

Georges Island Pier Improvement Project Boston Harbor Islands National Park Area

Environmental Assessment/ Assessment of Effect



February 2010



National Park Service



Massachusetts Department of
Conservation and Recreation



Georges Island Pier Improvement Project
Boston Harbor Islands National Park Area

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Assessment of Effect**

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EXECUTIVE SUMMARY

The National Park Service (NPS), in a cooperative undertaking with Massachusetts Department of Conservation and Recreation (DCR), is identifying and evaluating alternatives for improving the existing pier facility on Georges Island in Boston Harbor Islands national park area. The purpose of taking action is to replace the deteriorated pier facility on Georges Island in a manner that protects the cultural and environmental resources of the Boston Harbor Islands national park area. The key objectives are to accommodate present and future visitor use, preserve the historical character of the island, enhance visitor enjoyment of the island, improve public safety, and bring the facility into compliance with current design standards, including Americans with Disabilities guidelines and Massachusetts Architectural Access Board requirements.

The Georges Island pier facility was originally designed to provide access to Fort Warren for soldiers and equipment assigned to the fort when it was still in operation. Today, the current timber pier facility is almost 50 years old and remains the only point of access to the island. Due to the harsh marine environment the facility has deteriorated due to damage from corrosion of hardware, marine borers, wind, and constant wave action. In 2007, the piers were considered in sufficiently poor condition that emergency repairs were necessary and were subsequently conducted. The south finger pier was closed to the public following the inspection in 2007 due to safety concerns and remains closed. The north finger pier was also closed, but \$100,000 in emergency repairs allowed the park to re-open the pier facility with restrictions. Passengers are no longer allowed to queue on the main pier while vessels dock, as there is too much lateral movement. The repairs represented a short-term solution, and replacement of the pier facility remains necessary.

This environmental assessment/assessment of effect evaluates five alternatives to replace the pier facility: a no-action alternative and four action alternatives. The no-action alternative describes the condition of the deteriorated pier facility remains in service, and the action alternatives address the removal of the existing pier facility and construction of a new pier facility in the same location. Two action alternatives (B and C) propose a single basin pier facility design, and two action alternatives (D and E) propose a dual basin pier facility design.

Alternative B, a single basin design with a fixed main pier, was selected as the preferred alternative because it best met the identified purpose and need by increasing safety through the separation of commercial/DCR and recreational vessels and replacing deteriorating fabric that poses safety hazards to visitors and staff, providing accessible access to the island, minimizing maintenance through the selection of materials and the reduction in the fixed dock area, maintaining the historic character of the landmark by retaining the visitor approach to the island from a fixed pier as well as using compatible materials for decking, and allowing for visitor expansion by increasing both charter and private vessel berths.

This environmental assessment/assessment of effect has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet objectives of the proposal, 2) evaluates potential issues and impacts to Boston Harbor Islands national park area resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics included in this document because the resultant impacts may be greater-than-minor include archeological resources, the Fort Warren National Historic Landmark, essential fish habitat, special status species, health and safety, park operations and management, and visitor use and experience. All other resource topics were dismissed because the project would result in negligible or minor impacts to those resources. No major impacts are anticipated as a result of this project.

This environmental assessment/assessment of effect also serves as compliance with Section 106 of the National Historic Preservation Act and presents NPS findings in regards to project effects on historic properties. NPS has determined that the preferred alternative (Alternative B) would have “no adverse effect” on historic properties.

In addition to analyzing impacts to natural and cultural resources and the socioeconomic environment and effects to historic properties for each alternative, this document addresses cumulative impacts for all alternatives; identifies the environmentally preferred alternative; and makes findings on impairment of park resources and values.

Public scoping was conducted to assist with the development of this document and comments were received, mostly in support of the proposed project.

Public Comment

If you wish to comment on the environmental assessment/assessment of effect, you may post comments online at <http://parkplanning.nps.gov/boha> or mail comments to: Superintendent; Boston Harbor Islands National Park Area, 408 Atlantic Avenue, Suite 228, Boston, MA 02110.

This environmental assessment/assessment of effect will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. Although you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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ACRONYMS

ADA	Americans with Disabilities Act
CBA	choosing by advantages
CEQ	Council on Environmental Quality
DCR	Massachusetts Department of Conservation and Recreation
EA/AoE	environmental assessment/assessment of effect
EFH	essential fish habitat
GMP	General Management Plan
IDT	interdisciplinary team
MAAB	Massachusetts Architectural Access Board
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
NRHP	National Register of Historic Places
SHPO	State Historic Preservation Office
USACE	U.S. Army Corps of Engineers
VA	value analysis

PURPOSE AND NEED

This environmental assessment/assessment of effect (EA/AoE) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations, 40 CFR Parts 1500–1508; National Park Service Director’s Order #12 and Handbook, Conservation Planning, Environmental Impact Analysis, and Decision-making; and Section 106 of the National Historic Preservation Act of 1966 as amended (NHPA), and implementing regulations, 36 CFR Part 800. Additionally, the NEPA process is being used to comply with NHPA Section 106.

PURPOSE OF AND NEED FOR ACTION

The National Park Service (NPS), in a cooperative undertaking with Massachusetts Department of Conservation and Recreation (DCR), is identifying and evaluating alternatives for improving the existing pier facility on Georges Island in Boston Harbor Islands national park area. The existing timber pier facility is almost 50 years old, and the associated piles and submerged members are in poor condition. The pier facility, owned and managed by DCR, serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat and private vessel. A modern pier facility, which can better accommodate present and future vessel demand, is proposed in the same general location to be built by DCR.

The pier facility on Georges Island provides access to a culturally and environmentally rich resource in the Boston Harbor Islands national park area. As shown in figures 1 and 2, the pier facility is the only means of docking at Georges Island and serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat, or private vessel. As such, replacement of the pier facility would enhance public access to the park.

The purpose of taking action is to replace the deteriorated pier facility on Georges Island in a manner that protects the cultural and environmental resources of the Boston Harbor Islands national park area. The key objectives are to accommodate present and future visitor use, preserve the historical character of the island, enhance visitor enjoyment of the island, and improve public safety.

The action is needed to

- replace the deteriorated timber piles and wave fence with a new pier facility, which would enhance visitor and staff safety;
- accommodate potential increased visitor use;
- bring the facility into compliance with current design standards, including Americans with Disabilities Act (ADA) guidelines and Massachusetts Architectural Access Board (MAAB) requirements; and
- reduce the escalating cost of maintenance and repair due to continued deterioration of the existing facility.

PROJECT BACKGROUND

Georges Island, which sits in The Narrows of Boston Harbor, is a 40-acre island historically used as a defensive post in every major conflict from the Civil War through World War II. It is part of the only glacier-formed drumlin field that intersects a coast in the United States and provides both natural and historical opportunities for visitors.

The Georges Island pier facility was originally designed to provide access to Fort Warren for soldiers and equipment assigned to the fort when it was still in operation. The current timber pier configuration is almost 50 years old, having undergone substantial changes and additions since the first pier was constructed in the mid 19th century.



Boston Harbor Islands Vicinity Map



Legend

- BOHA boundary
- Interstate
- U.S. Highway
- State Route
- Towns
- Water

Source: MassGIS

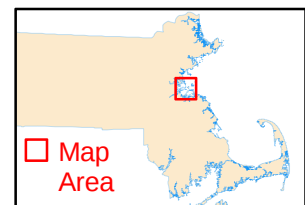
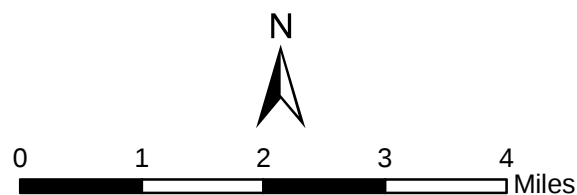


