

2013 Wells Harbor Management Plan

WRIGHT-PIERCE 
Engineering a Better Environment

Elizabeth A. Della Valle, AICP
Mathew Eddy Consulting

Table of Contents

GOALS & RECOMMENDATIONS		Page
Introduction		1
Section 1	History of Wells Harbor	1-1
Section 2	Goals	2-1
Section 3	Goals and Working Plan	3-1
Section 4	Marketing and Investment Plan	4-1
FINDINGS		Page
Section 5	Surrounding Land Uses	5-1
Section 6	Harbor Facilities and Infrastructure	6-1
Section 7	Harbor Economy and Sustainability	7-1
Section 8	Commercial Fishing	8-1
Section 9	Shellfish and Aquaculture Opportunities	9-1
Section 10	Recreational Boating	10-1
Section 11	Natural Areas	11-1
Section 12	Beach Erosion and Management	12-1
Section 13	Dredging	13-1
APPENDICES		
A. Preliminary Pier Assessment Report		
B. Ecological Information from the Wells Reserve		
C. Excerpt from the final Report of the Wells Scientific Review Panel (2007)		
D. Town of Wells Harbor Ordinance		

Introduction

The 2013 Update of the Wells Harbor Plan was developed for the Town of Wells by Wright-Pierce, in association Elizabeth A. Della Valle AICP and Mathew Eddy Consulting. Funding for this plan was provided through a Shore and Harbor Technical Assistance Grant from the Maine Coastal Program at the Maine Department of Conservation

Consultant team members from Wright-Pierce were Jonathan Edgerton, P.E. Senior Vice President, Amanda Bunker, Senior Land Use Planner, as well as Travis Pryor, Jason Wise, Chris Hinkley and Kim McIntire. Consultant team members from supporting firms include Elizabeth Della Valle and Mathew Eddy.

Significant guidance and plan development assistance came from the Wells Harbor Committee and Town Staff:

Jonathan Carter, Town Manager

Chris Mayo, Harbormaster

Kendall Crocker

Frank Parillo

Robert Liston, Jr.

Phil Pickering

Scott Worthing

Katheryn Mooney

James Shaw

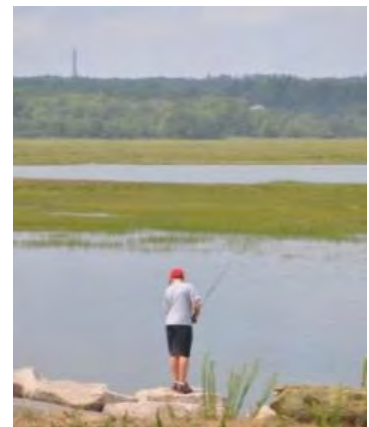
William Comeau

Chris Chase

Robert Foley

Thanks go to this Committee for their work, and to the citizens and representatives of local organizations who participated in the public outreach efforts and meetings, and who provided input.

The 2005 update to the Wells Comprehensive Plan required the 1991 Harbor Management Plan to be updated, submitted to the State Planning Office (SPO) for review, and incorporated into the Town's



Comprehensive Plan. It also calls for the establishment of a committee “to explore ecologically oriented tourist opportunities”, maintaining a “viable harbor and facilities for public access to the waterfront”, and maintaining “Wells Harbor as an active harbor that provides access, service and mooring facilities for both commercial, marine-related vessels and recreational boats.” The 2013 Update of the Wells Harbor Plan is intended to expand and build off the 1991 Wells Harbor Plan, and certain historical material has been drawn from that document.

While the Town’s efforts since adoption of the Comprehensive Plan have largely focused on dredging issues and adoption of a new Wells Harbor Ordinance, numerous programs and facilities in nearby areas have advanced, including the Eastern Shore Beach Parking Lot and Jetty Beach area, the Harbor Park, and efforts to support shellfish facilities and programs and to protect the environment of the estuary. This management plan has included efforts to pull these disparate, but related projects together, identify and address and apparent "holes" among them, and update the Harbor Plan to strategically guide future related efforts through the coming decade and beyond.



The planning process was developed to incorporate input from a variety of interests, including business and natural resource oriented organizations, boating interests, tenants, commercial fishermen, tourists, the Wells National Estuarine Research Reserve, Laudholm Trust, The Nature Conservancy, Great Works Regional Land Trust, and the Rachel Carson National Wildlife Refuge, the Board of Selectmen, and others. We are confident that his community participation process has resulted in an updated Harbor Plan that includes appropriate strategies to encourage sustainable, ecologically-oriented, tourist opportunities and an active harbor capable of accommodating commercial and recreational uses. The Plan seeks to establish priorities and outline strategies to address the following key elements:

- Marketing
- Land Use Surrounding the Harbor
- Harbor Facilities and Infrastructure
- Harbor Economy and Sustainability
- Commercial Fishing
- Shellfish and Aquaculture
- Recreational Boating
- Natural Areas
- Beach Erosion
- Dredging

1 History of Wells Harbor¹

The historic and current Town of Wells remains centered around its marine resources and Harbor. Prior to the founding of the Town around the Harbor in 1641, temporary residences were built on the beaches by traders and fishermen. During the 1600's Wells' residents harvested salt hay, fish, eels, and clams and coastal traders supplied nearby areas with boards, shingle, and hoops. Clusters of farms were concentrated near rivers and brooks that provided water power for grist and sawmills. Often found in these areas were a blacksmith shop, store, post office, one-room school, and church. The core of these early settlements can still be found in the Coles Corner, Wells Corner, Eldridge Corner, Moody, Tatnic, Merriland Ridge, Highpine (formerly Wells Deport), and Wells Branch areas.



From the late 1600's to 1905, shipbuilding, lumber mills, and fishing were the primary occupations in the Harbor. The area was set back briefly by the War of 1812, but the Age of Sail soon followed shipbuilding and commerce by coastal schooners flourished.

By 1825, Congress, in recognition of Wells' dependence on its maritime heritage and economy, constructed a 1,980 foot long pier so trading vessels could on/off load their cargos beyond the shoals at the mouth of the Harbor, confirming that the sedimentation problem in Wells Harbor has a long history.

The railroads arrived in 1842, 1872, and 1907 and eventually replaced schooners as the preferred mode to transport freight.

Wells' beaches were discovered by wealthy industrialists by the late 1840's although tourism didn't flourish until the 20th century. Large lodging and entertainment centers like the Atlantic House at Fishermen's Cove and the Island Ledge House at Wells Beach were constructed, though they were not replaced when they burned in later years. Instead numerous smaller hotels and boarding homes, and subdivisions for individual houses were built in the late 1800's and early 1900's, and local shipwrights became home carpenters. In the years following World War II, with the increased use of personal automobiles, Wells became known as a family vacation spot. Again,

¹ The 1991 Harbor Plan includes a considerably longer history of the Town of Wells. It was taken from a more detailed history by Hope M. Shelley, which can be found on the Town's web site.

largely because of its coastal environment and resources. With this trend came the service industry of hotels, motels, cabins, restaurants, specialty shops, and entertainment centers.

By the late 1950's, the community was seeking additional harbor improvements from the federal government. In 1961-1962, two jetties were constructed, the existing channels and anchorage were dredged, and the spoils were used to fill behind the jetties. Erosion of the beach was nearly immediate.

In 1977, another coastal engineering study was undertaken. It found that the channel was too wide for tidal currents and is in the prevailing direction of onshore seas. It also found that the anchorage is in the path of tidal currents, fostering a natural deposition of sand, and that the gross movement of sand was more significant than previously predicted. The study recommended reducing the width of the mouth of the channel with stone spurs and a pump, but the plan was dropped in 1980. Additional dredging of the Harbor was undertaken in 1991, 1996, 1999, 2000, 2002, 2005 and 2012.

Recent decades have seen the conversion of many of Wells' seasonal cottages to year round homes.



2 Goals

The Harbor Committee developed the updated goals listed below for the harbor area at the onset of the planning process. These goals provide specific direction to the following mission statement regarding the management of Wells Harbor:

To manage the use of Wells Harbor by balancing working waterfront interests, local business development, recreational interests, safe Harbor interests, visitor attractions, and community uses within the constraints presented by the natural environment. Recognize the Harbor as a preeminent Maine place for environmental education and ecotourism development.



The Town of Wells should seek to:

Overarching Goals

- Balance additional development of the Harbor with its inherent constraints, both natural (marshes, habitat, sensitive plants and wildlife) and built (access roads, limited upland area) to minimize negative environmental impacts.
- Generate revenue from commercial and recreational use of the Harbor to offset the need for investments in support of the goals of the Harbor Plan. Seek federal and state as well as private and nonprofit/foundation funds to support implementation of the Plan.
- Treat Harbor planning as a continuous process.

Natural Areas

- Continue to support and expand research and education about Wells Harbor and its resources and environments in partnership with the Wells National Estuarine Research Reserve (WNERR), Rachel Carson National Wildlife Refuge (Rachel Carson), Wells - Ogunquit Consolidated School District (CSD), and others.
- Continue efforts to monitor, improve, and maintain water quality in the Harbor.

- Continue to support efforts aimed at improving and maintaining the health of the dune ecosystems including both flora (such as dunegrass) and fauna (such as piping plovers).

Harbor Economy and Sustainability

- Celebrate the Harbor, its activities, visitors, and users in understanding the importance of its role in Wells' culture and local economy.
- Establish a three part marketing program for the Harbor that assists local business interests, supports environmental education and experience, and enhances residents' use, awareness, and understanding of the economic importance of the Harbor to the community.



Harbor Facilities and Infrastructure

- Consider the effects of projected sea level rise on both Harbor infrastructure and ecological aspects of the Harbor/estuary and make investment and maintenance decisions that mitigate anticipated impacts of projected sea level rise. Work with the public to increase its understanding of the impacts and potential threats of sea level rise.
- Support, promote, and plan for capital improvement and maintenance of pier, floating dock, and other boat facilities, including, but not limited to, on-shore boat storage, sewage pumpout, and additional services.

Commercial Fishing, Shellfishing and Aquaculture

- Support traditional use and job creation associated with Wells' working waterfront, including but not limited to a commercial fleet for commercial and recreational fishing and clamming.
- Support aquaculture initiatives that are consistent with maintaining water quality within the estuary and limiting the likelihood of genetically modified species escaping into the natural system.

Harbor Park

- Make improvements to Harbor Park. The Park needs to be “refreshed” to better serve the community for the next 10-20 years. Enhance the aesthetics of facilities, improve the quality of materials used, expand activities, and reduce management demands.

Transportation and Access

- Make improvements on Harbor Road to upgrade access, circulation, and parking; encourage increased use of public transit, bicycles, and walking.
- Improve local signage and promotional materials to improve visitors’ and users’ knowledge of how to get to/use the Harbor. Improve knowledge about Harbor activities and facilities, “wayfinding” and safety notifications.
- Explore the feasibility of increasing pedestrian access throughout the Harbor, through creating a cross-harbor pedestrian bridge or water taxi service between the west and east sides of the Harbor. Assess the feasibility of paths and/or boardwalks to connect to Mile Road, Laudholm Farm, and Drake Island and plan for phased implementation of this recommendation.
- Promote carless vacationing in Wells. Increase and improve public transit options. Investigate remote parking/shuttle systems. Improve pedestrian, bicycle, moped/scooter access and amenities along Harbor Road and in the Park.

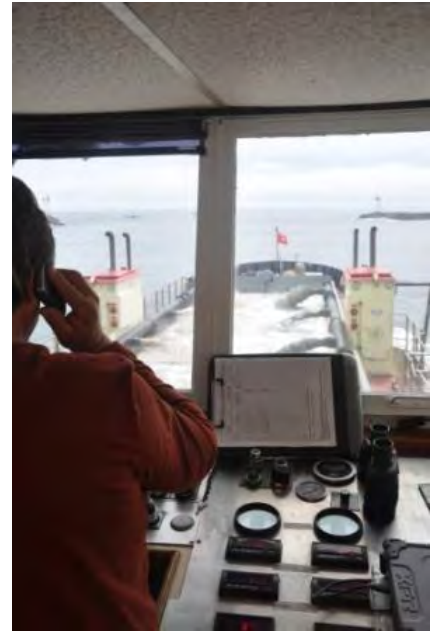


3 Goals and Working Plan

This Chapter includes the goals listed in Section 2 and recommended actions the Town of Wells will pursue to attain each goal.

3.1 OVERARCHING GOALS

- A. Balance additional development of the Harbor with its inherent constraints, both natural (marshes, habitat, sensitive plants and wildlife) and built (access roads, limited upland area) to minimize negative environmental impacts.
 1. Plan for dredging of the Harbor to maintain its navigability. Continue to work with the US Army Corps of Engineers to develop solutions to ongoing dredging issues.
 2. Continue to restrict development that would increase undesirable impacts on this sensitive area.
 3. As use of the Harbor area increases, plan for increased pressure on road and water access, parking, and stormwater management. Explore public transit and remote parking options. See Strategies II.B.1., VI.A.3., and VII.A.2. regarding stormwater management.
 4. Where appropriate, include provisions to maintain or enhance natural buffers between differing uses to address aesthetic, water quality, and/or habitat issues.
- B. Generate revenue from commercial and recreational use of the Harbor to offset the need for investments in support of the goals of the Harbor Plan. Seek federal and state as well as private and nonprofit/foundation funds to support implementation of the Plan.
 1. As the Town manages the property it owns in the Harbor area, establish rents, licenses, and fees that will generate revenue from commercial and recreational users to offset the need for investment of local public funds in implementing the Plan.
 2. Seek federal and state as well as private and nonprofit/foundation funds to support implementation of the Plan.



C. Treat Harbor planning as a continuous process.

1. The Harbor Advisory Committee will monitor implementation of the Harbor Plan to determine the effectiveness and appropriateness of continuing efforts in achieving community goals and report on progress and performance in the Town's Annual Report each year. This will include monitoring specific benchmarks related to the environmental health of the Harbor, and identifying opportunities for potential collaboration and/or potential conflicts with other Town plans or policies.
2. The Harbor Advisory Committee will prepare amendments to the Harbor Plan to be approved by the Wells Selectmen.
3. The Harbor Advisory Committee will periodically review the Harbor Ordinance and recommend revision as necessary.



3.2 NATURAL AREAS

- A. Continue to support and expand research and education about Wells Harbor and its resources and environments in partnership with the Wells National Estuarine Research Reserve (WNERR), Rachel Carson National Wildlife Refuge (Rachel Carson), Wells - Ogunquit Consolidated School District (CSD), and others.
1. Continue to support monitoring, research and science-based environmental education efforts of the WNERR, Rachel Carson, CSD, Harbor Advisory Committee, and other groups, in support of natural processes and ecosystems and the human role in managing and stewarding natural resources. This should specifically include research and education surrounding water quality, erosion, and dredging impacts¹.
 2. Improve environmental conditions of the Harbor by restoring salt marsh on the five acres of undeveloped dredge spoils and removing sand and restoring the adjoining marsh.
 3. Explore opportunities for expanded public education, using the Harbor as a demonstration site for best management practices.
 4. Work with the WNERR, Rachel Carson, CSD, Harbor Advisory Committee, local businesses, and others on an on-going basis to review threats to environmental interests in the Harbor area, inform customers and clients about environmental issues of the Harbor, and make recommendations to resolve problems. Educational

¹ In both areas that are dredged and where dredge spoils are disposed.

information for customers and clients might include a brief orientation to the area, including what they can expect to see, and advise about how to avoid affecting sensitive areas, staying out of the way of commercial boats, etc.

5. Work with and the WNERR, Rachel Carson, CSD, Harbor Advisory Committee, and others to keep the public apprised of all local, state and federal research projects and work in the Harbor area. The final results of each research project, or a link to the results, will be posted on the Town's web site as they become available.



6. Work with the WNERR, Rachel Carson, piping plover volunteers, Town staff, CSD, Harbor Advisory Committee, and others to annually survey the beach for wildlife nesting areas to properly protect those sited within high traffic areas. Encourage the CSD to continue its participation with beach profile monitoring at Drakes Island. Consider municipal funding of monitoring efforts.
 7. Work with beachfront owners to improve their knowledge about their potential impacts on natural areas and involve them in solving problems and working with programs to ensure compliance with local, state, and federal laws.
 8. Seek opportunities for “win-win” initiatives that benefit the ecology and economy of the Harbor and surrounding areas.
- B. Continue efforts to monitor, improve, and maintain water quality in the Harbor.
1. Use best management practices in ongoing Harbor operation and infrastructure improvement to reduce the impacts of stormwater runoff on erosion and water quality.
 2. Work with the WNERR, Rachel Carson, Harbor Advisory Committee, and others to prioritize and conduct stream shoreline surveys to identify faulty septic systems and inadequate stream buffers, and other threats to water quality. Seek outside funding to support retrofits to reduce identified threats to water quality. Prepare materials and activities to support efforts to inform homeowners/residents about the important role they play in protecting and improving water quality. If appropriate, reach out to other communities within targeted watersheds.

3. Review land use ordinances and amend, as appropriate, to ensure that best management practices are required for maintenance and new construction. Draft and adopt low impact development (LID) standards to reduce water quality impacts from maintenance and new construction activities. Work with the WNERR, Rachel Carson, Harbor Advisory Committee, and others to inform the public about of LID and its benefits.
 4. Continue to support the Healthy Beaches program, Beach Profile Monitoring Program, and other community monitoring efforts.
- C. Continue to support efforts aimed at improving and maintaining the health of the dune ecosystems including both flora (such as dune grass) and fauna (such as piping plovers).
1. These efforts should include protecting the dunes from foot traffic and provide public education regarding the ecological values the dunes provide to the Harbor.
 2. Explore the need and value of buying out properties that have or are likely to suffer repeated storm damage, as was done in the Intervale neighborhood of Kennebunk after the Patriot's Day storm. If properties are acquired, take advantage of the opportunity to restore associated sand dunes.



3.3 HARBOR ECONOMY AND SUSTAINABILITY

- A. Celebrate the Harbor, its activities, visitors and users in understanding the importance of its role in Wells' culture and local economy.
- B. Establish a three part marketing program for the Harbor that assists local business interests, supports environmental education and experience, and enhances residents' use, awareness, and understanding of the economic importance of the Harbor to the community.
1. Enhance the ability of local businesses within the Harbor to flourish and expand successfully into the shoulder seasons.
 - a. Utilize the various offerings of the Webhannet River Boatyard to expand reasons for visitors to visit their site and make use of the various services they offer.
 - b. Provide good information of those offerings, both locally and on the web.
 - c. Provide better connectivity to the boatyard and its environs such that visitors can easily understand the offerings.

