in population results in fewer people to help enforce pet waste rules, resulting in more pet waste pollution.
9. Though the Town has embarked on an organic lawn care regime for municipal property, nitrogen and pesticides used for lawn care can run off into the Harbor and cause water quality issues.



**Goal:** Maintain and improve water quality in Provincetown Harbor and keep beaches clean.

**Objective I:** Reduce water quality impairments related to the Town's sewer system and individual septic systems.

*Recommendation 1: Expand the Town's sewer system and determine the feasibility of expanding the wastewater treatment facility.*

The Town should determine which waterfront properties are not connected to the Town's sewer system, and prioritize connecting those properties when funding is obtained. More specifically, the Town should first investigate properties on the water-side of Commercial Street and determine which need to be connected. Additionally, as the Town's sewer system is almost at capacity, a new wastewater treatment facility is needed to accommodate the new connections, including those on the water-side. The Town should investigate the feasibility of developing this new wastewater treatment facility.

Funding:

- Massachusetts Waterfront Infrastructure Assessment and Planning Grants

Implementing Entities:

- Provincetown Department of Public Works
- U.S. Environmental Protection Agency
- MA Department of Environmental Protection

*Recommendation 2: Identify the locations of cesspools, septic systems, and grease traps that could be vulnerable to damage and, thus, contaminate the Harbor, and develop strategies to minimize potential impacts.*

The water-side of Commercial Street, in particular, has a number of properties with cesspools, septic systems, and grease traps that are vulnerable to damage (from storms) and need to be addressed.

Funding:

- Massachusetts Waterfront Infrastructure Assessment and Planning Grants

Implementing Entities:

- Provincetown Department of Public Works
- Community Development (Building Commissioner)
- MA Department of Environmental Protection

**Objective II:** Reduce water quality impairments related to stormwater runoff, marine debris, pet waste, and other pollution in the Harbor.

*Recommendation 1: Continue to identify sources of any remaining stormwater runoff pollution, and address these sources. Additionally, consider the potential impacts of climate change and enhanced storm intensity on stormwater runoff.*

Funding:

- Massachusetts Waterfront Infrastructure Assessment and Planning Grants
- State Revolving Fund
- 319 Nonpoint Source Competitive Grants

Implementing Entities:

- Provincetown Department of Public Works
- U.S. Environmental Protection Agency
- MA Department of Environmental Protection

*Recommendation 2: Reduce the flow of debris from the storm sewer outfalls through the installation of subsurface systems that can collect pollution from the storm sewer outfalls.*

Funding:

- Massachusetts Waterfront Infrastructure Assessment and Planning Grants

Implementing Entities:

- Provincetown Department of Public Works
- U.S. Environmental Protection Agency
- MA Department of Environmental Protection

*Recommendation 3: Continue the program that ensures that all storm drains are labeled to prevent dumping activities.*

This is especially important for storm drains that are replaced, as the language may get removed from the location. Additionally, language around the storm drain should note that the drain is connected to the Harbor/ocean.

Funding:

- No additional funds necessary; potential volunteer or student activity

Implementing Entities:

- Recycling and Renewable Committee

*Recommendation 4: Continue and enhance marine debris prevention and removal efforts in Provincetown.*

The Center for Coastal Studies is the main marine debris prevention/education entity in Provincetown, and is engaged in studying, removing, and educating the public and others marine plastic pollution. The Center conducts beach cleanups and monitoring, retrieves abandoned, lost, and discarded fishing gear, removes large debris, and educates students through art projects and classroom curricula. Efforts such as these should continue. Additionally, the Town should enhance the removal of beach debris by increasing volunteer activities and public awareness.

Funding:

- National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program
- CARE for the Cape & Islands

Implementing Entities:

- Center for Coastal Studies
- Department of Public Works
- Provincetown Office of the Harbormaster

*Recommendation 5: Ensure all appropriate town landings, beaches, and public seating areas have trash barrels, recycling bins, cigarette litter receptacles, dog poop bags, and signage stating that cigarette smoking is prohibited on beaches.*

A number of sites have the appropriate trash receptacles, signage, and services, but it is important for the Town to ensure this for all sites, maintain these facilities, and invest in equipment to prevent wind-blown trash.

Funding:

- No additional funds necessary at this time.

Implementing Entities:

- Provincetown Department of Public Works
- Town Committees, e.g., Recycling and Renewable Energy, Landscape



*Recommendation 6: Continue and expand upon current strategies to reduce pet waste pollution.*

The Town should continue current efforts to encourage owners to pick up after their pets (e.g., signage, free poop bags at various locations around the Harbor). The Town also needs better pet waste education, outreach, and enforcement, especially during winter months, and should consider developing a volunteer monitoring program. The Town should explore the potential of anaerobic digesters to address pet waste.

Funding:

- No additional funds necessary at this time.

Implementing Entities:

- Animal Control Officer
- Community members

*Recommendation 7: Provide homeowners and landscapers with information on organic fertilizers, environmentally-suitable fertilizer application rates, natural or indigenous plantings, and other landscaping practices that would help protect water quality.*

The Town should encourage residents to use environmentally-friendly products for lawn care to reduce water quality issues. To do this, the Town should develop and distribute educational materials and advertisements, and/or conduct workshops for residents on this topic.

Funding:

- No additional funds necessary at this time.

Implementing Entities:

- Center for Coastal Studies
- Provincetown Department of Health and other departments, as appropriate
- Interested and appropriate landscapers
- Barnstable County Cape Cod Cooperative Extension

**Objective III:** Continue to support water quality monitoring efforts.

*Recommendation 1: Support the water testing program for the Harbor, which includes monitoring storm drain and street runoff.*

More specifically, continue to monitor water quality closely for different types of pollution (e.g., human and animal fecal matter and coliform bacteria) and implement programs that strive to address the source(s) of any pollution detected and keep the harbor water clean. Additionally, continue notifying the public about beach closures due to high coliform bacteria count (via flags, signs, or other means).

Funding:

- No additional funds necessary at this time.

Implementing Entities:

- Provincetown Department of Health
- Provincetown Department of Public Works
- U.S. Environmental Protection Agency
- MA Department of Environmental Protection
- Barnstable County Department of Health and Environment
- County Water Lab

**Objective IV:** Better maintain the sewer outfall pipes so they are functional, clear, and effective (*e.g.*, water can flow through them and they are free of sand).

*Recommendation 1: Develop strategies to keep the sand from clogging the outfall pipes, better maintain the pipes where sediment is backing-up, and utilize the removed sand as nourishment material.*

The Town should consider moving sand from the outfalls to a more useful location. This is especially relevant for Ryder Street and Gosnold Street, where sediment tends to clog the pipes. The DPW currently nourishes some areas with the sand removed from the pipes, especially the town landings (*e.g.*, Atlantic Street). The use of the removed sand as nourishment should become a common practice, as it removes the sand from the pipe location (thereby keeping the sand from clogging the pipes again) and the sand is utilized to fill an area in need of nourishment. Additionally, DPW should continue to clear sand from outfall pipes in advance of big rain events and storms to prevent backups. The Town should also consider the possibility of adding native plants in areas near outfalls to lessen the amount of mobile sand in the area.

Funding:

- Seaport Economic Council
- Massachusetts Coastal Resilience Grant Program

Implementing Entities:

- Department of Public Works
- Provincetown Office of the Harbormaster

## Water Quality – Water-Based

Boat septage has been a key water quality concern in Provincetown in prior years. Boat waste contains water pollutants such as fecal coliform, alcohol, formaldehyde, zinc, ammonium salts, and chlorine. Boat septage, as well as chemicals used to deodorize and disinfect the sewage, degrades water quality and impacts marine habitats, aesthetics, and Harbor uses. Resource uses most likely to be affected by septage dumping in Provincetown Harbor are shellfishing, aquaculture, and swimming, as well as aesthetics.



All of Massachusetts waters, including Provincetown Harbor, are designated as a No Discharge Zone. There are a variety of pump-out options for boaters in Provincetown Harbor to safely and effectively remove septage from their boats, including:

- A 400-gallon pump-out boat that serves all moored boats in the Harbor. The Town received a Clean Vessel Act (CVA) grant from the State to purchase the boat and to subsidize the costs of operation and maintenance (O & M). Annual O & M funds have been provided by the State and will likely continue at some level as long as CVA funds are available.
- A land-based pump-out station at the public courtesy float is connected to the Town sewer system.
- The new Provincetown Marina has a dockside pump-out, which is also connected to the Town sewer system.



According to the State, the number of boats pumped and the volume of effluent removed in Provincetown are relatively high. The Harbormaster reports that boater compliance with the discharge regulations is good. An education effort that includes (1) informational brochures distributed to boaters, and (2) a sign on a buoy advertising the free pump-out service contribute to this success.

### Issues:

1. While there is a high rate of compliance with the pump-out program, it is important for Provincetown



to continue promoting, monitoring, and enforcing boat discharge regulations, as proper treatment and disposal of boat waste is a key concern for the Town.

2. The Town's sewer system is almost at capacity, limiting the potential for new pump-out facilities that connect to the system.
3. Given its shoreside location, pumpout infrastructure may be vulnerable to climate change impacts, such as an increase in storm intensity and frequency and sea level rise.
4. Oil and gas sheen is often seen around marina docks.

**Goal I: Maintain and improve harbor water quality and keep beaches clean.**

**Objective I:** Continue monitoring, enforcing, and publicizing pump-out regulations.

*Recommendation 1: Continue monitoring water quality closely for different types of pollution.*

The Town should continue to monitor for the differentiation between human and animal fecal matter and coliform bacteria and implement programs to ensure clean harbor water.

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Barnstable County Department of Health and Environment
- The Environmental Protection Agency
- The Department of Environmental Protection
- County Water Lab
- Board of Health

*Recommendation 2: Continue to maintain, publicize, and enforce the current pump-out program.*

The Town should continue to maintain, publicize, and enforce the current pumpout program, and should consider any changes to the infrastructure that will be needed because of climate change.

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Facilities with pump-outs

**Objective II:** Maintain and expand the pump-out system as needed to meet current needs and accommodate additional vessels.

*Recommendation 1: Expand the pump-out system to accommodate the larger commercial vessels operating on tight time schedules.*

This expansion would ideally include pump-out hook-ups for each large commercial vessel berth, e.g., ferries and whale watch vessels.

Funding:

- Clean Vessel Act grant program
- Coastal Pollution Remediation Grants
- Private facility owners

Implementing Entities:

- Provincetown Office of the Harbormaster
- Commercial vessel operations
- Provincetown Pier Corporation

*Recommendation 2: Expand the Town's sewer system to accommodate current un-met needs and additional vessels.*

The Town's sewer system is almost at capacity, and some pump-out facilities are connected to the system. The Town needs to expand the current sewer system in order to accommodate an expansion of pump-out options. For more details, see water quality section.

Funding:

- Massachusetts Waterfront Infrastructure Assessment and Planning Grants

Implementing Entities:

- Department of Public Works

# Public Access

## Climate Change & Public Access

With sea levels expected to rise approximately 5 feet by 2100 because of climate change, the area of dry sand available for public access may diminish, reducing access opportunities and associated amenities such as small boat storage. Additionally, with the predicted enhanced intensity of storms due to rising ocean temperature (approximately 0.1 degrees Celsius each decade), some amenities at the access sites, such as trash and recycling bins, benches, and others, will need to be secured or moved to prevent them from becoming debris. Furthermore, as efforts to address inundation flooding, e.g., dune construction and beach nourishment, are implemented, they may have long or short-term impacts to access sites.



## & Town Landings

The 2012 Harbor Plan describes “public access” as, “The free access from the street to the shoreline for pedestrians and for water-dependent vehicles where appropriate...” Public Access also refers to the visual access of what are called “historic view corridors”. The town landings<sup>2</sup> and other sites along Commercial Street provide important visual and physical public access to and along the waterfront, and protecting these areas is a priority for the Town. The 10-foot tidal range in Provincetown Harbor presents a challenge to access in some locations, but also affords people the

opportunity to experience the exposed seafloor at low tide.

The Town identified eight official town landings in the 2012 Harbor Plan. Together, these landings total less than one acre<sup>3</sup> (see Figure 5):

- Pearl Street (Town Landing #1)
- Freeman Street (Town Landing #2)
- Gosnold Street (Town Landing #3)
- Court Street (Town Landing #4)
- Atlantic Avenue (Town Landing #5)

<sup>2</sup> Within the Commonwealth of Massachusetts, a “landing” is a parcel of land taken by the Town, through town meeting action, and placed under the jurisdiction of the Select Board for purposes of public access to the town’s salt and fresh water resources. Landings can extend to mean low water, and the Town has the authority to establish structures on the landing in keeping with its public nature (M.G.L. Ch. 88).

<sup>3</sup> Provincetown Local Comprehensive Plan. Online at: <http://www.provincetown-ma.gov/documentcenter/view/336>

- Good Templar Place (Town Landing #6)
- Franklin Street (Town Landing #7)
- West Vine Street (Town Landing #8)

In addition to the eight official town landings, the 2012 Harbor Plan identified the following five additional sites as being important for public access to the beach, though they have not been identified as official landings through the town meeting process:

- West End Boat Ramp
- MacMillan Pier
- Provincetown Marina
- Johnson Street
- Washington Avenue
- Kendall Lane

Many of the access sites identified in the 2012 Harbor Plan have amenities to reflect the Town’s priorities for keeping beaches clean and making access known, including signage, dog waste bags, and receptacles for trash and recycling. In addition to the pedestrian access afforded at these sites, many are critical to the overall character and functioning of the harbor. For example, the boat ramp facilitates the launching and hauling of commercial and recreational vessels and is especially important prior to major storms which necessitate the removal of boats from the water. Similarly, MacMillan Pier serves as the water-side gateway to the Town for those travelling by ferry or cruise ship, affords visitors the opportunity to watch the commercial fishing vessel operations, and provides access to whale watch vessels, charter fishing trips, and other excursion activities that are a driver of the local economy.



Figure 5: Public Access Points within the Harbor Planning Area

Table 1: Public Access Amenities

Name	Small boat storage	Signage	Dog waste bags	Benches	Trash/ Recycling
Pearl Street	Y	Y	Y		Y
Freeman Street					Y
Gosnold Street	Y	Y	Y		Y
Court Street	Y		Y		Y
Atlantic Avenue	Y	Y	Y	Y	Y
Good Templar Place		Y			Y
Franklin Street	Y	Y	Y		Y
West Vine Street	Y	Y	Y		Y
West End Boat Ramp	Y	Y	Y	Y	Y
MacMillan Pier	Y	Y	Y		Y
Provincetown Marina	Y	Y	Y	Y	Y
Johnson Street	Y	Y			Y
Washington Avenue	Y	Y	Y		Y
Kendall Lane	Y	Y	Y		Y

In addition to those access sites identified in the 2012 Harbor Plan, public access is a condition of several Chapter 91 licenses for properties along the Harbor, as listed in Table 2. It is important to note that this table was developed based on a review of Chapter 91 licenses maintained in the Harbormaster’s files, and may not be a complete list of all properties with public access conditions on their Chapter 91 license.



In addition to physical access, visual access is also an important feature of the Provincetown waterfront, with sites such as Fishermen’s Memorial Park offering residents and visitors views of the Harbor.

The Town is also working to improve access for those with disabilities by taking measures such as installing mobi-mats on some beaches, installing an 80-foot gangway on the courtesy float, and incorporating accessibility into plans for the dinghy dock and transportation dock.

Table 2: A partial list of properties in the planning area with Chapter 91 Licenses that require some type(s) of public access.

Property Address	License Number	Public Access	Public Open Space	Public Walkway	Signage	Dinghy Storage
45 Commercial Street	n/a	Y	Y	Y		
47C Commercial Street	n/a	Y			Y	
49A Commercial Street	11969	Y	Y	Y	Y	
51 Commercial Street	10347	Y	Y	Y		
63 Commercial Street	12237	Y			Y	
67 Commercial Street	9717	Y	Y	Y	Y	Y
77, 77A, 79 Commercial Street	11420	Y	Y	Y	Y	
97 Commercial Street	n/a	Y	Y	Y	Y	
107 Commercial Street	n/a	Y	Y	Y		
109 Commercial Street	10139	Y		Y	Y	
131A Commercial Street	11390	Y		Y		
161 Commercial Street	11787	Y	Y	Y	Y	
175 Commercial Street	n/a	Y	Y			
9 Ryder Street Extension	14261	Y		Y		
16 MacMillan Pier	5795;2261	Y	Y	Y	Y	Y
329 Commercial street	9716	Y	Y	Y		
333R Commercial Street	12845	Y	Y	Y	Y	
359 Commercial Street	n/a	Y		Y	Y	Y
361 A, B, C Commercial Street	n/a	Y		Y		
371-373 Commercial Street	11421	Y	Y	Y	Y	Y
379, 381-383 Commercial Street	n/a	Y	Y	Y		
403 Commercial Street	n/a	Y	Y	Y	Y	
437-439 Commercial Street	11958	Y	Y	Y	Y	
447 Commercial Street	11826	Y	Y	Y		
451 Commercial Street	9255	Y	Y	Y		
463 Commercial street	13377	Y		Y		
471 Commercial Street	13378	Y		Y	Y	
473 Commercial Street	3/26/2007	Y	Y	Y	Y	
481 Commercial Street	12114	Y		Y		
493, 495, 495A Commercial Street	12666	Y		Y	Y	
523 Commercial Street	12320	Y		Y	Y	
553-555 Commercial Street	10327	Y		Y	Y	
571 Commercial Street	12413	Y		Y	Y	
579 Commercial Street	11911	Y		Y	Y	
595 Commercial Street	12127	Y		Y	Y	
609-611 Commercial Street	12446	Y		Y	Y	
623 Commercial Street	11696	Y		Y	Y	
657 Commercial Street	10050	Y	Y	Y		
661 Commercial Street	10326	Y		Y	Y	

While public access is still limited in places, great progress has been made since earlier versions of the harbor plan. Some of this progress is due to the fact that a Harbor Access Gift Fund has been established in order to collect money for public access projects. The primary source of Harbor Access Gift Fund money is projects that require payment as part of their Chapter 91 licenses. In the review of properties identified in Table 2, the total amount of money secured for the gift fund through licenses was \$815,000. Many of those funds are divided into annual payments paid over the course of several years, ensuring long-term access to funding.

### Issues

1. One of the most unique and charming assets of Provincetown is the view of the harbor that can be continually glimpsed between each building on Commercial Street. Some of these view corridors are being compromised by individual property owners.
2. Physical access to the water is obstructed at several Town landings. For example, overcrowding of vessels placed on beaches impairs public use.
3. Small-boat fishermen require vehicular access to the shore for landing their catches, but some access is restricted.
4. The 10-foot dry sand public beach walk is often diminished due to storm action and sediment transport, limiting access and mobility for pedestrians and vehicular access.
5. Visual and physical access can be obstructed for those with disabilities.



### Goal I: Improve Harbor access.

Objective I: Reclaim, maintain, and protect all town Landings and public access ways.

*Recommendation 1: Continue to seek/develop a dry-sand beach walk along the length of the Harbor.*

Consistent with past versions of the harbor plan, several Chapter 91 licenses require a 10-foot dry sand beach walk, free from obstructions, along the length of a property's beachfront. When such access is not possible, licenses often include some other lateral access provisions such as access above or below a dock. The Town should continue to seek this lateral access, and associated signage, as part of the Chapter 91 license approval process, and should work to enforce maintenance of properties where this condition is already required. A complete map of all Chapter 91 licenses and access ways (building off the partial map in this plan) should provide guidance as to where this access is still needed. Furthermore, any beach nourishment project should include this 10-foot dry sand public beach walk requirement.

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Massachusetts Department of Conservation and Recreation
- Massachusetts Office of Coastal Zone Management
- Harbor Committee

*Recommendation 2: Using the research conducted as part of this project, build and maintain a database of all Chapter 91 licenses access conditions as well as other public access to the Harbor, obtained through other means such as easements.*

Research for the 2018 harbor plan yielded a database of more than 40 properties with Chapter 91 licenses, including data about the public access requirements. This database should be completed with research into additional Chapter 91 licenses that may not have been identified through this planning project. Additionally, there is a need to confirm the historic and other existing Town rights to waterfront access ways, e.g., Cleveland Ave. The database can be used to identify non-compliance with access conditions and to identify new access opportunities. Additionally, the data layers used to map the access sites should be made available on Google Earth or a similar platform to allow public viewing of maps and attribute data for access sites.

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Harbor Committee
- Planning Department
- Information Technology Department (MIS Analyst)
- MA Department of Environmental Protection

*Recommendation 3: Enforce existing public access requirements.*

Conduct a review of all public access requirements, using the database created for this project as well as the updated database once complete, to identify non-compliance and other issues associated with protecting/maintaining the public's foot passage and water dependent vehicle access. As part of this enforcement, ensure that existing amenities such as kayak storage and bicycle racks do not impair access.

Funding:

- The Harbor Access Gift Fund could be used to hire an attorney/researcher, if necessary.

Implementing entities:

- Harbor Committee

*Recommendation 4: Ensure that efforts to minimize inundation flooding maintain public access, where possible.*

The Department of Public Works and the Conservation Commission maintain beach areas to reduce the impacts of flooding, and will continue to do so as the sea level rises and sediments shift. To the extent possible, the efforts to prevent flooding should take into consideration short and long-term public access needs.

Funding:

- No additional funding is needed to implement this recommendation

Implementing entities:

- Department of Public Works
- Conservation Commission
- Harbor Committee

*Recommendation 5: Enforce existing visual access requirements.*

Impacts to visual access should be considered with all new development projects and modifications to existing structures. Efforts should be made to reduce negative impacts to visual access. Take legal steps to perforate the barrier between Commercial Street and the waterfront by reducing visual obstructions.

Funding:

- No additional funding is needed to implement this recommendation

Implementing entities:

- Planning Department
- Harbor Committee
- Provincetown Historical Commission

*Recommendation 6: Improve coordination between departments, boards, and committees with jurisdiction over projects in the planning area to ensure that public access, including visual access and access for those with disabilities, is considered in all project reviews.*

Many Town committees encounter opportunities to consider public access and visual access. For example, the Historical District Committee's approval for all new "landscaping" and fencing should consider sight-line obstructions. (See section on Administration and Regulatory Coordination for more detail.)

Funding:

- Harbor Access Gift Fund
- Town department budgets

Implementing entities:

- Disability Commission
- Accessible Provincetown
- Planning Department
- Harbor Committee
- Conservation Commission
- Public Landscape Committee
- Department of Public Works



**Recommendation 7:** Create a series of pocket parks along the Harbor.

These small parks are an expansion of the public access points. Amenities to be provided as appropriate should include: bicycle racks, cigarette litter receptacles, benches, picnic tables, fishing piers, rest rooms, water bottle filling stations, dog bags, and educational tools and displays.

Funding:

- Harbor Access Gift Fund

Implementing entities:

- Planning Department
- Harbor Committee
- Public Landscape Committee
- Department of Public Works



**Recommendation 8:** The non-paved portion of access from Commercial Street at all Town Landings should get clean sand and gravel where appropriate.

Funding:

- Maintenance should be included in the DPW operating budget

Implementing Entities:

- Department of Public Works

**Recommendation 9:** For all public landings and publicly owned lands, the current signage system should be properly installed and maintained to indicate public access and amenities on both the beach and Commercial Street, while protecting vista views.



Funding:

- Harbor Access Gift Fund

Implementing Entities:

- Department of Public Works
- Harbor Committee

Recommendations for specific sites are as follows:

**Pearl Street** (also known as Town Landing #1)

- Private parking and landscaping by abutters in this area should be regulated so as to not interfere with public access to the waterfront.
- Signage should be provided along Commercial Street.
- Boat racks should be provided, which don't impede the vista view.

**Freeman Street** (also known as Town Landing #2)

- Encroachment onto Public Lands here needs to be investigated. Discrepancies should be resolved in a manner that restores original Town ownership and removes all obstacles to public access. Adjoining properties should be in compliance with Chapter 91.
- The remaining area at Freeman Street not required for water-dependent access should be converted to a park with landscaping, paving, benches, bike racks, and other amenities.
- Dog waste bags should be provided in this location.
- Landscaping and benches should be provided in areas not required for vehicle access or other uses.

**Gosnold Street** (also known as Town Landing #3)

- There appears to be room for many amenities at this location.
- A bicycle rack should be provided in this location.
- Picnic tables and benches should be provided.

**Court Street** (also known as Town Landing #4)

- The Court Street landing should continue to serve as a landing and have paved access for trucks and vehicles requiring access to boats and equipment.
- The remaining area at Court Street not required for water-dependent access should be converted to a park with landscaping, paving, benches, bike racks and other amenities.
- The police should enforce "no parking" at this site.
- Bike racks should be re-evaluated to determine if bike storage can be re-arranged or re-located to minimize impacts to access.

**Atlantic Avenue** (also known as Town Landing #5)

- Special paving that is attractive for pedestrians and supports sub-surface stormwater recharge should be provided for the paved areas of the landing connecting to Commercial Street.
- The legality of a large fence extending out on to the beach should be investigated.

- The legal boundaries of this Public Landing should be restored. Adjoining properties should be in compliance with Chapter 91 conditions.

**Good Templar Place (also known as Town Landing #6)**

- This access way is very uninviting. Paving that is attractive for pedestrians and supports vehicle access should be provided for the paved areas of the landing connecting to Commercial Street. The area for boat launching needs to be graded to correct a dangerous drop-off.
- Ensure that kayaks associated with the adjacent business do not impact access.
- Add a public kayak rack.
- The existence of a marine business adjoining this Town Landing should not prevent the Town from improving and maintaining this public access.

**Franklin Street (also known as Town Landing #7)**

- This area serves anchorages in the harbor, and dinghy storage is required. The Coast Guard seawall appears to impinge on an area that may have served as dinghy storage before the building of the Coast Guard Station. Subject to negotiation and approval by the Coast Guard, a small area of fill should be added to the environs of the landing on land controlled by the Coast Guard seaward of the existing bulkhead to create a larger area above high tide that does not restrict the public landing and a simple post improvement created to facilitate dinghy tie-up.

**West Vine Street (also known as Town Landing #8)**

- This wide landing adjoins the historic Captain Jack’s Wharf, the last “authentic” looking fishing wharf on Provincetown Harbor.
- Appropriate gravel that is attractive for pedestrians and supports vehicle access should be provided for the paved areas of the landing connecting to Commercial Street.
- Heavy rains and storm tides wash out this landing. This problem needs to be addressed.
- The storm drain needs to be maintained properly; most of the time it is buried in the sand. The two filters installed are also buried and need to be restored and cleaned on a regular schedule.

**West End Boat Ramp**

- During times of pending bad weather, numerous boat owners are attempting to remove their vessels at the same time. The boat ramp needs to be enlarged to accommodate two (2) boats at any given time.
- Floats/finger piers should be added to assist arriving and departing boaters.
- Limited expansion of the parking lot seaward including some fill and re-grading of the beach in this area should be studied, and if feasible, implemented to accommodate increased trailer parking.
- The area for parking boat trailers should be metered like the rest of the parking spaces to prevent those limited spaces from being used as long term storage.
- Unregistered and abandoned dinghies should be removed.
- Public restrooms should be installed or provided.
- Sidewalk improvements for the sake of safety should be considered to connect the waterfront to Commercial Street without losing any existing parking spaces.

- A bicycle rack should be provided in this location.
- A banister on one side of the stairs going to the beach is needed here to prevent potential slip & fall accidents.

### **MacMillan Pier**

- Additional amenities for public recreation and education should be added to MacMillan Pier provided that such amenities do not interfere with traditional water-dependent uses or create safety concerns. Any buildings added to MacMillan Pier should be open to the public and any rental income derived from these buildings should be dedicated to the continued maintenance of the buildings and MacMillan Pier. For example, an off-loading building serving the commercial fishing fleet could include offices for maritime businesses or non-profits, a café for the public, ship chandlery or other uses serving a public interest. New development of trap sheds and other uses should not unduly constrain public pedestrian access. New activities operating from the pier should be sited in a way that both ensures the safety of and minimizes impacts to other pier users.
- Add a water bottle filling station.
- Expand the courtesy float

### **Provincetown Marina**

- Continue public access and open space improvements, including the development of a harbor walk with wayfinding.

### **Johnson Street**

- A ramp to the beach is needed.
- Placement of kayak racks (provided through the Harbor Committee) should be maintained.

### **Washington Avenue**

- View corridor and physical access should be improved.
- The extent of public ownership and public rights to the land should be confirmed. There have been many incursions into the Town landing by private development.