Figure 1: Vicinity Map



Georges Island Site Map

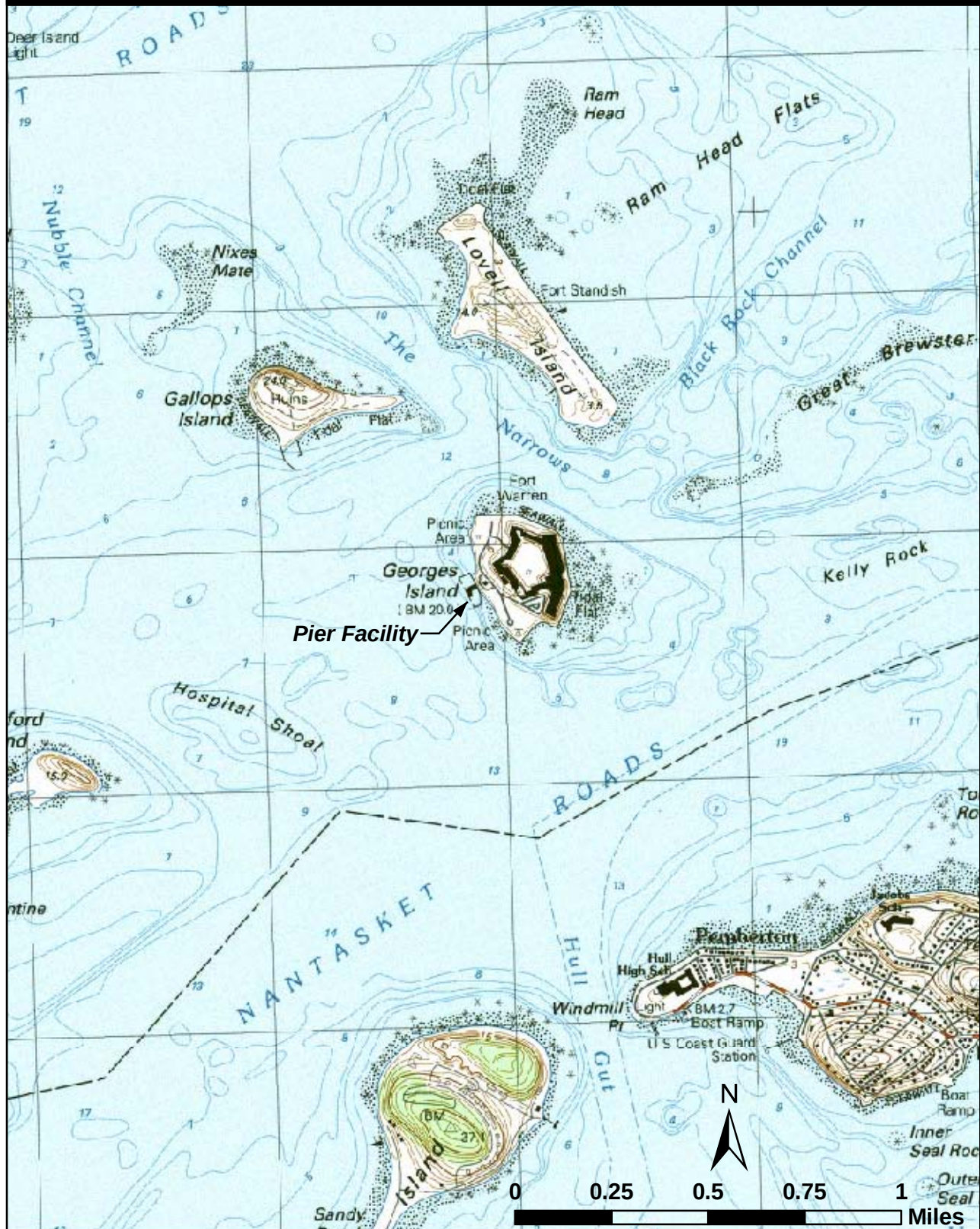


Figure 2: Site Map

The main element of the pier facility, the fixed central pier, and the facility as a whole has undergone a number of expansions and modifications since the mid 19th century, as shown on the plans in figure 3. The large rectangular fixed central pier is shown on a separate map from 1891, and subsequent maps and plans show the evolution of the pier facility over time. In the early 1900s, the main pier was enlarged with a broad face. It is unclear whether any repairs or changes were made to the main pier during this period, but the facility remained in this configuration until at least 1958. At that time, the island was opened as a public park, and 50-foot extensions were added to the north and south of the main pier, lengthening the outshore face. In addition, the north and south finger piers were constructed to form north and south basins, providing additional berthing space to visitors. According to records, the pier facility underwent a series of repairs and reconstruction in 1962, 1967, 1977, 1985, and 1997. Typical repairs included rehabilitation of damaged elements, addition of structural supports, and other maintenance activities.

Damage from corrosion of hardware, marine borers, wind, and constant wave action were identified in technical studies in 1997, 1998, 2001, 2002, and 2007. According to the Conditions Survey and Report for Georges Island Piers (2007) from Bourne Consulting Engineering (Bourne Study), the piers were considered in sufficiently poor condition that short-term emergency repairs were necessary and were subsequently conducted. Two vertical load bearing piles on the north finger pier outshore of the float gangway were broken at low water. Most batter piles were nonfunctional due to one or more of the following: rot at the top of piles, missing block at the top of piles, or failed hardware. The south finger pier was closed to the public following the inspection in 2007 due to safety concerns and remains closed. The north finger pier was also closed, but \$100,000 in emergency repairs allowed the park to re-open the pier facility with restrictions. Passengers are no longer allowed to queue on the main pier while vessels dock, as there is too much lateral movement. Even with repairs in place, the main pier still suffers from substantial deterioration, and replacement of the pier facility is still necessary.

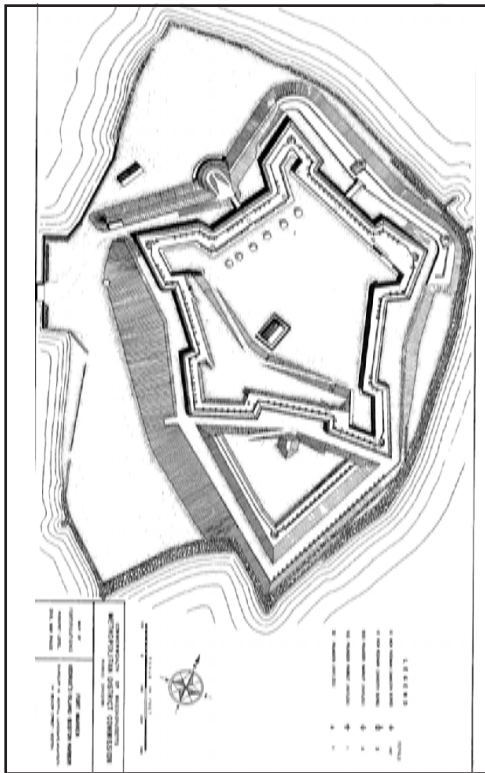
Bow-loading catamarans are chiefly used to ferry passengers to Georges Island. These boats run on a fixed schedule to and from the island during the season – from mid-May to mid-October. Ferries support an ever-increasing passenger demand on weekends during summer months. The pier facility accommodates 8 recreational vessel berths, which is insufficient to handle demand. The layout of the pier facility in 2007 is shown in figure 4.

Georges Island is the primary transportation hub for the Boston Harbor Island national park area, and most visitors (90%) arrive on park passenger ferries originating at four locations on the mainland. Other visitors arrive via commercial charter boats or private craft. Park ferry service to Georges Island is currently available from May to October; expansion into the “shoulder” seasons is anticipated. Once on the island, visitors can transfer to a park-operated inter-island water shuttle between five other Boston Harbor Islands, making Georges Island the main park hub for the water transportation system. Service to three more islands from Georges Island is in the planning stages.

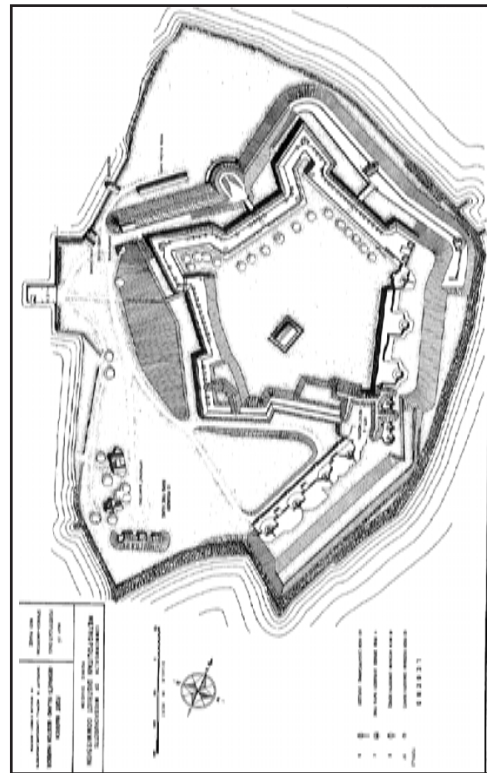
A report from the John A. Volpe National Transportation Center in 2001 identified visitation to Boston Harbor Islands as 115,000 visitors per year in 2001. Eighty percent of the volume in that year arrived via ferry service; the other 20% comprised recreational boats and charter boats (Volpe Center 2001). Annual visitation to the Boston Harbor Islands, including the peninsular regions of the park, increased to 300,000 in 2007, with a total of 80,000 visitors arriving via the park ferry systems (Al Hebb, National Park Service, pers. comm. June 16, 2009). Approximately 90% of those visitors arriving via the park ferry system visited Georges Island. With the new pier facility at Georges Island and other strategies being implemented by the Boston Harbor Island Partnership, the number of visitors to the Boston Harbor Islands is projected to increase in the future.