- d. Improve circulation and other logistical features at the boat ramp to make it easier to use the facility and draw more users to the site. Consider separate ramps for launching versus hauling out boats.
 - e. Enhance and expand local commercial fishing activity, not only as a primary use, but as a secondary tourism attraction (looking is a wonderful thing).
 - f. Develop marketing and support for the commercial excursion program which recognizes the importance of this economy in the region and work with existing owners to enhance and make this program more predictable.
2. Work to expand the shoulder season such that local restaurants can maintain a high level of business in the spring and fall.
 - a. Coordinate current events (for example Mother's Day) with other celebratory, educational, and environmental events with a focus on the shoulder season.
 - b. Establish annual environmental and recreational events in the shoulder season that will attract new and repeat visitors to the Harbor (e.g. kayak races, environmental search and find, etc.) and connect them to local services already there.
 - c. Improve vehicular connections between the Harbor and the rest of the region through a coordinated bike plan², trolley transit, water transit, walking paths, and other connections not yet identified.
 3. Make Wells a destination for a unique interactive experience with its natural assets (the Harbor, marsh, wildlife, etc.) by incorporating environmental education and ecotourism experiences into a Harbor experience marketing program that recognizes and relates to similar regional programs.
 - a. Develop and expand upon existing programs that explain the unique environmental nature of the Harbor ecosystem, including restoration of undeveloped dredge spoils, and expand businesses around this offering with interpretive signage, a boardwalk, walking paths, etc. (See Strategies III.A.3.h. and VI.A.4. regarding Harbor Park improvements and creation of a marshwalk.)
 - b. Incorporate the educational program of the Harbor into the vast regional system related to the WNERR and Rachel Carson programs.
 - c. Develop and market educational programs that specifically invite and educate visitors on the importance of the Harbor to the local and regional ecosystem.



² Including connection to the Eastern Trail, a bicycle pathway system that extends from Maine to Florida.

- d. Create a permanent residence/visitor and nature center that is consistent with existing park goals for the Harbor as a place to view, learn, and experience the various environmental jewels it has to offer.
 - e. Encourage and provide the WNERR and Rachel Carson systems with a permanent location within the boundaries of the Harbor. This location could provide information about environmental, sea level rise, weather, water and wildlife monitoring efforts and opportunities.
 - f. Encourage the Audubon Society of Maine to partner with the Town, WNERR, and Rachel Carson as part of its focus on bird watching and protection of habitat in Wells.
 - g. Develop a strong planning relationship with the CSD to market environmental interests, converting those interests into economic events; use that program to market to school systems through Maine that are interested in visiting (this takes the existing visitor program and expands the students involved based on commercial fishing, economic development, policy development, and other interests).
 - h. Work with the WNERR, Rachel Carson, and others to link and, where necessary create, a walking path and trail system to create a coastal walking network and marshwalk in Wells. The coastal walking network and marshwalk should be designed to support the educational strategy under 3.2 *Natural Areas*, while minimizing or note creating negative environmental impacts on important wildlife habitats, including shading. Creation of a marshwalk may require access to private property for which the Town will need permission. Seek public, private, and nonprofit/foundation funds to support construction of linkages, new paths/trails, and a marshwalk.
4. Develop an informational program aimed at both year round and seasonal residents that helps those interested in understanding the importance of the Harbor to local economic development interests.
 - a. Prepare a formal State of the Harbor Report as part of the Town's Annual Report.
 - b. Establish two annual community events, one to open the Harbor and one to close the Harbor. These events should be aimed at using local businesses and the Park to serve local residents with unique celebrations (work this into the existing system of activities, but focus on local vs. regional or away).
 - c. Improve signage and connections between the community, the Harbor, and local Route 1 businesses. Provide more consistency in design and materials to



create a consistent image to improve overall aesthetics and assist with “wayfinding.”


3.4 HARBOR FACILITIES AND INFRASTRUCTURE

- A. Consider the effects of projected sea level rise/climate change on both Harbor infrastructure and ecological aspects of the Harbor/estuary and make investment and maintenance decisions that mitigate anticipated impacts of projected sea level rise. Work with the public to increase its understanding of the impacts and potential threats of sea level rise.
1. Continue to work with the regional sea level rise working group (SLAWG) to increase understanding of the potential impacts of sea level rise on Wells Harbor, the most effective ways to mitigate its impacts on public and private property, and the impacts of the jetty on beach erosion in combination with sea level rise.
 2. Incorporate data on projected sea level rise into all capital planning efforts relating to Harbor infrastructure.
 3. Investigate whether there is a negative impact from the floating docks/slips on sand displacement.
 4. Investigate whether sand is eroding on the east side of the Harbor as a result of the dredge and ship usage.
- B. Support, promote, and plan for capital improvement and maintenance of pier, floating dock, and other boat facilities, including, but not limited to, on-shore boat storage, sewage pumpout, and additional services.
1. Assess how residents and summer visitors currently use the Harbor.
 2. Assess the relative pros and cons associated with maintaining a fuel dock, including a key system, within the Harbor.
 3. Ensure that boat storage is sited and designed to minimize potential negative impacts on the aesthetics of the Harbor area during the expanded shoulder seasons. If not possible to do so within the Harbor area, explore an off shoreline location for winter boat storage.
 4. Seek applicable state and federal funding programs to implement the Plan.
 5. Continue to maintain and support the Wells Boat Launch for both motorized and non-motorized public boat access to the water.



6. Estimate costs for capital needs, evaluate and select preferred funding mechanisms, and include Harbor improvements in the Town's Capital Improvement Program.

3.5 COMMERCIAL FISHING, SHELLFISHING AND AQUACULTURE

- A. Support traditional use and job creation associated with Wells' working waterfront, including but not limited to a commercial fleet for commercial and recreational fishing and clamming.
 1. Continue efforts associated with maintenance of a sustainable recreational clamming program and assess the viability and needs of a commercial clamming program.
 2. Monitor invasive species impacts on commercial fishing.
 3. Monitor fishing trends in the Gulf of Maine to identify emerging opportunities as well as problems in fishing stocks to guide any efforts the Town might consider to increase commercial and recreational activities in recognition of the health of current fisheries.
 4. Facilitate communication between commercial fishermen, owners/operators of commercial excursion vessels and resource managers/scientists at state and federal resource agencies, the Wells National Estuarine Research Reserve (WNERR), Rachel Carson National Wildlife Refuge (Rachel Carson), and others, to enhance research, environmental education and stewardship.
- B. Support aquaculture initiatives that are consistent with maintaining water quality within the estuary and limiting the likelihood of genetically modified species escaping into the natural system.
 1. Assess the viability of commercial aquaculture involving bivalve mollusks/filter feeders, such as oysters.
 2. Maintain a dialogue with area ecological groups with respect to appropriate aquaculture initiatives, including discussion on location and magnitude.
 3. Watch for and seek to mitigate any negative water quality issues that might arise from aquaculture initiatives through working with the industry and/or regulation, as necessary.

3.6 HARBOR PARK

A. Make improvements to Harbor Park. The Park needs to be “refreshed” to better serve the community for the next 10-20 years. Enhance the aesthetics of facilities, improve the quality of materials used, expand activities, and reduce management demands.

1. Prepare a plan to guide public investments in Harbor Park, including but not limited to, site and building improvements. The plan should specify appropriate improvements, design themes, and use of higher quality materials to improve the overall aesthetics of the Park. Link such improvements to the visitor center concept described in Strategy III.A.3.d. Where possible, use “green” construction materials.
2. Focus event and celebration activities in Harbor Park
3. Upgrade the Harbor Park experience by focusing on improving facilities, amenities, design, and services. Encourage the use of local farm goods and prohibit national chains.
4. Make the present operation more personally appealing through basic design improvements.
5. Provide and/or encourage the private sector to provide goods and services for those who use the area including, but not limited to, commercial and recreational boaters, tourists, summer and year round residents, school children, and families who swim and/or recreate on the beaches on both sides of the Harbor. These services may include vendors in Harbor Park and in nearby waters tied to planned activities, truck canteens, and lunch boats.
6. Improve the layout and treatment of automobile and boat trailer parking areas to improve aesthetics, provide amenities, and improve stormwater management and efficient use of available space. Minimize the creation of new, paved (i.e., impervious) surfaces.
7. Upgrade the beach near the boatyard in response to its increasing use as a destination, with consideration of its location adjacent to the boatyard, services, and vendors, a future marshwalk, and/or improved pedestrian connections between the west and east side of the Harbor.
8. Examine alternative approaches that do not use pesticides to address sand flea problems near the Park and Pavilion areas.



9. Make better use of the cooking area to attract local groups to celebrate their various events in Harbor Park.

3.7 TRANSPORTATION AND ACCESS

- A. Make improvements on Harbor Road to upgrade access, circulation, and parking; encourage increased use of public transit, bicycles, and walking.

1. Design and construct sidewalks, bikepaths, and streetscape improvements and provide pedestrian amenities along Harbor Road and in Harbor Park. Minimize the need to widen impervious surfaces and roadway width.
2. Redesign and reconstruct parking areas, using porous pavement, interlocking pavers, or other materials to manage stormwater impacts while providing opportunities to stripe spaces or otherwise manage parking more efficiently.
3. Work with regional and state transportation planners and local economic interests, including but not limited to, hotels, campgrounds, and the Chamber of Commerce to investigate and consider remote parking options in concert with improved, convenient, and more frequent public transit options. Seek support from public and private funding sources.



- B. Improve local signage and promotional materials to improve visitors' and users' knowledge of how to get to/use the Harbor. Improve knowledge about Harbor activities and facilities, "wayfinding" and safety notifications.

1. Prepare and implement a signage plan that improves public knowledge about key features of Wells Harbor, safety notifications, and the rest of the community. The Plan should adopt consistent standards for signs and identify locations where they should be posted to ensure that they are an attractive addition to Wells and to help visitors and residents of the community find routes to key features. A consistent format, size, color, and logos will make "wayfinding" easier for those who are unfamiliar with the community.
2. Review tourism materials and encourage those publishing them to include information about Harbor activities and facilities. As appropriate, develop materials that would be suitable for insertion in public and private promotional materials.

Share these materials with local, regional, and state tourism interests. Post them on the Town's web site.

- C. Explore the feasibility of increasing pedestrian access throughout the Harbor, through creating a cross-harbor pedestrian bridge or water taxi service between the west and east sides of the Harbor. Assess the feasibility of paths and/or boardwalks to connect to Mile Road, Laudholm Farm, and Drake Island and plan for phased implementation of this recommendation.
- D. Promote carless vacationing in Wells. Increase and improve public transit options. Investigate remote parking/shuttle systems. Improve pedestrian, bicycle, moped/scooter access and amenities along Harbor Road and in the Park.
 - 1. Work with regional and state transportation planners and local economic interests, including but not limited to, hotels, campgrounds, and the Chamber of Commerce to investigate and consider remote parking options in concert with improved, convenient, and more frequent public transit options. Seek support from public and private funding sources.
 - 2. Design and construct sidewalks, bikepaths, and streetscape improvements and provide pedestrian amenities along Harbor Road and in Harbor Park.
 - 3. Make a better connection between the Harbor and the Wells beach area.
 - 4. Permanently develop a system (bridge or water taxi) that makes a predictable connection between movement of folks on the beach to the Harbor and inland.
 - 5. Continue to investigate and create connections to Mile Road and Drake Island.

4 Marketing and Investment Plan

4.1 GENERAL

Section 7 of this Plan discusses the conventional economic engines for the Harbor. They are real and must be fed. Ecotourism and the existing harbor facilities are natural partners. They do not exist as stand alones—they are key pieces of a local economy that needs to be marketed and taken advantage of. A marriage with the Wells Land Trust and Rachel Carson National Wildlife Refuge (Refuge) are key to this. The combination with the Webhannet River Boatyard, rental of kayaks and other recreational amenities, in particular, are key to this policy. Along with that, is a recommendation to take advantage of the existing trail system and extend it from the core of the harbor activities. These additions can be combined with a formal marketing program focused on special aspects of the area.



The marketing program must come from within and without. Wells needs to understand the gem that it has and the importance of the activities that already exist there. In this sense, local activities in the Harbor should be planned and carried out focused on showing the distinct economic value and experience the harbor presents to those in the community. Local education is critical to that effort—the Harbor extends well beyond its visual limits: understanding the ecology of the Harbor and balancing its mix is important to how one markets its beauty.

Educational programs, at the local level, in conjunction with the Wells Reserve (Reserve), Refuge and other environmental originations, the School District and the like should continue to be an objective of local education. This does not just include visiting school children (which was identified as a regular activity in the marsh), but should include adults as well. A critical piece of the marketing program is engaging local school children as those who can train, provide tours and be “so called experts” of the marsh. Developing this program in the school system would help the community to understand the gem that it has.

Public events, including continued concerts and celebrations, in an upgraded facility, will draw attention to the Harbor and support needed improvements as the community comes to understand the importance of this facility. Wells' citizens need to understand the resource that the community has and come to embrace it as an important element.



We recommend the following two-part approach to marketing Wells Harbor:

- Bringing attention to the Park and Harbor about how important they are to the local community, and
- Presenting the Harbor as an attraction to those who visit the area and are looking for a different vacation experience, with an element of ecotourism.

The commitment on a local level will surely bring additional activity from a visitor's standpoint. The sense is that existing businesses relish the opportunity to reach out and embrace the community, while at the same time growing and making the Harbor a small, but iconic showplace. Concerts, special events, community cookouts and the like can become an important selling point about why people gather in this environmentally exquisite place. And each of those events represents a marketing event for the community and the Harbor. This is a way to tell the Harbor's story.

It was clear in this analysis that, on the local level, the Harbor is not well understood. There are important businesses and attractions in the Harbor that depend on the Harbor's upkeep and maintenance. To insure that loading facilities or fuel facilities are upgraded, there is a need for continued community support for the Harbor. In this direction, we suggest building on the above suggestions with basic implementation:

- Ensure that the public launching area at the Harbor is maintained at an acceptable level to support local and long distance boaters.
- Market the boat launch as a critical access to the ocean, ensuring existing users and inviting others to a system that is well organized and supported by the community.
- Continue to market events at the Harbor and Park that are locally driven, but can capture national attention. These can continue to be oriented towards the local populations, but will gain credence on a regional level. This is an important part of this program: local Wells

residents need to understand the various activities, both commercial and recreational, that the community needs to support for the Harbor to continue to succeed.

- Within that marketing, ensure that attention is focused on the local businesses, both in the Harbor and outside, that take advantage of the many amenities offered at this location.



More than anything, this part of the marketing is about telling the story about the Harbor. Much of the community, including components within the business sector, does not understand the Harbor's importance to local businesses, the importance of existing services available through the boatyard, of the Park and providing local celebrations, and the need to express a desire to protect what a valuable asset the Harbor is are all viewed as key, and collaborative efforts.

Marketing on a Regional Level. The Harbor is attractive to those from around the region because of what it has to offer: fishing, food, access to the water by boat, and entertainment in the Park. This attraction should be captured in all Chamber of Commerce information, in web site presentations by the Town, but should also be captured in the advertising associated with the camping grounds, hotels, condominiums, and other "stay-cation" destinations. Therefore, the community should take a proactive approach to this marketing aspect, focusing on:

- Advertising in magazines such as "DownEast" and similar productions. This effort should focus on specialized articles about what is available in the Harbor, special celebrations and other aspects that tie them to the community and local accommodations. There are also excellent web sites that should be investigated: any link can be a good one.
- The greatest area now missed is taking advantage of the ecotourism aspect of the Harbor and its connected ecosystems. It clearly is linked to the Reserve, Refuge, and other naturalist activities. The Harbor attracts visitors to both watch, paint, and recreate within the beauty of the area. This should be a central theme for those who want to look, walk (on a new trail system), and experience its natural beauty. There are any number of places to write, publish, and find stories in such areas (see the web sites):
 - The National Wildlife Refuge System - <http://www.fws.gov/refuges/>
 - The Rachel Carson National Wildlife System - <http://www.fws.gov/northeast/rachelcarson>
 - Wells National Estuarine Research Reserve - <http://wellsreserve.org>

These credible web sites, links and stories can be tied to a visitor interested in this experience. Links should be tied back to local motels and hotels and other travel packages. These links and stories should be exhibited on a national or statewide level, with focused efforts helping people understand the beauty of the Harbor and surrounding marsh lands.

With the advent of the Eastern Maine Trail, and other biking and hiking opportunities, access to the trails should come to the forefront of the community and private marketing. To visit areas from Ogunquit to Kennebunk is now convenient and easy for the biking enthusiast and Wells is at the center of this activity. Marketing in appropriate magazines, web sites, along with all accommodations, should be a critical focus. These should be tied together and worked through the local Chambers of Commerce.



The introduction of the Downeaster as a rail connection should not be overlooked. The train offers easy access, alternative access for bikers, etc. and can be intertwined with a primary visit to the area. Keeping in mind that most visitors generally have a secondary visit in mind (Digital Resources, Kennebunk, 2009), Wells should identify those secondary targets and develop packages that link into the Wells experience.

In summary, the local and regional experience should be melded. Out of that collaboration will come numerous jobs and business opportunities. The better they are coordinated, the easier it will be to understand both the short- and long-term impacts of these economic development efforts.

5 Surrounding Land Uses

5.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. Those that are most relevant to a discussion on Land Use are as follows:

- Balance additional development of the Harbor with its inherent constraints, both natural (marshes, habitat, sensitive plants and wildlife) and built (access roads, limited upland area) to minimize negative environmental impacts.
- Support traditional use and job creation associated with Wells' working waterfront.
- Make improvements on Harbor Road to upgrade access, circulation, and parking; encourage increased use of public transit, bicycles, and walking.
- Explore the feasibility of increasing pedestrian access throughout the Harbor.
- Promote carless vacationing in Wells. Increase and improve public transit options.
- Investigate remote parking/shuttle systems. Improve pedestrian, bicycle, moped/scooter access, and amenities along Harbor Road and in the Park.

Strategies identified for achieving this objective include the following:

- Continue to restrict development that would increase undesirable impacts on this sensitive area.
- As use of the Harbor area increases, plan for increased pressure on road and water access, parking, and stormwater management. Explore public transit and remote parking options.
- Improve the layout and treatment of automobile and boat trailer parking areas to improve aesthetics, provide amenities, and improve stormwater management and efficient use of available space.
- Redesign and reconstruct parking areas, using porous pavement, interlocking pavers, or other materials to manage stormwater impacts while providing opportunities to stripe spaces or otherwise manage parking more efficiently.