### **Kendall Lane**

- This is the only usable Public Landing in the East End.
- This area serves anchorages in the Harbor, and dinghy storage is required.
- The addition of a small area of fill to the environs of the landing is needed to create a larger area above high tide that does not restrict the public landing.
- A search of Town and Registry of Deeds records should be done to establish the extent of public ownership and public rights to this land.

# Aquaculture

With a growing interest in locally-sourced seafood across the state and nationally, Provincetown is working to expand its shellfish aquaculture industry. Provincetown is not new to shellfish farming; however, efforts have been modest since the early 1990s when the outer Cape’s clam operations were hit by “quahog parasite unknown” (QPX), a disease that killed 9 out of 10 clams grown in Provincetown Harbor. Because of this parasite and the lack of a historical industry, there has been limited aquaculture in the Town for the last twenty years.

To help re-grow the aquaculture industry, create year-round jobs, and provide an additional economic stimulus to the Town, Provincetown worked with the Massachusetts Division of Marine Fisheries (DMF) to develop a 25-acre aquaculture development area (ADA) adjacent to a 25-acre ADA in Truro. Establishing the ADA

## Climate Change & Aquaculture

Scientists expect storms to substantially increase in intensity because of climate change, with a doubling of the frequency of Category 4 and 5 hurricanes by 2100. Aquaculture gear and harvest resources may be impacted by increasingly intense storms due to impacts from wave action and the movement of sediment. Additionally, research is underway to understand how changing water temperatures and chemistry might affect facets of aquaculture such as shell growth and disease. For example, scientists have found more *Vibrio* bacterial infections in shellfish because of rising ocean temperatures, affecting the health of the shellfish and shellfish consumers.



Figure 6: Potential Area to Define for Aquaculture Leases.

has streamlined permitting for potential growers, and 11 of those acres are already leased to oyster growers. An additional 17 acres of tidal flats outside of the ADA are also leased for aquaculture (clams and oysters) (Figure 7). Together, 14 aquaculture license holders harvested approximately 72,000 pieces of shellfish in 2016 – a more than 200% increase from the 22,000 pieces harvested in 2015. In addition to the existing ADA and leases, the Town is looking to define an area near the West End breakwater that would be acceptable for potential aquaculture leases. The Conservation Commission would have to approve of this area, which could encompass more than 140 acres, including some existing leased areas, as shown in Figure 6. Overall, the Shellfish Committee will work to manage the growth of aquaculture.

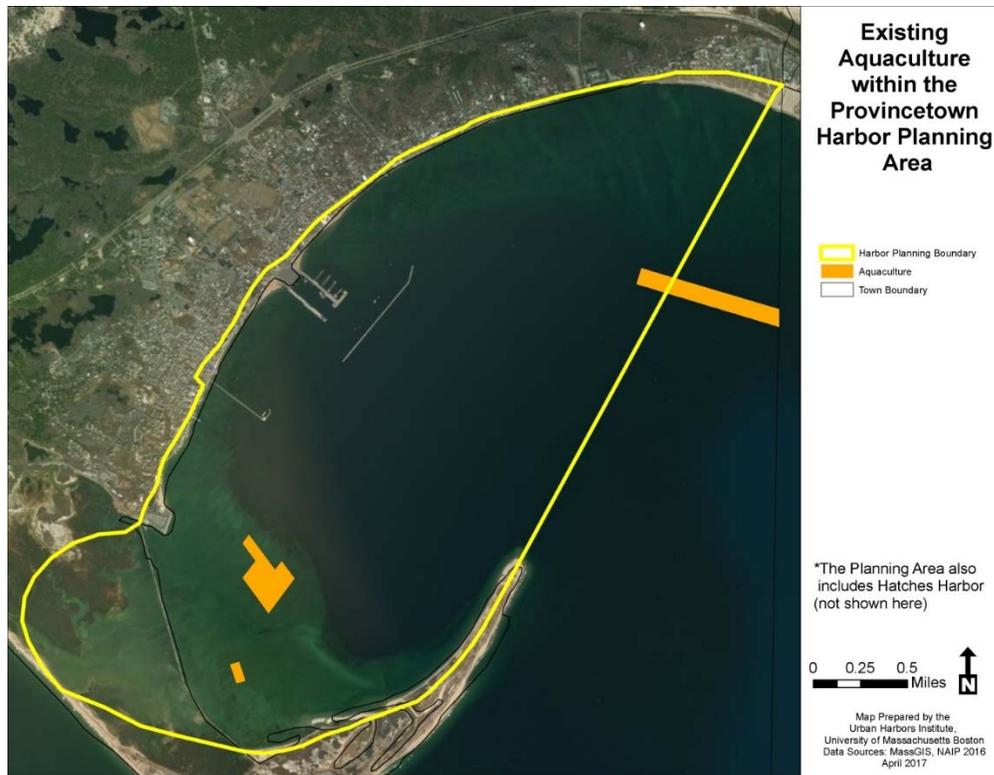


Figure 7: Existing Aquaculture leases as of Fall 2017.

The Town is exploring additional options to support aquaculture efforts as well, including developing shoreside infrastructure for nurseries and vessels, and identifying suitable growing areas in deeper water.

In addition to providing locally-grown seafood, aquaculture has several other benefits including water filtration, sediment stabilization, natural population enhancement, and economic stimulus for the local economy.

### Issues

1. The harbor’s capacity to support aquaculture is not yet understood and the Town is considering how much expansion is possible and desired. Among the factors being considered are impacts to natural resources (*e.g.*, eelgrass), impacts to views, and impacts to other harbor users (*e.g.*, kayakers, swimmers).
2. The cost to file a notice of intent with the Massachusetts Natural Heritage and Endangered Species Program (a required step in developing an aquaculture development area in Provincetown waters) changes depending on the number of acres potentially disturbed. There is an economic incentive to permit an area greater than 20 acres.
3. The process of applying for and obtaining the necessary permits for an aquaculture lease in Provincetown (and Massachusetts as a whole) is lengthy and complex, potentially hindering the development of additional aquaculture sites.

**Goal I:** Aquaculture of types that will not harm the ecology of the Harbor should be one of the priority uses of the Harbor, reflecting both its considerable potential and role in sustaining and revitalizing the commercial fishing industry.

**Objective I:** Explore opportunities to expand aquaculture in Provincetown Harbor

*Recommendation 1: Understand local interest in expanding aquaculture in Provincetown Harbor.*

Aquaculture could potentially expand to an additional 140 +/- acres, if the Town supports this use of Harbor waters. Economic advantages may exist in identifying an area for aquaculture development area greater than 20 acres, rather than leaving it to each individual licensee to obtain approval. While some effort has been made to measure public interest in aquaculture expansion, additional input through a survey of residents and Harbor users could help further clarify the potential impacts, both positive and negative, of expanding the aquaculture in Town waters.

Funding:

- No funding is needed to implement this recommendation

Implementing entities:

- Shellfish Constable
- Shellfish Committee
- Harbor Committee

*Recommendation 2: Determine the harbor's capacity for additional aquaculture activities and identify opportunities to locate aquaculture leases in a manner that avoids conflicts with other Harbor uses and maximizes co-location with compatible uses of the Harbor.*

In addition to public sentiment about aquaculture, efforts should be made to understand the harbor's carrying capacity for more aquaculture activity in terms of impacts to natural resources and other Harbor uses. Maps should be generated to describe existing Harbor uses to understand potential conflicts of siting new aquaculture operations. Additionally, research should be conducted to understand potential natural



resource considerations relative to an expansion of local aquaculture. As part of this, the Town should be sure to include information specific to potential new types of aquaculture in local waters.

Location of aquaculture and gear type are some of the factors that determine whether or not aquaculture operations are compatible with or create potential conflicts with other Harbor uses. To the extent possible, individual aquaculture leases and additional aquaculture development areas should be located in areas that will not conflict with existing Harbor uses. In addition, as aquaculture leases are planned, consider whether or not there are other uses that could also be promoted/co-located in those areas.

Funding:

- Grants including from the Sea Grant program, NOAA, and other sources as opportunities become available.

Implementing entities:

- Shellfish Committee
- Harbor Committee
- MA Division of Marine Fisheries
- U.S. Army Corps of Engineers
- Academic/technical expert(s)

***Recommendation 3:** Develop a manual describing permits and plans needed for those interested in obtaining an aquaculture lease in Provincetown Harbor.*

Aquaculture is a growing industry in Provincetown, requiring knowledge of regulatory requirements related to siting, growing, and selling; technical expertise to successfully grow the shellfish; and business skills to market shellfish and run a profitable operation. A manual covering the regulatory process and explaining some of the technical and business aspects of aquaculture can help potential growers make informed decisions to promote successful, sustainable aquaculture operations in Provincetown waters. While some information might be specific to Provincetown, efforts to collaborate with the Division of Marine Fisheries, the Army Corps of Engineers, and other coastal towns in Massachusetts can help offset costs and ensure that this document is a useful resource. The Environmental Law institute is working with local partners to develop a siting tool and documents to assist with the siting process, and could be used as a resource for developing the manual once their product is complete.

Funding:

- Grant funding through a private foundation or an organization such as Sea Grant

Implementing entities:

- Shellfish Committee
- Harbor Committee
- Other coastal communities
- MA Division of Marine Fisheries

- Army Corps of Engineers
- Academic or non-profit partner

***Recommendation 4:** Encourage studies and programs to grow other types of shellfish such as steamers, mussels, or sea urchins, as well as kelp if ecologically safe.*

While the mainstay of Cape Cod aquaculture is oysters, opportunities exist to branch into different types of aquaculture. Research is necessary to understand what types of aquaculture would be appropriate for Provincetown’s waters, including an understanding of the potential impacts to habitat, water quality, and other Harbor uses. In particular, kelp farming techniques such as bottom-based growing, would have to be developed to avoid potential gear impacts to whales.

Funding:

- Grant funding through a private foundation or an organization such as Sea Grant

Implementing entities:

- Shellfish Committee
- Harbor Committee
- MA Division of Marine Fisheries
- Army Corps of Engineers
- Academic or non-profit partner

**Objective II:** Ensure adequate infrastructure to support aquaculture activities in Provincetown Harbor

***Recommendation 1:** Explore opportunities to increase shoreside infrastructure for aquaculture activities.*

Presently, two modular nursery boxes occupy Bennett Pier, where shellfish can be grown to 25 mm before being released into the Harbor. The Town hopes to add four more nursery boxes and a small structure (or structures) to serve as a gate house, storage shed, and office at the Pier. In addition, aquaculture would be supported by and benefit from improved access to culling areas and sites to offload their product.

Funding:

- Massachusetts Seaport Economic Council

Implementing entities:

- Shellfish Committee
- Harbor Committee
- MA Division of Marine Fisheries
- Army Corps of Engineers

***Recommendation 2:** Continue to cooperate with the Massachusetts Division of Marine Fisheries, Woods Hole Oceanographic Institution, and others to investigate and solve predation and disease problems.*

As part of this, investigate the possibility of a different species of quahog that may not be genetically susceptible to existing environmental pressures.

Funding:

- Barnstable County Cape Cod Cooperative Extension/WHOI Sea Grant

Implementing entities:

- Shellfish Committee
- Harbor Committee
- MA Division of Marine Fisheries
- Woods Hole Oceanographic Institution

## Commercial Fishing

Commercial fishing has been a feature of the Provincetown waterfront dating back to the Town's early days as a whaling center for New England. As with other ports in the northeast, the nature of fishing activity in Provincetown has fluctuated over time as a result of factors such as changing markets and demand and shifts in regulations; yet despite the changes in commercial fishing over the years, the industry continues to remain important to the economy and culture of Provincetown, with a residential commercial fleet of approximately 55 vessels, primarily fishing for sea scallop and lobster and selling to 8-12 dealers/year. Between 8 and 9 million dollars of product crosses the pier in ex-vessel prices. The industry also creates jobs for fishermen and those who support the industry, providing important year-round employment for local full-time residents in contrast to the Cape's highly seasonal economy and transient workforce.

Nearly all commercial fishing activity in Provincetown is based out of MacMillan Pier, which provides as many as 55 slips for a variety of commercial fishing vessels, and also supports important infrastructure including 4 offloading stations with cranes, an ice plant with 8-ton capacity to make flake ice for the fleet, electric and water service. The Town acquired Railroad Wharf in 1928 from N.Y. N.H. & H.R.R. Company for use by the commercial fishers, seafood packers and the Boston boats. The so-called Town Wharf was reconstructed and renamed after Admiral Donald B. MacMillan in 1957. The current wharf was completed in 2004.

Most recently, changes in federal groundfish regulations have reduced the number of commercial boats operating out of Provincetown. In the 1990s and early 2000s, groundfish dominated the local landings in terms of value, as shown in Table 5. As local groundfish have declined, however, landings in other fisheries have increased – especially the intertidal and offshore shellfishing industries.

In addition to impacts in the local fishery stemming from federal regulatory changes, other factors such as climate change and shifting markets are and will continue to affect fishing.

A decision by the Massachusetts Appeals Court<sup>4</sup> recently confirmed that the Provincetown Conservation Commission has the authority to regulate hydraulic dredging for sea clams in local shallow waters under the Wetlands Protection Act, even though the activity is allowed by the Massachusetts Division of

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<sup>4</sup> Aqua King Fishery v. Conservation Commission of Provincetown. June 16, 2017.

Marine Fisheries. The issue of hydraulic dredging for sea clams is not a new issue for Provincetown, but moving forward, anyone looking to perform this type of fishing in the Town's waters will have to go before the Commission for approval.

### Issues

1. Changing regulations make it difficult to plan for commercial fishing activity, but there is a recognized need to ensure that the waterfront can accommodate and support commercial fishing activity as it changes over time. This includes ensuring that dock space and infrastructure is maintained to meet fishing needs.
2. The finfish industry is experiencing substantial stress due to resource supplies and an emerging regulatory structure.
3. There is an interest in locally-sourced seafood and having a local sustainable seafood product could be a boost to the local economy.
4. MacMillan Pier should be used to support the commercial fishing industry, and is in need of maintenance including repairs and upgrades of bulkheads, pilings, floats, water, electric, and ladders.
5. Provincetown lacks a wild commercial shellfishery within the Harbor Plan area.

## Climate Change & Fisheries

Commercial and recreational fisheries greatly depend on shoreside infrastructure (e.g., piers, wharves, ramps, beach landings), which is vulnerable to rising seas and storm damage that could be exacerbated by climate change. With sea levels expected to rise approximately 5 feet by 2100 because of climate change, infrastructure located directly adjacent shore may be damaged and/or need to be relocated.

Climate-related changes in water chemistry, temperature, and currents are impacting fish and shellfish populations and habitats, which in turn can impact the success of local fishermen and the local economy. For example, the Atlantic cod fishery has nearly disappeared, and scientists believe that enhanced ocean warming in the Gulf of Maine has impeded cod spawning and survival. Additionally, studies have found that over 2/3 of Northeast marine species have shifted their habitat because of warming ocean temperatures and changing currents, making it difficult for fishermen to locate the fish. This shift in habitat is impacting the southern New England lobster fleet, which is exploring options, such as aquaculture, in order to diversify.



Table 3: Provincetown Fisheries, Number of Active Dealers by Species Category (Source: SAFIS) <sup>5</sup>

("\*" Denotes where data are unavailable)

Row Labels	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FINFISH	14	18	19	21	20	16	14	15	15	12
GROUND FISH	10	12	18	13	11	10	8	9	8	8
INTERTIDAL SHELLFISH	5	*	*	4	5	6	4	9	8	6
LOBSTER	17	13	11	14	11	13	10	12	14	12
OFFSHORE SHELLFISH	12	11	8	11	12	13	13	12	13	9
OTHER INVERTEBRATES	5	5	9	11	8	10	10	11	10	8

<sup>5</sup> "Finfish" include: Bluefish, Atlantic Bonito, Butterfish, Atlantic Croaker, Smooth Dogfish, Dolphinfish, American eel, Conger eel, summer flounder, silver hake, herring, John Dory, American sand lance, Atlantic mackerel, scup, black seabass, striped sea robins, tautog, golden tilefish, Atlantic torpedo, Bluefin tuna.

"Groundfish" include: Atlantic cod, cusk, spiny dogfish, American flounder, plaice, sand dab flounder, winter flounder, yellowtail flounder, goosefish, haddock, Atlantic hake (white), Atlantic halibut, redfish, Atlantic Pollock, skates, Atlantic wolffish

"Intertidal shellfish" include: Northern quahog, Atlantic razor clam, soft clam, blue mussel, Eastern oyster, bay scallop

"Offshore Shellfish" include: surf clam, sea scallop

"Other invertebrates" include: Atlantic rock crab, green crab, horseshoe crab, Jonah crab, blue crab, sea urchin, conch, long finned squid, short finned squid, channeled whelk, knobbed whelk

Table 4: Provincetown Fisheries, Number of Active Harvesters by Species Category (Source: SAFIS)<sup>6</sup>

("\*"Denotes where data are unavailable)

Row Labels	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FINFISH	142	156	179	141	114	119	70	88	103	119
GROUNDFISH	51	40	36	24	27	16	12	14	17	24
INTERTIDAL SHELLFISH	13	*	*	17	21	15	18	33	26	24
LOBSTER	52	54	58	56	68	60	66	60	59	75
OFFSHORE SHELLFISH	15	15	18	27	33	38	35	35	41	41
OTHER INVERTEBRATES	5	6	10	13	17	14	11	13	18	15

<sup>6</sup> "Finfish" include: Bluefish, Atlantic Bonito, Butterfish, Atlantic Croaker, Smooth Dogfish, Dolphinfish, American eel, Conger eel, summer flounder, silver hake, herring, John Dory, American sand lance, Atlantic mackerel, scup, black seabass, striped sea robins, tautog, golden tilefish, Atlantic torpedo, Bluefin tuna.

"Groundfish" include: Atlantic cod, cusk, spiny dogfish, American flounder, plaice, sand dab flounder, winter flounder, yellowtail flounder, goosefish, haddock, Atlantic hake (white), Atlantic halibut, redfish, Atlantic Pollock, skates, Atlantic wolffish

"Intertidal shellfish" include: Northern quahog, Atlantic razor clam, soft clam, blue mussel, Eastern oyster, bay scallop

"Offshore Shellfish" include: surf clam, sea scallop

"Other invertebrates" include: Atlantic rock crab, green crab, horseshoe crab, Jonah crab, blue crab, sea urchin, conch, long finned squid, short finned squid, channeled whelk, knobbed whelk

Table 5: Provincetown Fisheries Landings (ex-vessel value) 2007-2016 (Source: SAFIS)<sup>7</sup>

(“\*” Denotes where data are unavailable.)

SPECIES CATEGORY	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FINFISH	\$229,282	\$511,646	\$613,933	\$894,355	\$780,108	\$528,432	\$272,443	\$432,839	\$433,733	\$535,678
GROUND FISH	\$914,361	\$633,502	\$524,363	\$952,969	\$650,421	\$237,255	\$54,011	\$11,398	\$121,819	\$16,187
INTERTIDAL SHELLFISH	\$156,518	*	*	\$38,416	\$62,591	\$259,745	\$209,693	\$543,684	\$823,155	\$503,708
LOBSTER	\$1,626,632	\$1,458,262	\$1,748,650	\$2,230,563	\$2,572,590	\$1,888,389	\$2,594,359	\$3,355,229	\$4,244,192	\$3,661,995
OFFSHORE SHELLFISH	\$617,913	\$372,534	\$493,741	\$1,277,827	\$2,486,542	\$3,126,439	\$2,898,161	\$2,905,744	\$2,880,689	\$3,179,326
OTHER INVERTEBRATES	\$2,346	\$2,525	\$15,810	\$12,801	\$36,911	\$40,499	\$11,005	\$30,975	\$41,210	\$41,318

<sup>7</sup> “Finfish” include: Bluefish, Atlantic Bonito, Butterfish, Atlantic Croaker, Smooth Dogfish, Dolphinfish, American eel, Conger eel, summer flounder, silver hake, herring, John Dory, American sand lance, Atlantic mackerel, scup, black seabass, striped sea robins, tautog, golden tilefish, Atlantic torpedo, Bluefin tuna.

“Groundfish” include: Atlantic cod, cusk, spiny dogfish, American flounder, plaice, sand dab flounder, winter flounder, yellowtail flounder, goosefish, haddock, Atlantic hake (white), Atlantic halibut, redfish, Atlantic Pollock, skates, Atlantic wolffish

“Intertidal shellfish” include: Northern quahog, Atlantic razor clam, soft clam, blue mussel, Eastern oyster, bay scallop

“Offshore Shellfish” include: surf clam, sea scallop

“Other invertebrates” include: Atlantic rock crab, green crab, horseshoe crab, Jonah crab, blue crab, sea urchin, conch, long finned squid, short finned squid, channeled whelk, knobbed whelk

Table 6: Provincetown Fisheries Landings (in live pounds) 2007-2016 (Source: SAFIS)<sup>8</sup>

("\*"Denotes where data are unavailable.)

SPECIES CATEGORY	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FINFISH	119,391	587,499	781,738	824,656	827,301	355,527	253,504	353,008	834,823	665,460
GROUND FISH	949,206	664,240	647,219	795,065	667,449	211,547	52,863	14,014	110,221	27,446
INTERTIDAL SHELLFISH	67,485	*	*	56,462	53,959	2,013,597	1,727,706	4,666,138	6,667,837	3,678,822
LOBSTER	306,491	283,713	423,074	519,835	607,038	474,447	663,555	723,821	837,483	728,486
OFFSHORE SHELLFISH	766,679	404,936	505,375	2,064,932	2,944,423	3,102,013	2,907,970	1,707,668	2,254,964	2,489,048
OTHER INVERTEBRATES	3,846	3,355	19,508	12,861	42,555	28,933	6,186	33,761	283,292	38,373

<sup>8</sup> "Finfish" include: Bluefish, Atlantic Bonito, Butterfish, Atlantic Croaker, Smooth Dogfish, Dolphinfish, American eel, Conger eel, summer flounder, silver hake, herring, John Dory, American sand lance, Atlantic mackerel, scup, black seabass, striped sea robins, tautog, golden tilefish, Atlantic torpedo, Bluefin tuna.

"Groundfish" include: Atlantic cod, cusk, spiny dogfish, American flounder, plaice, sand dab flounder, winter flounder, yellowtail flounder, goosefish, haddock, Atlantic hake (white), Atlantic halibut, redfish, Atlantic Pollock, skates, Atlantic wolffish

"Intertidal shellfish" include: Northern quahog, Atlantic razor clam, soft clam, blue mussel, Eastern oyster, bay scallop

"Offshore Shellfish" include: surf clam, sea scallop

"Other invertebrates" include: Atlantic rock crab, green crab, horseshoe crab, Jonah crab, blue crab, sea urchin, conch, long finned squid, short finned squid, channeled whelk, knobbed whelk

**Goal I:** Take measures to support a vibrant commercial fishery.

**Objective I:** Commercial fishing facilities should be maintained and supported when economically feasible.

*Recommendation 1: Explore opportunities to revise the ice system to produce salt water ice.*

There is a recognized need for additional ice for Provincetown fishermen. Salt water ice provides an alternative to fresh water ice that has benefits such as keeping catch fresh longer and lowering the drowning rate for lobsters. As the Town considers revisions to its existing ice system, it should explore the potential for salt water ice.

**Funding:**

- U.S. Economic Development Administration
- Massachusetts Seaport Economic Council

**Implementing Entities:**

- Provincetown Public Pier Corporation

*Recommendation 2: Explore opportunities to develop a facility to haul out vessels and conduct repairs.*

Vessel owners wishing to conduct repairs are limited in their options to haul their vessels. The current system by which vessels are secured to pilings at the base of MacMillan Pier at high tide and worked on once the tide goes out (“careening”) can be damaging to vessels and limits the amount of time one has to safely work on a vessel before the tide comes back. Furthermore, there is only one railway left at Taves Boatyard. Additional haul out opportunities should be explored and pursued.

**Funding:**

- Massachusetts Seaport Economic Council

**Implementing Entities:**

- Provincetown Harbor Committee
- Private businesses
- Provincetown Public Pier Corporation



*Recommendation 3: Identify and eliminate obstructions to vehicle access between Town landings for use by commercial fishermen, and develop a strategy to maintain that access.*

A number of local commercial fishermen rely on public Town landings to bring their catches to shore. At times, vehicular access to and across dry sand is necessary in order to use these sites. Efforts should be made to identify where vehicular access should be provided, and site visits should be conducted to determine any barriers to vehicular access. A strategy should be developed to improve sites where necessary, and maintain those where access is unimpeded.

Funding:

- Land owners

Implementing Entities:

- Provincetown Harbor Committee
- Land owners

*Recommendation 4: Ensure that all license requirements for MacMillan Pier are enforced in order to protect the interests of the commercial fishing industry.*

In the enabling legislation for MacMillan Pier, commercial fishing is listed as one of the public purposes that the pier should accommodate. This accommodation is likely reflected in Chapter 91 licenses issued for the pier. Those Chapter 91 licenses should be reviewed to ensure that all license conditions are met, and efforts should be made to secure any funding to bring operations into compliance.

Funding:

- Provincetown Public Pier Corporation
- Massachusetts Seaport Economic Council
- U.S. Economic Development Administration

Implementing Entities:

- Provincetown Public Pier Corporation

*Recommendation 5: Provide improvements for other commercial boating as part of the MacMillan Pier operation.*

Changes in commercial fishing may provide opportunities and/or necessitate changes in order to support the evolving commercial fishing fleet. For example, efforts should be made to meet the needs of emerging users such as aquaculturists.

Funding:

- Provincetown Public Pier Corporation
- Massachusetts Seaport Economic Council
- U.S. Economic Development Administration

Implementing Entities:

- Provincetown Public Pier Corporation

*Recommendation 6: Maintain the off-loading dock designed and dedicated for use by small-boat fishermen with appropriate facilities including off-loading parking.*

Funding:

- Provincetown Public Pier Corporation for maintenance funding

Implementing Entities:

- Provincetown Public Pier Corporation

**Objective II:** Conduct research to better understand the needs and opportunities for commercial fishing in Provincetown.

*Recommendation 1: Support research to understand the impacts of seals on local fisheries and water quality.*

There is a lack of scientific research to understand the impacts of seals on local fisheries. Studies are needed to address the impacts of seal's predation on local fish populations, impacts to water quality relative to seal waste, and impacts to the health of other marine life stemming from the seals' potential to act as a vector for infections.

Funding:

- Grant funding from sources such as NOAA might be appropriate for research depending on the specific topic.

Implementing Entities:

- Research entities
- Commercial fishermen
- Harbor Committee

*Recommendation 2: Conduct an economic assessment of the value of fishing to the Town—including an assessment of the economic impacts of aquaculture.*

Understanding the value of fisheries can help prioritize infrastructure projects, secure grant funds, and build an appreciation for the industry relative to the Town's economy and culture. An economic assessment should consider both direct and indirect impacts, should examine both commercial (including aquaculture) and recreational fishing, and should explore ways to increase the value to the Town.

Funding:

- Massachusetts Seaport Economic Council
- NOAA grants

Implementing Entities:

- Research entities
- Commercial fishermen

*Recommendation 3: Explore the Town's interest in creating an area dedicated to commercial wild harvest.*

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Shellfish Committee
- Harbor Committee

**Objective III:** Take measures to promote healthy habitats for commercially significant species

(See Water Quality section as it relates to health habitats for marine life)

*Recommendation 1: Discourage the gutting of fish and feeding of seals at MacMillian Pier.*

Activities that encourage the presence of seals, such as feeding them, intentionally or unintentionally, should be discouraged both because of the potential impacts to the seals as well as the potential impacts seals have on other marine life and harbor uses. As part of this, provide disposal locations for fish racks and explore the possibility of giving fish racks to lobster fishermen to use as bait.

Funding:

- Harbor Access Gift Fund

Implementing Entities:

- Provincetown Public Pier Corporation

*Recommendation 2: Ensure that development and activities in and around the Harbor do not negatively impact habitat.*

As new moorings are installed, shore-based facilities are constructed or expanded upon, and other new uses of the harbor arise, be sure that impacts to habitat are considered and mitigated. If appropriate, use surveys and monitoring to gather data on potential impacts.

Funding:

- From project proponents and grants, as appropriate

Implementing Entities:

- Provincetown Harbor Committee
- Provincetown Office of the Harbormaster

- MA Department of Environmental Protection
- MA Division of Marine Fisheries
- U.S. Army Corps of Engineers

# Recreational Fishing

## Climate Change & Recreational Fishing

Infrastructure that supports recreational fishing, such as docks, the boat ramp, and dry sand beaches, is vulnerable to storm damage, which is expected to intensify with the changing climate.