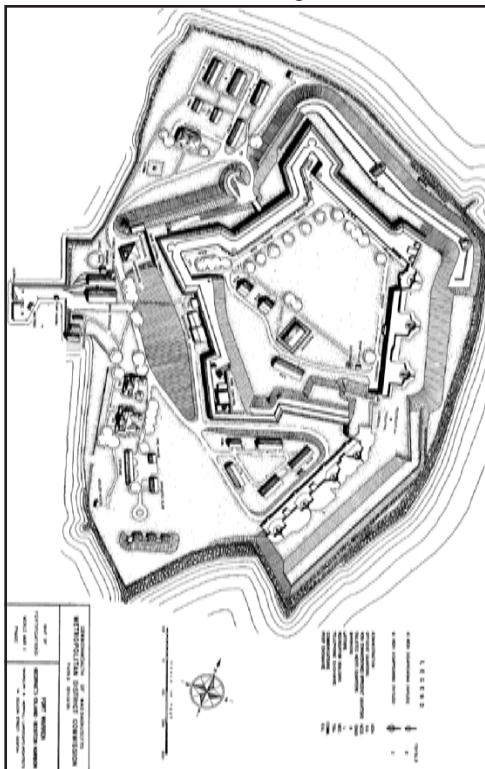
Historic Pier Configuration



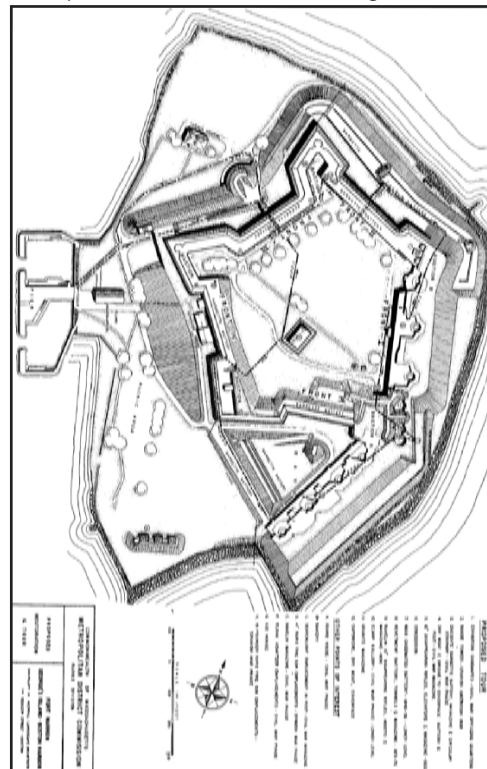
Civil War Era Configuration



Spanish-American War Era Configuration



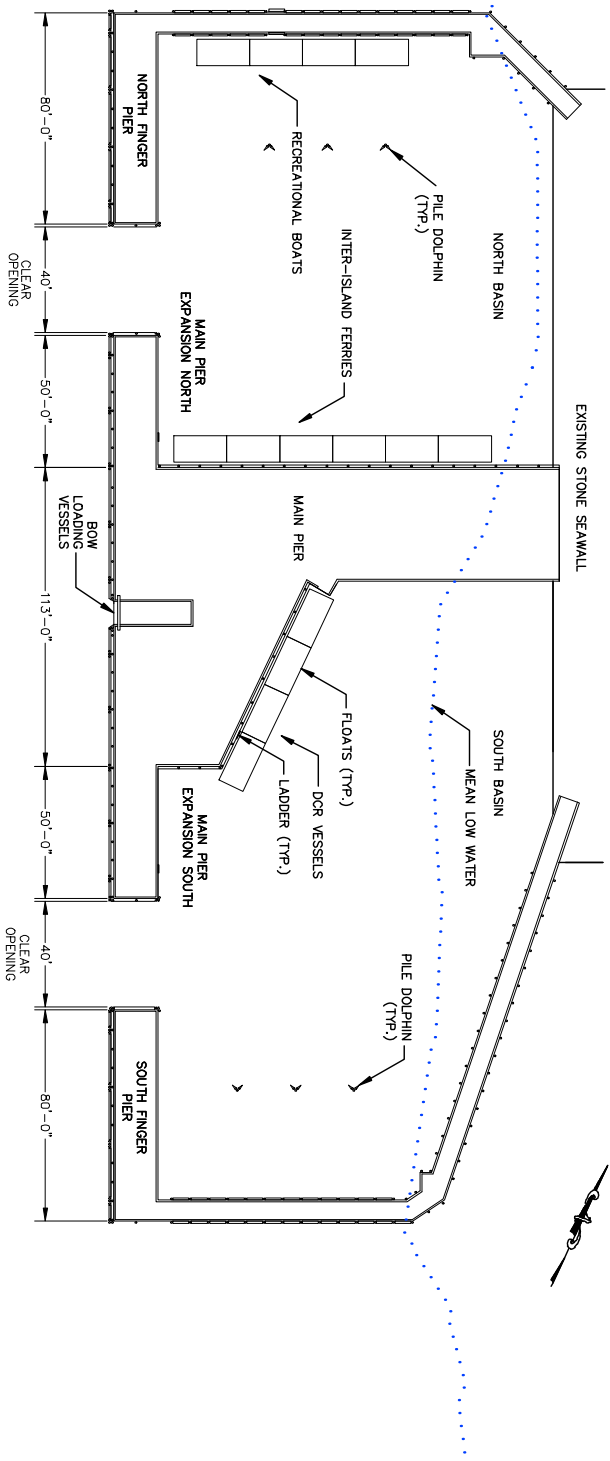
World War II Era Configuration



Current Configuration

Figure 3: Historic Plans

GEORGES ISLAND



SOURCE: BOURNE CONSULTING ENGINEERING, June 2007, Conditions Survey and Report for Georges Island Pier.

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PROJECT NO:	10160609	CLIENT:	NATIONAL PARK SERVICE
DESIGN:	AJC	PROJECT:	GEORGES ISLAND PIER IMPROVEMENT PROJECT
APPROVED:	TRP	DATE:	FEB 2009
DRAWN:	CAM	FILE NO:	BASE

TITLE:
EXISTING CONDITIONS 2007

FIGURE NO.:
4

PARK PURPOSE AND SIGNIFICANCE

The Boston Harbor Islands national park area was established as a unit of the national park system by an Act of Congress in November 1996. Management of the islands is coordinated by the Boston Harbor Islands Partnership, which consists of 13 members from various federal, state, and city government agencies and non-profit groups.

The mission of the Boston Harbor Islands national park area is to protect the islands as a resource of national significance and to make the island system an integral part of the life of the surrounding communities and region, while improving public knowledge and access for education, recreation, and tranquility within an urban area (NPS 2002).

The purpose of Boston Harbor Islands, a national park area is (NPS 2002):

- to preserve and protect an island system within Boston Harbor, along with associated natural, cultural, and historic resources
- to manage the islands in partnership with public and private entities
- to provide public access, where appropriate, to the islands and surrounding waters for the education, enjoyment, and scientific and scholarly research of this and future generations
- to tell the islands' individual stories and to enhance public understanding and appreciation of the island system as a whole, including the history of American Indian use and involvement

The primary significance of the park's resources includes (NPS 2002):

- islands and peninsulas composed of 1,600 acres of land, archeological resources, historic sites, open space, wildlife habitats, and 35 miles of relatively undeveloped shoreline; all set against the skyline of Boston and other harbor communities
- the only drumlin field in the United States that intersects a coast, formed by the glaciers some 15,000 years ago
- opportunities for tranquility and personal renewal, and land- and water-based education and recreation within an urban area with potential to serve visitors from around the nation

Contributing to the significance of the park are (NPS 2002):

- resources and sites associated with thousands of years of occupation of the islands by American Indians
- three National Historic Landmarks—Boston Light, Fort Warren, and Long Wharf—and other historic sites and landscapes resulting from Euro-American use
- complex natural communities adapted to coastal and island life
- social service facilities and urban infrastructure (water and sewer) that are an integral part of the surrounding communities as well as the history of the region.

RELATIONSHIP OF PROPOSAL TO OTHER PLANNING EFFORTS

National Park Service Plans, Policies, and Actions

Current plans and policies that pertain to this proposal include Boston Harbor Islands national park area *General Management Plan* (NPS 2002), the 2001 *Alternative Transportation Systems Evaluation Report*

(Volpe Center 2001), and the 2016 *Strategic Plan*, which presents near term goals and actions to implement the general management plan.

General Management Plan

The Boston Harbor Islands national park area developed its first General Management Plan (GMP) in 2002. The GMP defines the park's mission and management direction. The GMP also defines park themes, management areas, and goals and policies. The pier facility falls under the visitor services and park facilities management area, as a defined infrastructure project in the GMP. The improvement project helps the park achieve one of its mission goals of visitor use, access, and enjoyment by providing a facility with both commercial and recreational opportunities for visitors.

Alternative Transportation Plan

The report developed by the John A. Volpe National Transportation Center (2001), *Boston Harbor National Park Service Sites Alternative Transportation Systems Evaluation Report*, looked at long-term transportation strategies for Boston Harbor Islands, Boston National Historic Park, Salem Maritime National Historic Site, and Adams National Historic Park. Specific recommendations for the Boston Harbor Islands included ferry routes, pier facility concept designs, marketing framework, funding strategies, and improved signage. Georges Island was identified as a high priority docking site, in recognition of its use as a hub island, and preliminary design suggestions were developed to identify specific needs for the facility.

Massachusetts Department of Conservation and Recreation Plans, Policies, and Actions

Current state-level plans and policies that pertain to this proposal include other Georges Island initiatives such as a new/upgraded visitor center, shade shelter/concession, generator building, landscape improvements, and new maintenance facility.

Georges Island Initiatives

A full-scale Georges Island improvement project, with multiple components, has been initiated through a partnership with DCR, Boston Harbor Island Alliance, and NPS to enhance visitor experience at the island. The development strategy was first identified in a 1991 Master Plan for Georges Island, and is currently being carried out with five main components: the visitor center, shade shelter/concession, generator building, landscape improvements, and new maintenance facility. In addition, planned repairs would be made to the seawall concurrently with the pier improvement project.

- The Old Mine Storage Building will be adapted for use as a new visitor center, featuring an interactive exhibit area, gift shop, first aid station and restrooms. Planned renovations to the second floor include space for conferences and meetings, caretaker residence, seasonal ranger housing, and offices. Energy conservation measures are planned for the entire building.
- A new structure will be built on the foundation of the former cable tank building to provide food service with shaded seating and interpretive elements. The facility would be capable of catering larger outdoor events.
- Planned work of the Generator building includes a new roof and structural and building envelope repairs. This rehabilitation will also enable the building to house batteries and a back-up generator for power.
- Landscape improvement includes pathway systems, visitor amenities, utilities, rain water harvesting system, fire hydrant system, signage, and interpretive tracks and historical elements. The improvements will provide seating for visitors and use native, coastal plantings.

- A new maintenance facility was recently constructed at the ravelin area (southwest corner of the island), featuring a 30-kilowatt photovoltaic array on the roof to provide power to the new visitor center.
- Planned repairs to the seawall that abuts the pier facility are scheduled to occur prior to or concurrently with the pier improvement as part of a separate project performed by DCR. Planned repairs include excavation of soil behind the wall and the placement of filter fabric and crushed stone.

SCOPING

The park conducted two scoping meetings in November 2008: a site visit to solicit agency feedback and an open house for the general public. Participating agencies included NPS, the Massachusetts Office of Coastal Zone Management, U.S. Army Corps of Engineers (USACE), and DCR. Agency and public input during the scoping process provided insight into concerns held by various stakeholders. Comments were received from agencies, marina operators, recreational boaters, and non-profit groups regarding replacement of the Georges Island pier facility. Agencies characterized the project as pier modernization and maintenance. Substantive comments suggested incorporation of the following design features: expandability, a mooring field, a floating breakwater system, floating docks, a pump out station, interpretive signs, weather protection for visitors, MAAB requirements and ADA guidelines compliance, and the ability to accommodate a range of vessels. Additional comments were supportive of the pier improvement project and noted it as a timely and needed update to a deteriorating facility. Additionally, at the public scoping session in November, 2008, attendees commented extensively on the previously developed pier replacement options, specifically concerning the limited amount and availability of recreational docking. All public and agency comments were considered during the conceptual design process.

The park conducted a Value Analysis (VA) and Choosing-By-Advantages (CBA) workshop in March 2009 that addressed the array of design options developed for the pier improvement project. The interdisciplinary team (IDT) that participated included NPS staff from the Northeast Regional Office, Denver Service Center, and the Boston Harbor Islands national park area, in addition to DCR and URS Corporation staff. The purpose of the workshop was to identify replacement options for the deteriorated pier facility on Georges Island.

CBA is a process wherein decisions are based on the importance of advantages between alternatives. The evaluation involves the identification of the attributes or characteristics of each alternative relative to the evaluation criteria, a determination of the advantages of each alternative within each evaluation factor, and then the weighing of importance of each advantage. Of the seven design alternatives provided to the team for analysis, four design alternatives were carried into the CBA evaluation, in addition to the no-action alternative. At the end of the workshop, the VA team recommended two of the design alternatives, which were nearly equal in terms of benefit to cost ratios. The recommendations of the VA/CBA process have been further evaluated through NEPA and the NEPA process would determine the final preferred alternative.

ISSUES AND IMPACT TOPICS

Issues

Issues describe problems or concerns associated with current impacts from environmental conditions or current operations, as well as problems that may arise from the implementation of an alternative. Potential issues were identified during internal scoping meetings with the IDT, external scoping meetings with the public and agencies, and correspondence with federal, state, and local agencies.