- Where appropriate, include provisions to maintain or enhance natural buffers between differing uses to address aesthetic, water quality, and/or habitat issues.
- Design and construct sidewalks, bikepaths, and streetscape improvements and provide pedestrian amenities along Harbor Road and in Harbor Park. Minimize the need to widen impervious surfaces and roadway width.
- Work with regional and state transportation planners and local economic interests to consider remote parking in concert with improved, convenient, and more frequent public transit options.
- Prepare and implement a signage plan that improves public knowledge about key features of Wells Harbor, safety notifications, and the rest of the community to help visitors and residents find routes to key features.

5.2 LAND USE DESCRIPTION

Land use has not changed dramatically since adoption of the 1991 Harbor Master Plan.

The vast majority of the land immediately surrounding the Harbor continues to be marshland, most in the Refuge, which is owned and managed by the U.S. Fish and Wildlife Service. Pockets of marshland remain in private ownership. These areas are zoned “resource protection” where development is not allowed.

The upland adjacent to the inland side of the marsh continues to be fairly heavily developed with residential structures and an occasional commercial establishment and is zoned either "Residential A" or "General Business GB" with 20,000 sq. ft. minimum lot sizes. Maximum shore coverage restrictions are provided for in the Town's shoreland overlay district. There is dispersed development along the western side of the marsh with a number of subdivisions with housing densities greater than current zoning allows and a number of shoreland segments developed at about the 20,000 square foot minimum lot size, and with a few sections remaining undeveloped.



The barrier islands to the east of the Harbor, zoned “Residential B,” “Residential D,” with a portion zoned “Beach Business BB,” are some of the most densely developed land segments in Maine. The minimum lot size for the Wells Beach barrier is 5,000 square feet; the entire barrier is developed at

this density or greater with average lot coverage (including driveways, etc.) amounting to approximately 80%. Development in this area is almost all residential; a small portion near Mile Road is dominated by commercial establishments, governed by the BB District, which also establishes a maximum lot size of 5,000 square feet and maximum of four housekeeping or seasonal cottages per net acre, and twenty hotel/motel units per net acres. The Drakes Island barrier is exclusively residential with slightly larger average lot sizes, reflecting the required minimum lot size of 7,500 square feet.



The upland north of the Harbor, most of which is encompassed by the Reserve, is zoned "rural" and requires a minimum lot size of 100,000 square feet. This land is largely undeveloped and supports high numbers of deer and other wildlife.

The shoreland immediately adjacent to the normal high water line or the upland edge of the marsh is addressed by the Town's Shoreland Zoning. The "Shoreland Protection SO" District requires a 75-foot minimum setback from the upland edge of a wetland.¹ The minimum setback on the ocean side of Wells Beach, Drakes Island, and Moody Beach is 20 feet from the sea wall.² The minimum setback from all other water bodies is 75 feet from the high water line.

Upland in the immediate vicinity of the Town Landing is in the Harbor District. Uses currently permitted or conditionally permitted in this district include aquaculture, concerts, public gatherings, bazaars, passive and active recreation, low intensity commercial uses that require access to the water, shows (boat, craft, antique, etc.), estuarine and marine research and education facilities, marinas, municipal and public utility facilities, restaurants, and accessory uses including piers and docks. Existing uses in the district include a restaurant, marina, town dock and facilities, parking lots, the Hope Hobbs Gazebo, Wells Rotary Pavilion, Memorial Playground, and a passive Park.

Figure 5-1 - Recent Land Use Changes

1990	Creation of Harbor Park and Hope Hobbs Gazebo
2000-2005	Several dredges of Harbor, replenishment of beaches, marsh restoration, other environmentally sound practices permanently in place

¹ This setback may be reduced to the average of the setbacks of structures within 200 feet of the proposed structure on lots abutting the wetlands but shall not be less than 25 feet.

² Where there is no seawall, the setback shall be from a theoretical sea wall line extrapolated from the existing sea walls.

2003	Piping Plover Beach Management Agreement, calling for new beach management techniques, signed/implemented
2003	Newly refurbished boat launch
2003	Rebuilt sand dune at the northern end of Drakes Island using over 700 cubic yards of materials from the Harbor Park area
2003	Began participating in Maine's Healthy Beaches Program
2004	Beginnings of the large summer cottage complexes at Summer Village and Beach Dreams in Moody Beach area
2004	Installation of new Memorial Playground at Harbor Park
2005	Refurbished pressure-treated seating at Harbor Park
2006	Initiate the "Shoreline Explorer," an intermodal transportation program, featuring trolleys that connect Wells with neighboring communities
2006	Completed tidal gate to restore salt water marsh and improve stormwater management at Drakes Island
2006	14" Mother's Day Storm damaged countless roads and culverts, including Route 1 at Houston's Curve
2007	Repaired section of Webhannet seawall and stairs
2007	Replaced chains for the helix moorings which hold the float mooring system
2007	Patriot's Day storm broke off last four launching ramps and a piling
2007	Creation of Town of Wells Geographic Information System Website (WebGIS) www.wellstown.org
2008	Received Tree Canopy Grant from the State of Maine to plant elm trees along Route 1 and Route 109
2008	Reconstruction of Harbormaster's building
2008	Repaired and reconstructed Webhannet Seawall, severely damaged during both the Mothers' Day and Patriot's Day storms
2008	Amended ordinance to reduce seasonal cottage density from ten to four cottages per square mile and increase minimum spacing between cottages from 15 to 25 feet
2008	Renovated restrooms at Wells Beach
2008	Completed drainage improvements at Dike Street
2008	Installed new town signs
2008	Created Ordinance Review Committee
2008	Devastating ice storm struck Southern Maine
2009	Beginning of contentious issue of large-scale water extraction - moratorium approved
2009	Acquired 2, 27-foot military surplus bridge erection boats
2009	Secured bond to finance improvements for the Webhannet Seawall

2010	Construction of the Wells Rotary Pavilion
2010	Worked on revision of shoreland zoning ordinance
2011	Christopher Mayo replaced retiring Roland "Chick" Falconer as harbormaster
2011	Took possession of a new, donated 21-foot center console harbormaster boat
2011	U.S. Coast Guard installed a white light for the "WH" entrance buoy to help navigating the entrance to the Harbor
2011	Winterized and completed most work on the interior of the Wells Rotary Pavilion
2012	Rebuilt commercial pier and located new bait lockers at location of old harbormaster's office

The Town constructed Harbor Park and the Hope Hobbs Gazebo in the 1990's and has continued to invest in harbor facilities. In 2004, new harbor moorings were installed, the boat launch was refurbished and the Memorial Playground was constructed. Community events at Harbor Park have continued to expand and now include the Harbor Day Festival, Summer State, Regional Chamber Chili Festival, Pow Wow, the weekend concert series, and other events. Ocean front development has continued to take place with the addition of some large summer cottage complexes, though revised ordinances and the down economy have slowed down this trend in land use development.³ In 2005, the Town installed a new boat launch and Wells Rotary Pavilion building and the Harbor Park Refurbishment Project replaced the old pressure-treated seating. In 2006, the Shoreland Explorer started operating, providing visitors and residents alike a public transportation option during the summer season. The Town installed tidal gate on Drake's Island to restore a salt water marsh and improve stormwater management. In 2007, the Town replaced mooring chains, launch ramps, and pilings. In 2008/2009, the Town replaced the harbormaster's building and the damaged Webhannet sea wall. It also amended its land use ordinance to reduce the allowed density of seasonal cottage development. In 2009, the Town acquired 2, 27 foot military surplus bridge erection boats which were proposed for a number of uses. The Town also secured a bond to rebuild the Webhannet sea wall and constructed the Rotary Pavilion and worked on revision of the shoreland zoning ordinance. Over the years, the Town has undertaken ongoing work on steps and seawalls. In 2011, Christopher Mayo replaced Roland Falconer as harbormaster. The Town



³ Although Wells has had a reputation as a community with summer rental housing and wonderful beaches for a long time, the scale of recent large developments dwarfs anything that had been developed in more recent years. The phenomena of people purchasing small cottages that cannot be converted to year round use and must be shut down from November to April is new.

also acquired, through donation a new 21' center console boat for the harbormaster. The US Coast Guard installed a light for the "WH" entrance buoy to improve navigation into the entrance of Wells Harbor. The Pavilion was weatherized and the commercial pier rebuilt.

5.3 RECOMMENDATIONS

This Harbor Plan recommends continuing to maintain currently permitted uses and dimensional standards as currently required, with a focus on supporting traditional and some new waterfront uses and targeted efforts to improve stormwater management and resource protection. For Wells, traditional waterfront uses include water dependent uses like fishing, clamming, marina, docks and moorings as well as water enhanced tourist support facilities. Aquaculture is a new use recently proposed for Wells. People will continue to be drawn to the Harbor, particularly with proposed harbor improvements and economic development. If not carefully thought out and managed, more people could bring more cars to the area. This Harbor Plan proposes greater emphasis on pedestrian, bicycle, moped, scooter access and amenities along Harbor Road and in the Park. At the same time, the Town needs to improve the efficient use of parking areas with striping, but without increasing the amount of impervious area. Furthermore, the Town should continue to promote carless vacationing in Wells by supporting improved public transit options and explore the use of a remote parking/shuttle system to bring visitors to the Harbor without burdening the shoreline with day long (or longer) vehicle storage. Overall, the Town needs to design and improve its signage system to provide attractive and effective information about how to find and use the Town's most valuable resource, its Harbor shoreline.

6 Harbor Facilities and Infrastructure

Wells Harbor offers a number of public and private facilities to the tourists and commercial and recreational boaters that use and enjoy the Harbor. Most of these facilities are situated on land reclaimed from the water with spoils from the dredging project that reshaped the Harbor in the early 1960's. Wells Harbor offers a number of amenities to recreational and commercial boaters, including: docking access, a public boat ramp, water, food, and disposal of trash. Some levels of boat maintenance are also available. A full-time harbormaster administers the Town-owned harbor facilities from an office located adjacent to the west side pier. Most harbor facilities are available for year round use, and there has been some discussion regarding seeking designation of the port as a Harbor of Refuge¹.



Wells Harbor offers a number of amenities to recreational and commercial boaters, including: docking access, a public boat ramp, water, food, and disposal of trash. Some levels of boat maintenance are also available. A full-time harbormaster administers the Town-owned harbor facilities from an office located adjacent to the west side pier. Most harbor facilities are available for year round use, and there has been some discussion regarding seeking designation of the port as a Harbor of Refuge¹.

6.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. Those that are most relevant to a discussion on Harbor Facilities and Infrastructure are as follows:

- Balance additional development of the Harbor with its inherent constraints, both natural (marshes, habitat, sensitive plants and wildlife) and built (access roads, limited upland area) to minimize negative environmental impacts.
- Generate revenue from commercial and recreational use of the Harbor to offset the need for investments in support of the goals of the Harbor Plan. Seek federal and state as well as private and nonprofit/foundation funds to support implementation of the Plan.
- Continue efforts to monitor, improve, and maintain water quality in the Harbor.
- Consider the effects of projected sea level rise on both Harbor infrastructure and ecological aspects of the Harbor/estuary and make investment and maintenance decisions that mitigate anticipated impacts of projected sea level rise.

¹ A Harbor of Refuge means a port, harbor, inlet, or other body of water normally sheltered from heavy seas by land and in which a vessel can navigate and safely moor (Harbors and Navigation Code Section 70-72.9).

- Support traditional use and job creation associated with Wells' working waterfront, including but not limited to a commercial fleet for commercial and recreational fishing and clamming.
- Make improvements to Harbor Park. The Park needs to be "refreshed" to better serve the community for the next 10-20 years. Enhance the aesthetics of facilities, improve the quality of materials used, expand activities, and reduce management demands.
- Make improvements on Harbor Road to upgrade access, circulation, and parking; encourage increased use of public transit, bicycles, and walking.
- Improve local signage and promotional materials to improve visitors' and users' knowledge of how to get to/use the Harbor. Improve knowledge about Harbor activities and facilities, "wayfinding" and safety notification.
- Explore the feasibility of increasing pedestrian access throughout the Harbor, through creating a cross-harbor pedestrian bridge or water taxi service between the west and east sides of the Harbor. Assess the feasibility of paths and/or boardwalks to connect to Mile Road and Drake Island and plan for phased implementation of this recommendation.
- Increase and improve public transit options. Investigate remote parking/shuttle systems. Improve pedestrian, bicycle, mo-ped/scooter access and amenities along Harbor Road and in the Park.
- Treat Harbor planning as a continuous process.



6.2 PUBLIC FACILITIES

West Side Pier and Floats

Port facilities on the west side of the Harbor include a timber pier and a number of floating docks (floats) accessed via a ramp. These facilities are located at the end of Harbor Road. The pier and floats on this side of the Harbor are open to the public and shared by a variety of commercial and recreational users. Dockage for dinghies is available at this location. The facility also includes a bait pier and there is a slip equipped with a mechanical hoist for loading/offloading. The pier is also set up with scales and tote boards as Wells hosts sport fishing tournaments during the summer.

The west side facilities provide approximately 120 linear feet of “tie up” capacity, with recreational craft limited to 30 minute duration and commercial fishing vessels limited to 45 minutes per tie-up.

Total parking associated with the west side pier and associated facilities have been calculated at 205 spaces. This includes approximately 60 spaces for boat trailers just up the road from the boat launching ramp.



There was a general concurrence during Plan development that the community should support, promote, and plan for capital improvement and maintenance of the Town’s piers, floating docks, and other boating facilities, including, but not limited to, on-shore boat storage, and additional services.

Input from the public suggested that the Town should assess the relative pros and cons associated with maintaining a fuel dock (including the potential for a key system) within the Harbor.

East Side Pier and Floats

Port facilities on the east side of the Harbor include a timber pier and a number of floating docks (floats) accessed via a ramp. These facilities are located adjacent to the parking area at the end of Atlantic Avenue, respectively. Access to the pier and floats on this side of the Harbor is restricted by a (lockable) gate. Floating docks at the pier are accessed by a ramped walkway, and there is little available in the way of marine services.

A public parking lot was constructed adjacent to the south jetty in 1961. This lot provides public access to both the east side harbor facilities and to Wells Beach.

Mooring Fields

Under ideal conditions (i.e., when recently dredged), Wells Harbor is capable of accommodating approximately 150 mooring spaces (144 have been permitted). These include both moorings within the harbor (accessible by dinghy) and slips along the floating dock systems. Vessels greater than 24 feet in length are typically located on moorings, while smaller boats are allocated slip space. Typically, approximately 75% of the moorings/slips are allocated to recreational users. During the 2012 summer season, due to the impact of sedimentation, the number of moorings available for use had been reduced to approximately 93.

The harbormaster manages the administration of the moorings, including applications and the waiting list. As noted, the waiting list for moorings/slips is typically substantially greater than the spaces available, and currently stands at 168. The dynamic nature of sand deposition within the harbor area requires regular dredging in order to maintain navigable water depths in the vicinity of the floats and mooring fields.

Both sand depositions and the administration of mooring fields and slips within the Harbor are discussed in greater detail in Section 10, Recreational Boating.

Public Boat Launch

The Town maintains a public boat launching ramp, located adjacent to the west side pier and floats. The ramp can accommodate one launch at a time, and the town has expressed interest in improving circulation and other logistical features to make it easier to use the facility and draw more users to the site. Consideration should be given to creating a second ramp, such that there would be separate facilities for launching versus hauling out boats. Justification for this project may include the fact that demand for moorings can be documented to far exceed the harbor's capacity, and that the available mooring space has been reduced due to the accumulation of sediments within the harbor.



The State of Maine provides funding for such expansions via several state agencies, with the Department of Conservation, Bureau of Parks and Lands being the most likely funding source.

No fees are charged for use of the ramp.

Harbormaster's Facilities

The Wells harbormaster's office is a 600 square foot, two story structure located adjacent to the pier on the west side of the Harbor which commands excellent views of the Harbor. The harbormaster's boat is a radio-equipped 22-foot fiberglass skiff with a 90 hp outboard engine. Replacement of the engine is currently under consideration.

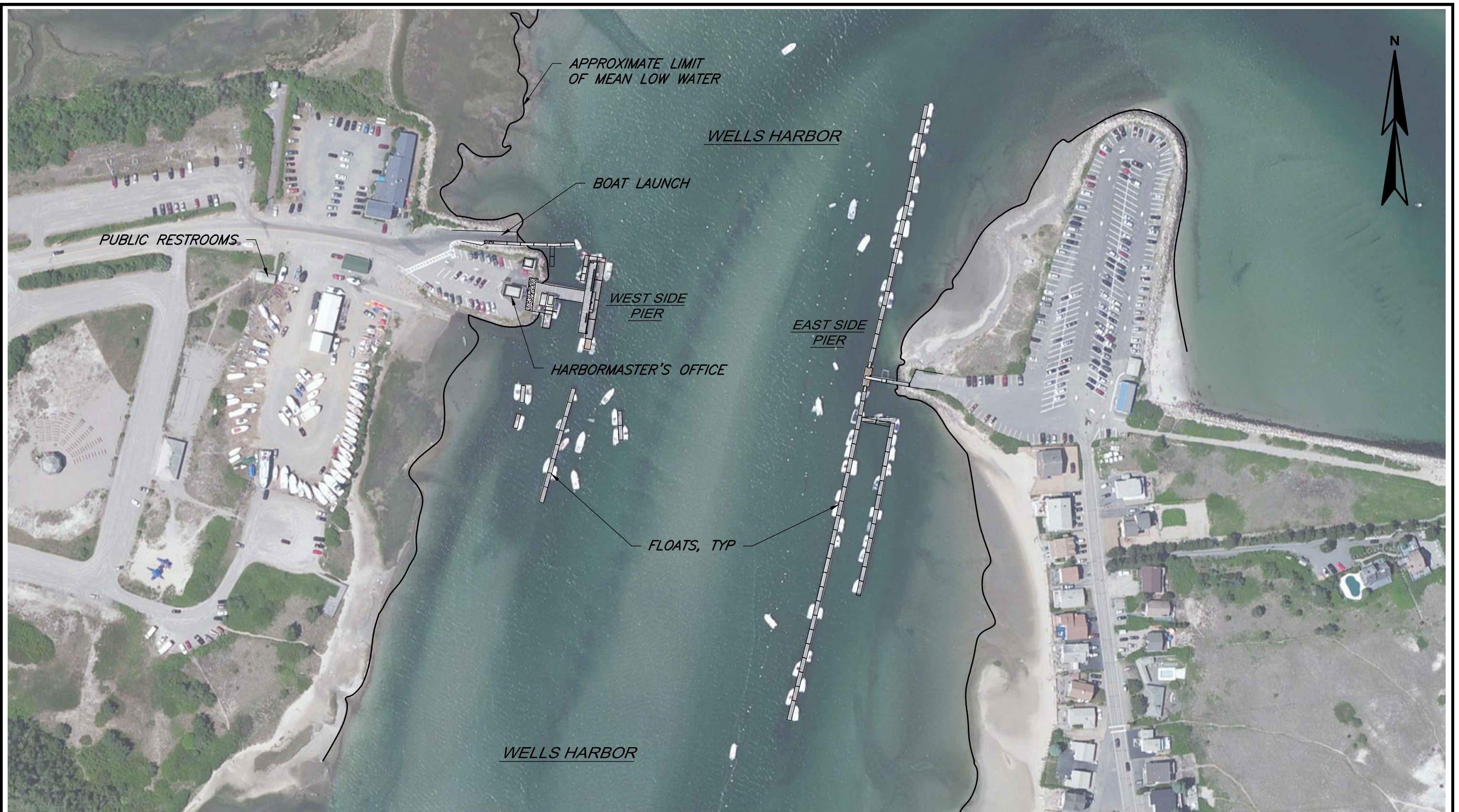
Public Restrooms

Public restrooms are located in a separate, dedicated building between the west side pier and Harbor Park. The restrooms are open only seasonally, but see significant use during the summer months.