In addition, as waters warm and currents change, fish habitats and migration patterns may also shift, bringing in non-native species and altering the location and time of year for key recreational and commercial species in Provincetown waters. Depending on the nature of the changes, local fishermen may need to diversify their fishing activities, as is being done in the southern New England lobster fishery, which has nearly collapsed due to shifting habitat as lobsters move north to avoid warming waters. (See [Climate.gov](https://www.climate.gov/news-features/climate-and/climate-lobsters) for more on the impacts of climate on lobsters: <https://www.climate.gov/news-features/climate-and/climate-lobsters>.) Furthermore, changing water chemistry might impact shell growth and strength in shellfish harvested recreationally and commercially.

Recreational fishing in Provincetown includes finfishing, lobstering, and shellfishing. At least six charter fishing companies operate from MacMillan Pier, and several more come from other harbors to fish in Provincetown waters and utilize the harbor’s amenities, targeting popular finfish such as striped bass, bluefish, and tuna. In addition to charter operations, many fishermen surfcast or fish from their own vessels. Some popular locations for recreational finfishing include off of Race Point, the drop-off between Wood End to Race Point, Peaked Hill Bar, Long Point, the Cove inside the Harbor, and off of Herring Cove Beach. Those fishing in Provincetown’s marine waters must obtain a recreational saltwater fishing permit if they are 16 years of age or older.

In addition to finfishing, shellfishing is also a popular activity in Provincetown. Residents and non-residents may obtain municipal shellfishing licenses to harvest quahogs, soft-shelled clams, and oysters. During years when bay scallops are abundant, those may also be harvested per limits set by the shellfish constable.

The relatively good water quality in Provincetown Harbor enables harvesting in much of the Harbor (the “approved” areas in Figure 8), though the portion of the Harbor near the downtown area is closed due to water quality concerns, as is the area west of the breakwater. With recent water quality improvements, some of these closed areas might be eligible for reclassification to “conditionally approved status” following 2-3 years of water quality testing conducted by the Massachusetts Division of Marine Fisheries.

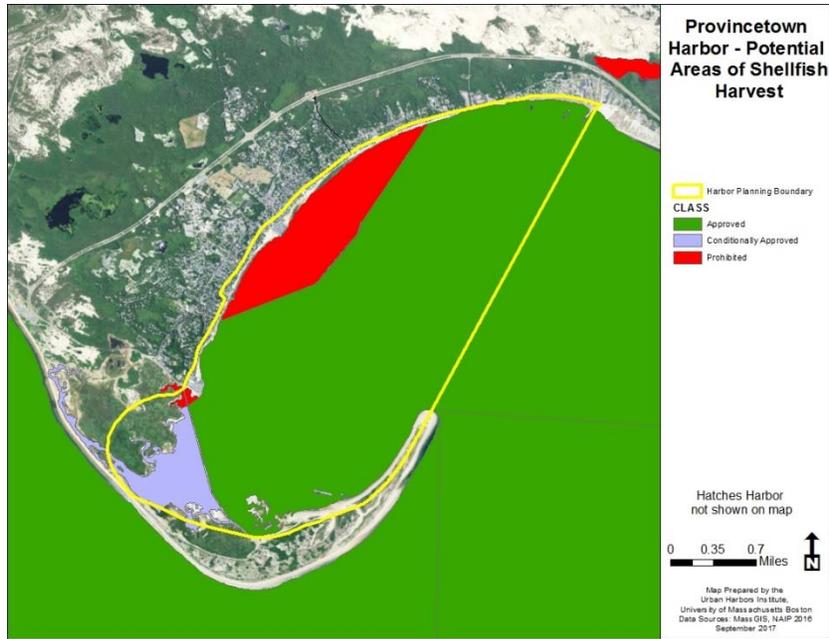


Figure 8: Potential Areas of Shellfish Harvest

Within the approved areas and conditionally approved areas classified by DMF, the Town manages five designated recreational shellfishing areas: Hatches Harbor (Figure 11), West End, East End, East of Breakwater, and West of Breakwater (Figure 10). These areas are opened by the Select Board on a rotating basis, typically from early November through March, in order to allow juveniles time to develop to a legally harvestable size. Recreational shellfishing continues to grow in scope and increase in popularity. For example, as of December/January of 2017/2018, 545 baskets of shellfish had been harvested compared to 460 baskets at the same time during the previous season.



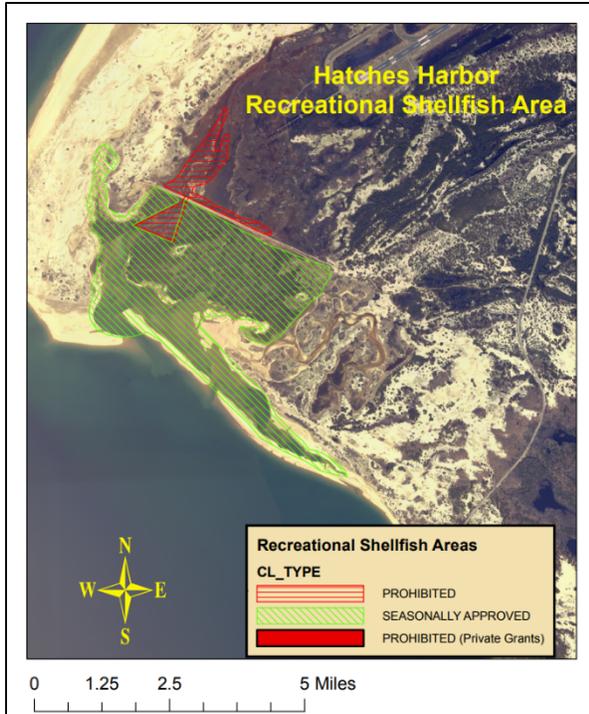


Figure 10: Recreational Shellfishing Areas in Hatches Harbor, as Designated by the Town

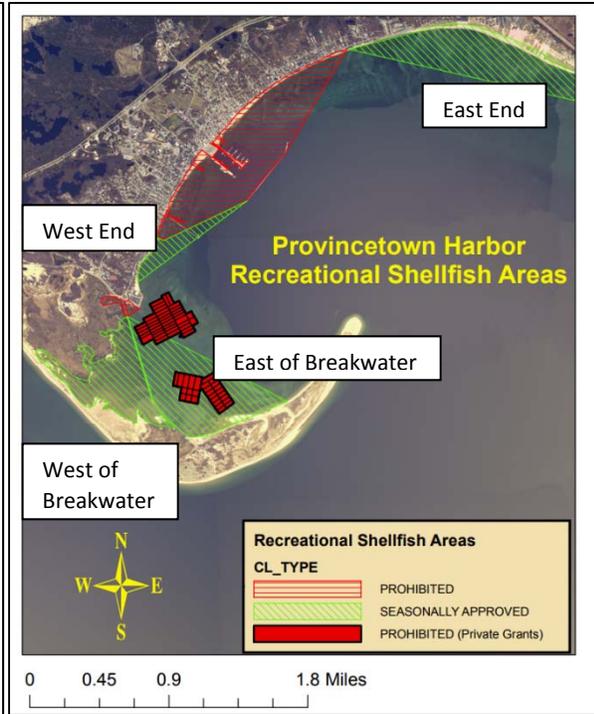


Figure 9: Recreational Shellfishing Areas in Provincetown Harbor, as Designated by the Town

In addition to the naturally occurring shellfish population in the Harbor, the Town supports recreational shellfishing activities through propagation efforts at Bennett Pier that enable the reseedling of areas including around the West End breakwater and Hatches Harbor, and through relays of clams from the Taunton River to Provincetown waters. The Town conducts patrol and enforces regulations while a Shellfish Committee assists with management, enforcement, and research related to the Town’s shellfish resources.

**Issues**

1. Oyster harvesting in open areas is limited due to local population size and location.
2. The West End breakwater can present dangerous conditions for shellfishers.

**Goal I:** Ensure that recreational shellfishing remains a vibrant piece of Provincetown’s economy and culture.

**Objective I:** Increase and improve shellfishing opportunities in the planning area, including in Hatches Harbor.

*Recommendation 1:* Explore the possibility of extending the recreational shellfish season.

The current recreational shellfishing season takes place from November through March, which does not coincide with a great deal of tourism in Provincetown. Extending the season would allow more people to participate in this activity, bringing in more funds (e.g., license fees, purchase of equipment) and creating a greater appreciation of the Town’s natural resources. As the Town considers extending the

season, it will need to assess the potential impacts to the local shellfish populations to ensure that a longer season will not significantly reduce the number of shellfish in the Harbor.

Funding:

- Additional funding for wardens might be covered by an increase in the number of license issued for shellfishing

Implementing Entities:

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee
- MA Division of Marine Fisheries

*Recommendation 2: Promote the safety of shellfish harvesters, and pedestrians, at the West End breakwater through the posting of signage.*

The tides and rocks at the West End breakwater can pose danger to those harvesting shellfish as well as those walking on the breakwater. Signage should warn people that rocks can be slippery when wet, sand near the rocks can be too soft to safely walk on, rocks can be submerged at high tide, and extreme weather can create safety conditions. Signage should also remind clambers to “replant” those clams exposed but not taken, and remind people not to walk on the vegetation.

Funding:

- Harbor Access Gift Fund

Implementing Entities:

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee

*Recommendation 3: Introduce recreational shellfishing to new user groups through classes, events, and other means.*

Funding:

- Funding can be obtained through event and class fees.

Implementing Entities:

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee
- Provincetown Harbor Committee

**Objective II:** Ensure stability of local shellfish populations.

*Recommendation 1: Explore opportunities to build artificial reefs to supplement the local oyster populations and create new opportunities for recreational shellfishing.*

Artificial reefs would provide habitat for new natural sets of oysters and, if strategically located, could help address water quality and erosion concerns. Efforts should be made to identify appropriate locations that would provide the most benefit with the fewest conflicts to other Harbor activities.

Funding:

- Grants for planning and implementation could be sought from organizations including the Massachusetts Bays Program, the Office of Coastal Zone Management, and others.

Implementing Entities

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee
- MA Division of Marine Fisheries

*Recommendation 2: Continue shellfish propagation efforts.*

The Town should strategically continue their propagation efforts to supplement the natural set of shellfish in the Harbor, and continue to introduce alternate native species while maintaining genetic integrity.

Funding:

- Grants and local funds

Implementing Entities:

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee
- MA Division of Marine Fisheries

*Recommendation 3: Identify and mark areas of the Harbor naturally suited for shellfish, and reserve and control use of the areas for boat mooring and anchorage.*

As part of this, continue to investigate the potential utility of the natural oyster spat fall area offshore of the Johnson Street parking lot. Actions should be considered that better mark the perimeter; manage/prohibit incompatible competing uses (*e.g.*, mooring in the area), maximize yield of the area and create a program for grant holders to transplant oyster to habitat suitable for grow-out

Funding:

- No additional funding is necessary to implement this recommendation

Implementing Entities:

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee
- Provincetown Office of the Harbormaster

- MA Division of Marine Fisheries

*Recommendation 4: Sufficient financial resources should be directed at shellfish propagation (seed and equipment) for recreational shellfishing.*

Funding:

- This should become part of the Shellfish Constable’s operating budget

Implementing Entities:

- Provincetown Shellfish Constable

*Recommendation 5: Work with the Division of Marine Fisheries to approve the harvesting and/or moving of oysters from the town’s public beach (during the winter season).*

This will require working closely with DMF to develop a management plan for the harvest of the shellfish.

Funding:

- This should become part of the Shellfish Constable’s operating budget

Implementing Entities:

- Provincetown Shellfish Constable
- MA Division of Marine Fisheries

*Recommendation 6: Refine the yearly order that recreational areas are opened in order to better utilize shellfish resources.*

Funding:

- No additional funding is needed to implement this recommendation.

Implementing Entities:

- Provincetown Shellfish Constable
- Provincetown Shellfish Committee

# Beaches

## Beach Maintenance

The stretch of sand along the Harbor, with its protected swimming, boating and views, offers residents and visitors all the pleasures of the seaside along the entire length of downtown Provincetown. These Town beaches are a tremendous asset to the economy and culture of Provincetown.

The Town strives to enhance public access to and along the beach through access-related signage, access-related conditions on Chapter 91 licenses, and amenities such as bike racks, small boat storage, and dinghy docks. One key component of the Town’s access efforts is to create a dry sand beach walk to Howland Ave. See the Public Access / Town Landings section for background information and

recommendations related to the current status, maintenance, and expansion of public access points, including supporting facilities and amenities.

The Town also takes important measures to reduce and prevent marine debris. In 1994, the Provincetown Marine Debris Task Force thoroughly studied the issue of marine debris in Provincetown

Harbor and issued the report “Strategies to Reduce Marine Debris in Provincetown, Massachusetts”. In 2012, Provincetown implemented a beach raking program. As the same time, the Harbor Committee commissioned a 3-year Coastal Beach Environmental Monitoring study by the Center for Coastal Studies to study designated coastal beach areas for potential or actual impacts from the beach raking program. The final report of the study was issued in 2015<sup>9</sup> and the beach raking program, implemented by the Department of Public Works, continues today.

Much work has been done on the issue of marine plastic pollution, including beach cleanups, awareness campaigns, and beach raking. Although there has been improvement in the prevention and removal of local marine debris, the issue requires continued vigilance and support from the community.

### Issues

1. Access points require continued maintenance in order to ensure that they have appropriate signage and amenities, and remain open to users. (See public access section for related recommendations)
2. The reduction, prevention, and removal of marine debris, with a focus on plastic debris, are ongoing concerns that require continued vigilance and support from the community to be successful.

## Climate Change & Beaches

Climate change will impact Provincetown’s beaches in a variety of ways. Scientists predict that the sea level around Cape Cod will likely rise approximately 5 feet by 2100. Rising seas will flood beaches, causing them to naturally move inland, or become smaller and/or disappear if migration pathways are obstructed (*e.g.*, a structure is located along the waterfront). Research also suggests that, over the last 40 years, there has been an increase in intense hurricane activity, likely related to climate change. Heightened storm activity as a result of climate change will impact the movement of sediment, causing sand to erode more frequently from certain beaches, and possibly accrete at others. This may increase the number of beach nourishment projects needed, or may cause the Town to reconsider whether beach nourishment is a sustainable and economically feasible option in the future.

Sea level rise, erosion, and the resulting beach loss will likely cause wildlife, *e.g.*, shorebirds, to lose their habitats, potentially impacting population numbers and the local presence of these animals.

Increased storm activity and related potential flooding may also result in an increase in post-storm debris from runoff, damaged property, and items washed to shore from beyond Provincetown.

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<sup>9</sup> Center for Coastal Studies. 2015. Coastal Beach Environmental Monitoring Year 3 Final Report.

3. Climate change-related impacts along the shore, such as flooding, accretion, and erosion may alter existing access points and beach areas that serve as popular attractions for residents and visitors and may generate marine debris.

**Goal:** Improve the conditions of the beaches by decreasing the sources of debris, including plastic pollution, and increasing debris removal from the beach.

**Objective:** Promote local efforts by both Town government and concerned citizens to remove, reduce, and prevent marine debris.

*Recommendation 1: Continue the Town’s beach raking program and address discrete beach raking operations as needed in accordance with the Conservation Commission.*

Work with the Conservation Commission to expand the Town’s raking program.

Funding:

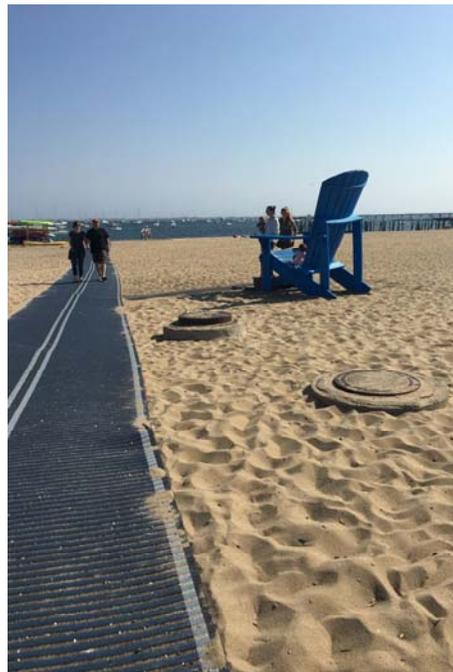
- No new funding required at this time.

Implementing Entities:

- Department of Public Works
- Conservation Commission
- Provincetown Office of the Harbormaster
- Community members and beach users

*Recommendation 2: Continue to support local beach clean-ups, awareness campaigns, and other local initiatives concerning marine debris.*

As part of the awareness campaign, develop and share best management practices to limit debris during potential storm events – for example, encourage coastal homeowners and businesses to secure items such as trash bins, bicycles, lawn furniture, and yard care equipment to prevent them from being washed or blown to sea or deposited on the shore.



Funding:

- No additional funds are necessary to implement this recommendation, however grants through the National Oceanic and Atmospheric Administration and other sources may be available to expand education efforts.

Implementing Entities:

- Community members and beach users
- Harbor Committee
- Center for Coastal Studies

*Recommendation 3: Work with the Department of Public Works and its volunteer town committees to improve municipal solid waste and storage collection systems.*

Encourage the use of closed lids and secure storage areas for town waste and recycle collection barrels as well as for residential curbside containers in order to prevent water-related distribution of trash.

Funding:

- No additional funds are necessary to implement this recommendation.

Implementing Entities:

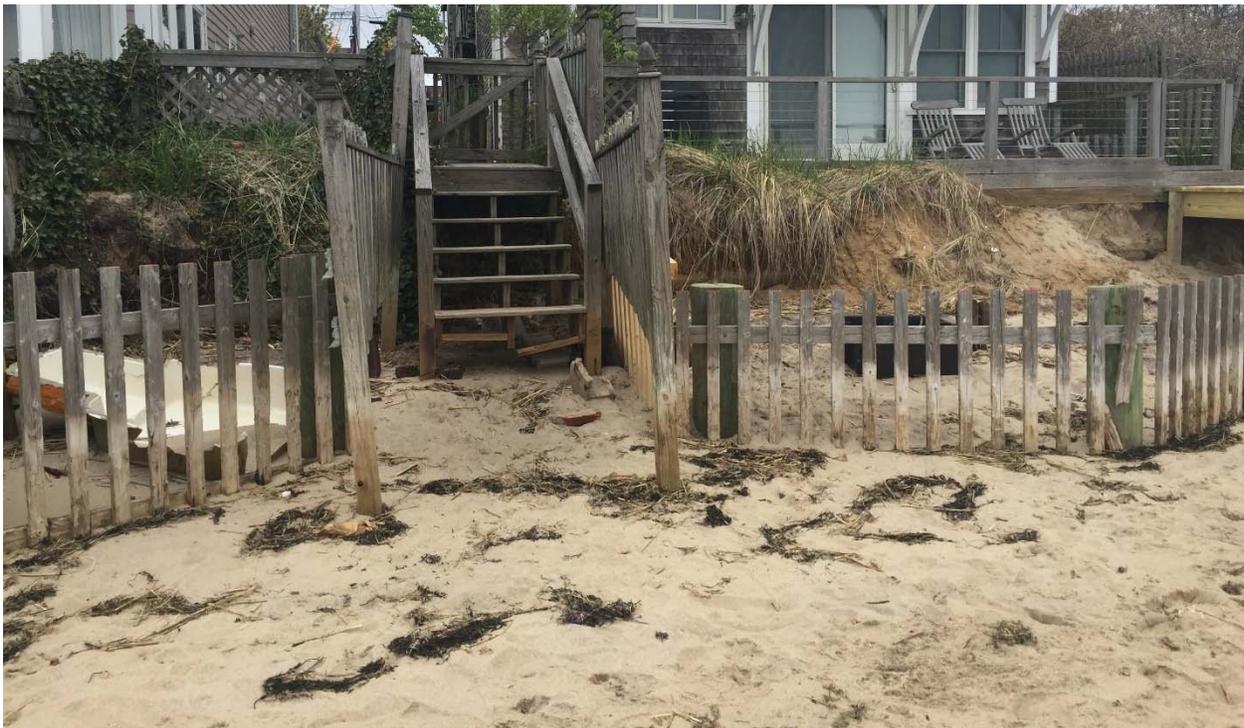
- Community members and beach users
- Harbor Committee
- Center for Coastal Studies
- Department of Public Works
- Board of Health

## Beach Nourishment

Studies show that, while the general shape of the Provincetown Harbor shoreline has not changed significantly over the past 150 years, there are areas that experience considerable accretion and erosion of sand and sediment. These shoreline changes in Provincetown Harbor are the result natural and anthropogenic factors including the direct placement of dredged material on the beach, and the alteration of wave-induced erosion caused by the construction of seawalls along the shore, the installation of wave attenuators in the Harbor, and the construction of the U.S. Army Corps of Engineers breakwater off-shore. Some examples of sediment accumulation sites include Ryder Street and Gosnold Street, while erosion is occurring at Court Street, the West End boat ramp, and other locations.

The DPW currently conducts nourishment in some beach areas, particularly at town landings, for example, at Atlantic Street. A renourishment effort currently permitted at Court Street receives sediment from accreting areas near MacMillan Pier, and Ryder Street Beach is an additional potential nourishment for this project.

Beach nourishment guidelines have been developed by the Massachusetts Department of Environmental Protection and the Provincetown Conservation Commission which include standards for judging suitability and compatibility of source material for various site-specific uses. In addition, with regard to the placement of fill or dredged material along the shoreline, the Army Corps of Engineers and the Commonwealth of Massachusetts hold that the placement of material in areas where there are public rights, *i.e.*, areas below the existing or historic high tide line, in no way restricts or extinguishes those public rights. Licenses issued by the MDEP to conduct nourishment activity contain a provision that specifically conditions approval on that basis. The Army Corps of Engineers expects similar assurances. One local example of this is the 2002 dredging project for MacMillan Pier. For that project, waivers were obtained from affected property owners in the area of Snail Road, acknowledging that any extension of beach would be public and open to all on an equal basis.



Beach nourishment has been the focus of three recent studies, described below:

1. *Final Report: Provincetown Coastal Resiliency Assessment and Strategic Beach Stabilization Pilot Project (June 2015)*: The Massachusetts CZM Coastal Community Resilience Grant Program funded a study on coastal resiliency and beach stabilization, with the final report<sup>10</sup> issued in June 2015. The study measured sediment transport and determined an overall sediment budget for Provincetown Harbor. The study also included a public process to determine a priority for beach nourishment projects. The priority areas identified in the public process were sub-littoral cells in the west end centered on Court Street and the boat ramp. Although the east end is recognized as needing nourishment, there are numerous storm water drains passing under private property

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<sup>10</sup> Brandt, A. 2015. Provincetown Coastal Resiliency Assessment and Strategic Beach Stabilization Pilot Project. Provincetown, MA: Town of Provincetown.

and through bulkheads in the area which need to be addressed by DPW prior to beach nourishment activity. While the June 2015 report outlines a priority list of beaches for renourishment, after the initial priority areas are addressed, another public outreach process may be needed to reexamine the priority areas to reflect changes over the past several years.

2. *Increasing Coastal Resiliency and Reducing Infrastructure Vulnerability by Mapping Inundation Pathways (June 2016)*: In addition to improving the quality and use of local beaches, beach nourishment is also important to protect the Town from flooding and sea level rise. An additional grant through the Massachusetts CZM Coastal Community Resilience Grant Program funded a study to help identify and prepare mitigation actions for critical facilities and infrastructure in Provincetown, with the final report<sup>11</sup> issued in June 2016. The report discusses the importance of beach nourishment as an adaptive strategy to enhance natural storm damage protection and coastal resilience. An important part of this study was the process developed and conducted by the Center for Coastal Studies to identify inundation pathways. The full report is included as an appendix in the June 2016 report.
3. *Provincetown Hazard Mitigation Plan (2016)*: As stated in the 2016 Provincetown Hazard Mitigation Plan<sup>12</sup>, the purpose of the Plan is to reduce damages resulting from natural hazards by implementing sustained actions to reduce or eliminate long-term risk to human life and property from hazards. The Provincetown Hazard Mitigation Plan is also about building a successful, long-term outreach strategy to educate residents about natural hazards that could affect the Town, to prepare them in case a storm impacts the Town, and to create a resilient Provincetown that can recover after a storm event occurs. This plan serves as an update to the 2011 Provincetown Hazard Mitigation Plan. The 2016 Plan reports on the status of mitigation measures recommended in 2011 and also provides new recommendations. With regard to beach nourishment, the plan recommends the following:
  - Mitigation Action #32: Pursue beach nourishment opportunities near Snail Road.
  - Mitigation Action #33: Monitor beach conditions and evaluate all vulnerable shoreline areas for possible future nourishment and beach stabilization projects (continued from 2011).

The Hazard Mitigation Plan has been approved by FEMA and the Select Board, which positions the Town to become eligible for funding from FEMA’s Hazard Mitigation Assistance (HMA) program, which, according to the Plan, includes the following programs: “Hazard Mitigation Grant Program (HMGP): assists in implementing long-term, “forward thinking” hazard mitigation measures following a major disaster; Pre-Disaster Mitigation (PDM): provides funds for hazard mitigation planning and projects on an annual basis; Flood Mitigation Assistance (FMA): provides funds for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP) on an annual basis.”

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<sup>11</sup> Town of Provincetown, Center for Coastal Studies, and Woodard & Curran. 2016. *Increasing Coastal Resiliency and Reducing Infrastructure Vulnerability by Mapping Inundation Pathways*.

<sup>12</sup> Town of Provincetown. 2016. *Provincetown 2016 Hazard Mitigation Plan*.



### Issues

1. Beach migration and sedimentation within the Harbor is an ongoing problem. Locations in need of nourishment include Court Street, the West End Boat Ramp, and others. Accumulation areas include Ryder Street and Gosnold Street.
2. Beach nourishment does not receive consistent municipal funding, which makes it more difficult to apply for grants which require a funding match.
3. Beach stability and erosion patterns are a concern because of: (a) the threat from coastal storm erosion to structures and property, (b) the effect from coastal storm erosion on public access, and (3) the siting of potential future dredge material disposal for beach nourishment and flooding prevention.

### **Goal I:** Ensure that necessary beach nourishment projects are completed.

**Objective I:** Create and implement a comprehensive beach nourishment plan for existing priority projects and long-term projects that is science-based and informed by public input. This planning process should be informed by and consistent with the beach nourishment projects identified in the 2016 Hazard Mitigation Plan and the 2015 Final Report of the Provincetown Coastal Resiliency Assessment and Strategic Beach Stabilization Pilot Project.

*Recommendation 1:* Develop a schedule for existing priority nourishment projects and identify non-priority projects and timelines for those as well.

As part of this effort, consider the timing of dredging projects as potential sources of sediment. Furthermore, the Harbor Committee should re-examine the schedule of projects as conditions in the Harbor change *e.g.*, due to storm events or new construction.

#### Funding:

- No additional funds are necessary to implement this recommendation.

#### Implementing Entities:

- Provincetown Office of the Harbormaster
- Harbor Committee

- Conservation Commission
- Department of Public Works

*Recommendation 2: Conduct public meetings to solicit input to determine which areas should receive nourishment after the previously identified priority projects are complete.*

Funding:

- No additional funds are necessary to implement this recommendation.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Harbor Committee
- Conservation Commission
- Department of Public Works
- Cape Cod Commission

*Recommendation 3: Based on science-based research and public input, develop a plan for long-term beach nourishment, taking into account any cyclical nourishment needs and dredging projects, as well as anticipated impacts from sea level rise.*

Funding:

- Funding for future research may be obtained through grants such as those offered by the Office of Coastal Zone Management and FEMA.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Harbor Committee
- Conservation Commission
- Department of Public Works

*Recommendation 4: Continue to monitor beach conditions and evaluate all vulnerable shoreline areas for possible future nourishment and beach stabilization projects.*

This is Mitigation Action #33 in the 2016 Hazard Mitigation Plan and is also referenced in the Final Report of the Provincetown Coastal Resiliency Assessment and Strategic Beach Stabilization Pilot Project.

Funding:

- FEMA Hazard Mitigation Assistance Grant Program
- MA CZM Coastal Resiliency Grant Program

Implementing Entities:

- Provincetown Office of the Harbormaster
- Department of Public Works
- Conservation Commission

**Goal II:** Ensure that all beach nourishment projects are adequately funded.

**Objective I:** Explore opportunities to secure consistent funding sources, including at the municipal level

*Recommendation 1: Take steps to ensure that funding for beach nourishment is a standard budget item.*

Beach nourishment should be a standard part of the Town’s regular capital improvement plans and budget, similar to street and sidewalk maintenance. With consistent financial support, there would be funding available to begin permitting activities or to serve as readily available matching funds for grant opportunities.