Historic Significance

Fort Warren on Georges Island is a National Historic Landmark (NHL). However, neither the pier nor the seawall, both of which are in the project area, were described in the NHL documentation. Consultation with the Massachusetts State Historic Preservation Officer (SHPO), the NHL Program, and the Keeper of the National Register determined that whereas the seawall dates to Fort Warren's period of construction and contributes to the NHL, the pier does not retain integrity from the Fort Warren period of significance and thus does not contribute to the NHL. Alternative pier designs should seek to preserve the integrity of the granite block seawall and also maintain the integrity of feeling, association, and setting of the NHL and adhere to the Secretary of Interior's Standards for Rehabilitation (36 CFR 67) (Secretary's Standards).

Essential Fish Habitat

In an external scoping meeting that included participants from federal and state agencies, representatives from the Massachusetts Office of Coastal Zone Management expressed that construction in the harbor could result in an impact to possible essential fish habitat in the pier area. Similar pier replacement/rehabilitation projects conducted by DCR have identified winter flounder habitat in the harbor. In response to early coordination efforts with the National Marine Fisheries Service (NMFS), they requested an essential fish habitat (EFH) assessment to determine whether the project would adversely affect EFH.

Sediment Transport

In an external scoping meeting that included participants from federal and state agencies, representatives from the Massachusetts Office of Coastal Zone Management noted that the vertical position of wave attenuators could result in an effect to possible sediment transport in the area of the pier facility. Sediment transport has been a concern at other island piers in the harbor.

Construction Phasing

In order to maintain visitor access to Georges Island during pier construction, the work would likely be phased to occur over two construction seasons. Additionally, work-in-water restrictions may be in place due to the presence of EFH in the harbor, specifically in relation to winter flounder (*Pseudopleuronectes americanus*) and other managed fish species. Lack of access to the island via the pier facility would impact visitor use and experience.

Deterioration

Damage from corrosion of hardware, marine borers, wind, and constant wave action were identified in technical studies in 1997, 1998, 2001, 2002, and 2007. According to the *Conditions Survey and Report for Georges Island Piers* (2007) from Bourne Consulting Engineering (Bourne Study), the piers were considered in sufficiently poor condition that emergency repairs were necessary and were subsequently conducted. Continued deterioration of the pier facility negatively impacts visitor use and experience.

Impact Topics Retained for Analysis

Specific impact topics were developed by the IDT to focus the discussion of impacts and to allow for comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and executive orders; NPS *Management Policies 2006*; and NPS knowledge of limited or easily impacted resources. Impact topics described here are the same as those described and analyzed in the "Affected Environment and Environmental Consequences" chapter of this EA/AoE.

Archeological Resources

Fahey in 1977, Medina and Binzen in 2005 and Seasholes and Binzen in 2008 note the presence of archeological features in the vicinity of the pier facility. Three types of archeological resources could be affected by major pier repairs or replacement: the remains of military structures and associated deposits in the land in the immediate proximity of the seawall; the wooden pilings that are within the pier area, which may document the locations of historic piers; and submerged artifacts that are within the pier area, which could include unexploded ordnance, tools, equipment, and other items lost from the pier during the period of 1842 to 1946. To date, there have been no underwater archeological investigations conducted adjacent to Georges Island or within the location of the pier facility. The presence of Native American archeological resources is considered low within the APE, as the area behind the seawall is historic fill and thus not expected to impact any Native American sites. In light of the presence of potential archeological resources in the vicinity of the pier facility, this topic is retained for further analysis.

Fort Warren NHL

Fort Warren was designated a NHL in 1970 for its national significance as one of the finest coastal fortifications built in the United States during the period of 1816 to 1865, its design by military engineer Sylvanus Thayer and its status as the most significant Civil War site in New England. The period of significance for the NHL dates from 1816 to 1865. The original NHL documentation did not evaluate whether the Georges Island pier and seawall may have contributed to the significance of the NHL. The NPS has since determined, in consultation with the NHL Program and the MA SHPO, that the seawall dates to the period of significance and is a contributing resource, while the main pier has undergone substantial changes since the period of significance and thus does not meet criteria for eligibility as a contributing resource. The project must take into account how any new construction would affect the NHL and its contributing resources (such as the seawall). Because the project has the potential to impact the Fort Warren NHL, this topic is retained for further analysis.

Essential Fish Habitat

The EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act require federal agencies to consult with NMFS on projects that may adversely affect EFH. Boston Harbor has been designated as EFH for a number of federally managed species including, but not limited to winter flounder, Atlantic cod (*Gadus morhua*), and windowpane flounder (*Scophthalmus aquosus*). Additionally, areas of the harbor have historically contained submerged aquatic vegetation, which is important habitat for a range of federally managed species. An EFH assessment is being conducted under 50 CFR 600.905, which outlines the consultation procedure for preparation of the assessment. The EA/AoE will serve as the assessment of EFH under 50 CFR 600.95. Because this project may affect EFH, it is retained for further analysis.

Special Status Species

Three species of federally threatened or endangered sea turtles and three species of endangered whales may be present in Boston Harbor. According to NMFS, the three listed whale species are likely to be rare within the project area, but it is likely that sea turtles occasionally occur within the project area. The three turtles species are Kemp's ridley (*Lepidochelys kempi*), loggerhead (*Caretta caretta*), and leatherback (*Dermochelys coriacea*). Piping plover (*Charadrius melodus*) and the Roseate tern (*Sterna dougallii*) are two other listed threatened or endangered species that could potentially nest in the national park area, however recent studies show they do not currently nest in the park (Trocki and Paton 2007). A Section 7 consultation would need to occur between NPS and the U.S. Fish and Wildlife Service (USFWS) to ensure that the actions of the project do not jeopardize listed species or destroy or adversely modify critical habitat. Due to the likely occurrence of listed sea turtles and the Section 7 consultation taking place, this topic is retained for further analysis.

Health and Safety

The 2002 GMP states that the park seeks to provide a safe and healthful environment for all visitors and employees. Continued deterioration of the pier facility has led to the closure of the south finger pier and limits the number of passenger queuing that can occur on the main pier during ferry berthing. The construction of a new pier facility would meet current design and safety standards related to the health and safety of visitors and employees using it. Since this project affects health and safety issues, this topic is retained for further analysis.

State Park Operations and Management

DCR (the owner of the island) manages daily operations at Georges Island, performs routine maintenance on the pier facility, and uses the pier facility for DCR work boats and equipment transfer. However, in the event that the pier became unserviceable under the no-action alternative, visitors would need to be rerouted to a different hub island while repairs were made. Additionally, park operations would be impacted during construction since visitor and staff boat access may be more regulated. The choice of materials and design would also impact the amount of staff time needed to service any replacement pier as well as manage visitors loading and offloading. Since the project impacts park operations and management, this topic is retained for further analysis.

Visitor Use and Experience

The pier facility is the only means of docking at Georges Island and serves as a water transportation hub for visitors exploring the Boston Harbor Islands. Two main impacts are associated with the pier improvement, which could impact visitor use and experience. First, the duration of construction and size of the operable pier could have an impact on visitors while construction is underway. Mitigation measures, such as construction phasing could keep the pier facility open and accessible to the public during construction. Second, upgrading the pier facility to current design standards and to accommodate present and future visitor use would impact visitor experience at the completion of the project. Since the project impacts visitor use and experience, this topic is retained for further analysis.

Impact Topics Dismissed from Further Analysis

The following impact topics were discussed by the IDT and were eliminated from further evaluation based on the justification below.

Geological Resources

Georges Island was formed of unconsolidated glacially deposited sand and gravel; this material comprises the intertidal zone as well. During construction, best management practices such as erosion and sedimentation control fencing would be installed at the toe of slope in the upland construction zone to minimize erosion. As such, no disturbance to land based sand, soil, or gravel should occur.

The pier design is particularly sensitive to shoreline processes, especially in regard to the height and location of wave attenuation structures. Wave attenuators provide sheltered berthing opportunities for both commercial and recreational vessels visiting the island and are particularly beneficial to visitor use and experience. However, the attenuation of wave action can disrupt natural sediment transport and erosion patterns in a sheltered basin, which can in turn lead to increased levels of sedimentation elsewhere. In order to minimize the potentially minor impacts associated with design of the pier, the positioning of wave attenuators would be made in consultation with the Massachusetts Coastal Zone Management office to facilitate natural sedimentation transport, while maintaining sheltered berthing for vessels. Because there would likely be short-term, negligible, adverse impacts on geological resources, this topic was dismissed from further analysis.

Prime Farmland

In 1980 the Council on Environmental Quality (CEQ) directed federal agencies to assess the effects of their actions on farmland soils classified as prime or unique by the United States Department of Agriculture, Natural Resources Conservation Service. Prime or unique farmland is defined as soil which produces general crops such as common food, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. As identified by park staff, there are no prime or unique farmlands associated with the project area. Therefore, this topic was dismissed from detailed analysis.

Air Quality

The Clean Air Act of 1963 (42 USC 7401 et seq.) was established to promote public health and welfare by protecting and enhancing the nation's air quality. The act establishes specific programs that provide special protection for air resources and air quality related values associated with national park system units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards. Georges Island is located in Suffolk County, which in turn is located in the Boston-Lawrence-Worcester, MA-NH non-attainment area for the 8-hour ozone standard. Massachusetts was designated as "moderate attainment" for the 8-hour standard by the Environmental Protection Agency (EPA) in 2004 (DEP 2008). Suffolk County had five state monitoring station locations in 2007, the last year that data is available, with two of those sites measuring ozone levels. Neither of those sites exceeded the 8-hour standard in 2007, although one site did not meet the requirement of 75% or greater data capture for the year (DEP 2008). Massachusetts is in attainment for sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide, and lead.

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of de minimis levels for annual criteria pollutant emissions. These de minimis levels are set according to criteria pollutant non-attainment area designations. Projects below the de minimis levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The de minimis levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action. The de minimis value for moderate ozone non-attainment areas is 100 tons per year for nitrogen oxide and 50 tons per year for volatile organic compounds.

Construction activities associated with the improvement project could produce localized short-term air quality impacts. Emissions would include fugitive dust from soil disturbance during excavation of soil around the seawall. Heavy equipment operation would also result in internal combustion engine emissions. Recognizing the limited size and duration of the construction activities associated with the project, none of the equipment activities would exceed the de minimis thresholds for ozone. These emissions should be negligible and should not significantly affect local or regional air quality. Control measures for lowering fugitive dust emissions and ensuring that heavy equipment is maintained and operated correctly would mitigate the level of impact. Since these impacts would not exceed a minor threshold, air quality was dismissed as a topic from further analysis.