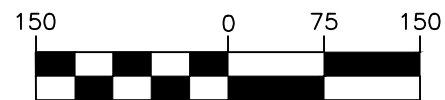
Utility Service

Both the west and east side harbor facilities are served by public water, via the Kennebunk, Kennebunkport and Wells Water District and by public sewer, via the Wells Sanitary District.

More detailed information regarding the layout, nature and condition of these facilities is shown in Appendix A.




GRAPHIC SCALE



(IN FEET)
1 inch = 150 ft.

TOWN OF WELLS, ME
WELLS HARBOR
PIER & FLOAT LOCATION

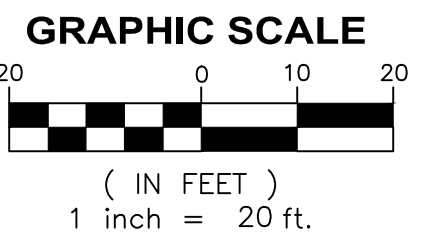
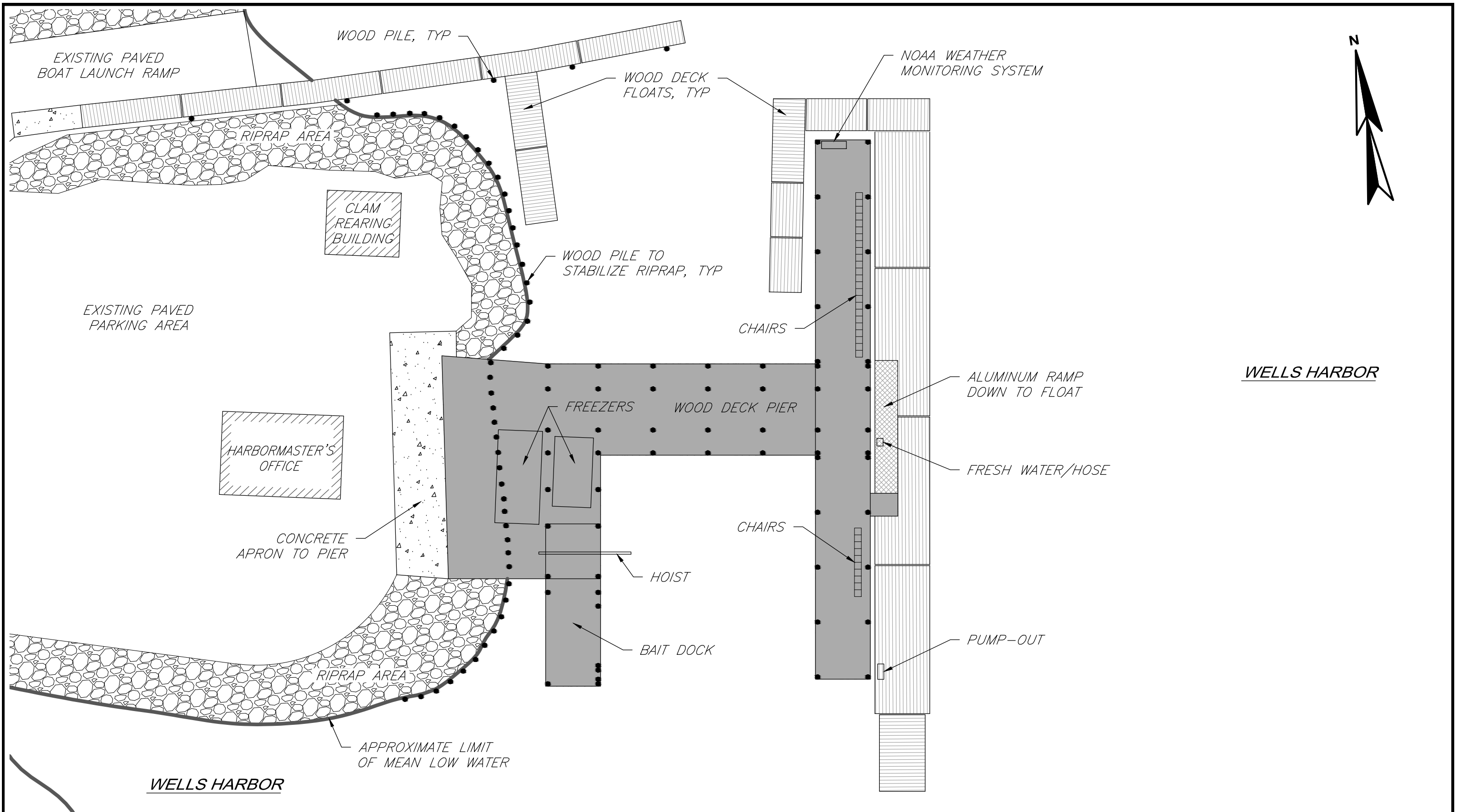
PROJ NO: 12504A DATE: FEBRUARY 2013

WRIGHT-PIERCE 
Engineering a Better Environment

NO.	REVISIONS	APP'D
1		
2		
3		

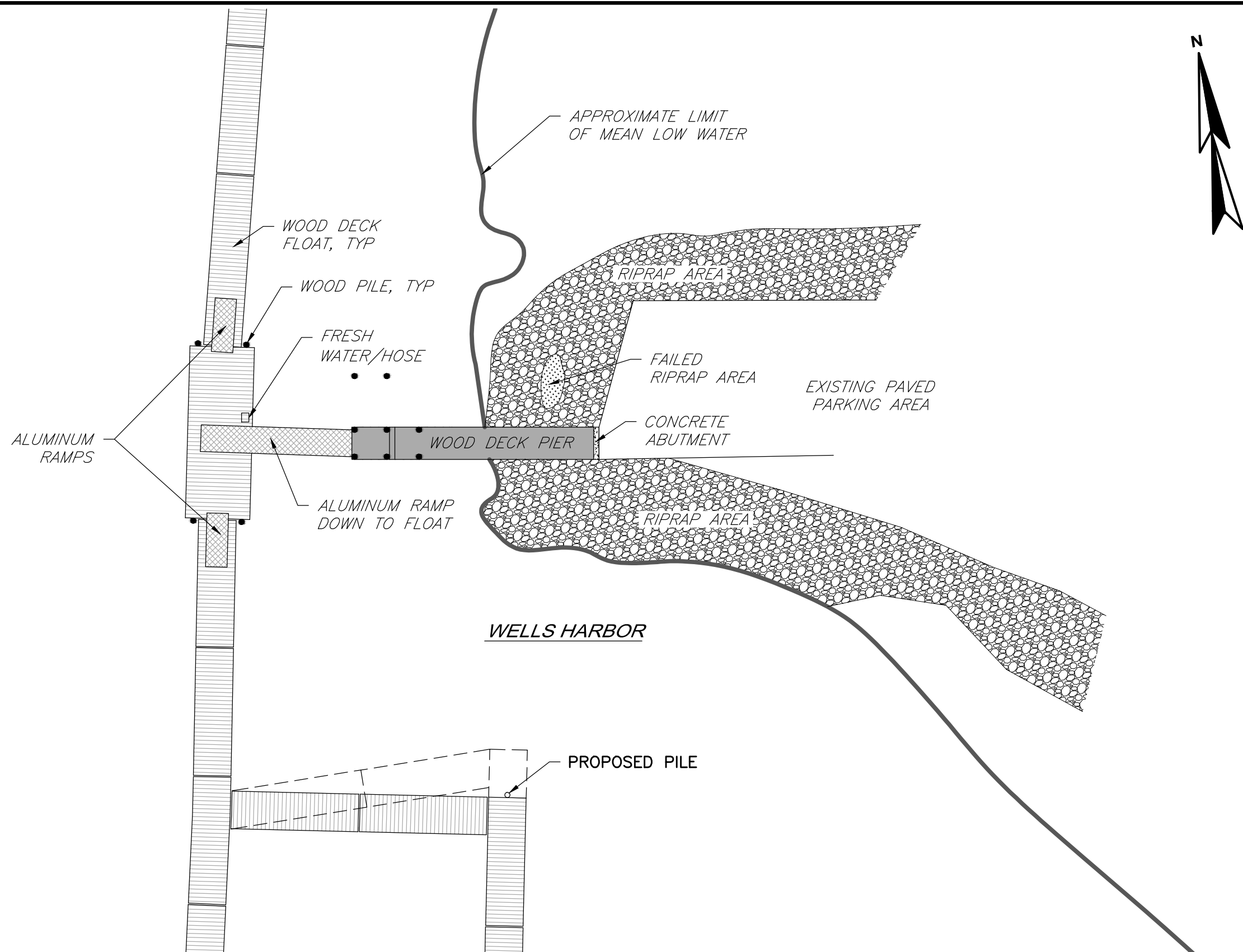
OVERALL HARBOR MAP

FIGURE:
6.1

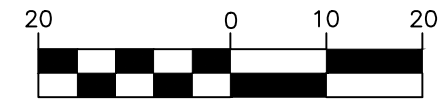


TOWN OF WELLS, ME		NO.	REVISIONS	APP'D
WELLS HARBOR		1		
PIER - WEST SIDE		2		
PROJ NO: 12504A	DATE: FEBRUARY 2013	3		
			WEST SIDE PIER PLAN	FIGURE: 6.2

WELLS HARBOR



GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.

TOWN OF WELLS, ME		NO.	REVISIONS	APP'D
WELLS HARBOR				
PIER - EAST SIDE				
PROJ NO: 12504A	DATE: FEBRUARY 2013	1		
		2		
		3		
			EAST SIDE PIER PLAN	FIGURE: 6.3

6.3 NAVIGABILITY AND DREDGING

The “original” harbor dredging that was performed in 1961 created a number of opportunities for the Harbor. The dredge spoils were used to create significant new land area around the natural harbor basin, and the “new” harbor was able to accommodate a much greater number of moorings for both commercial and recreational vessels. The Harbor was used effectively for a number of years, but by the mid-1970s, sand in-fill began to cause areas within the channel and the inner harbor to shoal significantly. The failure of the US Army Corps of Engineers to maintain dredge every seven years, as originally planned, has meant that significant areas of the Harbor periodically become unusable from a navigational perspective. Shoaling also impacts the harbor entrance (between the jetties) making passage in and out of the Harbor dangerous. Within the Harbor itself, the deposition of sand has decreased the area available for moorings, and is making maneuverability increasingly difficult.



Section 13, Dredging, discusses issues pertaining to dredging in greater detail.

6.4 HARBOR PARK

A three acre Park exists to the south of Lower Landing Road, behind the marina. The Park includes a number of amenities, such as picnic tables, park benches, nature trails, a playground on the west side, walkways, a gazebo in the center, and an assortment of trees and shrubs.

In the course of the Plan development, it was determined that the community should seek to make a variety of improvements to Harbor Park. The Park needs to be “refreshed” to better serve the community for the next 10-20 years by enhancing the aesthetics of facilities, improving the quality of materials used, expanding activities, and reducing management demands. Efforts should upgrade the Harbor Park experience by focusing on improving facilities, amenities, design, and services.



A key initial element in the implementation process is to develop a plan to guide public investments in Harbor Park, including but not limited to, site and building improvements. The plan should specify design themes and use of higher quality materials to improve the overall aesthetics of the Park. Such improvements should be linked to the visitor center concept.

Specific identified considerations include:

- Make the present operation more personally appealing through basic design improvements,
- Make better use of the cooking area to attract local groups to celebrate their various events in Harbor Park,
- Maximize the use of "green" construction materials, and
- Focus development of amenities on authentic, locally-based opportunities.

The community should provide and/or encourage the private sector to provide goods and services for those who use the area including, but not limited to, commercial and recreational boaters, tourists, summer and year round residents, school children, and families who swim and/or recreate on the beaches on both sides of the Harbor. These services may include vendors in Harbor Park and in nearby waters tied to planned activities, truck canteens, and lunch boats.

Efforts should be undertaken to upgrade the beach near the boatyard in response to its increasing use as a destination, with consideration of its location adjacent to the boatyard, services, and vendors, a future marshwalk, and/or improved pedestrian connections between the west and east side of the Harbor.

The Town should examine alternative approaches that do not use pesticides to address sand flea problems near the Park and Pavilion areas. Consider use of citronella "torches" and other environmentally friendly options to control insects around the gazebo.

It was suggested that the community should create a permanent visitor center that is consistent with existing park goals for the Harbor as a place to view, learn, and experience the various environmental jewels it has to offer. The facility might include a nature center, with opportunities that connect to bird watching and other elements related to the area's marsh habitat. Look for opportunities to partner with area conservation organizations.

6.5 PRIVATELY-OWNED FACILITIES AT THE HARBOR

While the Town has retained title to all of the land that was created in 1961 through the original harbor dredge, two portions of this property are leased to commercial interests. Lord's Harborside

Restaurant is located just to the north of the west side pier, and the Webhannet River Boatyard is located just to the south of the pier. The Boatyard provides supplies, repairs, fuel and a launching/haul-out and seasonal storage facilities for a range of boats. The Boatyard also offers seasonal kayak rentals. The Restaurant serves patrons who arrive by both land and sea.

6.6 BICYCLE AND PEDESTRIAN ACCESS TO THE HARBOR

In the course of discussions leading to the development of this Plan, it was clear that significant opportunity exists for the enhancement of bicycle and pedestrian access to the Harbor, particularly the west side. Increasing recreational use of the west side facilities (beach, Harbor Park, pier) has resulted in increased non-vehicular traffic. A review of Harbor Road suggests that a sidewalk and/or multi use trail could be constructed from the vicinity of its intersection with Route 1 to the Harbor. Challenges to be addressed during the design and implementation



of such improvements include working around access and parking for commercial establishments along the route and avoiding impact to adjacent protected natural resources (the marsh). Specifically, concerns were expressed with respect to possible impacts to customer parking in the vicinity of the Fisherman's Catch Restaurant, which is located on the north side of Harbor Road. Patrons routinely park both in front of the restaurant, on the north side of Harbor Road, as well as on the south side. Plans to enhance bicycle and pedestrian circulation along Harbor Road should be sensitive to the continued need for parking in this area.

The community should seek to improve connections between the Harbor and the rest of the region through a coordinated Plan, which accounts for non-vehicular transportation modes, including pedestrian, bicycle, trolley transit, water transit, and other connections not yet identified. Efforts should look for opportunities for large scale bike and pedestrian connectivity, such as connecting the Eastern Trail and other biking and hikers opportunities with access to the Harbor. The effort should include working with regional and state transportation officials as well as local economic interests, including but not limited to, hotels, campgrounds, and the Chamber of Commerce. The Town is currently contemplating the placement of bicycle racks in the vicinity of the west side pier and harbormaster's office.

The Town should continue to work with regional and state transportation planners and local economic interests, including but not limited to, hotels, campgrounds, and the Chamber of Commerce to investigate and consider remote parking options in concert with improved, convenient, and more frequent public transit options.

6.7 CROSS-HARBOR PEDESTRIAN BRIDGE AND MARSH WALK

Among the more significant initiatives contemplated for enhancing connectivity in the area of the Harbor is the concept of constructing a pedestrian bridge across the Harbor from the landing area to the Wells Beach parking lot. Among the attractive features of this idea: it would provide ready access to the harbor facilities from the Wells Beach parking lot and vice versa, and, if creatively designed and constructed, would likely constitute an interesting tourist attraction. The Town has initiated a separate study to explore the feasibility of this option for enhancing pedestrian mobility within the harbor area should.



Much interest has been expressed in the potential for development of a system of paths and/or boardwalks to connect the nucleus on the west side of the harbor with Mile Road and/or Drake Island. The Town has initiated a separate study to explore the feasibility of this opportunity for enhancing pedestrian mobility and creating a tourist draw within the harbor area.

6.8 SIGNAGE AND WAYFINDING

In order to enhance awareness of the recreational opportunities available in the vicinity of the Harbor, the community should seek to improve signage and connections among the community, the Harbor, and local Route 1 businesses. In order to accomplish this objective, the community should prepare and implement a signage plan that improves public knowledge about key features of Wells Harbor, safety notifications, and the rest of the community.



The Plan should adopt consistent standards for signs and identify locations where they should be posted to ensure that they are an attractive addition to Wells and to help visitors and residents of the community find routes to key features. A consistent format, size, color, and logos will make “wayfinding” easier for those who are unfamiliar with the community.

6.9 STORMWATER MANAGEMENT

In order to protect the quality of place associated with Wells Harbor, as well as the ecological values of the adjacent marsh and estuary, the community should continue to restrict large scale development that would increase undesirable impacts on this sensitive area.