Funding:

- Provincetown Annual Budget

Implementing Entities:

- Provincetown Office of the Harbormaster
- Department of Public Works
- Select Board
- Conservation Commission

**Goal III:** Where applicable, conduct beach nourishment activities in consultation with regional partners.

**Objective I:** Explore opportunities and identify organizations and neighboring municipalities as potential partners on beach nourishment-related projects.

*Recommendation 1: Work with regional partners to address research needs, planning, permitting, and funding for future beach nourishment projects.*

Funding:

- Office of Coastal Zone Management grants; FEMA grants

Implementing Entities:



- Provincetown Office of the Harbormaster
- Harbor Committee
- Regional partners (*e.g.*, Center for Coastal Studies, neighboring towns)
- MA Division of Marine Fisheries

## Navigation & Dredging

Provincetown Harbor is a natural harbor subject to shifting bottom conditions in certain areas that are necessary for navigation. The maintenance of the Federal Channel is a responsibility that is managed by the U.S. Army Corps of Engineers. In areas outside the Federal Channel, some dredging and beach improvement has been completed; however, additional work is needed to keep boating channels navigable and safe.

The Barnstable County Dredge is available to Provincetown Harbor at a reasonable rate, and will be employed in October 2018 to prepare for the replacement of the floating docks and installation of a floating wave attenuator at

### Climate Change, Navigation, & Dredging

The predicted increase in storm intensity and frequency due to climate change could affect sediment movement in the Harbor, impacting navigational routes and dredging needs.

Shore-side infrastructure also could become damaged or require relocating because of sea level rise, flooding, and/or enhanced storm activity.

Dredging can also provide sediment for beach nourishment projects, and should be considered as the Town works to address flooding from sea level rise and climate change.



MacMillan Pier. The sediment will be pumped from the dredge site east of the Pier to the area of Court Street Landing.

Past dredging in Provincetown Harbor and current dredging needs can be found in Table 7 and Figure 11 below:

*Table 7: Provincetown Harbor Dredging History and Needs*

Map ID	Dredge Location	Has Area Been Dredged?	Last Dredging	Design Depth (feet)	Current Depth (feet)	Need for dredging	Volume (cubic yards)	Estimated cost of dredging (\$)
A	Dredged Area Between Pier	Y	2013	10	5	Yes, there is an immediate need	3,800	38,000
B	Dock East of MacMillan Pier	Y	2002	6	4	Yes, there is an immediate need	15,500	139,500
C	Harbor Entrance	Y	1996	--	12	N	N/A	N/A
D	Beach Nourishment	--	--	--	--	Yes, there is an immediate need	12,000	132,000

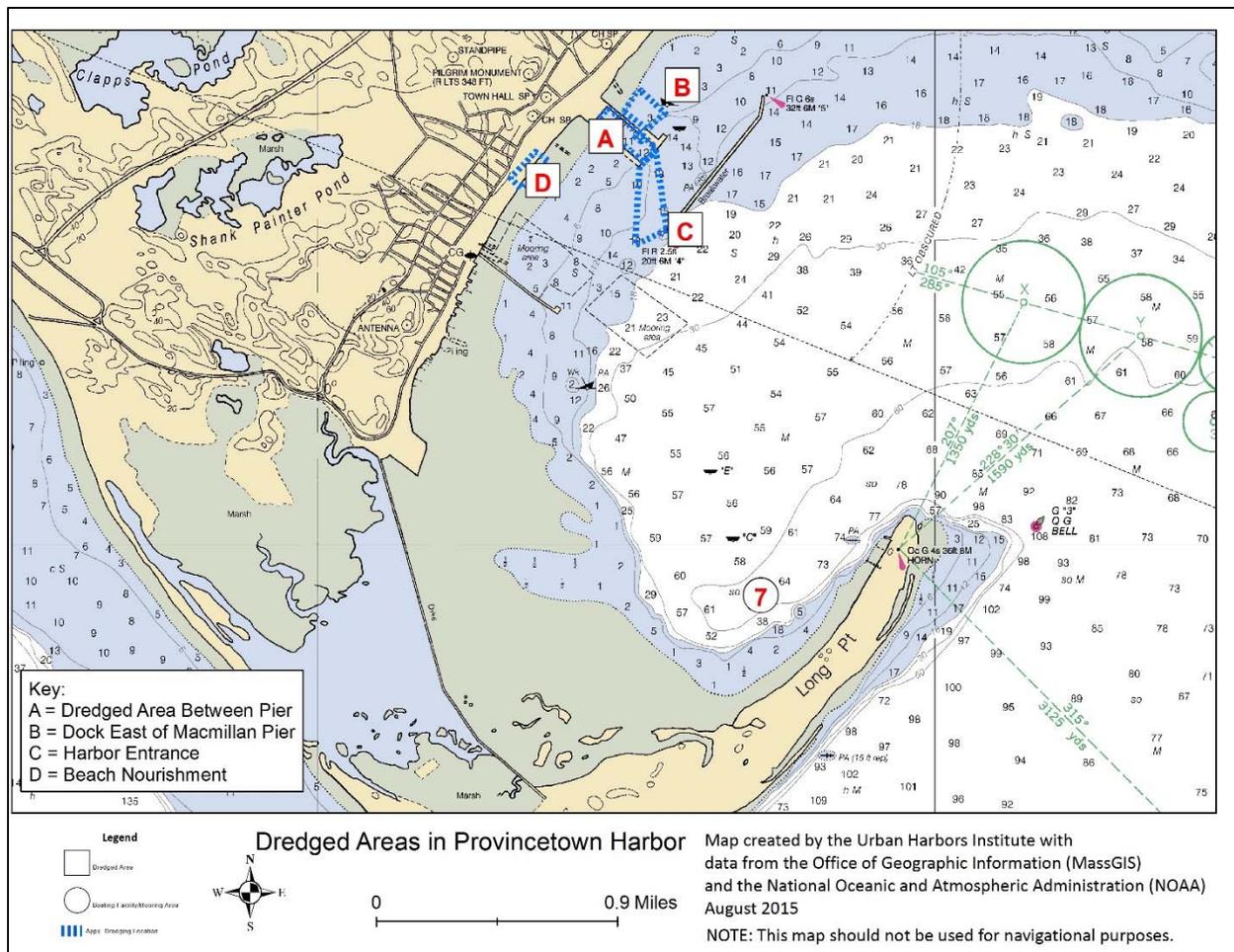


Figure 11: Locations of Dredging Projects

### Issues

1. Sediment buildup creates shallow areas in certain parts of the Harbor, which can impede navigation, create safety hazards, reduce available space for berthing (e.g., moorings and slips), and damage boats. Several areas in Provincetown Harbor are in need of dredging, including but not limited to the Fairway (A on Figure 10), East of MacMillan Pier (B on Figure 10)
2. There is a lack of funding to maintain navigable waters in above referenced parts of the Harbor, and dredge projects can be very costly.
3. Moorings, wrecks, and other hazards can cause navigation and safety concerns.
4. The increase in storm intensity and frequency associated with climate change may impact the movement of sediment, alter navigation routes, and damage infrastructure.
5. Time of year restrictions and the lengthy and costly permitting process pose challenges for completing dredging projects.



**Goal I:** Maintain waterways in Provincetown Harbor in a safe and navigable state for all users.

**Objective I:** Promote safe navigation in Provincetown Harbor.

*Recommendation 1:* Establish a regular dredge maintenance program (including long-term and short-term priorities) for areas outside of the Federal Channel in Provincetown Harbor.

This program will identify long-term and short-term dredge priorities and research projects, and consider local beach maintenance opportunities as part of dredging projects.

Funding:

- No additional funds needed at this time (to develop the program; funds will be needed to dredge).

Implementing Entities:

- Provincetown Office of the Harbormaster
- Provincetown Harbor Committee
- U.S. Army Corps of Engineers

- U.S. Coast Guard
- Provincetown DPW
- Conservation Commission
- Massachusetts Office of Coastal Zone Management

*Recommendation 2: Seek funding to support the dredging and beach nourishment programs.*

This includes seeking outside funding, and creating a dedicated local fund as a match. The Town voted on and secured funding for beach nourishment at the 2018 Town Meeting. This funding can be used as a match for pre-disaster mitigation grants that can fund efforts to prevent disasters.

Funding:

- Massachusetts Department of Conservation and Recreation
- Department of Public Works
- Town of Provincetown

Implementing Entities:

- Provincetown Office of the Harbormaster
- Provincetown Harbor Committee

*Recommendation 3: Conduct studies to determine bathymetric changes in the Harbor (i.e., changes in under water topography) and their causes.*

Important changes to identify and monitor are those associated with safety. Identifying causes of bathymetric changes, *e.g.*, wave attenuators, sea level rise, and storm events, should be included where possible. This information should be used during reviews of proposed new marine structures to understand potential impact on circulation and sedimentation patterns.

Funding:

- Massachusetts Seaport Economic Council
- MA Office of Coastal Zone Management grants
- Federal funding sources, as available

Implementing Entities:

- Center for Coastal Studies
- U.S. Geological Survey
- Provincetown Office of the Harbormaster
- Department of Public Works
- Conservation Commission

- Planning Board
- Provincetown Harbor Committee

*Recommendation 4: Provide advice to the Select Board on a regular basis on what areas in the Harbor need to be dredged.*

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Provincetown Harbor Committee

*Recommendation 5: Remove all hazards (e.g., wrecks, moorings, groins) from navigable waterways that could create safety concerns.*

It is the responsibility of the Harbormaster to move or remove any bottom-held boat moorings that encroach into or cause encroachment by a vessel into the harbor's navigation fairways and channels, and to monitor placement of these moorings. In addition, wrecks and other hazards should be marked and removed if necessary to ensure the safety of harbor users.

Funding:

- Municipal Waterways Funds
- Massachusetts Seaport Economic Council

Implementing Entities:

- Provincetown Office of the Harbormaster
- U.S. Coast Guard
- Massachusetts Environmental Police

*Recommendation 6: Inventory all groins along the shoreline to identify those that pose navigational hazards but cannot be removed. Mark those that require marking, taking into consideration those which may become submerged with rising sea levels.*

Groins become navigational hazards when they become submerged at high tide. Proper marking can prevent accidents.

Funding:

- Municipal Waterways Fund
- Property owners responsible for the groins

Implementing Entities:

- Provincetown Office of the Harbormaster
- Property owners
- U.S. Coast Guard
- Massachusetts Environmental Police

# Recreational Boating

Provincetown Harbor and the surrounding waters are popular for both local and transient recreational boaters. The Town is home to three facilities that offer recreational berthing in the form of slips and/or moorings—Provincetown Marina, Flyer’s Moorings, and Long Point Marina. Together, these facilities provide approximately 220 commercial rental moorings and more than 130 slips, the majority of which are used by recreational boaters. In addition to the berthing provided by private facilities, the Harbor also supports 400 additional private moorings. The Town has one single-lane ramp, the West End Boat Ramp, for use by the recreational boating community. Personal watercraft (PWCs) are also now able to launch at the boat ramp and dock at the marinas.

Throughout Town, several companies rent boats, including kayaks and paddle boards, or provide boating lessons and instructions. The West End Racing Children’s Community Sailing program provides summer sailing lessons for children in levels ranging from beginner to advanced, with an annual enrollment of 140-160. Provincetown Yacht Club hosts a Saturday racing series for members and guests. Flyers offers personalized lessons on Rhodes 19s or a student’s own sailboat.

The Town encourages recreational boating activity and provides public safety support for private or community-organized events such as the Schooner Regatta, the Rowing Regatta, and sailing races hosted by the Provincetown Yacht Club.

## Climate Change & Recreational Boating

As noted previously, climate change will likely impact shoreline infrastructure, which will in turn impact recreational boating. Piers, wharves, and ramps will likely experience damage as a result of enhanced storm activity (e.g., anticipated doubling of the frequency of Category 4 and 5 hurricanes by 2100), and/or they will need to be relocated because of flooding and sea level rise. Additionally, an increase in storm intensity could affect currents and sediment movement in the harbor, thereby impacting navigational routes.



The figure below shows spatial data on marine recreational boater activity on registered and documented vessels in and around Provincetown Harbor. (Approximately 23% of the routes drawn below were from transient boaters.)

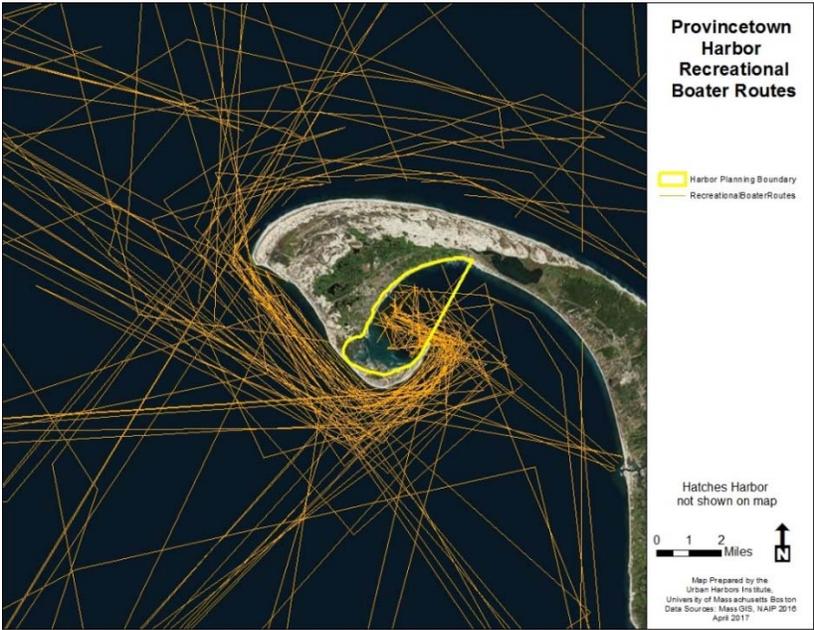


Figure 12: Data from the Northeast Recreational Boater Survey shows routes taken by a sample of transient and non-transient boaters in 2012

**Issues**

1. Boat ramp access is difficult for boaters, especially at low tide. Parking can also be a challenge.

2. The Harbor experiences boating congestion, especially during the busy summer months when recreational users are sharing space with ferries, whale watches, and other users.
3. Swimmers, kayakers, and paddleboarders near the breakwater on the Harbor-side share the area with boats, creating a safety hazard.
4. There is not enough storage for small boats, such as dinghies, stand-up paddle boards, and kayaks, especially in congested locations such as near Captain Jack's.
5. There is a lack of communication and enforcement on wake restrictions, especially near mooring areas.
6. Some kayaks are stored in free locations (*e.g.*, the beach) when they should be registered and stored in racks or areas provided for this purpose.
7. Shoreside infrastructure for recreational boating, including piers, wharves, and ramps, is vulnerable to anticipated climate change impacts including enhanced storm frequency and intensity and sea level rise.

**Goal I:** Ensure that Harbor conditions, activities, facilities, and services support recreational boating, including motorboats, sailing vessels, kayaks, and other rowboats.

**Objective I:** Encourage facilities and services to meet the needs of recreational boaters including dinghy moorings, launch services, and dockside amenities.

*Recommendation 1: Ensure Provincetown Harbor has adequate public landing facilities and services.*

Utilize the facility inventory conducted by UHI to determine if public landings have adequate facilities and services. If additional services are needed, seek appropriate funding (*e.g.*, determine if there a need for saltwater ice, restrooms, and seasonal outdoor shower).

Funding:

- U.S. Fish and Wildlife Service's Boating Infrastructure Grant (BIG)

Implementing Entities:

- Provincetown Office of the Harbormaster
- Harbor Committee

*Recommendation 2: Ensure Provincetown Harbor has adequate in-season storage facilities for boats, dinghies, and kayaks.*

Identify locations to expand dock and dinghy space for transient boaters, including spaces that can be used for several hours at a time. The Town also should expand the existing dinghy and kayak rack storage program to meet current demand for shoreside storage, and efforts should be made to enforce storage as well as payment compliance.

Funding:

- U.S. Fish and Wildlife Service’s Boating Infrastructure Grant (BIG)

Implementing Entities:

- Provincetown Office of the Harbormaster
- Harbor Committee

*Recommendation 3: Ensure Provincetown Harbor has adequate winter storage facilities for boats, including dinghies and kayaks.*

Assess winter storage needs through site visits and interviews with or surveys of those with boats registered in Provincetown to identify specific needs (e.g., capacity, trailer storage, amenities such as lighting and security cameras) and potential new storage sites. Develop new storage opportunities as appropriate.

Funding:

- No additional funds needed for the assessment. Development of new opportunities may be funded through private and town funds.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Provincetown Harbor Committee

*Recommendation 4: Explore the opportunities for new or expanded recreational boating and sailing programs and facilities in the Harbor.*

Cooperate with other town boards, committees, departments, nonprofit and/or for-profit organizations with the resources to conduct feasibility studies to



establish demand, determine site and facility requirements, and identify suitable locations for a variety of types of boating programs, taking into consideration important factors such as congestion, conflicting uses, and safety requirements. One idea, expressed during the public planning process, was for a one-design sailing program—where all boats are very similar models or are identical, removing any equipment-based advantages—that would meet the needs of sailors of all ages, with and without disabilities, who are interested in both casual sailing as well as racing.

Funding:

- Private and/or grant funds
- Massachusetts Seaport Economic Council

Implementing Entities:

- Stakeholder groups

*Recommendation 5: Ensure the Harbor has adequate boat ramp and float services.*

Explore opportunities to make improvements to the Town’s boat ramp, including widening the ramp and adding parking, especially for trailers. The Town should also add floats and a gangway at the West End Boat Ramp, while ensuring that new floats don’t result in long-term storage of boats; this would need enforcement. Consider assigning tide-dependent auxiliary staff to improve safety.

The Town should also explore opportunities for a new boat ramp (possibly at the rotary), while playing specific attention to potential constraints such as parking, narrow roads, and overhead obstructions.

Funding:

- U.S. Fish and Wildlife Service’s Boating Infrastructure Grant (BIG))
- Massachusetts Seaport Economic Council
- Town funds

Implementing Entities:

- Provincetown Office of the Harbormaster

*Recommendation 6: Ensure shoreside infrastructure that supports recreational boating (e.g., piers, wharves, floats) is prepared to withstand the impacts of climate change, or is relocated.*

Conduct an inventory of at-risk infrastructure and develop plans, such as the All Hazards plan that addresses critical infrastructure such as utilities and assets, to address vulnerabilities. Ensure that new infrastructure is appropriate given anticipated climate change impacts such as sea level rise, and increased storm surge.

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Consultants to conduct the inventory and identify strategies to minimize vulnerabilities

**Goal II:** Continue to ensure that Provincetown Harbor is safe for boating activity and other water-dependent uses.

*Recommendation 1: Improve the harbor’s no-wake signage and enforcement*

Consider adding signage at/on the boat ramp and in deeper water along the West End shore to the breakwater at the main channel to further educate boaters about no-wake areas. This signage should serve to educate boaters both entering and leaving Provincetown.

Funding:

- No additional funds needed at this time, though perhaps an artist’s stipend could be supported from the Harbor Access Gift Fund.

Implementing Entities:

- Provincetown Office of the Harbormaster

*Recommendation 2: Provide brief safety/education training to those who rent boats, paddleboards, kayaks, and other boats.*

Important topics for these safety trainings include locations of no-wake zones, potential hazards, and safety concerns such as the importance of quickly moving out of the channel if on a paddleboard or kayak. Clearly mark no-wake zones and the channel on maps provided to renters.

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Owners of boat/kayak businesses in Provincetown

*Recommendation 3: Mark wrecks and other hazards to ensure safe boating and diving; remove hazards as necessary while ensuring certain artifacts are not removed from the Harbor.*

For example, use the Harbor Access Gift Fund to purchase “headstones” for the ends of existing beach groins.

Funding:

- NOAA Marine Debris Program
- Harbor Access Gift Fund

Implementing Entities:

- MA Board of Underwater Archaeological Resources

- US Coast Guard
- Provincetown Office of the Harbormaster

*Recommendation 4: Review the Harbor Regulations yearly and update if necessary.*

One regulation to be explored as part of this is a requirement for proof of insurance for all boaters using a mooring.

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster

## Moorings & Anchorages

Moorings in Provincetown provide berthing opportunities for recreational and commercial boating activities that contribute to the Town's culture and economy. Provincetown has approximately 220 moorings for rent in the Harbor (Table 8) and 400 additional private moorings. Moorings in Provincetown Harbor are currently available at Flyer's and Provincetown Marina. These boating facilities offer both seasonal and transient moorings. There are also approximately five town-managed moorings which are used as a back-up if berthing issues arise.



### Climate Change, Moorings, & Anchorages

The expected increase in storm intensity and frequency as a result of climate change could cause a change in existing moorings and anchorage locations. Certain areas in the Harbor may become deeper because of sea level rise and shifting sediment, resulting in more potential space for moorings and anchorages. On the other hand, shifting sediment or beach nourishment projects may cause current moorings and anchorage locations to become shallower, resulting in the need for relocation. Additionally, the anticipated enhanced storm activity may damage moorings or make current anchorage locations unsafe.

Table 8: Berthing Facilities and Associated Amenities

Facility Name	Public / Private	# Slips	# Moorings	# Launch Lanes	Pumpout	Fuel
Flyers Boat Yard and mooring field	Private	0	110	0 launch lanes, but does include a forklift and negative lift	N	None
Provincetown Marina and Moorings	Private	130	110	0	Y	Both gas and diesel
Long Point Marina and Whydah Museum	Private	7	0	0	N	None

Figure 13 below displays the location of the boating facilities, mooring areas, and anchorage fields in Provincetown Harbor.

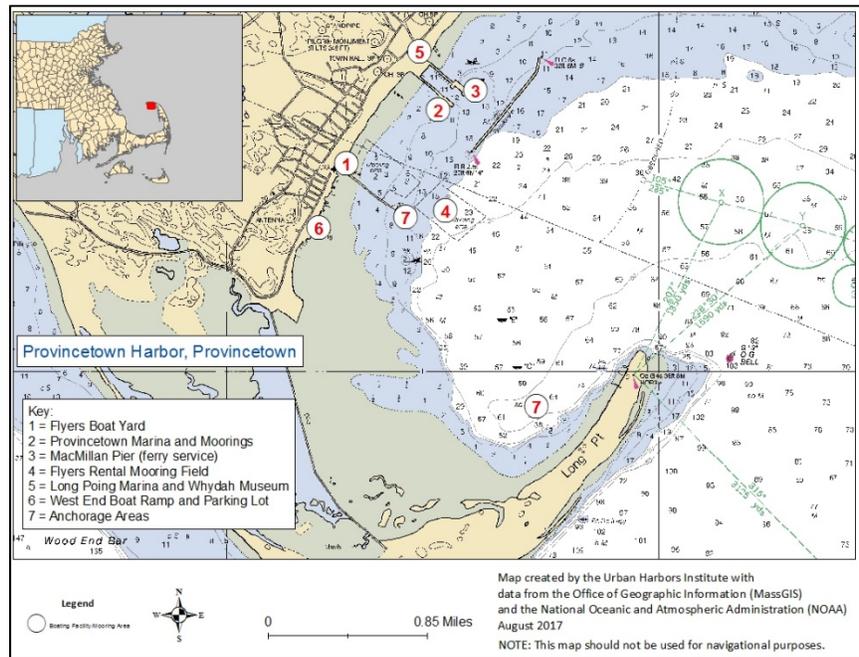


Figure 13: Berthing Locations in Provincetown Harbor

Boaters can drop their vessels' anchors in the following locations in Provincetown Harbor:

- Near Long Point [federal designation for large vessel cruise ships]
- South of the Coast Guard Pier between Flyer's and the town mooring fields [harbormaster designation]

Apart from emergency situations, there is no launch service to the anchoring fields.

## Issues

1. There is an increasing demand for moorings in the Harbor, though in the past decade, there has also been a proliferation of both private and rental moorings in Provincetown Harbor.
2. Moored and anchored vessels can cause conflicts with other water-dependent uses, such as recreational boating routes, fishing, and swimming.
3. Moorings and anchors can damage natural resources, including water quality and shellfish beds.
4. Shifting sand because of climate change may cause changes to mooring and anchorage locations. Additionally, an increase in storm frequency and intensity may cause damage to existing moorings and anchorage locations.
5. The 10-foot tidal range in Provincetown Harbor can increase construction costs associated with ensuring access to deep water from docks, creating additional demand for moorings and anchorages.
6. Insurance is only required on a municipal mooring permit (see Recreational Boating section for a recommendation addressing this).

**Goal I:** Improve availability of and access to moorings and anchorages in Provincetown Harbor, while reducing conflicts between anchorages, moorings, and other uses and natural resources in the Harbor.

**Objective I:** Continue to establish a uniform mooring and anchorage system that meets the demand but does not conflict with other uses and natural resources.

*Recommendation 1: Continue to improve the updated mooring program.*

Because of the proliferation of the moorings in Provincetown Harbor, the Town is developing an updated mooring program using new software to place moorings in a grid format, be readily inspected and managed, and be uniform. The moorings have been reorganized to allow for boats to better navigate through the field. A carrying capacity study of the Harbor should be conducted to determine whether additional moorings are necessary – and if so, what types are needed (*e.g.*, transient, large boat, small boat) and can be accommodated without additional impacts to existing uses and natural resources.

In preparation for the wave attenuation system, the Town is re-organizing the mooring field behind the breakwater, which consists primarily of moorings for commercial fishing vessels. Additionally, the Town should set aside a sufficient number of Town-owned moorings for emergency and storm usage.

The design of the mooring system should minimize impacts to sailing areas near the West End Sailing Club, shellfish and aquaculture areas, eelgrass meadows, fairways and navigation channels, and swimming and fishing areas. To that point, transient mooring should not be allowed in areas requiring protection of natural resources, including water quality, eelgrass, and shellfish. Additionally, the design of the mooring system should take into consideration the anticipated impacts of climate change.

Funding:

- U.S. Fish and Wildlife Service’s Boating Infrastructure Grant (BIG) Implementing Entities:
- Provincetown Office of the Harbormaster

*Recommendation 2: Develop an updated anchorage program.*

The Town should also develop an updated anchorage program that is organized and readily managed. Anchorage areas should be designated, promoted, and clearly marked to reduce conflict with other uses in the Harbor. The design of the anchoring system should minimize impacts to sailing areas near West End Racing Children’s Community Sailing, shellfish and aquaculture areas, eelgrass meadows, fairways and navigation channels, and swimming and fishing areas. To that point, overnight transient anchorage should not be allowed in areas requiring protection of natural resources, including water quality, eelgrass, and shellfish.

To prevent anchoring in the eelgrass area to the east of the breakwater, the Town should install conservation moorings for transient boaters in this area. Boaters generally prefer this area to the anchorage between the two mooring fields off of the USCG pier because it is closer to dinghy docks. Additionally, the design of the anchorage program should take into consideration the anticipated impacts of climate change.

Funding:

- U.S. Fish and Wildlife Service’s Boating Infrastructure Grant (BIG)

Implementing Entities:

- Provincetown Office of the Harbormaster

*Recommendation 3: Explore the Town’s interest in developing new regulations to address houseboats, liveaboards, and floating businesses, e.g., workshops, bed and breakfasts.*

The Town’s waterways regulations already address houseboats and liveaboards in terms of waste, potable water, and parking. The Town should consider whether those regulations, as written, are adequate or require updating. Potential topics to review include lengths of stay, time of year restrictions, locations, fees, impacts to shellfishing activity, and approved uses. For example, Provincetown should consider whether or not renting vessels as accommodations (*e.g.*, through Airbnb) is something they wish to see in the Harbor. Furthermore, the Town should work with DMF to understand the impacts of these waterways uses on shellfishing activities. In addition, the overall review should take into account safety, cultural, economic, and visual impacts.

Funding:

- No additional funds are needed at this time.

Implementing Entities:

- Provincetown Harbor Committee
- Provincetown Office of the Harbormaster
- Stakeholders

# Culture & Tourism

The ocean has always played a role in Provincetown's history and culture, serving as a source of food for Native Americans, carrying the Pilgrims to set foot in the New World, providing inspiration and respite for visiting artists, and serving as an economic engine for fishermen and whalers. Longstanding annual events such as the Portuguese Festival, Blessing of the Fleet, Great Provincetown Schooner Regatta, and Fishermen's Cup Race promote Provincetown's culture and educate people about the local seafaring heritage.