Water Quality

NPS policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To enact this goal, the USACE has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent

with the Clean Water Act. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions that affect waters of the United States.

Boston Harbor is a more than 50-square mile estuary, whose upland inflow is derived from eight primary watersheds: Quincy Bay, Inner Harbor, Winthrop Bay, Mystic River, Charles River, Neponset River, Weymouth River, and Weir River watersheds (Flora 2002). Water quality in Boston Harbor has been poor historically, but the commissioning of a new secondary treatment facility on Deer Island has had a positive impact on many indicators of water quality including water clarity, nutrient loads, bacteria, etc. (Flora 2002). According to the Bourne Study, evidence of marine borer attack on some piles was noted during the most recent inspection of the pier, which is indicative of improved water quality in the harbor.

The issue of water quality impacts from marinas and mooring areas in Boston Harbor was studied by Flora in the 2002 *Water Resource Scoping Report*. One impact of concern raised by the report is the discharge of untreated and treated sewage from recreational boats into the harbor. Boston Harbor is designated as a no-discharge area, and a pump-out boat provides service to recreational boats in the harbor, including to Georges Island. Additionally, at least 35 pump-out facilities are located in the harbor, with more planned in the future.

Short-term, potential localized water quality impacts associated with construction activities of the pier include disturbance of soil material leading to increase turbidity and sedimentation; spill hazards associated with equipment; and demolition of the existing pier structure. Construction best management practices such as the use of an erosion and sedimentation control fence and in-water sedimentation curtain, and development of a spill prevention control and countermeasure plan would provide protection against short-term, localized impacts associated with construction activities.

A previous study of the impacts associated with marina design and siting in the harbor combined with the amount and level of mitigation associated with construction and design of the facility would ensure impacts would not exceed a minor threshold, so water quality was dismissed from further analysis.

Marine Ecology

According to the report by Bell et al., (2004), *Inventory of Intertidal Habitats: Boston Harbor Islands, a national park area*, the substrata of Georges Island is notable for large mussel reefs, boulders, and mixed coarse substrata. During a site visit, the substrata in the vicinity of the pier were observed to be mixed coarse substrata. In relation to biota classification at Georges Island, blue mussel (*Mytilus edulis*) reef assemblages, mixed brown algae/barnacle (*Semibalanus*) assemblages, and no macrobiota assemblages made up the highest percentages of biotic assemblages on the island. According to the report's findings, the classification of intertidal assemblages in the vicinity of the pier is no macro biota. This classification indicates that biota covers less than 30 percent of the area. In addition, no macro biota has been observed in the intertidal habitat in the vicinity of the pier. In a survey by Bell et al. on May 15, 2001, 15 invertebrates, 16 seaweeds, and 0 plants were recorded at Georges Island. Due to lack of resources within the study area, this topic was dismissed from further analysis.

Wetlands

Executive Order 11990 (Protection of Wetlands), 2006 *NPS Management Policies and Procedural Manual #77-1: Wetland Protection* (NPS 2008) directs wetlands be protected and that wetlands and wetland functions and values be preserved. They further direct that impacts to wetlands be avoided whenever there are practicable alternatives. NPS guidelines require classification of wetlands using two methods: the USACE and Cowardin systems. According to the Draft Interim Regional Supplement to the USACE Wetland Delineation Manual: Northcentral and Northeast Region (7-3-2008), wetlands under normal conditions support a prevalence of vegetation typically adapted for life in saturated soil

conditions. No wetland vegetation was identified within the proposed project area; therefore, the project area would not be classified as a USACE wetland.

However, the NPS also classifies wetlands based on the USFWS Classification of Wetlands and Deepwater Habitats of the United States, commonly referred to as the Cowardin classification system (Cowardin et al. 1979). According to Cowardin, the intertidal zone in the project area would be designated as estuarine, intertidal, unconsolidated shore, cobble-gravel, and regularly flooded wetland, hereafter referred to as intertidal wetland.

The existing fixed pier footprint currently impacts 0.060 acres of intertidal wetland. The preferred alternative footprint would potentially impact 0.035 acres of intertidal wetland. A statement of findings is required if the preferred alternative would result in adverse impacts to wetlands, unless the actions are excepted. Exception 4.2.1.b., Small boat ramps/launches, piers, or docks with total wetland impact for the entire project (both onsite and offsite) of 0.1 acre or less applies for this preferred alternative as long as BMPs (see appendix) are applied. The preferred alternative would decrease the overall footprint of the fixed pier, providing a beneficial impact to intertidal wetlands in the proposed project area and would be less than 0.1 acres of impact. For the abovementioned reasons, a wetland statement of findings is not needed, and compensation is not required. Impacts to wetlands would be short-term and long-term, minor, adverse as well as long-term beneficial. Since the impact threshold would not exceed a minor threshold, this impact topic was dismissed from further analysis.

Recreation Resources

Of the approximately 300,000 visitors to Boston Harbor Islands in 2007, nearly 90% visited Georges Island. The island serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat, and private vessel. The pier is a water recreation resource for visitors, which is consistent with the park mission to provide public access to islands in the harbor. By maintaining visitor access to the island during construction, little or no impacts on recreational resources would occur due to the proposed project. As such, recreation resources were dismissed as a topic from further analysis.

Ethnographic Resources

NPS Director's Order 28, Cultural Resource Management, defines ethnographic resources as any site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. According to Director's Order 28 and Executive Order 13007, the National Park Service should try to preserve and protect ethnographic resources.

This impact topic was dismissed from further analysis because no traditional cultural properties have been identified within the area of potential effect for the proposed undertaking. NPS sent scoping letters on January 26 and 27, 2009 to 12 Native American groups including: Nipmuc Nation Hassanamisco Band; Delaware; Masachuset-Ponkapoag Tribal Council; Natick Nipmuc Indians; Eastern Pequot Tribal Nation; Mashantucket Pequot Tribal Nation; Penobscot Nation; Narragansett Indian Tribe; Historic Nipmuck Tribe; Praying Indians Tribe of Natick and Ponkapoag; Wampanoag Tribe of Gay Head (Aquinnah); and Wampanoag (Mashpee). Two responses were received during scoping, which were consistent with the determination that the project would not impact ethnographic resources:

- January 27, 2009: Email from **The Praying Indians Tribe of Natick & Ponkapoag**, Caring Hands Rosita Andrews to Bruce Jacobson, in which Mrs. Andrews thanked Bruce for the information and expressed [an] interest in future updates. (BOHA Memorandum, D22(BOHA), March 1, 2009)

- February 12, 2009: Email from **The Natick Nipmuc Indians**, Sachem Mary Anne Hendricks to Bruce Jacobson, in which Mary Ann expressed her “main concern” was not from a Native American perspective [rather] “is based on use by persons who are physically handicapped.” (BOHA Memorandum, D22(BOHA), March 1, 2009)

Historic Structures

Fort Warren on Georges Island is an NHL and is discussed as its own impact topic. Structures within the project area include the pier structures, including the finger piers, and the seawall. The finger piers were built in the late 1950s as part of state park development (the state park was later incorporated into Boston Harbor Islands national park area) and are not eligible for listing in the National Register of Historic Places. The main pier is not described in the Fort Warren NHL documentation, but based on concurrence from the State Historic Preservation Office, the pier does not meet criteria of eligibility as a contributing element of the NHL. In contrast, the seawall does retain significant integrity to be included as a contributing element to the NHL. The seawall would not be impacted by the proposed project. The proposed pier facility designs tie into the land without modifying the seawall. Additionally, during construction, measures would be taken to protect the seawall from inadvertent harm. Since the only historic structure located within the project area would not be impacted by the project, this topic was dismissed from analysis.

Cultural Landscapes

According to the National Park Service’s Director’s Order-28 Cultural Resource Management Guideline, a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. A cultural landscape inventory has not been conducted for the island, and cultural landscapes are not discussed in the Fort Warren NHL documentation. However, cultural landscapes may potentially exist on the island.

Cultural landscape characteristics that could be impacted by this project include the special organization of the pier as the island gateway and its orientation to other structures in the landscape, and circulation patterns, corridors and spaces. Under all alternatives, the arrival location would remain the same in relationship to other structures in the landscape; however, under alternative C, the fixed main pier as a gateway experience would be lost. Additionally, alternatives B, D and E restore the possibility of replicating historic circulation patterns by enabling visitors to queue on a fixed main pier rather than on the island itself as is currently practiced due to safety concerns with the existing pier. This would be a beneficial impact to the experience of any potential cultural landscape. Alternative C would have a negligible long-term adverse impact in this regard because it would take away queuing possibilities on a fixed main pier entirely. The visitor arrival experience is discussed in the Visitor Experience impact topic. Since impacts to cultural landscapes would not exceed minor, this impact topic was dismissed from further analysis.

Socioeconomics

NEPA requires analysis of impacts to the human environment, which includes economic, social, and demographic elements in the affected area. The project would neither alter local population densities or distribution, nor result in increased development. Short-term employment and income impacts would be expected due to construction of the project; however these would be negligible and unnoticed in the local economy because of the limited size and duration of the project. Therefore socioeconomic considerations were dismissed from further analysis.

ALTERNATIVES

Federal agencies are required by the NEPA to explore a range of reasonable alternatives that are consistent with the purpose and significance of Georges Island and meet the purpose and need for the proposed action. In addition, the alternatives under consideration must include a “no-action” alternative as prescribed by 40 CFR Part 1502.14.

The alternatives and environmental issues analyzed in this document are the result of preliminary design and scoping activities conducted with the NPS, DCR, regulatory agencies, stakeholders, and the public. Through these activities, a range of alternatives was developed and subsequently evaluated. Five alternatives were carried forward for further analysis:

Alternative A: The No-Action Alternative

Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Alternative C: Single Basin without Fixed Main Pier

Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

ALTERNATIVE A: THE NO-ACTION ALTERNATIVE

Under alternative A (shown in figure 4) the pier facility would remain in the current location and the configuration of the pier would remain unchanged. The existing configuration consists of three fixed piers and associated floating docks, with a timber wave fence on the outshore face. The current configuration can accommodate 8 recreational vessels, DCR work boats, inter-island ferries, and the main ferries currently serving the islands. The south finger pier would remain closed to public access per recommendations from the 2007 inspection. The main pier would remain open to the public and would continue to be the main loading and off-loading point for ferry passengers visiting the island. Restrictions relating to passenger queuing on the main pier would remain in place with passengers queuing on land while the ferry berths and subsequently crossing the pier once the ferry is docked. Except at a narrow range of tidal conditions, the existing pier is not currently ADA compliant for passenger vessel embarking and disembarking. Should the no action alternative be selected, DCR would continue to perform escalating levels of maintenance and repairs on the pier to maintain public access to the island. Required repairs include replacing poorly rated bearing piles, replacing broken or deteriorated hardware, and replacing the wave fence. Repair records indicate that the pier has undergone major repairs approximately every ten years since the 1960s to keep the pier in a serviceable condition.