As use of the Harbor area increases, the community should plan for increased pressure on road and water access, parking, and stormwater management. Where appropriate, the community should include provisions to maintain or enhance natural buffers between differing uses to address aesthetic, water quality, and/or habitat issues, and redesign and reconstruct parking areas, using porous pavement, interlocking pavers, or other materials to manage stormwater impacts while providing opportunities to stripe spaces or otherwise manage parking more efficiently.

6.10 LONG TERM SEA LEVEL RISE/CLIMATE CHANGE

A commonly expressed sentiment during the Plan development was that initiatives relating to new or upgraded facilities should consider the effects of projected sea level rise and/or climate change. It was determined that the community should make investment and maintenance decisions that mitigate anticipated impacts of projected sea level rise, and include educational components. Town officials should continue to work with the regional sea level rise working group to increase understanding of the potential impacts of sea level rise on Wells Harbor and the most effective ways to mitigate its impacts on public and private property.

According to information published by the Maine Geological Survey, “based on yearly average sea level measurements, Maine has been recording sea level change rates similar to that of the global ocean over the past century (around 1.8 mm/year), as measured by the tide gauge in Portland). Satellite altimetry measurements of the global oceans from 1993 through 2011 indicate that there has been an acceleration in the rate of sea level rise over the last 18 years to around 3.1 mm/year). Based on yearly sea level data from 1993 through 2009, Maine had not yet seen this acceleration, and was trending near 1.9 mm/year. However, taking into account newer data from 2010 and 2011, it is clear that the Portland tide gauge recorded higher water levels in 2010 than in any of the previous years. Over this 18 year period, Portland's averaged annual sea level rise rate increased to almost 4.2 mm/year (or around 1.4 feet per century), over double the historic trend over the past 100 years. Looking even closer at this sea level data on a monthly basis since January 2007 through June 2011, one can see that the highest sea level measurements over this time period corresponded with the February and March 2010 storms. It is clear that this was the highest average monthly water level recorded in the past 100 years. It is also noteworthy that previous winters (2007, 2008, and 2009) had monthly sea levels below the trend of the linear regression. So the winter sea level of 2010 was on the order of 0.6 to 0.9 meters (2 to 3 feet) above that in the previous three winters. The winter of 2011 saw monthly sea levels fall to below the regression line.”

7 Harbor Economy and Sustainability

7.1 INTRODUCTION

The key to understanding the Wells Harbor Economy is how it can and does relate to the rest of the community. There are several distinct components that can be brought into other community activities:

- Commercial Fishing
- Recreational Boating
- Webhannet River Boat Yard
- Webhannet Kayaks Storage and Rentals
- Webhannet Bait Shop
- Aquaculture and Recreational Clamming
- Ecotourism/Passive Recreation
- Restaurants



Each one of these components represents something different to the community. Yet, in all cases, they tie to a critical industry in the community, tourism. Wells Harbor is a support structure for much of the economic activity that goes on in the community. Whether it be from a services or supply industry (commercial fishing, commercial sightseeing/fishing, kayaking, etc.), the Harbor is an important part of the experience of visiting Wells. Not surprisingly, therefore, the Harbor is also a place where artists often visit; capturing both the natural environment and all that comes with a working Harbor. To place a value on that is difficult, but to understate its importance to the local economic engine is not hard to understand.

7.2 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. Those that are most relevant to a discussion on Harbor Economy and Sustainability are as follows:

- Celebrate the Harbor, its activities, visitors and users in understanding the importance of its role in Wells' culture and local economy.
- Establish a three part marketing program for the Harbor that assists local business interests, supports environmental education and experience, and enhances residents' use, awareness, and understanding of the economic importance of the Harbor to the community.

7.3 COMMERCIAL BOATING

Commercial fishing vessels currently based in Wells harbor consist of the following:

- 13 Charter-generally six person vessels
- 9 full-time lobster boats
- 2 larger Charters / commercial boats
- 15, 5-trap recreational lobster boats

With the exception of the recreational trap boats (recreational by definition), commercial fishing remains a critical industry for the community. Visitors are attracted to the availability of charter options and how to extend their experience in their visit to Maine.

The lobster industry in the Harbor is significant, although it has faced a very difficult period recently because of the surplus of Canadian lobsters being dumped on the market. As result, the value of lobster has declined in recent years, although the hauls are significantly greater than they were in 1990. Interestingly, the number of full time lobster boats in the Harbor has not changed: there were 8 in 1990 and there continue to be about that number today. The 1991 Harbor Management Plan reported 14 part time trap haulers; today the harbormaster reports that there are 15 part time trappers laying 5 traps apiece.

While there is no specific information available with respect to landings in Wells Harbor, York County shows an increase in lobster landings from 2,098,391 pounds in 1990 to 3,293,634 pounds in 2011. The 2011 catch represents 3% of the catch in Maine and 4% of the total value. Based on the 1991 Plan, that would suggest a multiplier effect of almost \$22 million in the local



economy (for York County as a whole. Hence, the Wells Harbor portion of York County's total continues to play an important and critical role in the local fishing industry.

An emerging industry in the Harbor, since the 1991 Plan, is the success of the charter boat industry. There now exists approximately 15 commercial charter boats in the Harbor conducting different kinds of fishing and sightseeing trips. These charters are important to the local fishing economy, but also are an important bell weather for the industry as a whole. Charter boats bring a great deal of funds into the community:

- As an example, a 6 person boat charter ranges from \$350 for a 3 hour trip to \$1,600 for a 12 hour trip
- As an example, a 10 person boat charges \$75 per person for 4 hours or \$95 per person for 6 hours for in shore fishing

Charter boats draw visitors to the hotels and the community. The charter and individuals purchase goods and services throughout the community. While the multiplier effect is unclear, what is true is that the charters, in combination with campgrounds and other "stay-cations", are important to the local economy.

7.4 RECREATIONAL BOATING

Under ideal conditions (i.e., when recently dredged), Wells Harbor is capable of accommodating approximately 150 mooring spaces (144 have been permitted). These figures include both moorings within the Harbor (accessible by dinghy) and slips located within the floating dock systems. Vessels greater than 24 feet in length are typically located on moorings, while smaller boats are allocated slip space. Typically, approximately 75% of the moorings/slips are allocated to recreational users. During the 2012 summer season, due to the impact of sedimentation, the number of moorings available for use had been reduced to approximately 93. Again, these boat activities represent visitors to the Harbor that reflect annual business activity.

Beyond the practice of local moorings, the Town also sees:

- A conservative estimate of an average of 7 boats launched per day (individual days can be much higher) over 92 days for 644 total launches
- Sale of fuel, goods and services, and overnight accommodations by recreational boaters.

These purchases represent critical inputs into the economy.

7.5 LOCAL HARBOR BUSINESSES

The Webhannet River Boatyard pays an annual rent of approximately \$4,500 to the community, adjusted annually. Within their agreement, the community can receive the following:

- Boat storage: around 85 boats per year
- Boat repair is a major service for individual boats but also providing critical services for all users
- The boat yard purchases parts and supplies from many supporting businesses inland, including fuel and parts
- Owners of the boat yard estimate that they engage at least 50 different businesses inland, for services that are provided by the yard (suppliers, restaurants, accommodations, etc.). This is a critical multiplier to the local economy.
- The boat yard launches roughly 80 boats per year, 50 of which are launched by individual trailers, the remainder by their hydraulic launch system— launches cost between \$8.50 per foot for commercial boat and \$10.50 per foot for recreational boats. Trailer launches are \$3.50 per foot. These payments represent important economic multipliers to the community.



What is very new from the 1991 Plan is the emergence of the ecotourism industry to which this 2013 Plan recommends a new commitment by the community. Key to this strategy is the alternatives for recreational experiences in the harbor and marshlands. As an example:

The Webhannet boat yard rents an average of 60-75 kayaks per week and tandems for \$40.00 for two hours and \$25.00 for singles.

- Their activity is heaviest between July and August; a recent weekend actually rented out 22 over two days.
- An improved shoulder season would increase use in May and September-October; there is no reason why this period cannot be expanded
- The Webhannet yard stores privately owned kayaks at \$100 per year. Many are local or seasonal visitors that use the Harbor on a regular basis

- This service is extremely beneficial to the accommodations industry, particularly the camp grounds and motels. Additionally, most users are steered towards restaurants and ice cream places in the community after the rental, again fueling the local economy.

The Webhannet boat yard also provides additional services. The bait shop provides:

- Bait for both commercial and recreational fishing, including those who fish from the shore
- Annual revenue is based on average sales of \$1,000 per days for visiting patrons, which can be assumed to be at least three months out of the year.

7.6 HARBOR RESTAURANTS AND THEIR VISITORS

Visitors have been enjoying a restaurant experience in the Harbor for over 40 years. Based on surveys, this includes both local and visiting patrons. Shoulder seasons, while weak, tend to be dominated by local patrons. The summer tends to be dominated by visitors from away. The Lord Harborside restaurant and the Fisherman's Catch have been at the site for many years and have seen many land-use proposals for the area come and go, as the seasons fluctuate. They exist as a very attractive seasonal draw, with The Lord Harborside having the capacity to expand. In both cases, the restaurants are open six months per year, but the shoulder seasons tend to be slow, hence business tapers off.



From a community perspective, Harborside pays rent annually to the Town. However, the lease is up in two years, suggesting that other revenue flows should be explored. The restaurant is top-rated and should be preserved as part of any future development proposal. There is an ability to expand the restaurant, based on existing permits, which should also be considered. However, the successful expansion should be based on an ability to expand seasonal capacity of the harbor. As one thinks about the advantages of such an expansion, the following should be considered:

There are 35 seasonal workers, mostly permanent workers with benefits and very competitive salaries. Most are from the area, half are from Wells – average salary for six months can be as much as \$40,000.

7.7 ISSUES AND IMPLICATIONS

We have discussed the conventional economic engines for the Harbor. They are real and must be fed. For example, a fueling station and supportive services would make sense and help serve the public.

The community needs to understand the importance of the Harbor and how it relates to overall economic traffic. The restaurants, the water access, the Harbor, represent key uses that today contribute significant resources to the local economy. All of these feed local services and have important local economic implications. This will not stop, but existing businesses must find ways to build on this unique environmental place.

Ecotourism and the existing Harbor Park are natural partners. They do not exist as stand alones – they are key pieces to a local economy that needs to be marketed and taken advantage of. A marriage with the Laudholm Trust, Reserve and Refuge are key to this. The combination with the Webhannet boat yard, the kayak's and other rentals, in particular, are key to this policy. Along with that focus, is a recommendation to take advantage of the existing trail system and extending it from the Harbor, in either direction. These relatively inexpensive additions to the trail network could be combined with a key marketing program, to talk about the special characteristics of the area.

When we look at the local harbor economy, the following are in play:

Estimated Revenue Flow-Harbor and Beach Activities

Town Revenues		fy 2011
	Rent	55,500.00
	Beach Passes	309,600.00
	Gazebo	9,000.00
	Boat excise	9,723.00
	Clamming licenses	6,332.00
Total Revenues		390,155.00
Expenses		
	Harbor/beach spending	306,488.00
	Clam preservation	6,332.00
Total Expenses		312,820.00
Balance		77,335.00
<i>Private revenues/charters</i>		201,500.00
<i>Total private/public revenues</i>		591,655.00
Estimate: Annual Consumer Secondary and Tertiary Spending in the Community		
Multiplier of 1.5 (low)		887,482.50
Multiplier of 4.0 (high)		2,366,620.00

Note 1: Estimates to be confirmed with Departments

Note 2: Private revenues based on 13 boats one trip per day* \$350* Seasonal Days (4th of July-Labor Day, Friday-Sunday only), plus 2 larger boats* one trip per day (12 hours)*

Note 3: Lord Harborside assumed to be included in multiplier, probably underestimated given 75% are visitors staying somewhere at some expense

The multipliers are key. They can be expanded upon. A coordinated ecotourism program path, including all local agencies and environmental non-profits, and which is focused on protecting the delicate nature of the Harbor, can be incorporated into a community marketing plan that tells everything about the beauty of the harbor marshlands, the Harbor, and the community itself.

The Harbor Park is at the center of this effort. The Park needs to be upgraded, made more attractive and user friendly, but remain a significant place where locals and visitors come to gather. More events, more activities, should be part of this local marketing program, all bringing to attention the fact that Wells is more than a beach attraction; it is a fantastic natural environment that needs to be explored and admired.

8 Commercial Fishing

Local historians indicate that commercial fishing vessels have operated out of Wells Harbor since the 1800s, though the Harbor and its present infrastructure has only been in existence since the major dredging operation of 1961. While the commercial fleet takes advantage of opportunities associated with charter fishing for a variety of species, lobstering is the primary commercial fishing endeavor. Aspects relating to shellfish and aquaculture are discussed separately in Section 9 of the Plan.



8.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. Those that are most relevant to a discussion on Commercial Fishing are as follows:

- Support traditional use and job creation associated with Wells' working waterfront, including but not limited to a commercial fleet for commercial and recreational fishing and clamming.

Strategies identified for achieving this objective include the following:

- Monitor fishing trends in the Gulf of Maine to identify emerging opportunities as well as problems in fishing stocks to guide any efforts the Town might consider to increase commercial and recreational activities in recognition of the health of current fisheries.
- Monitor the potential impacts of invasive species on commercial fishing. If problems are identified, work with the Maine Coastal Program, Department of Maine Resources, U.S. Fish and Wildlife, local environmental, marine interests and other to address the emerging problem.

8.2 LOBSTERING

Lobstering is one of Maine's oldest and most consistently productive industries. Records suggest that in 1889 the total (statewide) catch was 24.5 million pounds; in 1989 the catch was 23.4 million pounds. But while the catch has remained stable, keeping pace has required a far greater expense of time and money. Statewide, it is estimated that there are now twenty times as many traps and four times as many lobstermen fishing today as in 1889. While much of the 1900's saw a slow decline in



the magnitude of the catch, landings slowly began to increase again starting in the 1970's. Several theories have been advanced to explain the stabilization of the lobster stocks, from a slight warming of the ocean water that scientists believe may contribute to the survival of a greater number of young post-larval lobsters, to a decrease in the numbers of groundfish that prey on juvenile lobsters.

Figures compiled by the National Marine Fisheries Service for York County illustrate that, while there have been periodic downturns, the lobster catch has remained generally strong locally over the past several decades. The greatest obstacle to lobstermen recently has been the extremely low wholesale (and retail) prices for their catch, which has resulted in very challenging economics, particularly when considering the elevated price of fuel and bait.

According to the Wells harbormaster, most of the lobstermen operating out of Wells Harbor fish a season of May through October. One or two vessels operate on a year-round basis.

See Section 7, Harbor Economy and Sustainability for a discussion of the economic impact associated with lobstering activities on the community

8.5 CHARTER FISHING

According to the harbormaster, Wells Harbor supports approximately twelve licensed charter vessels. Typically licensing falls into two categories: obtaining a license from the Town to operate a commercial activity within the community, and obtaining a license from the U.S. Coast Guard to serve as captain of a boat-for-hire. It is suspected that considerable other charter boat activities take place in addition to the dozen or so vessels that are formally licensed by the Town, but tracking and enforcing municipal registration of commercial vessels is challenging and time consuming.

The charter boats typically take patrons out in search of either striped bass/bluefish or offshore groundfish. In some cases the quarry is deep sea shark or tuna. The charter fishing season is generally active between May and October.



See Section 7, Harbor Economy and Sustainability for a discussion of the economic impact of charter fishing activities on the community.

8.3 WELLS HARBOR FLEET AND FACILITIES

Wells Harbor has supported a small but viable lobster fleet for most of the past century. In the 1950's the fleet was six to eight boats. Although data suggest that the size of the fleet increased to as much as 25 to 30 boats during the 1970's and 1980's, the number has dropped again to approximately 9 or 10 vessels.

Wells harbor facilities are well suited to maintaining a commercial fishing fleet. The west side pier and floating dock system, which was constructed following the major harbor dredge of 1961, provides dock access for loading and unloading commercial vessel. It also provides non-potable water, a bait dock, coolers, parking and spots for dinghy tie-up. There is a slip adjacent to the bait dock and refrigerator units that are equipped with a mechanical hoist for offloading. Further discussion of the harbor facilities is included in Section 6, Harbor Facilities and Infrastructure.

Shellfish and Aquaculture

Shellfish have been an important part of Wells' history. The extensive estuarine system and mud flats comprise an ideal shellfish habitat. The most important commercial species for Wells is the soft-shell clam, *Mya arenaria*, that inhabits the mud flats of the Webhannet river tidal waters. The softshell clam is a filter feeder which strains planktonic plants and animals from sea water. Softshells attain their largest size in the lower tidal zone, where they may also achieve a maximum density of 300 clams per square meter (Maine State Planning Office, 1985). Natural predators include flounder, ducks, moon snails and most importantly, green crabs. Softshells are particularly vulnerable to changes in their stable, low-energy environment: because they circulate water directly through their system, consume and accumulate biological contaminants in their tissue, and depend on water currents to deliver a steady flow of nutrients. Any activities that affect the flow of water over the clam flats - like the Wells Harbor jetties - will also necessarily affect the condition of the clams. Additionally, both temporary and long-term changes in the sediment structure of the mud flat can harm both mature and juvenile stocks, and prevent or disrupt the reestablishment of clambeds.



9.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. Those that are most relevant to a discussion on Shellfish and Aquaculture are as follows:

- Support aquaculture initiatives that are consistent with maintaining water quality within the estuary and limiting the likelihood of genetically modified species escaping into the natural system.
- Support traditional use and job creation associated with Wells' working waterfront, including but not limited to a commercial fleet for commercial and recreational fishing and clamming.

Strategies identified for achieving this objective include the following:

- Work with environmental groups, the Harbor Advisory Committee, and other to prioritize and conduct stream shoreline surveys to identify facility septic systems and inadequate stream duffers, and other threats to water quality.
- Continue efforts associated with maintenance of a sustainable recreational clamming program and assess the viability and needs of a commercial clamming program.
- Monitor invasive species impact on commercial fishing. If problems are identified, work with state, federal, and local interests to address emerging problems.
- Assess the viability of commercial aquaculture involving bivalve mollusks/filter feeders, such as oysters.
- Maintain a dialogue with area ecological groups with respect to appropriate aquaculture initiatives, including discussion on location and magnitude.
- Watch for and seek to mitigate negative water quality issues that might arise from aquaculture initiatives through working with the industry and/or regulation, as necessary.