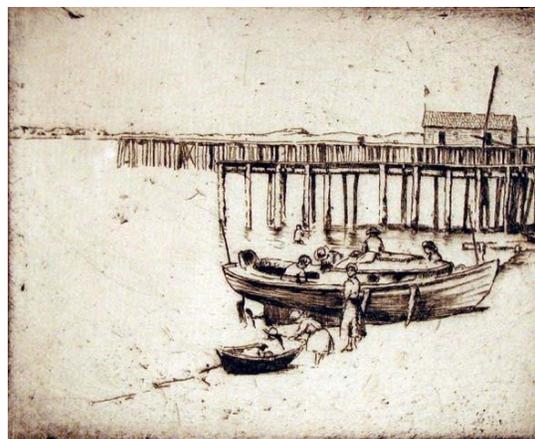
The ocean has both literally and figuratively shaped the Town, making it the highly desirable place to live and visit that it is today. However, like many towns on Cape Cod, Provincetown's seasonal unemployment rate is high, and its residents rely heavily on the \$200,000,000+<sup>13</sup> annual tourism and visitor-based economy to earn a living. Most visitors come to Provincetown between June and August when the Town's year-round population of approximately 3,000 people soars to as high as 60,000.

The Town's coastal location is one of the primary draws for visitors who enjoy a variety of ocean-related activities such as sailing, swimming, beach walking, whale watching, birding, kayaking, and taking in the views. Swimming is a popular recreational activity in Provincetown. Within the harbor plan area, there are numerous beach areas, both in Town and across the Harbor at Long Point, that provide a reliable base from which swimmers can enjoy the local waters.

In addition to localized beach swimming, some swimmers choose to train in the Harbor for long-distance swims such as the Provincetown Harbor Swim for Life & Paddler Flotilla, a charity swim and paddle created in 1988 and always held the weekend after Labor Day. The 1.4-mile swim or kayak across

## Climate Change, Culture, & Tourism

The town's beaches and downtown area are vulnerable to flooding from storms, which are expected to increase in intensity due to climate change. The winter storm known as "Grayson" that hit the east coast in January 2018, showed how vulnerable the shops and homes along Commercial Street—and in other parts of downtown—are to flooding. Protecting stores, restaurants, and inns from flooding will be key to maintaining a strong tourism industry, along with ensuring that infrastructure such as MacMillan Pier is protected from storm damage in order to continue to support ferry service, whale watches, charter fishing, and other uses important to the visitor economy. In addition, with sea levels expected to rise approximately 5 feet by 2100, historic buildings such as Town Hall are in danger of flooding.



<sup>13</sup> Provincetown Office of Tourism. 2016. Tourism & Economic Activity Report: Summer-Fall 2016.

Provincetown Harbor begins at Long Point and ends at The Boatslip Resort and Beach Club. Event participants include approximately 150 volunteers and 400 swimmers. This longstanding community tradition celebrates the important connection between the Town and the Harbor while fundraising for local organizations. Over the past three decades, the event has raised more than \$4 million dollars in support of local services for HIV/AIDS, women’s health, and other community beneficiaries.

The Town’s location is ideal for travel by passenger ferry, allowing people to bypass the heavy traffic associated with summer car travel to Cape Cod. Seasonal passenger service from Boston is offered by the Bay State Cruise Company and Boston Harbor Cruises. Seasonal ferry service is also offered between Provincetown and Plymouth through Captain John Boats (see Table 9). In addition to transporting tourists, the ferries are also frequently used by the Town’s summer residents, many of whom take the ferry from Boston on a Thursday or Friday to spend the weekend in Provincetown, and return to Boston by ferry on a Monday morning. Ferry ridership has recently increased, with 20% more people travelling to and from Provincetown by ferry in 2016 than in 2015 (60,848 one-way passengers in FY 2015, and 73,110 one-way passengers in FY 2016). A \$0.50/passenger embarkation fee for ferry riders arriving in Provincetown brought in \$30,424 in FY 2015, and \$36,555 in FY 2016.<sup>14</sup> These funds are used for waterfront projects and to cover a portion of the harbormaster’s budget.

Table 9: Passenger Ferry Service to and from Provincetown

Provider	Departure Location	Operating Season	Travel Time	Number of Trips/Day
Captain John Boats	State Pier, Plymouth, MA	June-September	90 minutes (fast ferry)	One roundtrip/day
Boston Harbor Cruises	Long Wharf, Boston, MA	May-October	90 minutes (fast ferry)	Up to 3 roundtrips/day, depending on season and day of week
Bay State Cruise Company	Seaport Blvd., Boston, MA	May-October (Fast ferry)  Traditional ferry only operates a few days per summer	90 minutes (Fast ferry)  3 hrs (traditional ferry)	Up to 4 roundtrips/day, depending on season and day of week (fast ferry)  1 trip/day (traditional ferry)

Ferries dock at the western tip of MacMillan Pier, where visitors can walk downtown, board a whale watch or fishing charter, observe the commercial fishing fleet at work, shop, and enjoy the view of town. Cruise ships dock at the end of MacMillan Pier or anchor in the anchorage and bring passengers to town via tenders. While cruise ship visitation varies from year to year, numbers from recent years suggest an increase in activity, with 26 vessels expected in the summer of 2018—which could bring as many as 5,200 visitors to Provincetown. Cruise ships typically arrive in early morning with passengers doing shore

<sup>14</sup> *Ibid.*

tours in the morning and enjoying the afternoon and evening in Provincetown before moving on to their next stop. [This pattern more closely aligns with the rhythms of the resort town and Commercial Street.](#)

Whale watching is another important tourist activity in Provincetown, enjoyed by more than 80,000 people in FY 2016. Whale watching for fin, minke, right, pilot, and humpback whales typically occurs from April to October, and is offered from MacMillan Pier through companies including Dolphin Whale Watch, Captain Ralph Wilkins, Ginny G, Sea Salt Charters, and Provincetown Whale Watchers.

Charter fishing for species such as tuna and striped bass is available in Provincetown, with most charter vessels departing from MacMillan Pier. Seal watches are also becoming more popular as seal numbers increase in and around Provincetown Harbor.

As discussed in more detail in other sections of this plan, water quality, public access, recreational boating opportunities, and beach management are critical to maintaining a healthy tourism industry in Provincetown.



## Issues

1. The needs and opportunities related to ferry usage are not well known.
2. The brevity of the tourism season negatively impacts employment rates and incomes for year-round residents.
3. Shoreside properties such as Rose's Wharf have the potential to accommodate facilities/programs (marine-dependent or mixed-use) that contribute to the visitor economy, but work is needed to understand the status of some of these properties in terms of zoning and regulatory requirements.
4. Lack of parking can be a barrier to use and enjoyment of the harbor area.
5. Many maps and guides are outdated and need to be updated to incorporate new establishments.
6. Due to boat traffic volume and speed, there are few safe areas in the Harbor for long-distance swimming.
7. Swimmers often step on oyster shells and cut their feet. Oysters are widespread around MacMillan Pier and the adjacent beach area. Harvesting oysters in this area and moving them to an area without swimmers is prohibited due to the area's "closed" status.

8. Emergency response planning is needed to address a variety of potential scenarios in the harbor and along the waterfront.

**Goal I:** Increase the economic impact of the visitor economy as it pertains to Harbor uses, services, and infrastructure.

**Objective I:** Ensure that infrastructure and resources are in place to serve the needs of those visiting the Harbor.

*Recommendation 1: Support opportunities to expand tourism-related infrastructure along and near the Harbor.*

As noted in the public access and Chapter 91 sections of this plan, opportunities to increase tourism-related infrastructure are available at properties along and near the shore, including at Rose's Wharf.

One specific project is that of the Gerry E. Studds Stellwagen Bank National Marine Sanctuary Visitors Information Center. The Town and NOAA are looking to locate this facility in Provincetown and have identified potential sites through a feasibility study, and will hire a consultant to provide architectural services.

In general, efforts should be made to ensure that redevelopment along the coast adds to the visitor economy, e.g., adds parking, boat rentals, and/or public access, while not displacing water dependent uses.

Any expansion of infrastructure should take sea level rise impacts into consideration.

Funding:

- Visitor Service Board

Implementing Entities:

- Provincetown Harbor Committee
- Property owners
- Massachusetts Office of Coastal Zone Management
- Massachusetts Department of Environmental Protection

*Recommendation 2: Explore opportunities to make the Harbor more inviting and welcoming.*

Opportunities could include signage and public art that welcomes boaters. As part of this, explore the possibility of reintroducing the markers between Long Point and Wood End that demark a measured mile. The historic markers were due east and west so mariners could check the accuracy of their instruments and calibrate them accordingly.

Funding:

- No additional funds needed at this time.

Implementing Entities:

- Provincetown Office of the Harbormaster

**Objective II:** Extend the tourism season

***Recommendation 1: Work with ferry providers to extend ferry service into the current shoulder seasons to increase visitation to Provincetown.***

In 2017, Bay State Cruises extended its ferry service through Thanksgiving, helping to boost the local economy during the fall months. This should be continued in future years and similar efforts could be made to begin providing ferry service earlier in the spring. A survey of ferry riders and seasonal residents might provide an estimate of the potential level of ridership and inform schedules.

Funding:

- The cost of extending the ferry season would be covered by the fare charged to riders

Implementing Entities:

- Provincetown Public Pier Corporation
- Ferry service operators
- Provincetown Office of Tourism
- Massachusetts Department of Transportation

***Recommendation 2: Expand harbor-related activities to attract additional visitors, especially on the shoulder season.***

Conduct a survey of ferry riders, transient boaters, those who rent boats, kayaks, and other water-based recreational equipment, and other visitors to identify opportunities to increase offerings that would attract more visitors, especially during the early spring and late fall. Examples might include guided harbor tours, organized athletic events (e.g., long-distance swims, sprint triathlons, sailing races), working waterfront festivals, seafood celebrations, and fishing tournaments.

Funding:

- Harbor access gift fund
- MA Cultural Council grants

Implementing Entities:

- Provincetown Public Pier Corporation
- Ferry service operators
- Provincetown Chamber of Commerce

***Recommendation 3: Expand the open season for the downtown restroom facilities.***

Funding:



- Build maintenance costs into existing town budget

Implementing Entities:

- Provincetown Department of Public Works

**Objective III:** Improve the safety of those visiting Provincetown Harbor

*Recommendation 1: Continue to develop emergency support plans for potential issues and events impacting the waterfront.*

The Town is developing an emergency response plan, which includes different emergency scenarios. The Harbormaster should continue to engage in these planning efforts to ensure that responses to potential issues impacting the Harbor and waterfront, e.g., fires, collisions with the pier, oil spills, etc., are well-planned and coordinated.

Funding:

- FEMA
- MA Seaport Economic Council

Implementing Entities:

- Provincetown police and fire departments, as well as those from neighboring towns
- US Coast Guard
- Provincetown Office of the Harbormaster
- MA Environmental Police
- Pier users

**Objective IV:** Ensure that tourist information about the Harbor and downtown is up to date and easily accessible.

*Recommendation 1: Develop updated brochures and maps to reflect new establishments, activities, and accessways along/near the Harbor.*

As new establishments are created and new access is identified/secured, update maps and brochures for the Town.

Funding

- Harbor Access Gift Fund
- Visitor Services Board

Implementing Entities:

- Chamber of Commerce

**Goal II:** Create a safe environment in the Harbor for long distance and recreational swimmers.

**Objective I:** Designate a preferred area for long distance swimming at high tide.

*Recommendation 1: Encourage long-distance swimming on the back-side of the West End breakwater.*

This area is already separated from the Harbor and boating activity by the breakwater. As a result, it is an ideal location for safe long-distance swimming that does not conflict with boating traffic and fishing activity off the West End breakwater. This area should be promoted for long-distance swimming by the Harbormaster's Office and in tourism marketing materials.

Funding:

- No additional funds are necessary to implement this recommendation.

Implementing Entities:

- Provincetown Office of the Harbormaster
- Provincetown Tourism Office and Partners

**Goal III:** Continue to celebrate the Town's history and traditional harbor uses.

**Objective I:** Ensure that activities within and around the Harbor promote the town's past and support long-time uses such as swimming, fishing, and boating.

*Recommendation 1:* Collaborate with ferry providers such as Captain John Boats to increase ferry service during the 400<sup>th</sup> anniversary of the Pilgrim's landing and settlement.

Visitors are expected to flock to Southeastern Massachusetts in large numbers in order to commemorate the 400<sup>th</sup> anniversary of the arrival of the Pilgrims. Increased ferry service between Plymouth and Provincetown can alleviate some of the transportation and lodging demands associated with the commemorations, and can provide opportunities to highlight the Pilgrims' arrival in Provincetown as well as the indigenous cultures of the area.

Funding:

- Visitor Service Board
- Funding will also be provided by ferry fares

Implementing entities:

- Provincetown Pier Corporation
- Provincetown Harbor Committee
- Captain John Boats
- Provincetown Historical Commission
- Pilgrim Monument and Provincetown Museum
- Provincetown 400
- Plymouth 400



## V. ADMINISTRATION AND REGULATORY COORDINATION

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### A. Chapter 91 and the Massachusetts Waterways Regulations

*A comprehensive description of Chapter 91 updated from the earlier harbor plans is provided in the section: Regulatory Framework for Chapter 91 Waterways Licensing. This is followed by a section containing Guidance to DEP in issuing Chapter 91 Licenses.*

Massachusetts' principal tool for protection and promotion of water-dependent uses of its tidelands and other waterways is M.G.L. Chapter 91 (Public Waterways Act, 1866). Chapter 91 and the waterways regulations (310 CMR 9.00) are administered by the Waterways Regulation Program of the Massachusetts Department of Environmental Protection (DEP).

*Purpose:* The statute and regulations ensure that tidelands—both presently flowed and previously filled—are utilized only for water-dependent uses or otherwise serve a proper public purpose that provides greater public benefit than detriment to the rights of the public in tidelands. The regulations promote water-dependent use of the shoreline; preserve and promote public access; and encourage public involvement in Chapter 91 licensing decisions through municipal harbor plans, which provide harbor-specific guidance to the regulatory decisions of DEP under Chapter 91. Regulations at 301 CMR 23.00 govern the development, amendment, renewals, and approval of municipal harbor plans.

*Activities subject to Chapter 91 licensing:* Authorization is generally required for any fill, structure, or use not previously authorized in tidelands, including any changes of use and structural alterations. Types of structures include: piers; wharves; floats; retaining walls; revetments; pilings; and waterfront buildings (if located on filled lands or over water).

Amendments to the Chapter 91 regulations in the 1990s authorized a licensing opportunity for certain existing structures and uses under the amnesty provisions (310 CMR 9.28), which apply standards from the regulations in effect prior to 1990. All other projects are governed by a new set of requirements that

are more explicit and extensive than the previous version (although based on the same general objectives and regulatory principles).

*Jurisdiction:* Tidelands refer to all land presently or formerly beneath the waters of the ocean. Upland jurisdiction begins at the historic high water mark, which is the farthest landward tide lines which existing “prior to human alteration” by filling, dredging, impoundment or other means.

There are two types of tidelands:

- (1) *Commonwealth tidelands* which are, for most of the Massachusetts coastline, all lands below the historic low water mark extending out three miles to the limit of state jurisdiction.
- (2) *Private tidelands* are those areas between historic high and historic low water, which are usually privately owned but on which the Commonwealth reserves and protects public rights of fishing, fowling and navigation and their derivatives.



Figure 14: Presumptive Historic High Water Line

The location of the historic high water line is depicted on Figure 14. The line is also shown on a series of aerial photos available on the Town of Provincetown’s website at [www.provincetown-ma.gov](http://www.provincetown-ma.gov). This line is used by DEP as the presumptive line of jurisdiction in its determinations of which structures and uses along the shoreline of Provincetown Harbor require Chapter 91 licensing.

*Tidelands in Provincetown:* The distinction between private and Commonwealth tidelands is somewhat different than in other communities.

*East of Howland Street:* formerly part of Truro, the tideland jurisdictions are as described in (1) and (2) above.

*West of Howland Street* private ownership of property is limited to the area landward of the historic mean high water mark. Land seaward of the historic mean high water mark is Commonwealth tidelands.

*State-approved Municipal Harbor Plan:* A plan prepared and approved in accordance with state regulations (301 CMR 23.00) serves to guide the actions of the Executive Office of Energy and Environmental Affairs (EOEEA), including the regulatory decisions of the Department of Environmental Protection under M.G.L. Chapter 91. When a state- approved harbor plan exists, any project seeking a Chapter 91 permit from DEP must be in conformance with that plan. A municipality with an approved harbor plan utilizes the state regulatory authority to help implement its own objectives.

Through a locally-prepared harbor plan, a municipality has the ability to "substitute" local standards for certain state Chapter 91 requirements such as building height limits and to "amplify" certain discretionary state standards.

The standards that can be substituted by an approved harbor plan apply only to nonwater-dependent uses.

Section 9.51(3) establishes minimum standards and limitations on building height, site coverage, waterfront setback, and encroachment into flowed tidelands.

Section 9.53(2)(b)-(c) pertains to the provision of interior and exterior public space in a project.

Section 9.52(1)(b)(1) is a requirement for a waterfront walkway with a minimum width of 10 feet to be included with any nonwater-dependent use. In those instances where non water-dependent uses are allowed, this public access requirement exists, as does the ability to modify it through a municipal harbor plan.

The provisions of a municipal harbor plan can also be effective in providing guidance for DEP in applying the numerous *discretionary* requirements of the Chapter 91 regulations to projects under review.

This Harbor Plan includes special guidelines for Chapter 91 that are particular to Provincetown and allow for appropriate accommodation of site conditions, while fulfilling the public rights to access and use of the waterfront. These guidelines presented in Appendix 1 would apply to new Chapter 91 licenses or certain licenses considered as part of an amnesty provision that is intended to provide for pragmatic licensing of qualifying existing properties to which these regulations apply.

These guidelines define a detailed access plan that establishes the extent of public access, amenities, or water-dependent use accessories that may need to be provided on qualifying properties. Where appropriate improvements cannot be reasonably accommodated within these properties, the Plan makes provisions for a cash contribution to a locally-administered fund that would support off-site improvements to meet the same public access and use goals.

**Issues:**

1. The historical development of Provincetown’s downtown as a mix of commercial and residential uses on properties that, in some cases, contain filled Commonwealth tidelands makes licensing of existing uses or proposals for redevelopment of properties challenging.
2. There continues to be a significant amount of existing nonwater-dependent development along Provincetown Harbor that requires Chapter 91 licensing.
3. There is a continuing need to monitor and ensure that Chapter 91 license conditions—such as maintaining access to and along the Harbor as shown on or required by licenses—are adhered to for the duration of the license.
4. There is a need to establish a regulatory scheme which outlines who the regulatory body is in town; conditions for permitting; and enforcement roles.

**Goal I:** Improve coordination with DEP and other state and federal regulatory authorities to ensure that the goals and objectives of this plan are advanced through licensing/permitting, programmatic, and capital investment decisions.

**Objective I:** Provide clear guidance to DEP on how the standards of Chapter 91 for public access and water-dependent uses can best be achieved in the context of the existing pattern of development and the community’s desire to preserve its character and ensure continued economic sustainability.

*Recommendation 1: Limit conversion of facilities of public accommodation along the waterfront to facilities of private residential use or private condominiums.*

**Funding:**

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Provincetown Harbor Committee
- MA Department of Environmental Protection

*Recommendation 2: In reviewing projects, recognize two substitutions for the standards of the waterways regulations, i.e., Fishermen’s Wharf and Rose’s Wharf.*

The Plan recognizes that there may be isolated cases where compliance with the applicable use limitations (e.g., ground floor facility of public accommodation requirement) of the State Waterways Regulations would create a substantial hardship for the continuation of a use or structure existing as of January 1, 1984. In such situations, the variance procedure set forth at 310 CMR §9.21 is considered by this Plan to be an adequate forum to address the hardship issue.

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Provincetown Harbor Committee
- MA Department of Environmental Protection

*Recommendation 3: Utilize the Guidance to DEP for Chapter 91 Licensing in Provincetown Harbor contained in Appendix B and C in evaluating pending Chapter 91 applications and in formulating recommendations to MA DEP.*

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Provincetown Harbor Committee
- MA Department of Environmental Protection

**Goal II:** Improve coordination among municipal boards and committees with land use and environmental planning, regulatory, and advisory responsibilities to ensure consistency among decision making among municipal entities and between municipal, state, and federal regulators and program managers.

**Objective I:** Improve coordination of municipal regulatory decision making.

*Recommendation 1: Continue to designate the Harbor Committee as the entity responsible for reviewing local Chapter 91 license applications for consistency with the Provincetown Harbor Plan, and for preparing and submitting recommendations to MA DEP, either independently or in conjunction with the Planning Board.*

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Provincetown Harbor Committee
- MA Department of Environmental Protection

*Recommendation 2:* Ensure that the Harbor Committee is notified of any planning, building, or zoning permit application affecting a property on the water-side of Commercial Street.

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Harbor Committee
- Conservation Commission
- Historical Committee
- Planning Department
- Provincetown Office of the Harbormaster

*Recommendation 3:* Ensure that the town's Harborfront Area Overlay District is consistent with Chapter 91 regulations.

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Harbor Committee
- Planning Department

**Goal III:** Maintain a comprehensive database, map, and associated records of the status of Chapter 91 licensing in the Harbor Plan area.

**Objective I:** Compile data to assist in a) monitoring compliance with license conditions, b) on-going efforts to bring existing unlicensed development into compliance, and c) to illustrate status of implementation of plans recommendations.

*Recommendation 1:* Utilize the table of Chapter 91 licensing requirements and status maintained by the Harbormaster as the means to record licenses issued and conditions imposed, including contributions to the Harbor Access Fund and properties eligible for amnesty licensing.

Funding:

- No additional funding is needed to implement this recommendation

Implementing Entities:

- Harbor Committee

*Recommendation 2: Work with the MIS department to format and maintain the records so that the Chapter 91 data can be maintained and displayed with the GIS data layers maintained by the Town.*

Funding: No additional funding is needed to implement this recommendation

Implementing Entities:

- Harbor Committee
- Provincetown Information Technology Department
- Provincetown Office of the Harbormaster

# APPENDIX 1: GUIDANCE TO DEP FOR CHAPTER 91 LICENSING IN PROVINCETOWN HARBOR

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## Appendix 1A: Regulatory Framework for Waterways Licensing

### Introduction

Massachusetts' principal tool for protection and promotion of water-dependent uses of its tideland and other waterways is M.G.L. Chapter 91 (Public Waterways Act, 1866). Chapter 91 and the waterways regulations (310 CMR 9.00) are administered by the Waterways Regulation Program of the Massachusetts Department of Environmental Protection (DEP).

The Chapter 91 statute was amended in 1984 with new substantive and procedural requirements to ensure that tidelands—both presently flowed and previously filled—are utilized only for water-dependent uses or otherwise serve a proper public purpose that provides greater public benefit than detriment to the rights of the public in tidelands. Projects involving nonwater-dependent use also are required by the statute to be consistent with CZM Policies.

Major revisions of the waterways regulations followed in October 1990. Key provisions of the new regulations are designed to promote water-dependent use of the shoreline; preserve and promote public access; and encourage public involvement in Chapter 91 licensing decisions through municipal harbor plans, which provide harbor-specific guidance to the regulatory decisions of DEP under Chapter 91. A companion set of regulations (301 CMR 23.00) governing the development and approval of municipal harbor plans was also adopted that same year.

The Chapter 91 regulations stipulate that where a state-approved harbor plan exists, projects requiring a DEP license or permit and subject to the current regulations must conform to the plan (310 CMR 9.34(2)). The municipal harbor plan is used by DEP for guidance which amplifies upon discretionary requirements of the waterways regulations. The regulations also provide that the municipal harbor plan may contain substitute standards for certain use limitations or numerical standards specified in the waterways regulations for nonwater-dependent uses. The alternatives established by the plan must be equally as effective in achieving the objectives of Chapter 91 and the waterways regulations.

There are two different Chapter 91 licensing scenarios in Massachusetts under the waterways regulations of 1990 (as further amended in 1996). There is licensing of certain existing structures and uses under the amnesty provisions (310 CMR 9.28), which apply standards from the regulations in effect prior to 1990. All other projects are governed by a new set of requirements that are more explicit and extensive than the previous version (although based on the same general objectives and regulatory principles). Initially, it is expected that most of the licensing in Provincetown will be done under the standards applicable to amnesty cases.

Regardless of whether DEP applies the new licensing requirements or the previous standards, the Chapter 91 licensing process on Massachusetts tidelands can be summarized in three steps. First, DEP determines on a case-by-case basis which properties need a license and whether they qualify for amnesty (assuming the property owner applied for amnesty). Second, DEP reviews the license application and considers community recommendations obtained during the public comment period, in order to determine whether all applicable requirements and standards have been met and the license should be granted. Third, DEP normally issues the license with a series of conditions, which usually require on-site public improvements to compensate the public for the private use of Commonwealth tidelands. The license also specifies a period of time during which the property owner must complete the project and meet the conditions stipulated in the license.

The recommendations and guidance in this Harbor Plan are the product of direct consultations with CZM and DEP staff, and have been carefully crafted to reflect the principles and standards used consistently by DEP in licensing projects on tidelands. Moreover, the recommendations that follow reflect the Town's goals and objectives for the waterfront and comprise a comprehensive and cohesive plan for the proper and optimum use of Provincetown Harbor.

#### 1. Properties within Chapter 91 Jurisdiction in Provincetown

Chapter 91 applies in tidelands, great ponds, and along certain rivers and streams. Tidelands refer to all land presently or formerly beneath the waters of the ocean, including lands that are always submerged as well as those in the intertidal area, i.e., between the mean high and low water marks. These areas are governed by a concept in property law known as the public trust doctrine, which establishes that all rights in tidelands and the water are held by the state "in trust" for the benefit of the public.

There are two types of tidelands: (1) *Commonwealth tidelands* which are, for most of the Massachusetts coastline, all lands below the historic low water mark extending out three miles to the limit of state jurisdiction. This area is owned by the Commonwealth or held by private persons in accordance with the trust for the benefit of the public. (2) *Private tidelands* are those areas between historic high and historic low water, which are usually privately owned but on which the Commonwealth reserves and protects public rights of fishing, fowling and navigation (and the natural derivatives thereof). The historic high water marks are the farthest landward tide lines which existed "prior to human alteration" by filling, dredging, impoundment or other means (310 CMR 9.02) (see Figure 14). Thus, Chapter 91 applies to filled as well as flowed tidelands, so that any filled areas, moving inland to the point of the historic high tide line, are subject to jurisdiction.

In Provincetown, the distinction between private and Commonwealth tidelands is somewhat different than in other communities. The area of Provincetown east of Howland Street was formerly part of Truro. As in other coastal towns in Massachusetts, the colonial government of Truro granted owners of upland property ownership rights to the intertidal area adjacent to their property area (the private tidelands), subject to easements guaranteeing the public rights of fishing, fowling and navigation. The area to the west of Howland Street was known as the Province Lands. The Provincetown charter of 1727 did not provide the new town with authority to grant land to its settlers. St. 1893, s. 470 (presently found in M.G.L. c. 91, s.25) divided the Province Lands into two parts. The "town" is the coast west of Howland Street and the "wild lands" is the area to the northeast of Howland Street. On the "town" side of the former Province Lands, private ownership of property is limited to the area landward of the historic mean high water mark. So, west of Howland Street, land seaward of the historic mean high water mark is Commonwealth tidelands.

For planning purposes, the location of the historic high water mark as of 1848 has been delineated on maps prepared under contract to the Department of Environmental Protection<sup>15</sup>. DEP uses the mapped line as the presumptive line of jurisdiction in its determinations of which structures and uses along the shoreline of Provincetown Harbor require Chapter 91 licensing. Based on the DEP map, the 1999 Plan identified the existing structures and uses that appear to be located on filled Commonwealth tidelands and other tidelands subject to jurisdiction of the waterways licensing program (see Appendix A in 1999 Plan).

If a property owner's parcel of land occupies all or a portion of Commonwealth tidelands, then the owner is, in fact, occupying land in which the public has rights to use for "fishing, fowling, navigation...and all other lawful activities, including swimming, strolling, and other recreational activities". §9.35(3)(b). In particular, if this land is used for any buildings, decks, piers, bulkheads, yards, or any other type of enclosed areas that are off-limits to the public, then the property owner is effectively privatizing trust lands that would otherwise be available for public use and enjoyment.

Chapter 91 authorization is generally required for any fill, structure or use not previously authorized in areas identified above, including any changes of use and structural alterations. Types of structures include: piers, wharves, floats, retaining walls, revetments, pilings, bridges, dams, and waterfront buildings (if on filled lands or over the water). In Provincetown, there are a number of properties where structures and uses occupy filled Commonwealth tidelands without complete and proper authorization. Moreover, most of these properties are being used for nonwater-dependent purposes. Owners of such properties are required by Massachusetts's law to obtain licenses to ensure that their nonwater-dependent structures and uses of Commonwealth tidelands meet the requirements of Chapter 91.