ELEMENTS COMMON TO ALL ACTION ALTERNATIVES

Materials

During the VA workshop to consider design options, the VA team recommended consistent building materials for the pier facility in order to facilitate comparison between alternatives. The two main factors that influenced the decision on materials were longevity and historic resources. Longevity of the pier structure was addressed through incorporating steel and concrete elements in locations that are inundated with water. Historic resources were addressed by incorporating timber decking and facings into the design and making other modifications in such a way as to adhere to the Secretary’s Standards. Material specifications used in the cost estimate include the following:

- 12-inch or 16-inch steel pipe piles, concrete filled
- 3-inch x 8-inch treated timber planks
- 12-inch x 12-inch treated timber stringers
- 24-inch pre-cast concrete pile cap

- Bents spaced at 15 feet on center
- Timber panel wave fence

Wave Fence

All pier design alternatives incorporate a timber wave fence or timber wave attenuation system to provide wave protection to both recreational and commercial vehicles docking at the facility. Wave protection is provided for two main reasons: the existing design incorporates a wave fence, and conditions in the harbor are such that wave protection is necessary. The southwest direction has the greatest exposure and the pier design alternatives were developed to provide protection from this direction. The current wave fence is mounted to the pier with vertical boards supported by timber wales spanning between piles. The design alternatives incorporate a pile supported timber wave attenuator to mitigate potential cultural resource impacts by making the visual element suggestive of the historical configuration and facilitate repair as necessary. The wave fence would be designed to ensure adequate sediment transport in the vicinity of the pier facility and would mount to the steel piles and structure of the pier.

Accessible Ramps

Each of the proposed design alternatives includes a series of 60-foot x 8-foot aluminum gangways and ramp systems that feature a maximum 1:12 slope to and from the floating barge to provide full compliance with ADA guidelines and MAAB requirements.

Interpretation

Each of the proposed action alternatives would include a small interpretive or historical component that would most likely consist of an interpretive panel attached to the pier railing, unless pier interpretation is already incorporated into state-sponsored interpretive programming. NPS would work with the state to ensure that interpretive efforts would be coordinated.

ALTERNATIVE B: SINGLE BASIN WITH FIXED MAIN PIER (NPS PREFERRED ALTERNATIVE)

Description

This layout would replace the existing piers with two piers oriented in similar directions to the existing pier and a fixed main pier located in the same location as the current main pier, as shown in figure 5. Key features would include the following:

- A 43-foot x 43-foot fixed main pier that connects to the barge system
- Single basin for use by commercial/DCR vessels only
- Piers extend much farther seaward than existing piers; greater water depth of 30 feet at outshore end
- Pier deck elevation is at +14.5 feet mean low water.
- Timber wave fence supported by pier structure is provided
- Treated timber used for pier deck
- 40-foot x 120-foot steel barge is provided for ferries, charter boats, and DCR excursion vessel.
- Barge system placed to north side because of greater water depth
- No dredging is presumed to be required
- 60-foot x 8-foot aluminum gangways and maximum 1:12 slope ramps provide ADA/MAAB compliant access to vessels using floating dock
- DCR work boats are located on separate floats along south pier
- Recreation boat berthing floats are located outside basin on north side

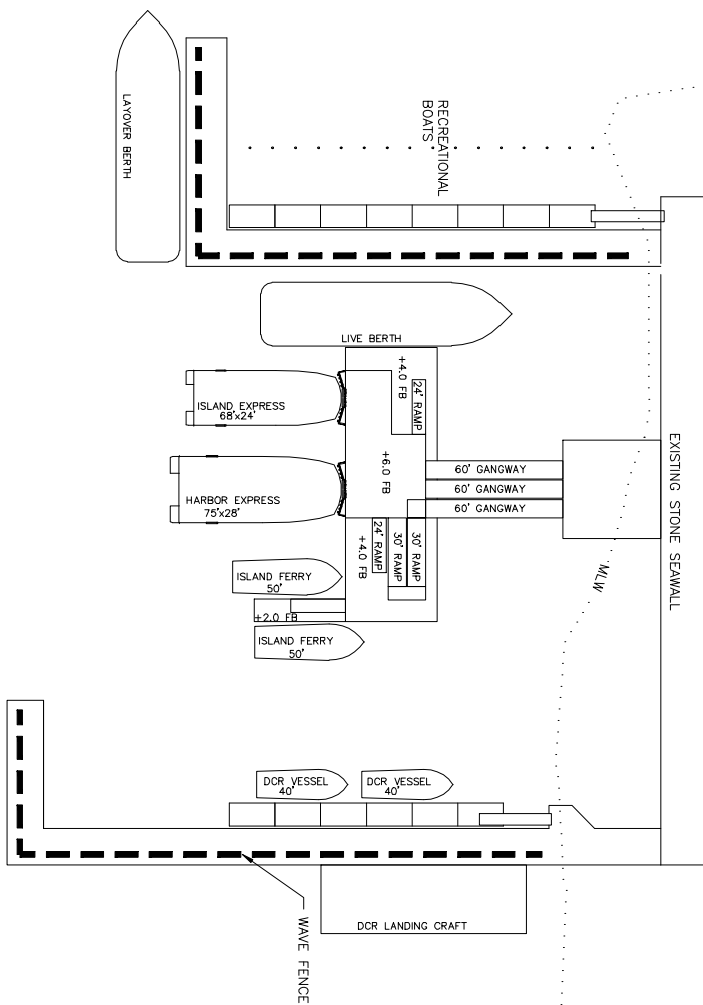
This layout would provide berthing for the following vessels:

- Two bow loading ferries
- Two inter-island ferries
- One live charter vessel berth
- Layover berthing for up to three charter vessels (290 feet)
- Two 40-foot DCR berths (120 feet expandable to 200 feet)
- Up to 16 private vessel berths

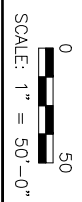
Key features of this design concept would include the following:

- Straight access for vessels to floating system
- Separation of commercial/recreational vessels
- Dedicated berths for DCR use
- The number of bow loading berths could be increased to three by moving inter-island ferries
- Expansion of private vessel berthing is possible to the north

GEORGES ISLAND



1	3/11/09	CENTRAL PIER & NORTH PIER WAVE FENCE ADDED BY URS	CC	TL
REV	DATE	REVISION	BY	CHK



ALTERNATIVE B
GEORGE'S ISLAND
DEPT. OF CONSERVATION
AND RECREATION
JUNE 2007

Bourne Consulting Engineering
184 West Central Street
Providence, RI 02903
TEL (408) 528-8133 FAX (408) 528-8671

ALTERNATIVE C: SINGLE BASIN WITHOUT FIXED MAIN PIER

Description

This layout is a variation on alternative B, without incorporation of the fixed main pier and is shown in figure 6. The key difference is that the south pier is angled towards the northwest to provide much greater wave protection for docked vessels. The greater protection comes at the expense of maneuvering room for vessels in the basin. Key features would include the following:

- Single basin for use by commercial/DCR vessels only
- Piers extend much farther seaward than existing; greater water depth of 30 feet at outshore end
- Pier deck elevation is at +14.5 feet mean low water
- Timber wave fence supported by pier structure is provided
- Treated timber used for pier deck
- 40-foot x 120-foot steel barge is provided for ferries, charter boats, and DCR excursion vessel
- Barge system placed to north side because of greater water depth
- No dredging is presumed to be required
- 60-foot x 8-foot aluminum gangways and maximum 1:12 slope ramps provide ADA/MAAB compliant access to vessels using floating dock
- DCR work boats are located on separate floats along the south pier
- Recreation boat berthing floats are located outside the basin on the north side

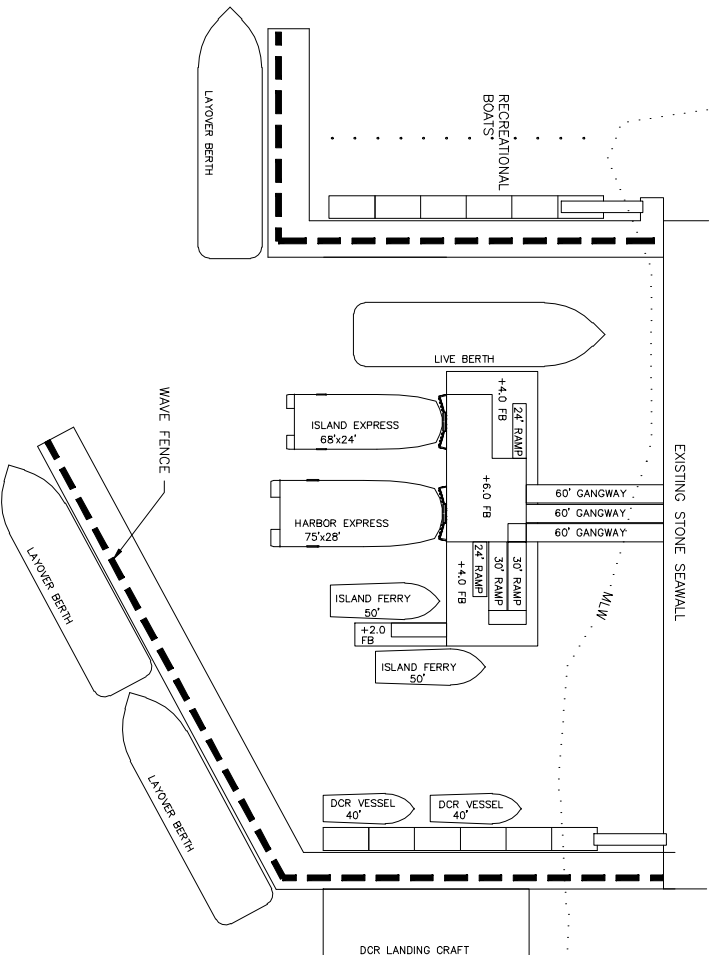
This layout would provide berthing for the following vessels:

- Two bow loading ferries
- Two inter-island ferries
- One live charter vessel berth
- Layover berthing for up to three charter vessels (320 feet)
- Two 40-foot DCR berths (100 feet)
- Up to 12 private vessel berths

Key features of this design concept would include the following:

- Separation of commercial/recreational vessels
- Sheltered berths for DCR use
- Improved protection would reduce maintenance on barge system.
- Expansion of private vessel berthing is possible to the north

GEORGES ISLAND



0 50
SCALE: 1" = 50'-0"

ALTERNATIVE C
GEORGE'S ISLAND
DEPT. OF CONSERVATION
AND RECREATION
JUNE 2007

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ALTERNATIVE D: DUAL BASINS AND FIXED MAIN PIER WITH SOUTHERN MARINA

Description

The layout of alternative D would replace the existing pier with two fixed piers and associated floating docks. The floating docks for commercial vessels would be located in the North Basin, which would maintain the location and general historical configuration of the main pier and replace the south finger pier with a wider pier oriented in roughly the same direction as the existing structure. The layout and key features of alternative D are shown in figure 7 and include the following:

- Maintain elements of the historic location of the fixed main pier
- Provide separation of commercial and recreational boat marina operations
- Provide an extended angled finger pier past the main pier with timber wave fence to provide sheltered berthing for commercial vessels
- Includes an enlarged south basin that provides an increase in the size of the recreational boat marina
- South finger pier extends slightly farther seaward than existing pier and incorporates a fixed timber wave fence at the outer end
- Timber wave fence supported by pier structure is provided for the outer pier portion of the main pier and the south finger pier
- Fixed timber wave fence located approximately 400 ft northwest of North Basin to provide wave attenuation for commercial vessel berthing and recreational vessel mooring field
- A 40-foot x 120-foot floating steel barge dock system is provided for ferries, charter boats, and DCR excursion vessels
- Floating barge system placed in North Basin to take advantage of greater water depth
- Angled floating barge system used to provide easy access for the commercial vessels
- Three 8-foot x 60-foot aluminum gangways with one of the gangways and associated ramps installed at a maximum 1:12 slope to provide ADA/MAAB compliant access to vessels using floating dock
- Locates DCR work boats on separate floats along the extended angled finger pier
- Recreational boat mooring field located to the north of the North Basin docking area with space available as needed
- Provides a separate dinghy dock at the northern terminus of the existing seawall for use by recreational boaters tied up in the mooring field

Alternative D was developed to provide berthing for the following vessels within the commercial docking area, the recreational boat marina and mooring field:

- Two bow loading ferries (65- to 75-foot berth length)
- Two inter-island ferries (50-foot berth length)
- One live charter vessel berth (up to 120-foot berth length)
- Layover berthing for up to two charter vessels (up to 240-foot berth length)
- Two berths for DCR excursion vessels and/or work boat (40- to 50-foot berth length)
- Permanent layover berth for DCR landing craft
- Up to 29 private vessel berths in recreational boat marina (max 25-foot berth length)
- Space as needed for private vessel berths in recreational mooring field (varied berth lengths)
- Numerous dinghy spaces along dinghy dock

Additionally, alternative D would provide for future expandability options for the south finger pier for additional layover berthing spaces and associated expansion of the recreational boat marina. The mooring

field and associated dinghy dock can be designed and expanded as necessary to accommodate anticipated needs.

Key features of this design concept include the following:

- Separation of commercial and recreational vessels
- Angled approach for commercial vessels aligns with typical island access route which would make maneuvering easier for docking
- Angled extension of pier with timber wave fence protection would provide sheltered berthing for commercial vessels improving maneuvering during docking and providing more secure on/off-loading for ferry passengers
- Dedicated berths for DCR vessel use
- Expanded and sheltered recreational berthing in South Basin
- Improved access to charter boats
- Improved protection from wave action would reduce maintenance on floating barge system and floating docks within the recreational marina
- Expansion possible for commercial and private vessel berthing in South Basin

ALTERNATIVE E: DUAL BASINS AND FIXED MAIN PIER WITH NORTHERN MARINA

Description

The layout of alternative E would replace the existing pier with two fixed piers and associated floating docks. The floating docks for the commercial vessels would be located in the South Basin, which would maintain the location and general historical configuration of the main pier and replaces the south finger pier with a wider pier oriented in roughly the same direction as the existing structure. Figure 8 shows the proposed layout and key features of alternative E include the following:

- Maintains elements of the historic location of the fixed main pier
- Provides separation of commercial and recreational boat marina operations
- Provides an extended angled finger pier past the main pier with timber wave fence to provide sheltered berthing for recreational vessels
- Enlarged South Basin to accommodate all the commercial boat operations
- South finger pier extend slightly farther seaward than existing pier and incorporates a fixed timber wave fence at outer end
- Timber wave fence supported by pier structure is provided for the outer pier portion of the main pier and the south finger pier
- A 40-foot x 120-foot floating steel barge dock system is provided for ferries, charter boats, and DCR excursion vessels
- Floating barge system placed parallel to the shore line for easy access to docking for commercial vessels
- Three 8-foot x 60-foot aluminum gangways with one of the gangways and associate ramps installed at a maximum 1:12 slope to provide ADA/MAAB compliant access to vessels using floating dock
- Provides dedicated space for DCR work boats on separate floats along the south finger pier
- Recreational boat mooring field located to the north of the recreational boat marina in the North Basin with space available as needed
- Provides a separate dinghy dock at the northern terminus of the existing seawall for use by recreational boaters tied up in the mooring field

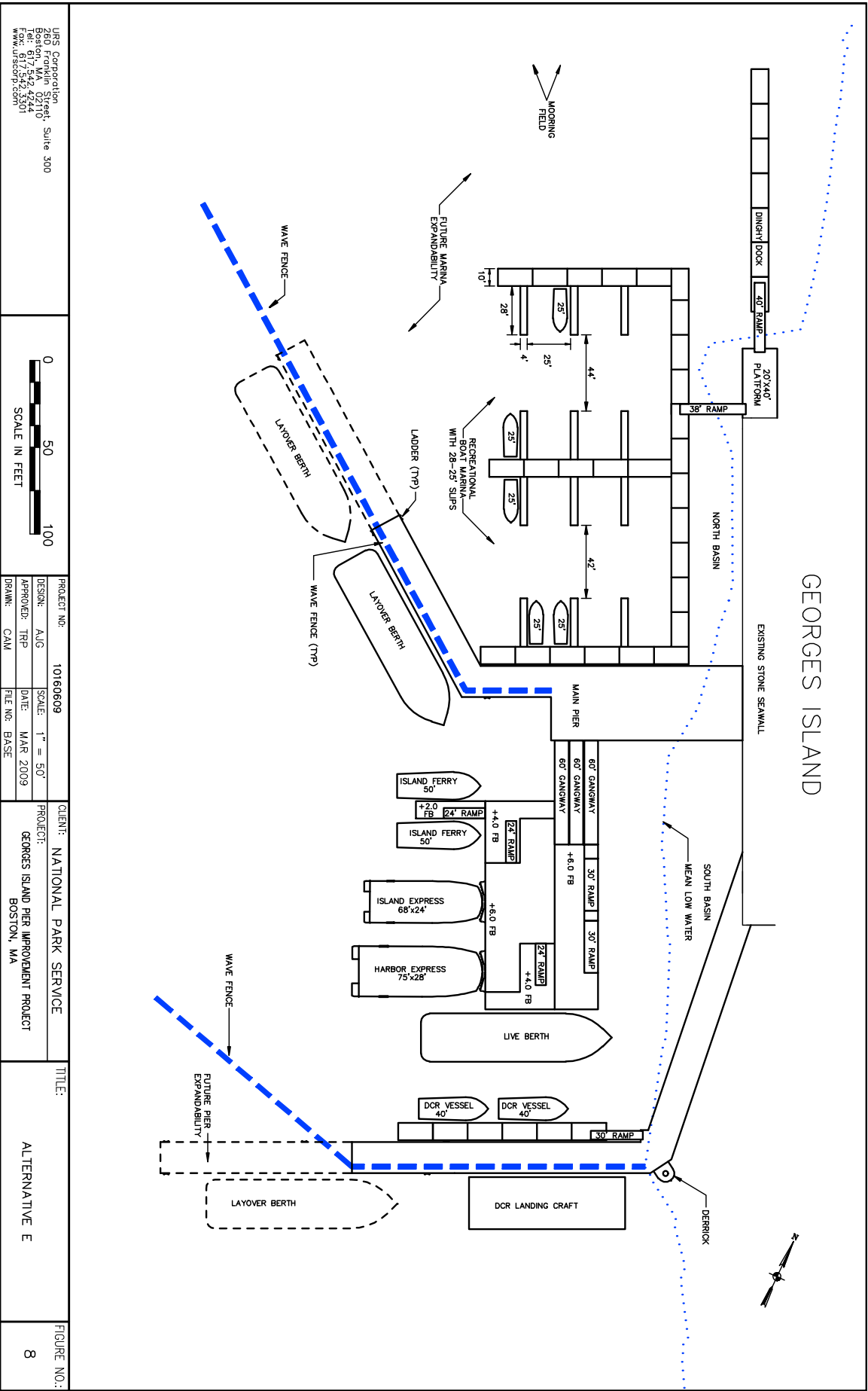
Alternative E was developed to provide berthing for the following vessels within the commercial docking area, the recreational boat marina and mooring field:

- Two bow loading ferries (65- to 75-foot berth length)
- Two inter-island ferries (50-foot berth length)
- One live charter vessel berth (up to 120-foot berth length)
- Layover berthing for up to two charter vessels (up to 240-foot berth length)
- Two berths for DCR excursion vessels and/or work boat (40- to 50-foot berth length)
- Permanent layover berth for DCR landing craft
- Up to 28 private vessel berths in recreational boat marina (max 25-foot berth length)
- Space as needed for private vessel berths in recreational mooring field (varied berth lengths)
- Numerous dinghy spaces along dinghy dock

Additionally, alternative E would provide for future expandability options for the south finger pier for additional layover or similar berthing spaces. The recreational boat marina could also be expanded to the west and north as demand for berthing spaces increases. The mooring field and associated dinghy dock could be designed and expanded as necessary to accommodate anticipated needs.