9.2 BACKGROUND

Through the 1960's, Wells was identified as one of the state's most productive shellfish areas. The Wells marsh was rated as one of the two most valuable coastal marshes in the state by marine biologists, and the town took progressive measures to protect the resource. For example, in the early 1960's the Town took significant measures to control predation of juvenile clams by green crabs. The health of the industry reflected this proactive management as the annual shellfish landings through the mid-1960's ranged from 1,500 to 2,700 bushels, with a value in 1991 dollars of \$75,000 to \$135,000.

By the mid-1960's however, marine biologists were calling attention to increasing levels of pollution in the Webhannet estuary. In March of 1969, Maine's Commissioner of Sea and Shore Fisheries (predecessor to the Department of Marine Resources) closed the Webhannet estuary to all harvesting of shellfish. The pollution that resulted in closure of the clamflats was caused by two sources. Most notable were "the large number of cesspools, septic tanks, and drainage fields in marshland areas which are washed by high tides," circumstances aggravated by additions made to the jetties at the mouth of the Harbor which apparently reduced the exchange of seawater in the estuary. In addition, extensive development along Route 1 was identified as a secondary source of pollution within the estuary.

In order to address water quality within the estuary, the Town undertook the construction of sewers and a wastewater treatment facility in the late 1970's utilizing funding from the U.S. Environmental Protection Agency.

Although the wastewater collection and treatment system became operational in 1979, the clam flats remained closed to all but the most restricted harvests because of pollution attributed to non-point sources of coliform bacteria¹ in the vicinity of the estuary. As an indication of the level of harvests occurring during this period (1977 through 1980), Town records indicate that only six licensed commercial clam diggers worked in Wells, landing a high of 534 bushels in 1978 and a low of 47 bushels in 1980. All of the catch was polluted to some extent and subject to depuration². The Wells Harbor Advisory Committee should work with environmental organizations, shell fisheries groups, and others to identify faulty septic systems, inadequate stream retrofit their systems, plant stream buffers, and reduce threats to water quality. The groups should also prepare educational materials and promote activities that inform property owners about the important role they play in protection and improving water quality. If appropriate, the groups should reach out to other communities and their landowners within targeted watersheds. These, and other efforts, are necessary because water quality issues remain, despite the Town's construction of its sewer collection and treatment system.

9.3 CURRENT SHELLFISH HARVESTING

Based on discussions with Doug Knox, former Shellfish Warden and Chair of the Wells Shellfish Committee, there are two harvest areas, one extending to Drake's Island, and the other within the Harbor. The harvest season runs on alternate weekends (plus holidays) starting January first and extending until the end of March inside the Harbor (or December first and extending until the end of March outside the Harbor)



The Town issues 300 recreational clamming licenses each season. No commercial licenses are issued. The limit for the recreational licenses is one peck of clams per day. While state law requires that at least 10% of these licenses be made available to non-residents at a cost not exceeding two times the cost for residents, this requirement has not been an issue in recent years, and a significant percentage of the licenses are sold to non-residents.

¹ An indicator of contamination from faulty septic systems, poorly functioning or inadequate waste treatment systems, and/or inadequately managed animal waste disposal systems.

² The process by which shellfish are held in tanks of clean seawater under conditions which maximize the natural filtering activity which removes impurities from them prior to sale and/or use for human consumption.

The Shellfish Committee operates a facility at the Harbor to raise clams for "seeding" the flats. This operation produces approximately 65,000 small clams (1/4 to 1/2 inch in length) each year. The selection of areas for seeding is based on observation. While it would be desirable to close seeded areas for two years following the seeding to allow the young clams to grow to harvestable size, this is currently deemed impractical due to the limited area of flats, thus limiting potential yields.

It is currently felt that the operation is sustainable, both in terms of clam harvesting, as well as financially. The fees paid for licenses covers the cost of buying eggs as well as the operations and maintenance of the seed clam nursery facility.

The state monitors water quality at approximately ten locations in the vicinity of the clam flats (the process includes volunteers who obtain samples). Red tide has not been an issue in recent years, largely because the season for red tide is generally April through September, which does not overlap with the harvest season in Wells.

The following link provides access to a study regarding soft shell clam distribution within the Webhannet estuary: <http://swim.wellsreserve.org/csc/uploads/ClamSurvey2003-04.pdf>

9.4 OTHER AQUACULTURE INITIATIVES

Over the years, there have been a number of discussions regarding the potential for capitalizing on Wells Harbor and portions of the Webhannet River estuary as a site for aquaculture. In general, most of these enterprises have recognized that the limited tidal flushing and sensitive ecosystem in Wells create conditions that are a poor match for finfish-based aquaculture, which typically involves the addition of significant nutrients as the fish are fed to promote growth. The possibility of utilizing a portion of the Harbor/estuary for the cultivation of bivalve mollusks, such as oysters has been viewed more favorably. As these species are "filter feeders" and extract their nutrients directly from the water they may actually have a beneficial effect on the quality of estuary water.



In 2012, the Maine Department of Marine Resources approved an aquaculture lease for the experimental culture of the eastern oyster (*Crassostrea virginica*) within the Webhannet River estuary. The U.S. Army Corps of Engineers approved the installation of up to ten (10) 55-inch by 36-foot oyster growing cages within a 400 square foot area below the mean high water mark. At the time of Plan issuance, four of these cages have been located along the western shore of the

Harbor, approximately 3,000 feet south of the west side municipal pier, and in the vicinity of the entrance to Pope's Creek.

9.5 SHELLFISH HABITAT AND THREATS

The state has classified the tidal portions of the Webhannet River and its tributaries as SB. This is the middle classification for tidal waters, lower than SA but higher than SC, recognizing the significant development of portions of the Wells shoreline. The SB classification presumes that the water quality is suitable for recreation (both in and on the water), fishing, aqua-culture, propagation and harvesting of shellfish, navigation, and as a habitat for fish and other estuarine and marine life (in addition to other uses). Attainment of a classification is determined by whether the water meets standards for dissolved oxygen, bacteria, and temperature.

There are three main categories of contaminants that typically cause problems in coastal estuaries: bacteria, nutrients, and heavy metals and other chemical contaminants. Bacterial contamination affects the suitability of shellfish for consumption and ultimately human contact with the water. Pathogens associated with bacteria are harmful to humans if consumed either through shellfish or directly from the water. Common sources of bacterial contamination include septic systems, animal feces combined sewer overflows (when stormwater and sewerage are combined and create capacity problems at the sewer treatment plant during a significant storm events), and leaking sewage collection systems.

Nutrients, such as nitrogen and phosphorous, act as fertilizers in the water and can result in algal blooms. Of these, nutrients, nitrogen is of most concern as it is usually the limiting nutrient in marine waters. The growth of algae and other marine plants is typically of concern both for aesthetic and biological reasons. Algal blooms can result in a depletion of dissolved oxygen and many marine organisms need plentiful amounts of dissolved oxygen to survive. Thus nutrient loading can adversely affect the quantity and quality of marine organisms within the ecosystem. Common sources of nutrients include stormwater runoff from developed areas, lawns, exposed soil, and developed areas, as well as effluent from sewage treatment plants and poorly functioning septic systems.

Heavy metals such as zinc, iron and lead typically sink to the bottom of the water body and settle in the bottom sediment. These metals are mainly a problem when the sediment is disturbed, although their presence in the substrate can be a problem for marine worms and other species that live in harbor sediments. Other chemicals, such as chlorine, remain suspended in the water and may be



toxic to marine organisms, as well as to humans that eat affected organisms. Common sources of heavy metals include industrial and municipal stormwater and/or wastewater discharges, residential overboard discharges from straight pipes and other stormwater runoff.

A likely source of Wells for the bacterial contamination is malfunctioning septic systems in the vicinity of the estuary. Also of concern is the proximity of development to the marsh along the Webhannet River and in many areas. When development extends directly to the marsh's edge, the vegetative buffer around the marsh is lost. Marsh buffers filter out a portion of the nutrients and other contaminants before they enter the aquatic ecosystem. Without the buffers, runoff enters the marsh directly and is only filtered by the marsh itself.

10 Recreational Boating

Because of its location in the seasonally popular coastal area of southern Maine and its proximity to recreational beach areas and to sport fishing grounds, Wells Harbor is, geographically, ideally suited for the recreational boater. With a steadily increasing population of both seasonal and full-time residents, many of whom come to enjoy the numerous ocean-related amenities that the community has to offer, there is significant demand for facilities to support recreational boating activities within the community.



10.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. The one that is most relevant to a discussion of Recreational Boating is as follows:

- Support, promote, and plan for capital improvement and maintenance of piers, floating docks, and other boat facilities, including, but not limited to, on-shore boat storage, sewage pumpout, and additional services.

10.2 CAPACITY AND DEMAND FOR MOORINGS

The 1991 Harbor Management Plan indicated that the total demand for recreational boating mooring capacity increased at an annual rate of approximately 14% from 1979 to 1990 (from 116 to 298 boats). Under ideal conditions (i.e., when recently dredged), Wells Harbor is capable of accommodating approximately 150 mooring spaces (144 have been permitted). These figures include both moorings within the Harbor (accessible by dinghy) and slips that are part of the floating dock systems. Vessels greater than 24 feet in length are typically located on moorings, while smaller boats are allocated slip space. Typically, approximately 75% of the moorings/slips are allocated to recreational users. During the 2012 summer season, due to the impact of sedimentation, the number of moorings available for use had been reduced to approximately 93.

Discussion with the Wells harbormaster as a part of developing this Plan indicated that the current waiting list stands at approximately 168 (115 for slips and 53 for moorings). The harbormaster is currently implementing several adjustments to the process of administering the waiting list, which are expected to address some inherent problems. Among the changes will be a need for annual update of applicant data. It is hoped and expected that these adjustments will reduce the length of the list and make the process less unwieldy.



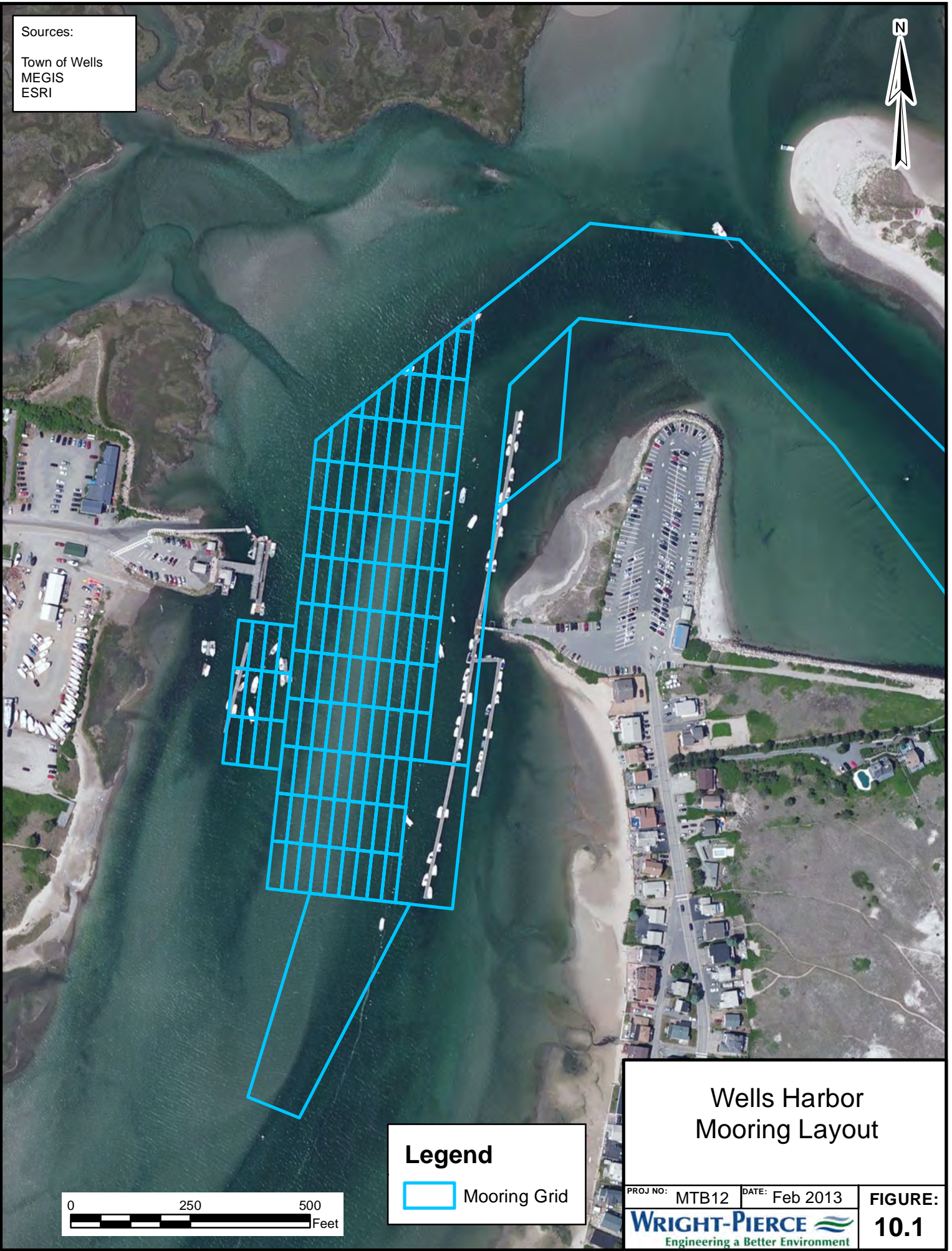
Regardless, the demand for moorings/slips far exceeds the current capacity of Wells Harbor, and the combination of increasing demand and decreasing capacity (due to accumulation of sediments within the Harbor) means that the unmet need is increasing. This unmet need is likely reflected in the increase of usage of the boat launch at the Harbor, as area residents who would typically moor their boats within the Harbor are restricted to launching and haul out whenever they wish to use their vessels.

10.3 MOORING PLANS

The optimum mooring layout in Wells Harbor is illustrated in Figure 10-1. Because of the constraints imposed by sand deposition within the Harbor, the harbormaster must exercise judgment in determining when mooring locations will no longer be available due to the accumulation of sediments.

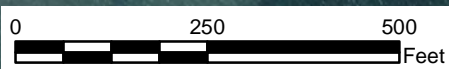
Sources:

Town of Wells
MEGIS
ESRI



Legend

 Mooring Grid



Wells Harbor
Mooring Layout

PROJ NO: MTB12	DATE: Feb 2013	FIGURE: 10.1
WRIGHT-PIERCE Engineering a Better Environment		

W:\GIS_Development\Projects\ME\Wells\12504A\Figures\Fig10.1-WellsHarborMooringLayout-8x11-P.mxd

10.4 OTHER WATER SPORTS

A beach area is located on the west side of the Harbor, to the south of the pier facilities. The beach is well-suited for launching windsurfers, canoes, and other small boats. The Harbor and estuary provide excellent opportunities for the recreational sports such as windsurfing, sailing and canoeing. Jet skis and water skiers also frequent the Harbor during the warm summer months.

Given the high level of activity taking place within the Harbor during the summer months, as well as the sensitive nature of the ecosystem, concern has been expressed in the past regarding certain recreational water sports, such as water skiing and jet skiing, as these generally involve significant speed, are noisy and cover a lot of area. While some believe it is more appropriate to reserve the calmer harbor waters for canoe, day sailing, dinghy traffic, and windsurfing, jet skiing and water skiing are allowed within the Harbor to the extent they are conducted in a manner consistent with other regulations, such as operating in a “safe and prudent” manner when more than 200 feet from shore, and maintaining no wake when less than 200 feet from shore. A certain amount of enforcement of these rules is required by the harbormaster over the course of the summer months.



11

Natural Areas

11.1 GOALS AND STRATEGIES

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals were initially identified and then refined. Those that are most relevant to a discussion on Natural Resources are as follows:

- Balance additional development of the Harbor with its inherent constraints, both natural (marshes, habitat, sensitive plants and wildlife) and built (access roads, limited upland area) to minimize negative environmental impacts.
- Continue efforts to monitor, improve, and maintain water quality in the Harbor.
- Continue to support and expand research and education about Wells Harbor and its resources and environments in partnership with environmental organizations, the school district, and others.
- Make Wells a destination for a unique interactive experience with its natural assets by incorporating environmental education and ecotourism experiences into a Harbor experience.
- Establish a three-part marketing program for the Harbor that assists local business interests, environmental education and experiences and enhances residents' use, awareness, and understanding of the importance of the Harbor to the community.
- Consider the effects of projected sea level rise on both Harbor infrastructure and ecological aspects of the Harbor/estuary. Work with the public to increase its understanding of the impacts and potential threats of sea level rise.
- Continue to support efforts aimed at improving and maintaining the health of the dune ecosystems including both flora (such as dunegrass) and fauna (such as piping plovers).



Strategies identified for achieving this objective include the following:

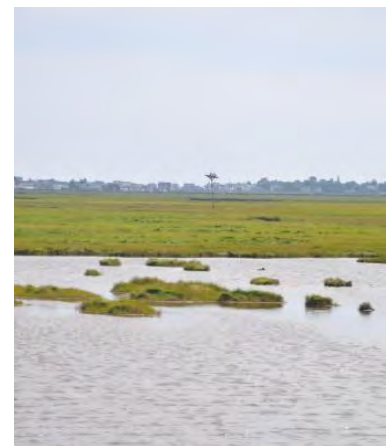
- Continue to restrict development that would increase undesirable impacts on the Harbor.
- Explore means to create a hydraulic connection between areas of the marsh to the north and south of Harbor Road.
- Continue to support monitoring, research and science-based environmental education efforts of environmental and other groups in support of natural processes and

ecosystems and the human role in managing and stewarding natural resources, including research and education surrounding water quality, erosion, and dredging impacts.