In order to achieve fully the goals of the Provincetown Harbor Plan regarding public use of Commonwealth tidelands, this Plan strongly encourages DEP to notify all property owners who appear to have unauthorized structures or uses on tidelands, but have not filed amnesty applications. The number of such property owners appears to be approximately 82, and the parcels in question are identified in Appendix A of the 1999 Harbor Plan. It should be noted that on several of these parcels the primary structures lie landward of the historic high water mark, and the filled tidelands thus are devoted to exterior uses only (e.g., private recreational activities accessory to a residential dwelling). Since many of these exterior accessory uses take place on the beach itself, it is particularly important for DEP to license such uses to ensure conformance with the public benefit recommendations of the Plan.

The Plan also calls on DEP to give priority attention to compliance and enforcement matters, in close cooperation with the Harbor Committee and other relevant town officials (harbormaster, building inspector, conservation agent, etc...). In particular, arrangements should be made (including appropriate training) to enable town personnel to effectively carry-out a monitoring and reporting function. The ongoing participation of these officials will help to ensure full compliance with applicable conditions of existing licenses and to identify new changes of use and structural alterations (including minor project modifications) that should be brought to the attention of DEP.

## 2. Licensing under the Amnesty Standards of the Waterways Regulations

With the intent of bringing properties on tidelands into compliance with Chapter 91, the 1990 revisions of the waterways regulations included an amnesty provision (310 CMR 9.28) applicable to unlicensed structures or fill in existence and in use since January 1, 1984 (and without any unauthorized substantial structural alteration or change in use since that date). Amnesty license applications are subject to substantive requirements that were in effect prior to October 4, 1990 (the effective date of the 1990 revisions), which included less specific standards, lesser fees, and (for water-dependent projects) longer

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<sup>15</sup> Schofield Report, April 12, 1996

license terms than those now in effect. The period during which an amnesty license application could be submitted to DEP expired October 4, 1996.

There is a significant amount of existing nonwater-dependent development along Provincetown Harbor that requires Chapter 91 licensing. It is expected that much of this licensing will be done under the amnesty provisions of the waterways regulations. Prior to the close of the amnesty period, DEP had received 196 amnesty applications, 87 of which were for properties between the Provincetown Inn and Howland Street (the zone of Commonwealth tidelands).

Applications for amnesty licenses are reviewed for compliance with the waterways standards in effect prior to 1990, which included (among other things) a basic requirement that a project... “does not interfere with or abridge any rights of the public...or the Commonwealth in tidelands [and] has public benefit which outweighs public detriment if the project is located on or over the Commonwealth tidelands.” (§9.07(2))<sup>16</sup>. The special emphasis on protecting the public interest in Commonwealth tidelands was further articulated in the following provision (§9.22(4)):

The Department shall protect the Commonwealth tidelands, and any project that is harmful to the public ownership of the Commonwealth tidelands or that would significantly impair the value of those tidelands to the public shall not be allowed.

In applying this standard, the regulations stipulated that the Department should consider such factors as “the extent to which the project blocks the public view of the coast and the oceans...[and] the degree to which it affects public access to the water from the shore or from the water to the shore” (§9.22(5)). Also worthy of note is the related provision stating that “the Department shall not license any project in or over Commonwealth tidelands if it would have a significant adverse effect on a public recreational facility” (§9.22(6)).

A review of license decisions for nonwater-dependent projects in Provincetown issued by DEP between 1984 and 1990 reveals that the agency interpreted these provisions in a consistent manner, and in accordance with the basic goals expressed by the legislature in the 1984 amendments to the statute. In these licensing decisions in Provincetown, as elsewhere, DEP sought continuous public access along the shoreline, physical access improvements, inclusion of some water-based amenity, and a financial contribution if it was not possible to adequately fulfill Chapter 91 goals through on-site improvements. So, DEP’s decisions on nonwater-dependent use applications prior to 1990 were, in practice, quite similar to the review DEP now conducts on these uses under the current regulations.

### 3. Licensing Under the 1990 Standards of the Waterways Regulations

Projects subject to the 1990 standards include (1) projects involving structural alteration or change of use and (2) existing development that does not qualify for amnesty either because (a) there have been substantial unauthorized changes in use or structural alterations on the site since 1984 or (b) the applicant did not file an application during the amnesty period, which closed October 4, 1996.

The waterways regulations contain several core provisions that are essential to the control of nonwater-dependent uses of Commonwealth tidelands in Provincetown Harbor. These are:

The project shall preserve any rights held by the Commonwealth in trust for the public to use tidelands...for lawful purposes...[Specifically], the project shall not interfere with public rights of navigation...public rights of free passage over and through the water...public rights associated with a common landing, public easement, or other historical legal form of public access from the land to the water that may exist on or adjacent to the project site...public rights of fishing,

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<sup>16</sup> The citations in this section refer to provisions of the waterways regulations in effect between September 15, 1978, and October 3, 1990.

fowling, and the natural derivatives thereof...[and on Commonwealth tidelands] all other lawful activities including swimming, strolling, and other recreational activities...(§9.35)

A nonwater-dependent use project that includes fill or structures on any tidelands shall not unreasonably diminish the capacity of such lands to accommodate water-dependent use. (§9.51)

A nonwater-dependent use project that includes fill or structures on any tidelands shall devote a reasonable portion of such lands to water-dependent use including public access in the exercise of public rights in such lands. (§9.52)

A nonwater-dependent use project that includes fill or structures on Commonwealth tidelands... must promote public use and enjoyment of such lands to a degree that is fully commensurate with the proprietary rights of the Commonwealth therein, and which ensures that private advantages of use are not primary, but merely incidental to the achievement of public purposes. (§9.53)

All nonwater-dependent use projects consisting of infrastructure facilities on tidelands...shall take reasonable measures to provide opens spaces for active or passive recreation at or near the water's edge, wherever appropriate. (§9.55)

Associated with each of these core provisions are a number of discretionary requirements, several of which are of primary relevance to Provincetown and are thus amplified upon by the recommendations of this plan. The specific discretionary requirements on which the Plan provides guidance for DEP application are listed below.

§9.35(2)(c) Access to Town Landings. *"The project shall not significantly interfere with public rights associated with a common landing, public easement, or other historic rights associated with a common landing, public easement other historic legal form of access from the land to the water that may exist on or adjacent to the project site."*

§9.35(5) Management of Areas Accessible to the Public.

*(b) "Any project required to provide public access facilities...shall encourage public patronage of such facilities by placing and maintaining adequate signage at all entryways and at other appropriate locations on the site..."*

*(c) "No gates, fences, or other structures may be placed on any areas open to public access in a manner that would impede or discourage the free flow of pedestrian movement..."*

§9.52(1)(a) Utilization of Shoreline for Water-Dependent Purposes. *"In the event that the project site includes a water-dependent use zone, the project shall include...facilities that generate water-dependent activity..."*

§9.52(1)(b) Utilization of Shoreline for Water-Dependent Purposes.

*(1) "In the event that the project site includes a water-dependent use zone, the project shall include...walkways and related facilities along the entire length of the water-dependent use zone..."* .

*(2) "In the event that the project site includes a water-dependent use zone, the project shall include...appropriate connecting walkways that allow pedestrians to approach the shoreline walkways from public ways or other public access facilities to which any tidelands on the project site are adjacent."*

§9.53(2) Activation of Commonwealth Tidelands for Public Use.

*(a) "...[the project shall include] at least one facility [that] promotes water-based public activity..."*

- (b) *“...the project shall include exterior open spaces for active or passive public recreation...[which] shall be located at or near the water to the maximum reasonable extent [and shall include] open space amenities such as lighting and seating facilities, restrooms and trash receptacles...”*
- (d) *“...the project shall include a management plan for all on-site facilities offering water-related benefits to the public...”*
- (e) *“...in the event that water-related public benefits which can reasonably be provided onsite are not appropriate or sufficient, the Department may consider measures funded or otherwise taken by the applicant to provide such benefits elsewhere in the harbor or otherwise in the vicinity of the project site.”*

§9.55 Standards for Nonwater-Dependent Infrastructure Facilities.

(1) *“[Infrastructure facilities] shall include mitigation and/or compensation measures as deemed appropriate by the Department to ensure that all feasible measures are taken to avoid or minimize detriments to the water-related interests of the public.”*

(2) *“[Infrastructure facilities] shall take reasonable measures to provide open spaces for passive recreation at or near the water’s edge, wherever appropriate.”*

It should be noted that the Harbor Planning Committee has determined that there is a need to recommend substitutions for the standards of the waterways regulations, as specified in Appendix 1B.

As with past plans, an evaluation of existing conditions indicates that in almost all cases the provisions of the Harbor Plan will not be less restrictive than the corresponding provisions of the waterways regulations. In addition to the two properties identified in this update, the Plan recognizes that there may be isolated cases where compliance with the applicable use limitations (e.g., ground floor facility of public accommodation requirement) of the 1990 regulations would create a substantial hardship for the continuation of a use or structure existing as of January 1, 1984. In such situations, the variance procedure set forth at 310 CMR §9.21 is considered by this plan to be an adequate forum to address the hardship issue.

#### 4. Effect of Plan on Pending and Future License Applications

Appendix 1B of this plan provides specific guidance to DEP in amplification of the above-referenced Chapter 91 licensing standards to achieve the goals and objectives of the Provincetown Harbor Plan. Specifically, that section provides guidance to DEP in applying both the standards applicable to existing structures and uses eligible for an amnesty license as well as the 1990 standards governing all other projects requiring Chapter 91 authorization from DEP. In both cases, it is the understanding of the Harbor Committee—the municipal body with lead responsibility for plan implementation—that DEP will adhere to the greatest reasonable extent to the guidance specified in the Plan, which amplifies the discretionary requirements identified in sections 3 and 4 above. It is the further understanding of the Committee that, in accordance with 310 CMR 9.34(2), DEP will require conformance with all applicable recommendations of the approved Harbor Plan in the case of all waterways license applications submitted subsequent to the effective date of Plan approval, as well as to pending applications for which the public comment period has not expired.

# Appendix 1B: Guidance to DEP for Chapter 91 Licensing in Provincetown Harbor

## 1. Objectives

The following objectives for providing access to and along the shoreline in Provincetown Harbor form the basis of the Chapter 91 licensing requirements and recommendations presented in this harbor plan:

1. provide continuous public passage along the Provincetown Harbor shoreline, to the maximum extent practicable within normally dry areas immediately landward of the high water mark;
2. create more public open space on Provincetown Harbor by eliminating undue encroachments on the dry sand beach areas by shorefront property owners, and in some cases by providing public access to the seaward perimeter of existing hard surface structures;
3. make the Provincetown shoreline more approachable for the general public by eliminating undue encroachment on town landings, and by providing more pedestrian accessways and view corridors from Commercial Street to the waterfront; and
4. provide appropriate on-site access-related or water-dependent improvements and/or contributions to the Provincetown Harbor Access Gift Fund for off-site harbor improvements.

This section includes specific provisions to guide the Chapter 91 licensing process in Provincetown. These customized guidelines are intended to ensure that the licensing process is equitable and purposeful and that the goals for licensing outlined above are met. In addition, the Provincetown guidelines parallel the conventional DEP approach to licensing by giving first priority to on-site public benefits, seeking off-site public benefits only where on-site improvements are insufficient or not feasible. Accordingly, for properties presumed to lie within jurisdiction, the Plan first identifies general and specific on-site benefits to be provided as a condition of DEP licenses, to ensure that the uses of Commonwealth tidelands reflect the proper public purposes expressed by the Town. Secondly, the Plan presents a method for determining the extent to which compensation to the public should take the form of monetary payment to a Town fund to be used for access-related improvements elsewhere on the Harbor. The guidance of the Plan is intended to apply to all existing and new development that will be licensed under the waterways regulations, including the amnesty provisions.

## 2. On-site Public Benefit Requirements

### Public Open Space

A fundamental goal of this licensing program is to preserve and enhance the amount of public open space<sup>17</sup> at the immediate waterfront, to the maximum reasonable extent. To achieve this goal,

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<sup>17</sup> For purposes of this Plan the term “public open space” generally means exterior spaces (i.e., those not within the footprint of buildings or other structures) that are dedicated to active or passive public recreation, conservation of natural resources, or public water-dependent activity, and any accessory uses thereto.

waterfront property owners will be required at a minimum to dedicate as public open space all unobstructed dry sand areas lying 15 feet or more from the seaward sides of all existing buildings for nonwater-dependent use. "Unobstructed" means not occupied at the time of plan approval by piers, decks, bulkheads, paved surfaces, or other permanent structures. These dedicated beach areas must be kept free of debris or other objects that would significantly detract from public use and enjoyment or would present a danger to public health and safety. In addition, mounded septic systems should be allowed on the beach only as a last resort (i.e., where sewer tie-in or other waste disposal alternatives are not technically feasible), and if authorized by DEP the space occupied by such structures should not be credited as public open space.

As an additional incentive to provide public open spaces of particular utility in Provincetown, any space dedicated to commercial fishermen for parking or to public accessways from the shoreline to the street will be given extra credit as a public open space benefit. Also note that additional on-site open space not identified in this plan may be required on any property as determined by DEP on a case-by-case basis, in accordance with applicable standards of the waterways regulations.

### Perpendicular Accessways

Another key goal of the Plan is to make the harbor significantly more approachable from the land side. To begin with, the Plan requires that applicants for licensing whose property abuts town landings or other historic public rights of way must submit evidence (e.g., title search, survey) as part of the application to ensure that the property is not encroaching on such public accessways. In some cases, these also would be appropriate locations for providing access amenities such as benches, trash receptacles, etc.

The Plan also identifies several properties where perpendicular accessways connecting Commercial Street to the waterfront will be established for general public use.<sup>18</sup> Many of these accessways are located outside the central commercial area, along portions of the harbor where town landings are widely spaced or non-existent. The site-specific position and configuration of these accessways is such that the Harbor Planning Committee believes that public passage will not be incompatible with existing private activities occurring on the respective properties. In fact, in some cases the accessways are presently open (via limited easements or informal permission) for foot traffic by occupants of landward homes and commercial establishments, and appropriate measures (such as landscaping buffers) have already been taken to minimize intrusions on the privacy of the waterfront property owner. Although the volume of activity on these accessways may be expected to increase somewhat when opened to the public-at-large, the number of accessways is large enough that no one property seems likely to experience a disproportionately high increase in pedestrian traffic.

To further lessen the possibility of user-owner conflict, the Harbor Plan recommends that any perpendicular accessway located on a property zoned for residential use be open to the public from dawn to dusk only. Moreover, licenses issued by DEP on these properties should specifically authorize the licensee to manage public use of the accessway by adopting reasonable rules (subject to prior review and written approval by DEP) as are necessary to protect public health and safety and private property, and to discourage trespass and other unlawful activity by users of the area intended for public passage. Finally, each license should contain a statement to the effect that the exercise of free public

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<sup>18</sup> In order to establish meaningful connections to the harbor, these accessways must be made available to the public across the full extent of any property owned or otherwise controlled by a license applicant between Commercial Street and the waterfront. Any accessway segment not located on filled tidelands should be credited directly to the project as an open space benefit, and should be given the same weight (for purposes of computing the project's contribution to the Harbor Access Fund in accordance with Appendix C) as is given to the segment that is located on the project site as defined by DEP.

passage within these accessways shall be considered a permitted use to which the limited liability provisions of M.G.L. c.21 sec.17c shall apply on behalf of the property owner in question.

### Beachwalk

In order to establish continuous lateral passage along the Provincetown Harbor shoreline above the high water mark, the Plan establishes a designated “beachwalk”—defined as the ten (10) foot wide zone running adjacent to and immediately landward of the high water mark. In many cases, this area will be entirely free of structural encroachment; but in some locations there are existing structures (piers, seawalls, bulkheads, decks, etc...) within the beachwalk that impede or prevent lateral access, forcing pedestrian passage into the intertidal zone (or blocking it entirely when the tide is in).

To enhance public use and enjoyment of the beachwalk, the Plan requires that measures be taken to ensure that people walking along the shoreline will be able to get over, under, or around any structure that extends into the beachwalk area. Specifically, the Plan requires that wherever possible pedestrians should be able to pass UNDER such structures with at least five (5) foot vertical clearance at the high water mark or AROUND the seaward edge of the structure with at least five (5) feet of unobstructed dry sand width. If neither of these criteria can be met, passage must be provided either by stairs OVER the structure or, as a last resort, by UPLAND (i.e., off-beach) ACCESSWAYS located at the shortest reasonable distance landward of the high water mark.

To ensure ongoing preservation of access within the beachwalk in erosional circumstances, licenses for both new and existing structures for nonwater-dependent use on the beach should include a condition that triggers a reevaluation of the situation to determine if alternative access measures are needed, should the beachwalk area migrate landward (and become obstructed as a result) subsequent to the issuance of the license.

### Other Physical Improvements for Pedestrian Access and/or Water-Dependent Use

In addition to perpendicular and lateral accessways, Table B-1 identifies properties where physical improvements for public access must be provided on the project site, *e.g.*, stairs, benches, lighting and landscaping. The table also identifies properties where fences, snow fences, walls, defunct septic systems, and other structures that affect visual or physical access to or along the waterfront and requires that such structures be modified or eliminated. In addition, the Plan identifies properties where water-dependent physical improvements should be targeted. Examples of site-specific water-dependent improvements include, but are not limited to: construction and maintenance of public dinghy docks and the dedication of space for dinghy storage and parking for small boat fishers.

Moreover, the Plan requires development of three specific areas along the central commercial waterfront, to enhance lateral connections and further facilitate public pedestrian movement onto the beach from Commercial Street. These areas will be created by establishing interconnected walkways along the perimeter of existing hard surface structures (*i.e.*, bulkheads, parking lots and decks) on specific abutting properties already used as facilities of public accommodation. Foremost among these areas is one that would be created through a 10’ public walkway along the western side of Fisherman’s Wharf. This walkway would connect to existing walkways along the adjoining municipal parking lot leading to both MacMillan Wharf and Commercial Street. An important mini-loop connects the perimeter of the Aquarium property, US Post Office, Seaman's Bank and Rose’s Wharf. These connecting walkways are also specified as locations for providing access amenities such as benches, trash receptacles, etc.

With respect to Fishermen’s Wharf, the Plan recognizes that creation of a public walkway for enhanced pedestrian and boater access requires a reconfiguration of existing uses and must be authorized by DEP in a c. 91 license. The 1990 standards of the waterways regulations stipulate (at 310 CMR 9.51 and 9.52, Provincetown Harbor Management Plan Amendment 2018

respectively) that perimeter walkways be sized at a minimum width of 10' and that the amount of open space for public pedestrian use be at least equal to the area devoted to public parking on sites containing Commonwealth tidelands. Application of these 1990 waterways standards to Fishermen's Wharf would permit only 113 parking spaces on this centrally-located tourism infrastructure facility, representing a substantial loss of vehicular capacity as compared to that proposed in the Plan. In the Town's judgment, the further reduction in parking that would be required for compliance with these regulations does not satisfy the Town's goals for this section of the Harbor. On the basis of such planning considerations, it is appropriate to give somewhat greater emphasis to public parking when determining the balance between pedestrian and vehicular activity on Fishermen's Wharf.

For the foregoing reasons, the 2012 Plan proposes a waiver of the applicable 1990 standards in favor of an alternative requirement, stipulating that only a 10' wide walkway on the western side of Fishermen's Wharf be provided as a condition of obtaining a waterways license. Furthermore, the Plan provides that in order to maximize the existing footprint of the Wharf for public parking, the 10' walkway may be provided outside of the existing deck by use of cantilevered or pile supported construction. Although, pursuant to 310 CMR 9.32(1) (a) 3, DEP typically requires pedestrian facilities over flowed tidelands to be located within the footprint of an existing structure, such requirement can be waived if it is not reasonable under the circumstances. In light of the significant benefit to the Town of maintaining the existing parking spaces on Fishermen's Wharf in support of the Town's tourism-based economy and to support the water-dependent uses on site, the Plan recognizes that a strict application of this requirement would not be reasonable.

Acknowledging that this proposed substitution is less restrictive than the current standard in terms of providing public benefits related to open space, the 2012 Plan stipulates that a payment of \$205,500 be made to the Harbor Access Gift Fund as an "offset" to the adverse effects on water-related public interests, as required by the plan approval regulations at 301 CMR 23.05(2) (d). This amount has been recommended by DEP, using a formula the Waterways Regulation Program has developed to compute the level of compensation that is appropriate for authorizing the exiting non-conforming use of the wharf through the MHP process. Under these circumstances, the 2012 Plan believes that its substitute provisions regarding Fishermen's Wharf will promote, with comparable or greater effectiveness, the state tidelands policy objectives pertaining to public open space, including the need to provide adequate parking facilities for users of both exterior and interior facilities of public accommodation at the waterfront.

Since the 2012 Plan, the Army Corps of Engineers raised concerns about impacts to eelgrass in certain vicinities of the proposed pile-supported or cantilevered walkway on Fishermen's Wharf. As such, the applicant and the Town will develop an alternative that provides the required 10' wide public access along the western limit of the pier, minimizes impacts to eelgrass, and preserves parking. The proposed walkway may be located within the limits of the existing pier or beyond the pier by cantilever or piles. The proposed walkway will meet the requirements of the 2012 Plan.

In addition to the waiver of standards for Fishermen's Wharf, the Plan also requests two substitutions for 227R Commercial Street (also known as "Rose's Wharf" or "Old Reliable"). Specifically, the Plan requests (1) a substitution for an alternative configuration of the water-dependent use zone (310 CMR 9.51(3)(c)); and (2) a substitution from the Lot Coverage dimensional requirement (310 CMR 9.51(3)(d)).

Requested Substitution	Proposed Offset
Water-Dependent Use Zone (WDUZ)	WDUZ reconfiguration (no net loss); no less than 25' setback
Lot Coverage shall not exceed 60%	Monetary contribution to Harbor Access Fund; Public amenities

The water-dependent use zone on the 227R Commercial Street property is approximately 35-feet wide, and the building's current design would extend slightly into this zone. The Harbor Plan proposes that the nonwater-dependent buildings here can be allowed to extend into the water-dependent use zone as long as such buildings are not constructed immediately adjacent to a project shoreline (Mean High Water mark). The water-dependent use zone shall be redistributed on the project site in a manner which maintains a minimum distance of at least 25-feet away from the project shoreline (Mean High Water mark) and reserves additional area contiguous to the water-dependent use zone. The effect of the provision of the additional contiguous areas will yield a total square footage of the redistributed water-dependent use zone equal to the square footage that would be required under 310 CMR 9.51(3)(c)(1).

Furthermore, the plan requests a substitution from the open space requirement of the Waterways Regulations pursuant to 310 CMR 9.51(3)(d) and 9.53(2)(b). The current design of the development at 227R Commercial Street does not meet the required open space in the referenced Waterways regulations. A right-of-way adjacent to the 227R property may be acquired by the proponent to be included in the development's project site. If this occurs, the property at 227R will not require a substitute provision for open space in order to comply with the open space standards described in Waterways Regulations 310 CMR 9.51(3)(d) & 9.53(2)(b)(1). This is the preferred development scenario for the 227R property.

In the event that the right-of-way is not included in the project site, this Plan requests a substitution from the required open space standard under the Waterways regulations. The property must provide at least 40% exterior open space and provide additional public amenities on the proposed pier and on the adjacent right of way just east of the property. Offsets for this substitution shall include public amenities including public seating, lighting, and trash and recycling receptacles on the adjacent right of way as may be obtained with the assent of the property owner, and public programming and amenities on the proposed pier to increase its value as a public destination. An additional offset shall include a payment to the Harbor Access Gift Fund. The proposed range of such a payment will be determined through consultation and confirmed during the chapter 91 License review process.

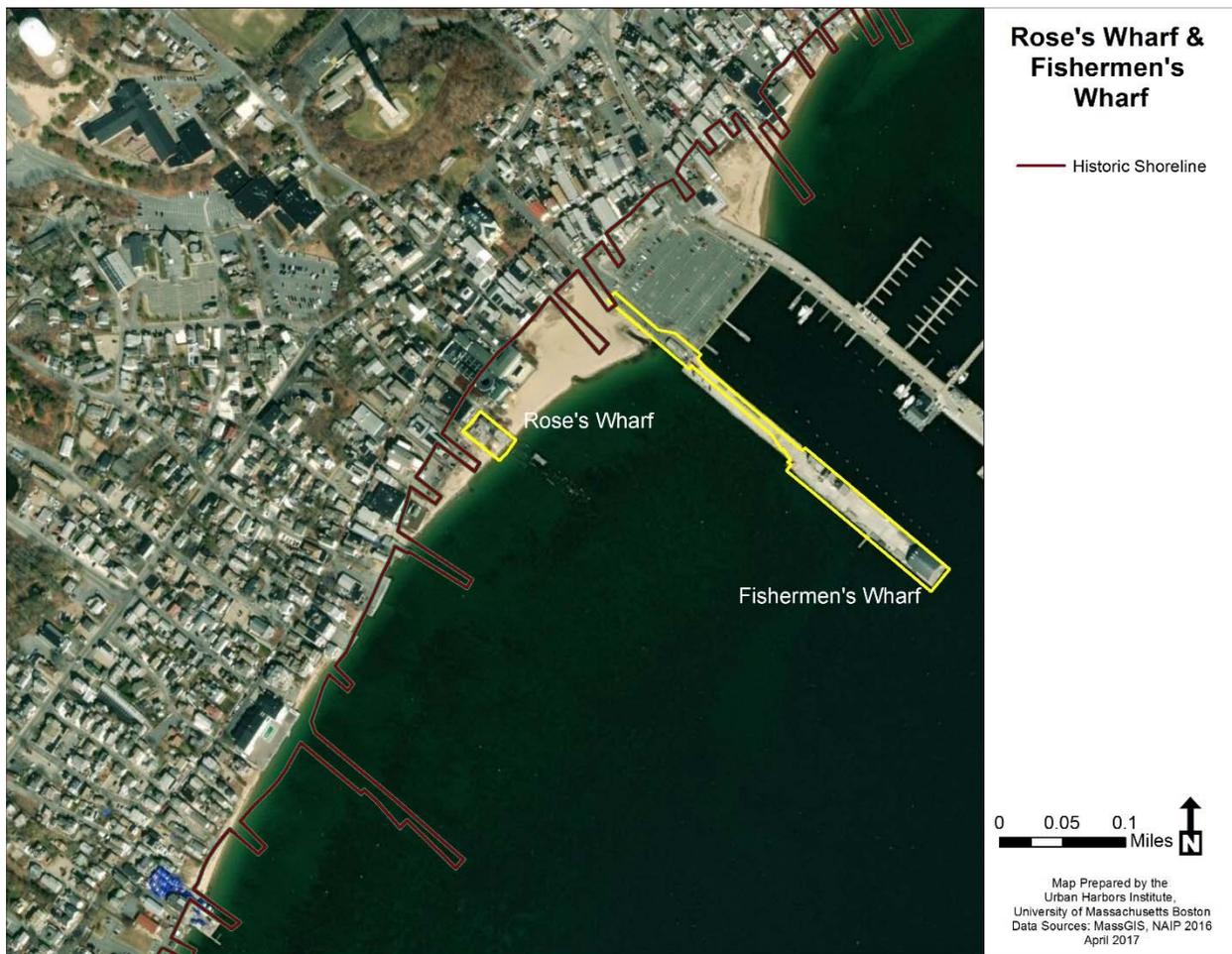


Figure 15: Rose's Wharf and Fishermen's Wharf

### 3. Off-site Public Benefit Requirements (Contributions to the Harbor Access Gift Fund)

Although the general premise for obtaining a Chapter 91 license is that a property owner will be expected to provide public open space and related physical improvements, in certain situations the feasibility of providing such benefits on the project site is limited and may even be impossible. In such cases where the on-site public benefits are insufficient to compensate for the detriments to public rights on Commonwealth tidelands, DEP has traditionally sought alternative benefits in the form of monetary contributions to fund the provision of off-site benefits elsewhere in the harbor, preferably in a nearby location. Since this situation is likely to occur in Provincetown, the Provincetown Board of Selectman established the Harbor Access Gift Fund on August 26, 1996. The purpose of the fund is “to receive Chapter 91 public benefit mitigation funds and other donations, the proceeds of which shall be used without further appropriation to enhance the public’s access and use and enjoyment of the shoreline and waters of Provincetown Harbor, including but not limited to maintenance and improvements of Town landings and other public properties for water dependent use.”