- Improve environmental conditions of the Harbor by restoring salt marsh on the undeveloped dredge spoils and removing sand and restoring the adjoining marsh.
- Explore opportunities for expanded public education, using the Harbor as a demonstration site for best management practices.
- Work with environmental organizations, the CSD, Harbor Advisory Committee, local businesses, and others on an on-going basis to review threats to environmental interests in the harbor area, inform customers and clients about environmental issues of the Harbor, and make recommendations to resolve problems.
- Work with environmental organizations, the school district, Harbor Advisory Committee, and others to keep the public apprised of all local, state and federal research projects and work in the harbor area.
- Work with environmental organizations, volunteers, Town staff, the school district, Harbor Advisory Committee, and others to annually survey the beach for wildlife nesting areas to properly protect those sited within high traffic areas. Consider municipal funding of monitoring efforts.
- Work with beachfront owners to improve their knowledge about their potential impacts on natural areas and involve them in solving problems and working with programs to ensure compliance with local, state, and federal laws.
- Seek opportunities for “win-win” initiatives that benefit the ecology and economy of the Harbor and surrounding areas.
- Protect the dunes from foot traffic and provide public education regarding the ecological values the dunes provide to the Harbor.
- Explore the need and value of buying out properties that have or are likely to suffer repeated storm damage. If properties are acquired, take advantage of the opportunity to restore associated sand dunes.
- Use best management practices in ongoing harbor operation and infrastructure improvement to reduce the impacts of stormwater runoff on erosion and water quality.
- Work with environmental organization, Harbor Advisory Committee, and others to prioritize and conduct stream shoreline surveys to identify faulty septic systems, inadequate stream buffers, and other threats to water quality. Seek outside funding to support retrofits to reduce identified threats to water quality. Prepare materials and activities to support efforts to inform homeowners/residents about the important role they play in protecting and improving water quality. If appropriate, reach out to other communities within targeted watersheds.
- Review land use ordinances and amend, as appropriate, to ensure that best management practices are required for maintenance and new construction. Draft and adopt low impact development (LID) standards to reduce water quality impacts from

maintenance and new construction activities. Work with environmental organizations, Harbor Advisory Committee, and others to inform the public about of LID techniques and their benefits.

- Continue to support the Healthy Beaches program, Beach Profile Monitoring Program, and other community monitoring efforts.
- Continue to work with the regional sea level rise working group to increase understanding of the potential impacts of sea level rise on Wells Harbor, the most effective ways to mitigate its impacts on public and private property, and the impacts of the jetty on beach erosion in combination with sea level rise.
- Investigate whether there is a negative impact from the floating docks/slips on sand displacement.
- Investigate whether sand is eroding on the east side of the Harbor as a result of the dredge and ship usage.
- As use of the harbor area increases, plan for increased pressure on road and water access, parking, and stormwater management.
- Where appropriate, include provisions to maintain or enhance natural buffers between differing uses to address aesthetic, water quality, and/or habitat issues.
- Improve the layout and treatment of automobile and boat trailer parking areas to improve aesthetics, provide amenities, and improve stormwater management and efficient use of available space. Minimize the creation of new, paved (i.e., impervious) surfaces.
- Redesign and reconstruct parking areas, using porous pavement, interlocking pavers, or other materials to manage stormwater impacts while providing opportunities to stripe spaces or otherwise manage parking more efficiently.
- Where appropriate, include provisions to maintain or enhance natural buffers between differing uses to address aesthetic, water quality, and/or habitat issues.



11.2 WELLS HARBOR ECOLOGY

Wells Harbor continues to be surrounded on several sides by large expanses of salt marsh that serve as habitat for an abundance of wildlife. Most of the marshland is part of the Refuge, one of 450 wildlife refuges nation-wide owned by the federal government and administered by the U.S. Fish and Wildlife Service. The Refuge was established in 1966 and includes other divisions along the southern Maine coast

stretching from Kittery to Cape Elizabeth. The division that includes the Wells Harbor area is referred to as the Lower Wells Division.

This marshland and adjacent upland is considered an important environmental resource by residents of Wells as well as government agencies. The Reserve was created in the early 1980's to research the area's natural resources and enhance public awareness and understanding about Wells' estuarine environment. Reserve boundaries encompass land owned by the Town (245 acres), state (200 acres), and federal governments (1,155 acres). Around Wells Harbor, the Reserve overlaps with the Refuge. Both organizations, therefore, are involved in managing the Town's marshlands, although a Memorandum of Understanding gives the U.S. Fish and Wildlife Service primary responsibility.

Wells' coastal and upland habitat attracts birds and wildlife throughout the year, including spring and fall migrations of waterfowl, songbirds, raptors, and thousands of shorebirds. The Refuge has recorded over 250 species of birds in the refuge system, and most of them frequent the Lower Wells Division. The Reserve lists nearly as many. See Appendix B. The Wells Reserve includes the marsh in the Lower Wells Division of the Refuge as well as "a patchy habitat of open fields, old fields, and forests."¹ Marine habitats include muddy sediments and intertidal flats as well as sandy beaches sand dunes, and subtidal sandy bottoms. See Appendix B, All Invertebrates, and Appendix B, Zooplankton.

There are a variety of vegetative areas within the Wells Reserve including macroalgae (seaweed), submerged aquatic vegetation, dune vegetation, salt marsh vegetation, grasslands, old fields, and forests, each with its own set of characteristic plants. See Appendix B, Plants, fungi and algae.



Several amphibian and reptile species favor habitat found at the Reserve's brushy or open habitats, wetlands, and numerous vernal pools: blue-spotted x Jefferson salamander, spotted salamander, red spotted newt, redback salamander, American toad, spring peeper, gray tree frog, wood frog, green frog, bull frog, painted turtle (threatened), Blanding's turtle (endangered), snapping turtle, eastern milk snake, eastern smooth green snake, northern red-bellied snake, eastern garter snake; rare sightings of eastern black racer, ribbon snake, wood turtle, spotted turtle (threatened), and Blandings turtle. See Appendix B, Reptiles and Amphibians, Sightings and highly probable habitat for common species. See also Appendix B, Sightings of rare reptiles and amphibians.

¹ 2007. Wells National Estuarine Research Reserve. *Site Profile of the Wells National Estuarine Research Reserve*.

Fifty-seven fish species have been identified within the Reserve's estuaries and the adjacent waters of the Wells Embayment. See Appendix B. Fish species.

The Wells Harbor area is also home to a variety of mammals and includes a significantly used seal haul out area along the southern Maine coast. White tailed deer are numerous and there have been documented sightings of the New England cottontail. See Appendix B Mammals.

In the 1980's and 1990's, federal, state, and local environmental organizations began to focus on protecting and restoring habitat for the piping plover. In 2003, the Town adopted the Piping Plover Beach Management Agreement. The Refuge has cooperatively monitored the federally threatened, state endangered piping plover and the state endangered least tern which both nest on Laudholm Beach and Crescent Surf Beach. The area within the Reserve has been designated by the state as essential habitat for least tern and piping plover, receiving regulatory protection under the Maine Endangered Species Act which requires that no state agency or municipal government shall permit, license, fund or carry out projects that would significantly alter the habitat or violate protection guidelines adopted for the habitat (12 MRSA Part 13, Subchapter 3 - Endangered Species). Wells had piping plovers nesting on the Reserve's beaches from 1991-2005, but in 2006, there was no nesting activity documented, although plovers did use the area for feeding and migration, and Crescent Surf Beach had five nesting pairs. The two areas together make up an important area for plovers within the state.



Least terns also are listed as state endangered, are a species of high conservation priority for the U.S. Fish & Wildlife Service, and have been monitored within the state since 1977. Least terns reach the most northern portion of their range in southern Maine. Gathering accurate population estimates for the state is difficult due to the bird's dynamic nesting habits; however, population estimates for Laudholm and Crescent Surf Beach together generally host the bulk of least terns nesting within the state. In recent years, predators and beach erosion have depressed the nesting activity for plovers and terns at Laudholm Beach. In 2006, there were no nesting plovers or terns present and the habitat available to them was of exceedingly low quality. Beach erosion has left only a small band of sandy habitat for nesting, which is not attractive to the birds. Predators further depressed productivity at the adjoining Crescent Surf Beach. The Piping Plover Recovery Plan calls for a minimum productivity of 1.5 fledglings per a pair to ensure plover population growth. For seven out of the past ten years Laudholm has met or exceeded those productivity measures. However, recent years have fallen well below that standard. Predation of the nests and chicks of plovers and terns has limited the ability of plovers to meet recovery plan productivity criteria. Identification of predators responsible for nest and chick loss and determination of the best course of management action is a complex problem as predators appear to change on an annual basis, although some like crow are documented repeat offenders.

From 2000 to 2005, the Harbor was dredged several times, beaches were replenished, marshes were restored, and the Town adopted other environmentally sound practices. Wells joined the Maine Healthy Beaches Program in 2003 and began rebuilding sand dunes at the northern end of Drake's Island. In 2007, the Town created its Wells GIS website, which provides ready access to the Town's GIS maps. In 2008, the Town received a Tree Canopy Grant to support the planting of elm trees.

In 2007, the Reserve prepared a detailed environmental profile of its holdings.² The profile includes a characterization of the estuary, its habitats, historical and cultural setting, the national reserve system and its designations, research and management priorities and recommendations, and reserve protection efforts. It also includes expanded chapters on the:

- environmental setting, including a description of its geomorphology, climate and weather, hydrogeography, land use, and water quality;
- biological setting, including habitats, vegetation, invertebrates, reptiles and amphibians, fish, birds, and mammals;
- ecological setting, including origin and evolution of the estuary, physical influences on the biota, community structure and processes, and biological productivity;
- research and monitoring, including its research and monitoring programs; and
- bibliography and glossary of terms.



Though focused on the Reserve's land holdings, much of the information detailed in the profile provides the most recent and detailed compendium of information about natural resources in the Wells Harbor area.

11.3 MONITORING PROGRAMS AND RESEARCH FOCUS

The Town, the Reserve, and a number of other public and private interests sponsor and participate in a number of monitoring programs in Wells, many at the WNERR, including the:

- System Wide Monitoring Program (SWMP) – established in 1995 the Reserve began to track short term variability and long term changes in estuarine environments

² 2007. Wells National Estuarine Research Reserve. *Site Profile of the Wells National Estuarine Research Reserve*.

- National Water Level Observing Network (NWLON) – established in 2005, the Reserve’s SWMP was integrated into the NWLON, a 175 long-term, a network of continuously operating water level stations
- Watershed Evaluation Team – established in 1991, the Reserve’s volunteer-based water quality monitoring program for the Little and Webhannet River estuaries
- Emergent Vegetation Monitoring – the Reserve’s long term monitoring of salt marsh emergent vegetation
- Maine Healthy Beaches Program – in 2002, Wells began monitoring its bathing beaches for the presence of enterococci, a bacterial indicator, as part of a state and national effort
- Southern Maine Beach Profiling – the Reserve’s site hosts the University of Maine Cooperative Extension and Maine Sea Grant-supported long term beach profiling to measure the contour of its beach to guide informed decisions about beach management
- Shellfish Growing Area Classification Program – the Maine Department of Marine Resources’ water quality monitoring of fecal coliform levels at several locations in the Little and Webhannet River estuaries
- National Marine Debris Monitoring Program – coordinated by The Ocean Conservancy, a station at Laudholm Beach studies the effectiveness of the 1998 International Treaty on Marine Pollution
- Maine Damselfly and Dragonfly Survey – Maine Department of Inland Fisheries and Wildlife’s five-year, volunteer-based survey of damselflies and dragonflies
- Piping Plover and Least Tern Monitoring – Maine Audubon’s coordinated Piping Plover and Least Tern Recovery Project that includes searching for and protecting active plover nest sites, began in Wells in 2002
- Monitoring Avian Productivity and Survivorship (MAPS) – weekly mist-net survey of bird population began in 1988, incorporated into the MAPS program in 1990

The research focus for the Reserve for the immediate and near future includes:

- Salt marsh habitats and communities
- Habitat value for fish, shellfish, and birds
- Salt marsh degradation and restoration
- Coastal food webs and habitats, underlying physical and biological processes, and response to natural changes and human activities

12 Beach Erosion and Management

The beaches along the eastern side of Drakes Island and Wells Beach make up two of the community's three major sandy beach segments. Wells Beach is a municipally owned and managed public beach and Drakes Island Beach is privately owned, but open to the public. Historically, these beaches have been well supplied with sand and have been considered to be among the finest beaches in southern Maine. Both beaches are used heavily during the summer months by Wells residents and visitors alike. In addition, there is a smaller segment of beach along the eastern side of the Harbor, just to the south of the east side pier.



Since the major harbor dredge and construction of the jetties in 1961, there has been considerable theorizing and speculation with respect to the interaction between dredging activities and the effects of the jetties on longshore currents, wave activities and sediment transport. Extensive monitoring and research has been undertaken to characterize patterns of erosion and accretion, and to better understand the causal relationships with activities that have been undertaken, or could be undertaken. The use of dredged sediments for beach nourishment, and the locations in which they are deposited has been studied as well. One thing remains clear: decisions regarding management of dredging in the Harbor (and disposal of the resulting sediments) should consider the potential for effects on beach erosion and vice versa.

While it certainly appears that the jetties (and the need for periodic dredging) are here to stay, there are a number of other aspects of the beach and dune systems that community residents and tourists can do much to protect. Numerous scientific studies have established that healthy dune grass systems are critical to both the stability of the beach system and to the habitat for certain species.

12.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders a number of goals and strategies were initially identified and then

refined. Those that are most relevant to a discussion on Beach Erosion and Management are as follows:

- Continue to seek to understand the complex relationship between sand deposition, dredging, and the constriction/installation of physical facilities within the Harbor,
- Continue to support efforts aimed at improving and maintaining the health of the dune ecosystems including both flora (such as dune grass) and fauna (such as piping plovers),
- Work with the Reserve Refuge, piping plover volunteers, Town staff, CSD, Harbor Advisory Committee, and others to annually survey the beach for wildlife nesting areas to properly protect those sited within high traffic areas,
- Work with beachfront owners to improve their knowledge about their potential impacts on natural areas and involve them in solving problems and working with programs to ensure compliance with local, state, and federal laws,
- Continue to support and conduct beach profile monitoring and other community monitoring efforts, and
- Continue to engage in efforts to protect the dunes from foot traffic and provide public education regarding the ecological values the dunes provide to the Harbor.



As tourism represents the mainstay of the local economy in Wells, anything that impacts tourism impacts the Wells economy. In addition to adversely affecting tourism, the erosion and related values of area beaches is of concern to local residents, both those who live on the oceanfront and those who live elsewhere in Town. Furthermore, dunes provide a line of defense for the shoreline and properties against damage from significant storm events.

12.2 IMPACT OF THE JETTIES ON BEACH EROSION

Since the construction of the jetties at the harbor entrance in the early 1960s, the sections of these beaches that are farthest from the jetties have been eroding and sand has been accumulating on both sides of the jetties. A number of geological studies have looked at the sand transport patterns in this area. These studies have indicated that littoral drift (sand transported by longshore

currents) occurs in both northerly and southerly directions, but that net transport appears to be primarily towards the north.

While the sand trapped along the jetties has produced some excellent beaches in the immediate vicinity of the jetties, large sections of both Drakes Island and Wells Beach have been subject to significant net erosion since the early 1960's. A comparison of aerial photographs then and now reveals that many sections of Wells' beaches are now significantly narrower than they were prior to construction of the jetties.



In 1991, the U.S. Army Corps of Engineers initiated development of a sand-transport analysis of the Wells and Drakes Island Beaches which was intended to better define the dynamics associated with erosion and accretion in the vicinity of the harbor, jetties and beaches.

12.3 OTHER FACTORS IMPACTING BEACH EROSION

It is important to recognize that the jetties are only one of the factors affecting the erosion of these beaches. Another more significant factor influencing the present erosion appears to be the presence of private sea walls. Seawalls reflect wave energy back onto the beach and thus enhance the scouring effect on the sand. As a beach becomes narrower and the beach profile becomes steeper, the erosion will tend to increase as larger waves (no longer impeded by shallow lower beach conditions) are able to reach the shore. Larger waves can move heavier sediments, and this is why cobble has replaced sand in many parts of Wells' beaches: these rocks are very common in high energy wave environments. The seawalls that line these beaches are responsible for initiating this process, and the beaches were most likely eroding slowly even before the jetties were constructed in the early 1960's. While the jetties clearly aggravated the erosion problem, the seawalls and residential development along the frontal dunes of a naturally mobile barrier system remain a key factor affecting beach erosion and should be considered in defining a solution to the erosion problems.

According to the Maine Geological Survey, beach profiles adjacent to seawalls "generally show a more concave up shape, and undergo less overall profile change, in general, from season to season, than profiles at natural dunes...In winter, when profiles erode, the beaches with seawalls have less sediment available in the profile to begin with (thus the concave shape), and thus undergo slightly less change in response to winter storms. The natural profiles, which typically have more sand, undergo more erosion (including frontal dune erosion) in the winter months. Conversely, in the

summer, the natural profiles typically see more sand return to form a better defined summer berm, indicating recovery, while beaches "stabilized" with seawalls only see a slight return since they don't undergo as much change."

12.4 MONITORING OF BEACH EROSION

The Maine Department of Conservation, Agriculture and Forestry, Bureau of Geology, Natural Areas and Coastal Resources conducts monitoring of a number of beaches in southern Maine and assesses trends. Much of this work is accomplished under the auspices of the Maine Beach Profiling Project, which relies heavily on volunteer beach monitors, to obtain monthly, seasonal, and yearly data relative to beach change. In addition to providing hard data with respect to how a specific beach (or segment of a beach) is performing, it is interesting to compare how specific events, such as major storms, impact beaches at multiple locations along our coast. In the case of Wells, this may be useful in differentiating between annual impacts associated with "human influenced" factors (littoral drift due to the jetties, e.g.) and "naturally occurring" changes in beach profile due to winter storms, etc. Reporting is developed and made available via the Bureau's website, at the following links:



Reporting is developed and made available via the Bureau's website, at the following links:

For Wells Beach:

<http://www.maine.gov/doc/nrimc/mgs/explore/marine/beaches11/wells.htm>

For Drakes Island Beach:

<http://www.maine.gov/doc/nrimc/mgs/explore/marine/beaches11/drakes.htm>

As noted by the Bureau:

"The report reviews profile changes using the immediate post-2007 Patriots' Day Storm (either from April, May, or June 2007, as data is available) with profile shapes from subsequent years from roughly the same months, through April or May 2011. This allows the Bureau to build upon the review completed for the 2009 report, which detailed profile recovery through April or May 2009. Review of the "winter" beach profile shapes will allow us to detail whether or not the beaches have continued to recover (or erode, or switch their recovery) from the Patriots' Day Storm event, which is considered in many locations to have created the most erosive beach profile shape over the past four years.

The Bureau also reviews profile changes and recovery from 2007 through 2010 for the "summer beach" profile shapes at each profiling location. This includes (as data is available) profile data from August or September of each year from 2007 through 2010; unfortunately, we will be unable to include 2011 summer beach data since it has not been collected yet. It is generally not sound to compare May or June profiles with August or September profiles, since Maine beaches are typically still recovering from the winter in May and June, and fully developed by August or September. However, in specific cases such as at Ferry Beach in Saco, we decided to include analysis of profile data collected in June 2011. This was included because (a) beach profile starting pins were relocated in spring 2010, and (b) additional profile data was needed to investigate how the dune restoration project completed in that area in spring 2009 has been fairing.

As part of this review, consistent with the 2009 assessment, we assigned a "grade," based on the amount of stability or recovery (or lack thereof) exhibited by each profile for both summer and winter beach profile shapes. Then, for each beach, an average grade for the "winter" beach changes (2007 to 2011) and the "summer" beach changes (2007 to 2010) were created. Finally, an overall beach grade was assigned, as an average of all the summer and winter profile scores."

The guidance manual developed for volunteer monitoring of beach profiles in southern Maine is available on-line at the following link:

<http://www.seagrant.umaine.edu/files/pdf-global/06volman.pdf>

12.5 WELLS BEACH MANAGEMENT AGREEMENT

The Town and other area entities, such as Save Our Shores, Drakes Island Beach Committee, and the Reserve have adopted an agreement aimed at maintaining certain aspects of beach health and habitat. The areas covered under the agreement includes all of the beachfront commencing 1,300 feet north of Casino Square Public Parking Lot (including public rights of way on Wells Beach) to the northern limit at the boardwalk access at Laudholm State Beach on Drakes Island. The beachfront is defined to extend from the concrete seawall and/or the seaward side of the frontal dune (in areas where no seawall exists) to mean low water.

The primary intent of the agreement is to provide a means to protect piping plovers on Wells and Drakes Island Beaches. It is recognized that the ultimate success of the agreement depends on the voluntary participation and cooperation of private landowners and the Town.

12.6 WELLS BAY REGIONAL BEACH MANAGEMENT PLAN

The comprehensive plan associated with managing the area's beaches is available at the following link:

http://www.smrpc.org/landuse/Coastal/wellsbayplan4_18_02accepted.pdf

12.7 PROPOSED BEACH NOURISHMENT

In the context of obtaining state and federal approvals for another major harbor dredge, the Town and U.S. Army Corps of Engineers have proposed the disposal of approximately 150,000 cubic yards of sand. The proposal currently awaiting funding proposes to reuse half of the dredged material at two locations on Drake's Island Beach. At the first location, the effort would include a sand dune reconstruction project (approximately 550 linear feet) and beach nourishment covering approximately 5.8 acres. At the second location, dredged material will be reused for beach nourishment covering approximately 10.4 acres. The second half of the dredged material would be placed at Wells Beach in the vicinity of Casino Point, and be used for beach nourishment over an approximately 10.5-acre area.



13 Dredging

The current federally designated dredge project associated with Wells Harbor includes two sand-tight stone jetties, and eight foot deep entrance channel (100 feet wide) a six foot deep inner channel (150 feet wide) a 7.4 acre anchorage 6 feet deep. A discussion with the Harbor Advisory Committee and the public associated with development of this Plan, raised the most prominent recurring theme - the need for regular Harbor dredging in order to maintain the navigability of the resource.

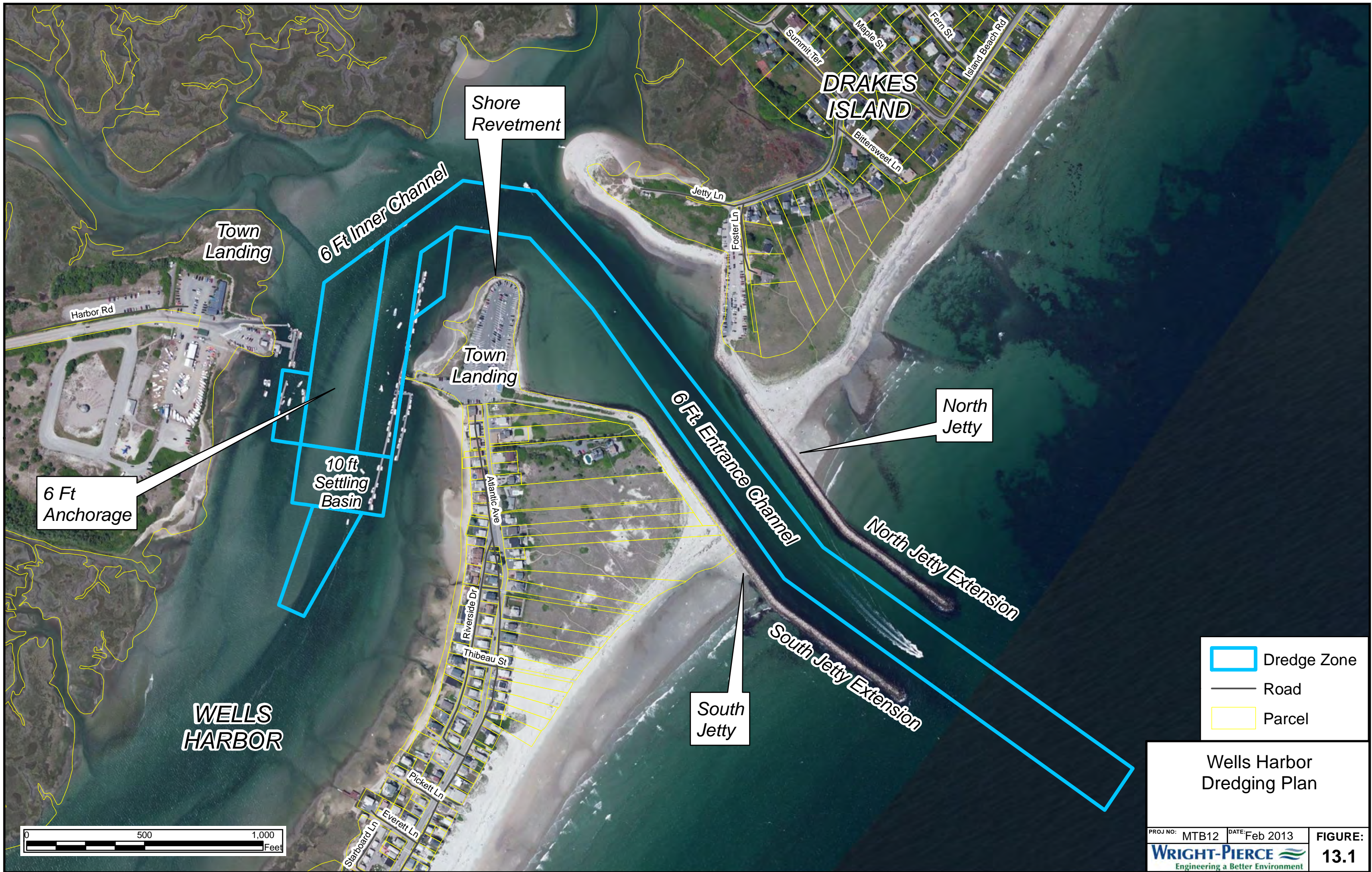


While neither the Town nor the Harbor Plan Committee is in a position to make a final decision on dredging the Harbor which decision lies with state and federal agencies - the Town and its citizens are certainly a part of the decision-making process, or at least are in a position to influence the process.

13.1 GOALS

As outlined in Sections 2 and 3 of this Plan, over the course of working with the Harbor Committee and community stakeholders, a number of goals were initially identified and then refined. While one of the overarching goals associated with the Plan is to *arrange for the Harbor to be dredged on a frequency that allows for continuous navigability in order to facilitate ongoing harbor activities*, several of the other goals are relevant to such an initiative as follows:

- Continue to seek to understand the complex relationship between sand deposition, dredging and the construction/installation of physical facilities within the Harbor, and the impacts on organisms in the sand (clams, etc.) both within the dredged area and where the sand is dropped.
- Work with beachfront owners to improve their knowledge about their potential impacts on natural areas and involve them in solving problems and working with programs to ensure compliance with local, state, and federal laws.
- Continue to support and expand research and education about Wells Harbor and its resources and environments in partnership with the Wells Reserve Refuge, and others.



- Dredge Zone
- Road
- Parcel

Wells Harbor
Dredging Plan

13.2 HISTORY OF DREDGING INITIATIVES

The most recent dredging at Wells Harbor was performed during the spring of 2012 and included maintenance dredging of the entrance channel. Approximately 20,000 cubic yards of sand was removed over the course of a 12 day period, addressing the most restrictive shoals from the entrance channel. The work was performed by the federally-owned and operated special purpose "hopper" dredge *Currituck*. The dredge utilized two



articulated "arms" and hydraulic pumping to remove the material from the channel bottom and place it in a hopper in the center and bow of the vessel. The dredged sediments were deposited in a near shore area off Wells Beach, about 5,000 feet south of the dredge site. The dredged material is intended to function as a feeder berm, providing a sand source for nourishment of the beach.

The following timeline provides context for several relevant milestones associated with the Harbor's dredging history.

1835 The initial federal authorization for Wells Harbor was issued;

1960 The congressionally authorized project was authorized under the River and Harbor Act of 1960 (with Amendments).

1961-2 Approximately 382,000 cubic yards of sand were removed, creating 43 acres of upland where the town dock, boat yard, park, and restaurant are presently located. The jetties were also constructed at this time.

1962 The federal project was subsequently modified by the U.S. Army Corps of Engineers' Chief of Engineers in September of this year;

1965 The federal project was subsequently modified by the U.S. Army Corps of Engineers' Chief of Engineers in September of this year;

1991 Maintenance dredging was performed.

1996 The community undertook a planning effort which resulted in the current layout of much of the Harbor's boating facilities, as they currently exist (installation of many of these features were deferred until after the 2000 dredge).

1999 The federal project was subsequently modified by the Water Resources Development Act in August of this year;

2000 September to December 2000, when 147,000 cubic yards of sediment were removed and pumped via a pipeline to a location about 1.5 miles south of the dredged area at Wells Beach and a second area about 1 mile north of the dredged area at Drakes Island Beach;

2002 In June of 2002 when the federal dredge vessel *Currituck* removed approximately 10,000 cubic yards of sediments and discharged them to nearshore areas in front of Wells Beach;

2005 The *Currituck* removed 10,000 cubic yards of sediments and discharged them to nearshore areas in front of Wells Beach (the U.S. Army Corps of Engineers had originally requested permission for dredging every two to five years in the amount of 20,000 to 60,000 cubic yards, but the request was subsequently reduced);

2012 The *Currituck* removed 10,000 cubic yards of sediments and discharged them to nearshore areas in front of Wells Beach

During the pre-project review associated with regulatory approval for the Harbor dredging that was completed in 2000, agencies identified concerns with respect to the possible connection between dredging activities and marsh and shoreline erosion within Wells Harbor. As a result, a multi-year assessment was completed following the completion of the dredging and a report was issued in 2005. The effort involved monitoring changes to the marsh through the processes of erosion and accretion.



Designated channel depths are below Mean Lower Low Water (MLLW).

13.3 WELLS SCIENTIFIC REVIEW PANEL

Given the strong potential for significant adverse impacts to the area's ecological health, a multi-disciplinary "Scientific Review Panel" was established in 1998, to review the data, provide recommendations to the project management at the Corps of Engineers, and, perhaps most importantly, assess the results of monitoring data from 39 locations in the vicinity of the dredging activities, both before and after the 2000 Harbor dredge took place. The Panel included representation from a number of sectors, including: Maine Geological Survey, Wells Reserve, and several prominent New England colleges and universities.



At its meeting of May 5, 2004, the Panel, chaired by the Maine Geological Survey, discussed the results of the monitoring study and, based on the data, determined that there were no significant adverse impacts to the Webhannet Marsh associated with the major Harbor dredge of 2000.

Appendix C includes an excerpt of a report prepared by the Review Panel.

13.4 AGENCY REVIEW AND APPROVAL

The regulatory requirements associated with all federal dredging activities involve review and comment by a number of state and federal agencies. Among them are:

Federal Agencies:

National Marine Fisheries Service (NMFS)
 Environmental Protection Agency (EPA)
 U.S. Fish and Wildlife Service (USF&WS)
 U.S. Army Corps of Engineers (ACOE)

State Agencies:

Maine Department of Environmental Protection (MEDEP)
 Maine Department of Marine Resources (DMR)
 Maine Department of Conservation (MEDOC) Submerged Lands Program
 Maine Coastal Program (MCP) (Now at MEDOC, formerly part of the State Planning Office)
 Maine Geological Survey (MGS)
 Maine State Historical Preservation Commission (MSHPC)

Other:

Public Notice: A 30-day public notice
 Scientific Review Panel (may be convened)

13.5 JUSTIFICATION FOR DREDGING

Among other things, supporters of harbor dredging site the following justifications for dredging:

- 1) The present “undredged” conditions in the Harbor constitute a safety risk and pose severe hardship on the commercial fishing fleet that is based in the Harbor,
- 2) Dredging increases tidal flushing within the estuary, which in turn enhances water quality,
- 3) The dredged sand is the only feasible source of sand for beach nourishment at Drakes Island and Wells Beaches,
- 4) Mooring space in York County is essentially “at capacity” and Wells Harbor is an important mooring area,
- 5) Wells has invested in some of the best public Harbor facilities in York County - dredging is essential for the community and the region to realize full benefit from these facilities, and
- 6) There will be major adverse impacts on tourism and the local economy if dredging is further delayed.

The safety issue pertains both to entry and exit through the channel between the jetties and to navigation within the Harbor. Shoaling in the entrance channel can result in conditions with even moderate seas that make navigation dangerous. Shoaling in the mooring area has also proved hazardous on numerous occasions as even the most experienced boaters have "touched" in their attempts to access the town dock. Perhaps the greatest safety risk is associated with visiting recreational boaters unfamiliar with the Harbor who access the water from the boat ramp. Posted hazard warnings might reduce but would certainly not eliminate this problem.

The hardship to the commercial fishing fleet is discussed somewhat in Chapter 8, Commercial Fishing. As dock access as well as entry and exit from the Harbor can only occur at higher tides, fishermen must operate under a severely restricted and constantly changing schedule. As conditions continue to worsen, it will only be a matter of time before this situation begins to force fishermen out of the Harbor or out of business.

The need for sand on the Drakes and Wells Beaches is discussed in in Chapter 12, Beach Erosion and Management. Many advocates for beach nourishment point to Wells Harbor sand as the only logical and feasible source for the needed sand.



The impacts on tourism and the local economy of not dredging the Harbor would be significant. These impacts would include the eventual loss of the many "day trippers" who currently use the public boat ramp; the many non-resident recreational

boaters who currently spend money in Town because they moor their boats here; and the loss of a variety of tourist attracting activities.

Supporters of dredging have also pointed to several potentially beneficial effects that dredging would likely have on the Harbor environment. Dredging would improve the flushing process in the Harbor which would tend to improve water quality and benefit marine organisms, including fish, in the estuary. Additionally the dredged material, if placed appropriately, could improve the attractiveness of area beaches to nesting piping plovers.

13.6 ECOLOGICAL CONCERNS ASSOCIATED WITH DREDGING

The regulatory process has provided a forum for many parties, including state and federal agencies, as well as non-governmental organizations, to express their concerns. Several of the (sometimes conflicting) issues or agency comments, ultimately impacting the nature, scope or timing of dredging includes:

- According to Maine Department of Marine Resources: Dredging should be completed during the recommended work window of January 1 to April 15 to avoid adverse impacts to anadromous fish ¹ including striped bass. Striped bass generally migrate to Maine waters in late May and June and are an important recreational fishery, during the summer and early fall.
- According to the federal National Marine Fisheries Service: In order to not adversely affect Essential Fish Habitat, it has been recommended that dredging occur between June 1 and February 15 in Wells Harbor to protect spawning and developing winter flounder. The Service also indicates that no federally listed or proposed threatened or endangered species and/or designated critical habitat for listed species under the jurisdiction of National Oceanic and Atmospheric Administration Fisheries are known to exist in the project area.
- During the course of regulatory negotiations associated with the 2000 Harbor dredge, and intertidal sand bar, located in the center of the Harbor and adjacent to the anchorage area was provided with permanent protection, in the form of a conservation easement to provide shorebird habitat. The conservation easement is approximately 4.7 acres in size.
- According to the Maine Historic Preservation Commission: There are no historic properties (architectural or archaeological) within the area of potential effect.

1) Anadromous fish migrate up rivers from the sea to breed in fresh water.

13.7 MOVING FORWARD

Given the continued siltation of the Harbor and entrance channel, the Town and U.S. Army Corps of Engineers have been working towards obtaining regulatory approval and establishing funding necessary to perform both a major dredge project and establish a program of regular maintenance dredging. Following federal approval of the proposed dredge operations under the National Environmental Protection Act (NEPA), in the fall of 2011, the Maine Department of Environmental Protection issued approval for the U.S. Army Corps of Engineers to proceed with a dredge of the entire federal navigational project to its authorized depth, plus an additional one foot of allowable over-dredge. Concurrent with the U.S. Army Corps of Engineers' dredge event, the Town proposes to dredge the two mooring basins, which cover approximately 83,360 square feet, to a depth of -6 feet MLLW, plus an additional one foot of allowable over-dredge.

Based on hydrographic surveys completed at the time of application submittal, the volume of material associated with the U.S. Army Corps of Engineers' effort was projected at approximately 130,000 cubic yards, and the Town's effort was estimated at approximately 20,000 to 30,000 cubic yards. Disposal of the dredged material would be at Drake's Island Beach and Wells Beach.

The Town and U.S. Army Corps of Engineers have also sought and received State and NEPA approval of a ten-year permit authorizing multiple dredging events. Subsequent dredging events would be of a significantly smaller scale, similar to past efforts undertaken with the *Currituck*, i.e., dredging the jetty-controlled entrance navigation channel and settling basins.

According to the permit issued by the Maine Department of Environmental Protection, if the dredge operations are not initiated within four years, the permit will lapse and the Town/U.S. Army Corps of Engineers will need to reapply for a new permit. The current approval, if construction is begun within the four-year time frame, is valid for seven years.

The proposed major dredge action is currently on hold as the U.S. Army Corps of Engineers awaits allocation of funding to address this and other activities. The Town has allocated funding as necessary to represent the required "local match" for the federal funds, and has considered using these monies to address emergency maintenance dredging in the event that the federal government is unable to address their share within the required timeframe.



INSERT APPENDICES



WRIGHT-PIERCE 
Engineering a Better Environment

In association with Beth Della Valle and Mathew Eddy.

Land Use
Planning and
Development