In order to determine whether a contribution to the Harbor Access Fund will be required as a condition of a license, the Plan has developed a methodology that involves a relatively simple set of computations. The details of this methodology are set forth in Appendix C. The licensee has the option of making a lump sum contribution to the Fund or making annual payments amortized over 30 years, which is the standard license term for nonwater-dependent use projects. In addition, upon recommendation of the Harbor Committee, an alternative payment schedule involving partial deferments may be authorized in unusual cases.

DEP is responsible for determining the contribution in accordance with the Appendix C methodology and will require payment as a condition of licensing. The Town is responsible for collecting the moneys and administering the Harbor Access Gift Fund, into which all collections will be deposited. As part of this collection program, the Town may create liens against the property for overdue accounts, so that title to the property cannot be passed until the lien is satisfied. Also, DEP's enforcement powers may be useful if the Town has difficulty with overdue payments. Licenses should include a condition stating that non-payment over a specified time period (maybe three (3) years) will be grounds for enforcement action (including penalties and possible license revocation).

#### 4. Additional Amplifications of Discretionary Requirements

The following amplifications are applicable to all properties, including those that fall under the amnesty program. As noted in 310 CMR 9.10, "for purposes of authorizing projects under the amnesty program, the applicable procedural rules found at 310 CMR 9.11-9.30 of [the 1990 regulations] shall be in effect..."

§9.16(2)(c) Tidewater Displacement Fee. *"Except as provided in 310 CMR 9.16(4), prior to issuance of a license for any fill or structure that will displace tidewaters below the high water mark, the applicant, or his/her heirs or assignees responsible for such displacement, shall, at the discretion of [DEP]....[consider] a contribution to a special fund or other program managed by a public agency or non-profit organization in order to directly provide public harbor improvements."*

The Provincetown Harbor Plan requires that tidewater displacement fees levied by DEP be paid directly to the Provincetown Harbor Access Fund, as described in Section 6(a)(2) of this Plan.

§9.22(1) Maintenance and Repair of Fill and Structures. *"No application for license or license amendment shall be required for [maintenance and repair] activity. Maintenance and repair include...restoration to the original license specifications of licensed fill or structures that have been damaged by catastrophic events, provided that no change in use occurs and that...in the case of flood-related damage, the cost of such restoration does not exceed 50 percent of the cost of total replacement according to the original license specifications..."*

The Provincetown Harbor Plan calls for a strict enforcement of this requirement and for close coordination between DEP and the Provincetown Building Inspector, to determine when further licensing is required for structures that have been damaged beyond the 50% replacement cost limit.

§9.22(3) Minor Project Modifications. *"The licensee may undertake minor modifications to a license project without filling an application for license or license amendment. Such modifications are limited to...No such modifications shall be undertaken until the licensee has submitted written notice to the Department describing the proposed work in sufficient detail with reference to any relevant license plans, for the Department to determine compliance with the above conditions."*

The Provincetown Harbor Plan calls for strict enforcement of this requirement and for DEP to provide the Harbor Committee with opportunity to review and comment upon any written notice of proposed minor project modification.

Table B 1: Parcels in Chapter 91 Jurisdiction & Identified Required Physical Improvements from Previous Harbor Plans (\*see key to Recommended Improvements column below table)

Map	Parcel	Address	Recommended Improvements*	Amnesty Received	License Number	Public Access Required
51	2	1 Commercial Street	1,2,3			
51	1	7 Commercial Street	1,2,5			
53	6	11 Commercial Street				
53	5	15 Commercial Street				
53	4	19 Commercial Street				
53	3	21 Commercial Street				
53	2	25 Commercial Street				
53	1	27 Commercial Street				
54	12	29 Commercial Street				
54	11	31A Commercial Street	1,2,5			
54	10B	31 Commercial Street				
54	10A	33 Commercial Street				
54	10	35 Commercial Street				
54	10C	37 Commercial Street				
54	9	39 Commercial Street				
54	8	41 Commercial Street				
54	7	43 Commercial Street				
54	6	45 Commercial Street		Yes?	Pending?	Yes
54	5	47 Commercial Street			11417	Gift Fund
54	5	47C Commercial Street			12155 Prior license #11417	Gift Fund
54	4	49 Commercial Street				
54	3	49 A Commercial Street			11969	Yes
54	2	51 Commercial Street		Yes	10347	Yes
54	1	53 Commercial Street			10348	Gift Fund
62	23	55 Commercial Street	19			
62	22A	57 Commercial Street	2,5,15			
62	22	59 Commercial Street	4			
62	21	61 Commercial Street				
62	20	61B Commercial Street				
62	19	61A Commercial Street				
62	18	63 Commercial Street			12237	Yes + Gift Fund
62	17	65B Commercial Street				
62	16	65A Commercial Street				
62	15	67 Commercial Street			9717	Yes
62	14	69 Commercial Street				
62	13	71 Commercial Street				
62	12	73 Commercial Street	2,5,15			

Map	Parcel	Address	Recommended Improvements*	Amnesty Received	License Number	Public Access Required
62	11	West Vine Street				
62	10	73 1/2 Commercial Street				
62	9	75 Commercial Street			11782	Gift Fund
62	8A	77 Commercial Street		Yes	11420	Yes
62	8	77A-79 Commercial Street		Yes	11420	Yes
62	8B	81 Commercial Street	1,2,5			
62	7	83 Commercial Street	1,2,5			
62	6	89 Commercial Street				
62	6A	91 Commercial Street				
62	4	97 Commercial Street			11910	Gift Fund
62	3	99 Commercial Street			3374	
64	28A	103 Commercial Street	1,2,5			
64	28	105 Commercial Street				
64	27	107 Commercial Street		Yes	1995	Yes + Gift Fund
64	26	109 Commercial Street		Yes	10139	Yes + Gift Fund
64	25A	111 Commercial Street	5			
64	24	113 Commercial Street				
64	21	125 Commercial Street	1,2,4,5,13			
64	20A	129A Commercial Street	11			
64	18	131A Commercial Street	11		11390	
64	14	139 Commercial Street	1,2,5,7,13,14			
64	12	143 Commercial Street	1,2,5,7,14			
64	11	145 Commercial Street	7			
64	10	147 Commercial Street	1,2,5,7			
64	9	149 Commercial Street				
64	6	151A Commercial Street	7			
64	5	153 Commercial Street	1,2,5,7,14			
64	4	155 Commercial Street	1,2,5,7			
64	3	157 Commercial Street	7			
64	2	157A Commercial Street	7,2,5,21			
64	1	Atlantic Ave				
72	5	161 Commercial Street		Yes	11787	Yes + Gift Fund
72	3	167 Commercial Street	1,2,5			
72	2A	169-171 Commercial Street				
72	2	173 Commercial Street				
72	1	175 Commercial Street	4,8,17,22			
111	12	177 Commercial Street	7			
111	11	179-181 Commercial Street	7			
111	10	183-185 Commercial Street	4,5,8,22	Yes		
111	9	Court Street (front of)				
111	7	191A Commercial Street	5			

Map	Parcel	Address	Recommended Improvements*	Amnesty Received	License Number	Public Access Required
111	6	193-199 Commercial Street	16			
111	4	205-209 Commercial Street	2,4,17			
111	3	213 Commercial Street				
111	2	219 Commercial Street	8,5,7,22			
111	1A	227R Commercial Street	16,17			
111	1	221-223 Commercial Street	5,8,17,22			
113	35	225 Commercial Street	5			
111	1-A	227-229 Commercial Street	23	pending file no. 96-8551	No. 72 to build a wharf No. 230 to extend wharf No. 411 to build a wharf; No. 412 to extend wharf	
113	34	229R Commercial Street				
113	33	235 Commercial Street				
113	32	237 Commercial Street				
113	31	241 Commercial Street				
113	30	243-249 Commercial Street	23			
113	29	251-253 Commercial Street				
113	28	253A Commercial Street	2,5,23			
113	27	Gosnold Street				
113	26	257-259 Commercial Street	2,5,23		13393	
113	25	261 Commercial Street	23		13393	
113	24	267 Commercial Street	23			
113	23	269 Commercial Street	23			
113	22	273 Commercial Street	23			
113	21	275 Commercial Street	23			
113	20	277 Commercial Street				
113	20A	277A Commercial Street	9			
113	19	19 Ryder Street Ext				
113	19A	9 Ryder Street Ext			14261	Yes + Gift Fund
113	18	281-283 Commercial Street				
113	17	289 Commercial Street				
113	16	291 Commercial Street				
113	15	293 Commercial Street				
113	14	299 Commercial Street				
113	13	301 Commercial Street				
113	12	303 Commercial Street				

Map	Parcel	Address	Recommended Improvements*	Amnesty Received	License Number	Public Access Required
113	11	307 Commercial Street			3469	
113	10	309 Commercial Street				
113	9A	16 MacMillan			5795 (Supersedes license No. 2261)	Yes
113	9	MacMillan Wharf				
113	8	315 Commercial Street				
113	7	315A-319 Commercial Street	1,2,5,11			
113	6	321 Commercial Street				
113	5	323-323A Commercial Street	1,2,5			
113	4	329 Commercial Street			9716	Yes + Gift Fund
113	3	331 Commercial Street				
113	2	333 Commercial Street			12845	
113	2	333R Commercial Street			12845	Gift Fund
113	1	Freeman Street	5,21,24			
121	12	337-345 Commercial Street	5,21,24			
121	10	345 Commercial Street	6			
121	9	349 Commercial Street	6			
121	7	351A Commercial Street	6			
121	4	355 Commercial Street	5			
121	3	353C Commercial Street	5			
121	2	355 Commercial Street	5			
122	24	259 Commercial Street	16			Yes + Gift Fund
121	1	357 Commercial Street	3,5			
122	23	361A Commercial Street	5,21			
122	21	363 Commercial Street				
122	20	373 Commercial Street	5,12,21	Yes	11421	Yes
122	19	375 Commercial Street				
122	18	379 Commercial Street	24	Yes	4/1/2008	Yes + Gift Fund
122	17A	Pearl Street (foot of)				
122	17	381 Commercial Street		Yes	4/1/2008	Yes + Gift Fund
122	16	385 Commercial Street				
122	15	387-391A Commercial Street	1,2,5,8,14			
122	14	389-391 Commercial Street	7,8			
122	13A	401A Commercial Street				
122	13	397 Commercial Street	1,2,5,8,14			
122	11	401 1/2 Commercial Street	2,5		10272	Gift Fund
122	10	403 Commercial Street	2,5			Yes + Gift Fund
122	9	407 Commercial Street				
122	8	409 Commercial Street	6			

Map	Parcel	Address	Recommended Improvements*	Amnesty Received	License Number	Public Access Required
122	7	409A Commercial Street	6			
122	6	411 Commercial Street	6			
122	5	415-417 Commercial Street	6			
122	4	419 Commercial Street	6			
122	3	421 Commercial Street	20			
122	2	423 Commercial Street	1,2,5,6			
122	1	425 Commercial Street	6			
124	19	427 Commercial Street				
124	18	429-435 Commercial Street				
124	17	437-439 Commercial Street		Yes	11958	Yes + Gift Fund
124	16	441 Commercial Street				
124	15	443-445 Commercial Street				
124	14	447 Commercial Street		Yes	11826	Yes + Gift Fund
124	13	449 Commercial Street				
124	12	451 Commercial Street			9255	Yes
124	8	463 Commercial Street	2,4,5		13377	
124	4	471 Commercial Street		Yes	13378	Yes + Gift Fund
124	3	473 Commercial Street		Yes	11729	
124	2	477 Commercial Street	1,2,5			
151	24	481 Commercial Street		Yes	12114	Yes + Gift Fund
151	23	481A Commercial Street				
151	22	485 Commercial Street				
151	21	487 Commercial Street				
151	20	491 Commercial Street	1,2,5			
151	19	493 Commercial Street	1,2,5		12666	Yes
151	18	495 Commercial Street			12666	Yes
151	17	497-501 Commercial Street				
151	16	505 Commercial Street				
151	11	523 Commercial Street			12320	
152	2	553-555 Commercial Street		Yes	10327	Yes
153	30	571 Commercial Street			12413	Yes
153	25	579 Commercial Street			11911	Yes
153	20	595 Commercial Street		Yes	12127	Yes
153	12	609 Commercial Street			12446	
153	5	623 Commercial Street		Yes	11696	Yes
153	4	627 Commercial Street				
171	6	655 Commercial Street				
171	5	657 Commercial Street			10050	Yes
171	3	661 Commercial Street		Yes	10326	Yes

Key to “Recommended Improvements” column of Table B1:

- 1 – Provide and maintain a perpendicular accessway from Commercial Street to beach
- 2 – Provide and maintain signage on both Commercial Street and beach indicating coastal access route
- 3 – Lower fence
- 4 – Build stairs
- 5 – Provide and maintain beaches, lighting, waste receptacles, or other public amenities
- 6 – Plant dune grass
- 7 – Remove snow fences and other temporary fences
- 8 – Convert and maintain seaward ten feet of bulkhead to public greenspace
- 9 – Remove guardrails
- 10 – Improve and maintain existing access way
- 11 – Provide and maintain interpretive signage
- 12 – Remove deck
- 13 – Provide and maintain signs indicating a pedestrian detour off beach
- 14 – Remove “No Beach Access,” “No Trespassing,” or “Private Property” signs
- 15 – Provide and maintain bike racks
- 16 – Provide and maintain a perimeter walkway across deck or bulkhead as part of mini loop system
- 17 – Provide and maintain signage indicating that public use is permitted
- 20 – Build and maintain a public dinghy dock
- 21 – Provide and maintain racks for dinghy storage
- 22 – Provide and maintain special designated parking for fishermen
- 23 – Allow for dinghy storage along waterfront
- 24 – Survey property

# APPENDIX 2: CALCULATION OF MONETARY CONTRIBUTIONS TO HARBOR ACCESS FUND

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Taken from the 2012 Provincetown Harbor Plan

(Applicable Only to Amnesty-Eligible, Nonwater-Dependent Use Projects)

The following methodology shall govern the determination of the extent to which monetary contributions will be required, in addition to any on-site public benefits determined necessary by DEP, to compensate for the public detriments associated with amnesty-eligible, nonwater-dependent structures and uses on Commonwealth tidelands. It is a relatively simple calculation that closely parallels the conventional DEP approach to obtaining public benefits, which typically include a mix of dedicated open space for public use together with on-site physical improvements. The basic idea is first to compute an overall “debit” to represent the minimum value that reasonably can be associated with the combination of public benefits customarily required by DEP; and then apply a “credit” to account for actual expenses that the licensee will incur for physical improvements to public spaces on the project site. A more detailed 3-step process for carrying-out the necessary computations is described below.

## Step 1: Compute Physical Improvement Debit

In general, at a minimum DEP requires nonwater-dependent projects to provide a ten (10) foot wide constructed walkway along the seaward perimeter of property, except in situations where such a walkway is infeasible or inappropriate due to physical conditions or other special circumstances. Such circumstances exist in Provincetown, where the Town generally does not support the encroachment of boardwalks and other hard surface accessways on the existing sand beach lying along the seaward edge of most amnesty-eligible project sites. The Physical Improvement Debit represents the expenditures that would normally be incurred to comply with this requirement, by calculating the typical cost of providing a generic walkway facility across the entire width of the subject property, with the exception of properties containing one to three-family, owner occupied (i.e., primary) residences. This exception was deemed appropriate by the Harbor Planning Committee in 1999 as a means of avoiding any disproportionate financial impact on the smallest scale residential properties subject to Chapter 91 jurisdiction. This exception shall remain in effect upon renewal of the approved plan, but only for amnesty applications that DEP has determined to be complete, in accordance with 310 CMR 9.11(3)(c), within two years of the date of plan renewal.

The Physical Improvement Debit incorporates the cost of original construction as well as an annual maintenance factor, based on general engineering cost practices as well as prior licensing experience along the Provincetown waterfront. These combined costs were established in 1999 by DEP, in consultation with the Harbor Planning Committee, to be \$300 per linear foot for a 10’ wide walkway [\$30 per square foot]. The 1999 Plan stated that this charge will have to be reviewed periodically by the Harbor Committee to ensure that it accurately reflects current construction and maintenance costs. In the intervening 11 years, construction costs have increased significantly and DEP has determined, in consultation with the Harbor Committee, that the per square foot charge should be increased accordingly, based on the overall rate of inflation (i.e. the charge will be the net present value of \$30 in 1999 dollars). At the same time, experience has also shown that for most amnesty-eligible projects in Provincetown the as-built condition generally does not allow for the normal walkway width of ten feet, and that a four (4) foot wide walkway would be more appropriate. Thus, the revised Physical Improvement Debit for a given property is computed through the following equation:

$$\text{Physical Improvement Debit} = [\text{harbor frontage of parcel (ft)}] \times [\text{walkway width}=4 \text{ ft}] \times \$30 \text{ (in 1999 dollars)/sq ft}$$

## Step 2: Compute Public Use Debit

As a general rule, since the mid-1980s DEP has required nonwater-dependent projects on Commonwealth tidelands to dedicate at least 50% of such tidelands as public open space<sup>19</sup>, and to reserve much if not all of the ground floor of buildings for facilities of public accommodation<sup>20</sup>. In their as-built condition, amnesty projects typically cannot provide ground-level public space in such amounts, either within or outside existing buildings, without substantially displacing existing uses. Accordingly, the Public Use Debit reflects this shortfall by applying a fixed rate of compensation to the amount by which ground level spaces to be dedicated to public use on the project site (both interior and exterior) fall below the level normally required. The compensation rate was established in 1999 by the Harbor Planning Committee, in consultation with DEP, to be \$10 for every square foot of the combined deficit in spaces available for public use. DEP subsequently incorporated a “credit factor” into the computation to take into account varying degrees to which public open space is provided on the project site. Again adjusting this charge for the overall inflation rate since 1999, the Public Use Debit for a given property is computed through the following equation:

$$\text{Public Use Debit} = [\text{exterior space deficit}^* + \text{interior space deficit}^{**}] \times [\text{open space credit factor}^{***}] \times \$10 \text{ (in 1999 dollars)/SF}$$

- \* exterior space deficit (SF) = amount by which public open space will be less than 50% of tideland area on the property
- \*\* interior space deficit (SF) = amount of ground floor building space on tidelands but not devoted to facilities of public accommodation
- \*\*\* open space credit factor = 1 minus fraction of Commonwealth tidelands devoted to public open space on project site

It should be noted that the Public Use Debit (and therefore the overall monetary contribution) can be reduced by providing more space for public use on any portion of the property (either tidelands or uplands). As an additional incentive to provide exterior public spaces of particular utility, any space dedicated for fishermen for parking, or to public accessways from the shoreline to the street, will receive extra credit in the above calculation (on a 2:1 basis). For example, if 200 SF are dedicated on a property for fishermen to use as parking, or as a street to beach accessway, then this counts as a total deduction of 400 SF of exterior public space.

## Step 3: Compute Required Monetary Contribution (if any)

The required monetary contribution is computed by adding the Physical Improvement and the Public Use debits, and then subtracting any new expenditures that will be made to provide on-site physical improvements (as stipulated in Appendix B and as otherwise may be required by DEP on a case-by-case basis). Thus the Monetary Contribution for a given property, in the form of a lump sum, is computed through the following equation:

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<sup>19</sup> For purposes of this Plan, the term “public open space” generally means exterior spaces (i.e., those not within the footprint of buildings and other structures) that are dedicated to active or passive public recreation, conservation of natural resources, or public water-dependent activity, and any accessory uses thereto.

<sup>20</sup> As described in 310 CMR 9.02, a facility of public accommodation “means a facility at which goods or services are made available to the transient public on a regular basis ... rather than restricted to a relatively limited group of specific individuals. Facilities of public accommodation may be either water-dependent, accessory to water-dependent, or nonwater-dependent.”

$$\text{Monetary Contribution (lump sum)} = [\text{Physical Improvement Debit} + \text{Public Use Debit}] - [\text{Credit for actual improvement expense}]$$

From this equation it is evident that if the new on-site expenditures equal or exceed the sum of the applicable debits, no monetary contribution to the Harbor Access Fund will be required.

It is important to note that credit will not be given for capital costs incurred to overcome existing obstructions that impede lateral movement along the beachwalk and/or in the intertidal zone (e.g., providing ladders over piers, paving/signing of upland “detours”, removing derelict structures, etc.), because such measures are not considered to be new improvements – rather they are necessary to eliminate detriments that arise from existing structural impediments to lateral pedestrian access.

In the event the applicant chooses to amortize the monetary contribution, the annual payment will be calculated by applying an interest rate of 4% over 5 years, resulting in an amortization factor of approximately \$220 for every \$1000. Thus the annual contribution is calculated using the following equation:

$$\text{Annual payment (dollars)} = \text{Lump Sum Monetary Contribution (dollars)} \times 0.22$$

## APPENDIX 3: 2018 HARBOR PLAN IMPLEMENTATION MATRIX

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As an implementing entity of many of the Plan’s recommendations, the Harbor Committee has reviewed and prioritized the recommendations and assigned timeframes to help guide implementation. This process was conducted individually by the Harbor Committee members and was followed by Committee discussion and decision-making during posted meetings.

The Plan includes a total of 95 recommendations spanning 12 topic areas. The Harbor Committee ranked the priority of each recommendation as high (N=39), medium (N=40), or low (N=16), with a nearly equal number of high and medium priority recommendations. The Harbor Committee also assigned a timeframe for the implementation of each recommendation. The timeframe consisted of three categories: Year 1 (N=57), Year 3 (N=30), and Year 5 (N=8), with a majority identified as Year 1 recommendations. Of the 95 total recommendations, 46 are ongoing, meaning that these recommendations are already being implemented and should continue. As a result, almost half of the total recommendations are not focused on beginning a new task, but rather on continuing the progress already being made through existing efforts. All topic areas had at least one ongoing recommendation.

Recommendations were generally distributed across the topic areas, though emphasis did differ between the topic areas. The majority of recommendations in the following five topic areas were ranked as high priority with a Year 1 timeframe: Water Quality -- Land-Based (11 recommendations), Commercial Fishing (11 recommendations), Recreational Fishing (9 recommendations), Beaches (9 recommendations), and Administration & Regulatory Coordination (8 recommendations).

Recommendations in the following three topic areas were generally evenly distributed between high and medium priority and also between the Year 1 and Year 3 timeframes: Water Quality -- Water-Based (4 recommendations), Navigation & Dredging (6 recommendations), and Moorings & Anchorages (3 recommendations). The majority or all of the recommendations in the following three topic areas were ranked as medium priority, with timeframes of either majority Year 3, or generally distributed between all three timeframes: Aquaculture (6 recommendations), Recreational Boating (10 recommendations), and Culture & Tourism (9 recommendations). Finally, recommendations in the Public Access & Town Landings topic area (9 recommendations) were generally evenly distributed between high, medium, and

low priority, with a majority assigned a Year 1 timeframe. In addition, recommendations primarily addressing climate change impacts were generally ranked as a medium priority, with various timeframes for implementation.

These priorities and timeframes are flexible and may be adjusted based on factors such as permitting and funding availability. The prioritization should not be interpreted as a demonstration of a lack of support for any given recommendation. Instead, the prioritization should be viewed as a way to organize efforts around Plan implementation in order to ensure progress is made during the five-year planning period.

# Provincetown Harbor Plan DRAFT Goals, Objectives, and Recommendations

Prioritized June 2018

Goal	Objective	Recommendation	Rec #	Priority Status (High, Medium, Low)	Timeline (Starts in Year 1, Year 3, Year 5)	Ongoing/ In-Progress
Maintain and improve water quality in Provincetown Harbor and keep beaches clean.	Reduce water quality impairments related to the Town’s sewer system and individual septic systems.	Expand the Town’s sewer system and determine the feasibility of expanding the wastewater treatment facility.	1	H	3	
		Identify the locations of cesspools, septic systems, and grease traps that could be vulnerable to damage and, thus, contaminate the Harbor, and develop strategies to minimize potential impacts.	2	H	1	Yes
	Reduce water quality impairments related to stormwater runoff, marine debris, pet waste, and other pollution in the Harbor.	Continue to identify sources of any remaining stormwater runoff pollution, and address these sources. Additionally, consider the potential impacts of climate change and enhanced storm intensity on stormwater runoff.	3	M	1	Yes
		Reduce the flow of debris from the storm sewer outfalls through the installation of subsurface systems that can collect pollution from the storm sewer outfalls.	4	M	3	Yes
		Continue the program that ensures that all storm drains are labeled to prevent dumping activities.	5	M	1	Yes
		Continue and enhance marine debris prevention and removal efforts in Provincetown.	6	L	1	

		Ensure all appropriate town landings, beaches, and public seating areas have trash barrels, recycling bins, cigarette litter receptacles, dog poop bags, and signage stating that cigarette smoking is prohibited on beaches.	7	H	1	Yes
		Continue and expand upon current strategies to reduce pet waste pollution.	8	H	1	Yes
		Provide homeowners and landscapers with information on organic fertilizers, environmentally-suitable fertilizer application rates, natural or indigenous plantings, and other landscaping practices that would help protect water quality.	9	H	1	Yes
	Continue to support water quality monitoring efforts.	Support the water testing program for the Harbor, which includes monitoring storm drain and street runoff.	10	H	1	Yes
	Better maintain the sewer outfall pipes so they are functional, clear, and effective (e.g., water can flow through them and they are free of sand).	Develop strategies to keep the sand from clogging the outfall pipes, better maintain the pipes where sediment is backing-up, and utilize the removed sand as nourishment material.	11	H	1	Yes
Maintain and improve harbor water quality and keep beaches clean.	Continue monitoring, enforcing, and publicizing pump-out regulations.	Continue monitoring water quality closely for different types of pollution.	12	H	1	Yes
		Continue to maintain, publicize, and enforce the current pump-out program.	13	H	1	Yes
	Maintain and expand the pump-out system as needed to meet current needs and accommodate additional vessels.	Expand the pump-out system to accommodate the larger commercial vessels operating on tight time schedules.	14	M	3	
		Expand the Town's sewer system to accommodate current un-met needs and additional vessels.	15	M	3	

Improve Harbor access.	Reclaim, maintain, and protect all town Landings and public access ways.	Continue to seek/develop a dry-sand beach walk along the length of the Harbor.	16	L	5	
		Using the research conducted as part of this project, build and maintain a database of all Chapter 91 licenses access conditions as well as other public access to the Harbor, obtained through other means such as easements.	17	H	1	Yes
		Enforce existing public access requirements.	18	H	1	Yes
		Ensure that efforts to minimize inundation flooding maintain public access, where possible.	19	H	1	
		Enforce existing visual access requirements.	20	L	1	Yes
		Improve coordination between departments, boards, and committees with jurisdiction over projects in the planning area to ensure that public access, including visual access, is considered in all project reviews.	21	M	1	Yes
		Create a series of pocket parks along the Harbor.	22	L	5	
		The non-paved portion of access from Commercial Street at all Town Landings should get clean sand and gravel where appropriate.	23	L	5	
		For all public landings and publicly owned lands, the current signage system should be properly installed and maintained to indicate public access and amenities on both the beach and Commercial Street, while protecting vista views.	24	M	3	
Aquaculture of types that will not harm the	Explore opportunities to expand aquaculture in Provincetown Harbor.	Understand local interest in expanding aquaculture in Provincetown Harbor.	25	M	3	

ecology of the Harbor should be one of the priority uses of the Harbor, reflecting both its considerable potential and role in sustaining and revitalizing the commercial fishing industry.		Determine the harbor's capacity for additional aquaculture activities and identify opportunities to locate aquaculture leases in a manner that avoids conflicts with other Harbor uses and maximizes co-location with compatible uses of the Harbor.	26	M	3	Yes
		Develop a manual describing permits and plans needed for those interested in obtaining an aquaculture lease in Provincetown Harbor.	27	M	3	Yes
		Encourage studies and programs to grow other types of shellfish such as steamers, mussels, or sea urchins, as well as kelp if ecologically safe.	28	M	3	
	Ensure adequate infrastructure to support aquaculture activities in Provincetown Harbor.	Explore opportunities to increase shoreside infrastructure for aquaculture activities.	29	M	5	
		Continue to cooperate with the Massachusetts Division of Marine Fisheries, Woods Hole Oceanographic Institution, and others to investigate and solve predation and disease problems.	30	M	1	Yes
Take measures to support a vibrant commercial fishery.	Commercial fishing facilities should be maintained and supported when economically feasible.	Explore opportunities to revise the ice system to produce salt water ice.	31	H	3	
		Explore opportunities to develop a facility to haul out vessels and conduct repairs.	32	L	3	
		Identify and eliminate obstructions to vehicle access between Town landings for use by commercial fishermen, and develop a strategy to maintain that access.	33	M	1	
		Ensure that all license requirements for MacMillan Pier are enforced in order to protect the interests of the commercial fishing industry.	34	H	1	Yes

		Provide improvements for other commercial boating as part of the MacMillan Pier operation.	35	H	1	Yes	
		Maintain the off-loading dock designed and dedicated for use by small-boat fishermen with appropriate facilities including off-loading parking.	36	H	1	Yes	
	Conduct research to better understand the needs and opportunities for commercial fishing in Provincetown.	Support research to understand the impacts of seals on local fisheries and water quality.	37	H	1	Yes	
		Conduct an economic assessment of the value of fishing to the Town—including an assessment of the economic impacts of aquaculture.	38	M	3	Yes	
		Explore the Town’s interest in creating an area dedicated to commercial wild harvest.	39	M	3		
	Take measures to promote healthy habitats for commercially significant species.	Discourage the gutting of fish and feeding of seals at MacMillian Pier.	40	H	1	Yes	
		Ensure that development and activities in and around the Harbor do not negatively impact habitat.	41	H	1	Yes	
	Ensure that recreational shellfishing remains a vibrant piece of Provincetown’s economy and culture.	Increase and improve shellfishing opportunities in the planning area, including in Hatches Harbor.	Explore the possibility of extending the recreational shellfish season.	42	L	1	Yes
			Promote the safety of shellfish harvesters, and pedestrians, at the West End breakwater through the posting of signage.	43	L	1	Yes
Introduce recreational shellfishing to new user groups through classes, events, and other means.			44	L	3		
Ensure stability of local shellfish populations.		Explore opportunities to build artificial reefs to supplement the local oyster populations and create new opportunities for recreational shellfishing.	45	M	3		
		Continue shellfish propagation efforts.	46	M	1	Yes	

		Identify and mark areas of the Harbor naturally suited for shellfish, and reserve and control use of the areas for boat mooring and anchorage.	47	L	1	Yes
		Sufficient financial resources should be directed at shellfish propagation (seed and equipment) for recreational shellfishing.	48	M	1	
		Work with the Division of Marine Fisheries to approve the harvesting and/or moving of oysters from the town's public beach (during the winter season).	49	L	1	Yes
		Refine the yearly order that recreational areas are opened in order to better utilize shellfish resources.	50	L	3	Yes
Improve the conditions of the beaches by decreasing the sources of debris, including plastic pollution, and increasing debris removal from the beach.	Promote local efforts by both Town government and concerned citizens to remove, reduce, and prevent marine debris.	Continue the Town's beach raking program and address discrete beach raking operations as needed in accordance with the Conservation Commission.	51	M	1	Yes
		Continue to support local beach clean-ups, awareness campaigns, and other local initiatives concerning marine debris.	52	H	1	Yes
		Work with the Department of Public Works and its volunteer town committees to improve municipal solid waste and storage collection systems.	53	H	1	
Ensure that necessary beach nourishment projects are completed.	Create and implement a comprehensive beach nourishment plan for existing priority projects and long-term projects that is science-based and informed by public input. This planning process should be informed by and consistent with the	Develop a schedule for existing priority nourishment projects and identify non-priority projects and timelines for those as well.	54	H	1	
		Conduct public meetings to solicit input to determine which areas should receive nourishment after the previously identified priority projects are complete.	55	M	3	

	beach nourishment projects identified in the 2016 Hazard Mitigation Plan and the 2015 Final Report of the Provincetown Coastal Resiliency Assessment and Strategic Beach Stabilization Pilot Project.	Based on science-based research and public input, develop a plan for long-term beach nourishment, taking into account any cyclical nourishment needs and dredging projects, as well as anticipated impacts from sea level rise.	56	H	1	
		Continue to monitor beach conditions and evaluate all vulnerable shoreline areas for possible future nourishment and beach stabilization projects.	57	H	1	Yes
Ensure that all beach nourishment projects are adequately funded.	Explore opportunities to secure consistent funding sources, including at the municipal level.	Take steps to ensure that funding for beach nourishment is a standard budget item.	58	H	1	Yes
Where applicable, conduct beach nourishment activities in consultation with regional partners.	Explore opportunities and identify organizations and neighboring municipalities as potential partners on beach nourishment-related projects.	Work with regional partners to address research needs, planning, permitting, and funding for future beach nourishment projects.	59	H	1	Yes
Maintain waterways in Provincetown Harbor in a safe and navigable state for all users.	Promote safe navigation in Provincetown Harbor.	Establish a regular dredge maintenance program (including long-term and short-term priorities) for areas outside of the Federal Channel in Provincetown Harbor.	60	M	3	
		Seek funding to support the dredging and beach nourishment programs.	61	H	1	Yes
		Conduct studies to determine bathymetric changes in the Harbor and their causes.	62	H	1	
		Provide advice to the Select Board on a regular basis on what areas in the Harbor need to be dredged.	63	M	1	
		Remove all hazards (e.g., wrecks, moorings, groins) from navigable waterways that could create safety concerns.	64	M	3	

		Inventory all groins along the shoreline to identify those that pose navigational hazards but cannot be removed. Mark those that require marking, taking into consideration those which may become submerged with rising sea levels.	65	M	3	
Ensure that Harbor conditions, activities, facilities, and services support recreational boating, including motorboats, sailing vessels, kayaks, and other rowboats.	Encourage facilities and services to meet the needs of recreational boaters including dinghy moorings, launch services, and dockside amenities.	Ensure Provincetown Harbor has adequate public landing facilities and services.	66	M	3	
		Ensure Provincetown Harbor has adequate in-season storage facilities for boats, dinghies, and kayaks.	67	H	3	
		Ensure Provincetown Harbor has adequate winter storage facilities for boats, including dinghies and kayaks.	68	L	5	
		Explore the opportunities for new or expanded recreational boating and sailing programs and facilities in the Harbor.	69	M	5	
		Ensure the Harbor has adequate boat ramp and float services.	70	M	5	
		Ensure shoreside infrastructure that supports recreational boating (e.g., piers, wharves, floats) is prepared to withstand the impacts of climate change, or is relocated.	71	M	3	
	Continue to ensure that Provincetown Harbor is safe for boating activity and other water-dependent uses.	Improve the harbor's no-wake signage and enforcement.	72	M	1	
		Provide brief safety/education training to those who rent boats, paddleboards, kayaks, and other boats.	73	M	1	Yes
		Mark wrecks and other hazards to ensure safe boating and diving; remove hazards as necessary while ensuring certain artifacts are not removed from the Harbor.	74	L	3	

		Review the Harbor Regulations yearly and update if necessary.	75	H	1	Yes
Improve availability of and access to moorings and anchorages in Provincetown Harbor, while reducing conflicts between anchorages, moorings, and other uses and natural resources in the Harbor.	Continue to establish a uniform mooring and anchorage system that meets the demand but does not conflict with other uses and natural resources.	Continue to improve the updated mooring program.	76	M	1	Yes
		Develop an updated anchorage program.	77	M	3	
		Explore the Town's interest in developing new regulations to address houseboats, liveaboards, and floating businesses, e.g., workshops, bed and breakfasts.	78	H	1	
Increase the economic impact of the visitor economy as it pertains to Harbor uses, services, and infrastructure.	Ensure that infrastructure and resources are in place to serve the needs of those visiting the Harbor.	Support opportunities to expand tourism-related infrastructure along and near the Harbor.	79	M	5	
		Explore opportunities to make the Harbor more inviting and welcoming.	80	M	3	Yes
	Extend the tourism season.	Work with ferry providers to extend ferry service into the current shoulder seasons to increase visitation to Provincetown.	81	M	1	
		Expand harbor-related activities to attract additional visitors, especially on the shoulder season.	82	M	3	
		Expand the open season for the downtown restroom facilities.	83	M	1	
	Improve the safety of those visiting Provincetown Harbor.	Continue to develop emergency support plans for potential issues and events impacting the waterfront.	84	H	1	Yes
	Ensure that tourist information about the Harbor and downtown is up to date and easily accessible.	Develop updated brochures and maps to reflect new establishments, activities, and accesways along/near the Harbor.	85	M	3	

Create a safe environment in the Harbor for long distance and recreational swimmers.	Designate a preferred area for long distance swimming at high tide.	Encourage long-distance swimming on the back-side of the West End breakwater.	86	L	3	
Continue to celebrate the Town's history and traditional harbor uses.	Ensure that activities within and around the Harbor promote the town's past and support long-time uses such as swimming, fishing, and boating.	Collaborate with ferry providers such as Captain John Boats to increase ferry service during the 400th anniversary of the Pilgrim's landing and settlement.	87	L	1	
Improve coordination with DEP and other state and federal regulatory authorities to ensure that the goals and objectives of this plan are advanced through licensing/permitting, programmatic, and capital investment decisions.	Provide clear guidance to DEP on how the standards of Chapter 91 for public access and water-dependent uses can best be achieved in the context of the existing pattern of development and the community's desire to preserve its character and ensure continued economic sustainability.	Limit conversion of facilities of public accommodation along the waterfront to facilities of private residential use or private condominiums.	88	H	1	Yes
		In reviewing projects, recognize two substitutions for the standards of the waterways regulations, i.e., Fishermen's Wharf and Rose's Wharf.	89	H	1	
		Utilize the Guidance to DEP for Chapter 91 Licensing in Provincetown Harbor contained in Appendix B and C in evaluating pending Chapter 91 applications and in formulating recommendations to MA DEP.	90	H	1	Yes
Improve coordination among municipal boards and committees with land use and environmental planning, regulatory, and advisory responsibilities to ensure consistency	Improve coordination of municipal regulatory decision making.	Continue to designate the Harbor Committee as the entity responsible for reviewing local Chapter 91 license applications for consistency with the Provincetown Harbor Plan, and for preparing and submitting recommendations to MA DEP, either independently or in conjunction with the Planning Board.	91	H	1	Yes
		Ensure that the Harbor Committee is notified of any planning, building, or zoning permit	92	H	1	

among decision making among municipal entities and between municipal, state, and federal regulators and program managers.		application affecting a property on the water-side of Commercial Street.				
		Ensure that the town's Harborfront Area Overlay District is consistent with Chapter 91 regulations.	93	H	1	
Maintain a comprehensive database, map, and associated records of the status of Chapter 91 licensing in the Harbor Plan area.	Compile data to assist in a) monitoring compliance with license conditions, b) on-going efforts to bring existing unlicensed development into compliance, and c) to illustrate status of implementation of plans recommendations.	Utilize the table of Chapter 91 licensing requirements and status maintained by the Harbormaster as the means to record licenses issued and conditions imposed, including contributions to the Harbor Access Fund and properties eligible for amnesty licensing.	94	H	1	Yes
		Work with the MIS department to format and maintain the records so that the Chapter 91 data can be maintained and displayed with the GIS data layers maintained by the Town.	95	M	3	

# APPENDIX 4: TOWN SECTORS FROM 2012 PLAN

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The following is excerpted from the 2012 Provincetown Harbor Plan, and should continue to serve as general guidance to DEP.

Given the distinct regions of town, the following additional recommendations should be considered for each individual license in each region. Because Provincetown's waterfront is so densely developed there is not one set of recommendations that can be applied uniformly. For this reason, the waterfront was divided into seven distinct regions for the Amended Plan.

## Region A: Provincetown Inn to 111 Commercial Street

This region consists mostly of residential properties and a few Inns. This beachfront is particularly picturesque due to the close proximity of historic structures to the water and the old wharves and jetties that dot its coast. Beaches are clean and inviting for strollers and bathers although perpendicular and lateral access is difficult or impossible in some areas.

Recommendations are for property owners with wharves that jut into tidal zones at high tides to keep clear passage beneath them and for property owners who have blocked legal perpendicular access to reopen those access routes. Perpendicular access is especially needed in this area when appropriate. The West End Boat Ramp and the Franklin Street Landing are both used extensively by small boat fishermen and recreational boaters. Beach cleaning upkeep in the West End Boat Ramp area is needed. This area is also frequented by large groups of children who swim and play on these beaches. Other general improvements recommended in this region include increased visual access from Commercial Street to the beach whenever possible and appropriate.

## Region B: Coast Guard Station to Flyers Boatyard

This region is devoted almost entirely to water-dependent use for boaters. As a result, the beach is inhospitable for swimming and difficult for strolling. The beach area is not clean, full of obstacles, and the water quality is poor. Recommendations for this area include cleaning of debris on the beaches, better monitoring of water quality, more dinghy tie up facilities and increased visual access from Commercial Street to the beach whenever possible and appropriate.

## Region C: 135 Commercial Street to Atlantic Ave. Landing

This region consists mostly of historical, residential properties bordering a small area of beachfront. It is extremely inviting for strollers and bathers, due to its picturesque nature, yet perpendicular access to and from the street is very limited. Recommendations are for property owners who have blocked legal perpendicular access to re-open access routes and general increased visual access from Commercial Street to the beach wherever possible and appropriate.

## Region D: Atlantic Ave. Landing to Gosnold Street Landing

This region is comprised primarily of commercial buildings; commercial inns, hotels, restaurants and retail businesses. The beachfront remains a popular stretch for swimming and strolling. Many of the large businesses decks and parking lots extend into the tidal zone. Large parking lots in this area should be asked to provide lateral access for beachgoers. The beachfront just to the west of Gosnold Street is wide and as a result, very dirty. Regular cleaning of this area is needed. Increased visual access from Commercial Street to the beach wherever possible and appropriate.

## Region E: Gosnold Street Landing to 343 Commercial Street (Lands End Marine)

This area is characterized by primarily water-dependent usage – which, combined with region B comprise Provincetown’s working waterfront. As a result of its congested boating activity – the water quality in this region make it inhospitable for swimming. Its overall congestion creates a particularly debris-ridden beachfront unpleasant to stroll. As it is one of the most widely seen beachfront areas due to MacMillan Pier and Fisherman’s Wharf, it is essential that this area be made a prime target of a major and ongoing clean-up effort. Due to the high congestion of boats in this area the water quality is particularly poor. Better monitoring of boat-related pollution is warranted. The Municipal Parking Lot adjoining MacMillan Pier is a particular eyesore and major obstruction to beach-goers. An effort needs to be made to create a waterside access so that one can continue to walk the beach without having to walk from the water’s edge to the entrances on the two sides of the large parking lot. Beach nourishment, which has become trapped by the bulkhead of the Municipal Parking Lot, has kept an uncharacteristically large beach on both the east and west sides that are hard to traverse and especially prone to debris due to size and usage.

Region F: 345 Commercial Street to Howland Street

A mix of residential and commercial structures, many of which are historical, characterizes this region. A small, but ample and picturesque beach, this is a very popular stretch for beachgoers to enjoy due to its easy access from the street (although the area closer to Howland Street has need for more perpendicular access) and its relatively clean water and beach. The beach is wide enough to accommodate dinghies and kayaks and is a popular mooring area for smaller boats. The upper portions of the beaches, which the tides rarely clean, are in need of regular beach cleaning and designated areas for dinghy and kayak tie-up need improvement.

Region G: Howland Street to Truro Town Line

This region is private property to mean low water mark, subject to the public rights of fishing, fowling and navigation.

## APPENDIX 5: UPDATES FROM 2012 HARBOR PLAN: MATRIX OF COMPLETED OR IN PROGRESS HARBOR PLAN RECOMMENDATIONS

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The following matrix summarizes key actions from the 2012 Harbor Plan, identifies those with responsibility in implementing the recommendations, and identifies the actions taken to implement the recommendations.

	Categories and Recommendations	Required Actions	Responsibilities (Primary in bold)	5 <sup>th</sup> year progress report	2017 Second Amendment Progress Report
	<b>Land Use Recommendations</b>				
1.	Incorporate Harbor Plan recommendations into special permit, variance, and similar reviews	Zoning ordinance amendment	Town Meeting; Harbor Committee to draft refined regulations; Planning Board review	Ongoing as needed with LCP and Planning Board	Ongoing as needed with LCP and Planning Board
2.	Establish a working committee to consider proactive measures for protecting and enhancing water-dependent uses	Establish committee charge and time-frame	Select Board Planning Board Harbor Committee		This one has been and will continue to be harbor Committee and Pier Corp Board
3.	Seek funds and establish process to study measures to protect properties in the FEMA velocity zones	Seek funding sources and initiate studies	Harbor Committee Town Manager	See dredging	See dredging/ beach nourishment
4.	Establish a stormwater mitigation program	Direction from the Select Board	DPW Select Board Harbor Committee	Conducted comprehensive WQ testing at all stormwater outfalls under assessment program; installed 4 new stormwater mitigation systems around MacMillan Pier; ongoing project with CZM assistance, including a Town wide assessment of prioritized needs and several other storm drains done to date.	Porous paving of Commercial Street has been very helpful and other storm water drain projects since 2012 include:1 Commercial Street, Franklin St. landing, Good Templar landing, Atlantic Ave, Court St. landing, with additional inland work at Freeman street and Bradford St at Surfside Inn. Mapping of stormwater infrastructure has been completed.

	<b>Categories and Recommendations</b>	<b>Required Actions</b>	<b>Responsibilities (Primary in bold)</b>	<b>5<sup>th</sup> year progress report</b>	<b>2017 Second Amendment Progress Report</b>
5.	Request county aid to supplement a harbor water quality monitoring program	No change from existing policy and practice	DPW Harbor Committee	DCD and DPW continue working toward a comprehensive water quality-testing program. Partnered with Center for Coastal Studies. Now in third year of DEP 604b funded comprehensive water testing program.	Completed UMass Dartmouth STMAST Estuaries program for comprehensive water quality testing of Hatches and Provincetown Harbor and East Harbor Lagoon. Results generally good, except nitrogen loading and low dissolved oxygen at East Harbor outfall. DMF has mapped pollution sources statewide and is updating them. County continues bathing beach testing and DMF for shellfish testing. DMF has begun testing for possible conditional approval designation of the prohibited area in the middle of town for shellfish growing and harvest area. No additional testing needed at this time.
6.	Construction of a site specific sewer system	Financing, Engineering Construction	Town Manager DPW Water & Sewer Board Select Board	Phase 1 & 2 sewer construction is complete. Phase 3 is under construction.	Phase 3 and 4 are completed and Coastal Acres campground has been connected. Leaching fields have been authorized up to 750,000gal/day from original 65,000gal/day. Planning for next section of Commercial St. has started.
7.	Removal of beach debris: Provide additional assignment of maintenance responsibility and funding to the DPW, additional trash receptacles	Work assignments and additional funding	DPW Select Board Conservation Commission	Work done as needed. Harbor Comm. working to acquire a mechanized beach rake.	Mechanized Beach Rake pilot over with 3-year environmental study done. Little effect on the two town center beaches we regularly clean. Maintenance permit has been issued
8.	Removal of beach debris: Increase volunteer activities and increase awareness	Sponsor larger program	Harbor Committee	HC annually in spring partners with AmeriCorps volunteers and DPW for a town wide beach cleanup. Several problem areas have been addressed with additional AmeriCorps/DPW	Ongoing as needed. Boat racks a beached boats program changed to seasonal permit significantly reducing abandoned boats and boats on grass.

	<b>Categories and Recommendations</b>	<b>Required Actions</b>	<b>Responsibilities (Primary in bold)</b>	<b>5<sup>th</sup> year progress report</b>	<b>2017 Second Amendment Progress Report</b>
				support (cove area, abandoned boats)	
9.	Removal of beach debris: Permitting and licensing criteria	Include as a condition on various permits, approvals	Harbor Committee, Zoning Board of Appeals, Planning Board Conservation Commission		
<b>Water Use Recommendations</b>					
1.	Initiate and maintain program of aquaculture improvements	Establish priorities and implement recommendations	Shellfish Constable Select Board Harbor Committee Shellfish Committee	Upwellers for shellfish seed stock grow out have been installed on MacMillan Pier. Shellfish Constable partners with CCNS to produce GIS-based mapping of aquaculture grants.	New facility for growout being constructed for shellfish on Bennett Pier (Old Fuel Dock). Additional acres of grant space allocated and ramping up to production.
2.	Undertake new town mooring system including allocation of five spaces for emergency and storm-related use	Establish mooring technology, contract for mooring layout plan, establish fee structure and implementation timetable	Harbormaster Select Board Harbor Committee	5 moorings are reserved for Harbormaster use. Mooring field work ongoing. Harbormaster has added a mooring barge to fleet.	A Mass Bays grant program had 7 eco- moorings installed in eelgrass areas around the east side of the breakwater. Program shows helix moorings hold in this bottom. Harbormaster is considering installing additional helix eco-moorings east of the breakwater in an area traditionally used for anchoring vessels. These would be free on a first served basis with time limits. Anchoring would no longer be allowed. Mooring mapping programs are ongoing and reorganization of the area behind the breakwater starting to make way for wave attenuator.

	<b>Categories and Recommendations</b>	<b>Required Actions</b>	<b>Responsibilities (Primary in bold)</b>	<b>5<sup>th</sup> year progress report</b>	<b>2017 Second Amendment Progress Report</b>
3.	Initiate process for short-term and long-term maintenance dredging	Fund engineering studies, seek resources, implement the plan	Harbor Committee Select Board Barnstable County Dredge Committee representative State Agencies	Initial dredging for reconstructed MacMillan Pier provided for beach nourishment in FEMA velocity zone on east side of town. Ongoing maintenance dredging addressed by Marine Superintendent participation on County Board.	Dredging project is in permitting with MacMillan floating docks and attenuator project. Dredge spoils identified for a beach nourishment project. Locations identified by our coastal resilience grant projects. Resource-sand acquisition and permitting are real impediments to a rational program as outlined in our public process.
4.	Protect water quality and shellfish resource from anchorage and mooring, and mark wrecks	Mark as off-limits for moorage or anchorage areas requiring protection	Harbormaster	Updated mooring field maps completed summer 2004. Shellfish constable pursuing habitat restoration projects.	New Hazard marks installed 2017. See #2 about moorings
5.	Reduce conflicts between anchorages and other uses in the harbor	Anchorage areas should be designated more precisely	Harbormaster	Plan moving through public process to coincide with mooring field map update above.	
6.	Communicate to the National Park Service the recommendation that no action be taken to reduce or alter the activities recommended by this Water Use Plan	Forward plan with letter	Select Board Town Manager		

	<b>Categories and Recommendations</b>	<b>Required Actions</b>	<b>Responsibilities (Primary in bold)</b>	<b>5<sup>th</sup> year progress report</b>	<b>2017 Second Amendment Progress Report</b>
7.	Provide for interim improvements to the dinghy dock	Provide for year-round use and expansion	Harbormaster Select Board Town Manager Harbor Committee Pier Corp.	Interim improvements were provided during pier reconstruction. Dinghy docks expansion was part of MacMillan Pier reconstruction and is available year round. Floating docks have been successfully tested at West End ramp for dinghy and launching use. Pursuing permanent gangway and pile floating dock system.	Four additional dinghy dock extensions have been added and will have piles during the next reconstruction of the floating docks. We anticipate an additional 90 feet of dinghy dock space with the wave attenuation system.
<b>Public Facility Recommendations</b>					
1.	Undertake the engineering analysis and design of the reconstruction of MacMillan Pier	Approve funding and initiate process	Commonwealth of Massachusetts, Town Meeting	Done	Received permits for new floating docks with a floating wave attenuation system. Awaiting partial funding from FEMA due to significant damage from storms. Some spaces are being enlarged to accommodate the larger vessels in the commercial fishing fleet.
2.	Undertake detailed study to implement new MacMillan Pier Management entity	Establish funding, participate in the planning process	Massachusetts Development and Finance Agency, Seaport Advisory Council, Harbor Committee	Done	
3.	Create new MacMillan Pier Management entity	Provide for incorporation or other procedural	Town Meeting Select Board	Done	Despite some concerted efforts the Pier Corp still exists.

	<b>Categories and Recommendations</b>	<b>Required Actions</b>	<b>Responsibilities (Primary in bold)</b>	<b>5<sup>th</sup> year progress report</b>	<b>2017 Second Amendment Progress Report</b>
		steps, approve mechanism through Town Meeting			
4.	Fund and Construct MacMillan Pier improvements	Provide for State bond source funds, local matching funds and financing mechanisms, other sources	Commonwealth of Massachusetts; Public Pier Corporation, Town Meeting, Others	Done.	
5.	Undertake planned program of public access and water-dependent capital improvements including small boat commercial facilities and other specific recommendations of this Plan	Create implementation framework as recommended in the Harbor Plan	Harbor Committee Select Board Town Manager Department of Public Works	40 floating dock slips and dinghy docks created with MacMillan Pier reconstruction primarily for the use of commercial fisheries. Jib cranes and dedicated loading zones provided for fisheries. Beach access signs have been installed on Commercial St and beach to improve identification of access points. Coordinated signs layouts with Chapter 91 license and Visitor Services signs. New expanded courtesy float has self-service pumpout station connected to municipal sewer system.	Ongoing.

	<b>Categories and Recommendations</b>	<b>Required Actions</b>	<b>Responsibilities (Primary in bold)</b>	<b>5<sup>th</sup> year progress report</b>	<b>2017 Second Amendment Progress Report</b>
6.	Establish Right-of-Way Committee	Create mission statement and establish structure	Select Board	Harbor Committee utilizing annual grant of assistance from AmeriCorps Cape Cod volunteers	Needs to identify a lead.
7.	Establish a planning process and pursue funding for this improvement.	Establish study as task for Harbor Committee.	Harbor Committee		Ongoing pursuit of public facilities improvements. Provincetown Marina is certainly one of those projects currently underway.
<b>Regulatory Framework for Chapter 91</b>					
1.	Establish Harbor Committee and delegate Planning Board responsibility for local license review	Finalize procedural requirements	Town Meeting	Done	Still in progress.
2.	Establish memorandum of understanding for specific implementation of the Chapter 91 recommendations if required in addition to the provisions of this Plan	Finalize specific review procedures and criteria, if required	Massachusetts Office of Coastal Zone Management, Town of Provincetown Harbor Committee		Working with our partners as needed.
<b>Long Term Plans</b>					
1.	Continue planning process regarding certain long term opportunities such as major breakwater and dredging programs	Establish this as a regular agenda item of the Harbor Committee	Town Meeting Select Board Harbor Committee		Long term salt marsh project to open the Long Point Dike has been put on hold due to concerns about the improving condition and expansion of aquaculture in the area. Currently, focus is on climate resilience projects.

## APPENDIX 6: PUBLIC PROCESS DESCRIPTION

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The Harbor planning process included a great deal of public meetings, stakeholder meetings and interviews, and outreach, as detailed below. The plan and all supporting documents received during the amendment process can be found at Provincetown-ma.gov in the document center or the Pier and Harbor department and board pages.

**Public Meetings:** Public meetings were announced via flyer, email, website, social media, and newspaper. Meetings were held:

- May 4, 2017, Provincetown Public Library (televised on PTV)
- June 15, 2017, Cape Codder Guest House
- July 15, 2017, West End Racing Community Sailing

In addition, a **Select Board Hearing** was held May 14, 2018 to obtain public comment on the draft plan.

Outreach was also conducted at the **Year Rounder Fest** on March 11, 2017, where information was distributed to members of the public and email addresses were collected.

A project **website** was created and updated for the purposes of posting drafts, meeting announcements, and background information: [https://www.umb.edu/provincetown\\_harborplan\\_2017](https://www.umb.edu/provincetown_harborplan_2017). Additional meeting information was posted on the town's website.

**Social Media** posts were made on UHI's Facebook page (5/5, 7/6); Posted on Provincetown Facebook pages: Town Talk (7/11); Provincetown Voice (7/11); Provincetown Community Space

**Newspapers:** The project team sent announcements of public meetings to the Provincetown Banner and Cape Cod Times. The July 15 meeting was announced in the Cape Cod Times on June 30, 2017 and in the Provincetown Banner on July 13, 2017.

**Interviews:** The project team also conducted interviews with several stakeholders in order to inform the development of the Harbor Plan:

- Bill Amaru, Commercial fishing
- Carlos Verde, Venture Athletics
- Stephen Wiesbauer, Shellfish Constable
- Noah Santos, Flyer's
- Kanan Moppet, Provincetown Aquasports
- Rich Waldo, DPW
- Robert Casper, Sailing for All
- Ginny Bender and Jim Vincent, Rose's Wharf
- Tim Famulare, Conservation Agent
- Gloria McPherson, Town Planner
- Richard Delaney, Center for Coastal Studies
- Michael Glasfeld, Bay State Cruise Company, July 13, 2017
- Ben Lynch, MA Department of Environmental Protection

- Chris Schillaci, MA Division of Marine Fisheries
- Lisa Engler, MA Office of Coastal Zone Management

The project team also attended the **part-time taxpayer's meeting** on August 16, 2017 to learn about issues facing this group of stakeholders. Topics of conversation covered a wide range of harbor-related issues including aquaculture expansion, winter storage for vessels, recreational boating facilities and berthing needs, pump-out facilities, and houseboats.



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