Key features of this design concept include:

- Separation of commercial and recreational vessels
- Position of floating barge provides easy access to docking for commercial vessels
- Use of floating wave attenuator provides sheltered berthing for commercial vessels and more secure on/off-loading for ferry passengers
- Dedicated berths for DCR vessel use
- Expanded and sheltered recreational berthing in North Basin
- Improved access to charter boats
- Improved protection from wave action would reduce maintenance on floating barge system and floating docks within the recreational marina
- Expansion possible for the commercial berthing in South Basin and private vessel berthing in North Basin



MITIGATION MEASURES FOR THE ACTION ALTERNATIVES

Several types of mitigation measures would be undertaken in support of this project. The primary impact of the project would be related to construction activities, but potential cultural resource, EFH and sedimentation impacts could be mitigated through specific aspects of the project design.

Design for Historic Features

The Value Analysis team and cultural resource advisors identified the location and mass of a fixed central pier element as essential for capturing the essence of the historic gateway, as well as feeling, association, and setting for the Fort Warren NHL. Accordingly, all but one of the pier design alternatives incorporates the original pier location and appropriate materials to the greatest extent. Three of the four action alternatives feature the fixed central pier with timber decking in the same location as the original pier, and would be consistent with the Secretary's Standards.

Additionally, none of the designs would tie into the seawall, which is a contributing element of the Fort Warren NHL. Protocol would be developed and followed to protect the seawall from inadvertent damage during construction.

Work in water – Time of year restrictions

Based upon discussions with regulatory agencies during the November 2008 site walk, a work-in-water, time of year restriction from January 15 to June 15 to avoid and minimize potential impacts to EFH is proposed. Therefore, typical construction activities that would be restricted during this time include pile driving, pile pulling, geotechnical borings, and other in-water activities that generate significant noise, vibration, or turbidity in the water column.

Construction phasing

In order to maintain visitor access and minimize visitor use and experience impacts during construction, the pier replacement project would likely be phased over two construction seasons, with construction primarily occurring from October 15 through May 15. The preliminary construction sequence is as follows:

- Stabilize south finger pier and outfit with floats to provide uninterrupted public access
- Demolish and remove main pier and north finger pier
- Construct new main pier and floating barge system and open to the public
- Demolish and reconstruct south finger pier
- Construct north finger pier

Height of wave fence

The vertical clearance between the bottom of the wave fence and the harbor floor is an important design criterion that was identified during the agency scoping meeting in November 2008. The vertical clearance above the harbor floor could impact natural sedimentation transport and erosion patterns in the vicinity of the fence. To mitigate potential impacts, the Massachusetts Coastal Zone Management Office suggested placing the wave fence at least three feet off the harbor floor. Where the wave fence extends beyond the deck of the pier, it is conceptually envisioned that the fence would be mounted to a cross braced steel pile structure. Details of the wave fence would be further developed during final design of the pier.

Materials

At the conclusion of the VA workshop, the VA team recommended a set of consistent building materials for the pier facility in order to facilitate comparison between alternatives. Each design alternative was

Alternatives Considered but Dismissed

assumed to consist of concrete filled steel piles, a pre-cast concrete pile cap, timber stringers and timber decking, with a timber wave fence. The materials were chosen to mitigate potential cultural resource impacts by making the visual elements of the pier suggestive of the historic configuration and content to the greatest extent practicable. Not all materials would be historically consistent; however they would be as suggestive of the historic facility to the greatest extent practicable.

Archeology

Temporary equipment and material staging areas and the temporary access road from the beach to transport equipment and material would be located in non-sensitive areas. If the construction zone, temporary staging areas and access road are located adjacent to sensitive areas, then construction fencing would be erected to delineate these areas, and protect them from any inadvertent impacts during construction. Unanticipated finds would be accommodated as indicated in relevant federal and state laws, and these provisions would be written into contract documents.

Safety Features

To mitigate health and safety impacts associated with a pier facility, a number of safety features would be built into the pier design. Safety features that would be part of the final design include such measures as railings and lighting. During construction, the contractor would be required to have an appropriate safety plan with measures to avoid injuries to workers. Additionally, the phasing of construction over two construction seasons with major construction taking place opposite the busy summer season would mitigate potential health and safety impacts to visitors during construction.

ALTERNATIVES CONSIDERED BUT DISMISSED

Four additional design alternatives were developed as replacement options. During the VA workshop, the VA team dismissed these four design alternatives because they either did not meet the purpose and need, or they duplicated, to a large degree, another alternative. The four dismissed design alternatives are briefly described below.

The first dismissed alternative was designed to replace the existing piers with piers of similar size and extent, essentially mimicking the current pier design. The main difference was the addition of a floating barge system for commercial vessels in the north basin. This alternative was dismissed from further consideration because it did not fully meet the defined purpose and need of the project. One of the stated needs for the project is to accommodate potential increase visitor use. The current pier is inadequate for current and projected visitor demand, which implies a pier of similar size and configuration would also be inadequate for visitor demand.

The second dismissed alternative was designed to use two fixed piers, creating two small basins: one for recreational vessels and one for commercial vessels. This alternative was dismissed from further consideration because it duplicated alternative D to a large degree. Both alternatives used two fixed pier elements and position the floating barge for commercial vessels in the north basin and recreational vessels in the south basin. The size and extent of the fixed pier structures are slightly different between the two, but the positioning and functionality between the two was largely duplicative.

The third dismissed alternative was designed to use two fixed piers with essentially the same size and position as alternative C. This alternative was dismissed from further consideration because it duplicated alternative C by design. It was determined that a more direct path to the floating barge system may be better for commercial traffic, leading to the design of this dismissed alternative. It was dismissed in favor of alternative C because it shifted the main visitor access point away from the central location, which the IDT determined early on in the process captured the historic significance of the pier as it defines the historic gateway to the island. Alternative C maintains the historic visitor access point to the island.

The fourth dismissed alternative was an in-kind replacement of the pier facility, which would entail demolition of the current pier elements and replacing them with structures of the same size, location, and extent as the current pier. Functionality of the pier would remain the same, with ferries loading and unloading passengers via a powered drop landing. Replacing the pier facility with a design that is identical to the current configuration was dismissed from further consideration because it did not fully meet the defined purpose and need of the project. Two of the stated needs of the project are to accommodate potential increased visitor use and bring the facility into compliance with current design standards. The current configuration of the pier is inadequate for present and future visitor use and it does not comply with ADA guidelines and MAAB requirements.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with the DO-12 Handbook (Section 2.7D), the NPS identifies the environmentally preferred alternative in its NEPA documents for public review and comment. The Council on Environmental Quality's (CEQ) regulations for implementing NEPA define the environmentally preferred alternative as the alternative that best promotes the national environmental policy expressed in NEPA Section 101(b) (36 CFR 1505.2). In their *NEPA's Forty Most Asked Questions*, CEQ further clarifies the identification of the environmentally preferred alternative, stating "Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources" (Q6a).

Alternative B is the environmentally preferred alternative because it preserves the historic approach to the island through arrival on a fixed pier and minimizes the amount of fixed and floating dock space. Based on the analysis of environmental consequences of each alternative in Chapter 3, Alternative B is the Environmentally Preferred Alternative.

Table 1 provides a summary of design features and Table 2 summarizes how well each alternative meets the purpose and need for the project.

Table 1: Summary of Design Features by Alternative

Elements	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Fixed Dock Space	19,000 ft. ²	12,300 ft. ²	10,900 ft. ²	14,150 ft. ²	14,325 ft. ²
Floating Dock Space	800 ft. ²	8,000 ft. ²	7,600 ft. ²	15,435 ft. ²	17,574 ft. ²
Number of Private Vessel Berths	8	16	12	29	28
Number of Charter Vessel Berths	2	4	4	3	3
Number of Ferry Vessel Berths	1	4	4	4	4
Number of DCR Vessel Berths	2	2	2	3	3
Basins	2	1	1	2	2
Main Pier	Yes	Yes	No	Yes	Yes

Table 2: Summary Comparison of Alternatives

Objectives	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Enhance Visitor Safety	No	Yes	Yes	Yes	Yes
Accommodate Increased Visitor Use	No	Yes	Yes	Yes	Yes
Comply with ADA and MAAB Requirements	No	Yes	Yes	Yes	Yes
Maintenance Costs	Highest	Moderate	Moderate	High	High
Meet Purpose and Need	No	Yes	Yes	Yes	Yes

Table 3: Summary Comparison of Impacts of the Alternatives

Impact Topic	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Archeological Resources	The no-action alternative would have no impacts on cultural resources. This alternative would add no incremental impacts to the cumulative impact of implementing this alternative, which would be a site-specific, long-term, moderate adverse impact on archeological resources, which would occur during excavation for the seawall project.	The NPS preferred alternative would have site specific, long-term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation for the seawall project. For purposes of S106, the alternative would have "no adverse effect" on archeological resources.	This alternative would have site specific, long-term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project. For purposes of S106, the alternative would have "no adverse effect" on archeological resources.	This alternative would have site specific, long-term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project. For purposes of S106, the alternative would have "no adverse effect" on archeological resources.	This alternative would have site specific, long-term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project. For purposes of S106, the alternative would have "no adverse effect" on archeological resources.

Impact Topic	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Fort Warren NHL	The implementation of Alternative A would have no impact on the Fort Warren NHL and would not contribute to the beneficial cumulative impacts defined above.	The implementation of alternative B would have long-term, beneficial impacts in the Fort Warren NHL because it would meet the Secretary's Standards and retain the feeling of association, setting and feeling. For purposes of S106, the alternative would have "no adverse effect" on Fort Warren NHL.	The implementation of alternative C would have long-term, moderate adverse impacts in the Fort Warren NHL because it would compromise the integrity of the NHL's setting, feeling and association and would not meet the Secretary's Standards. For purposes of S106, the alternative would have an "adverse effect" on Fort Warren NHL.	The implementation of alternative D would have long-term, beneficial impacts in the Fort Warren NHL because it would meet the Secretary's Standards and retain the feeling of association, setting and feeling of the NHL's setting. For purposes of S106, the alternative would have "no adverse effect" on Fort Warren NHL.	The implementation of alternative E would have long-term, beneficial impacts in the Fort Warren NHL because it would meet the Secretary's Standards and retain the feeling of association, setting and feeling of the NHL's setting. For purposes of S106, the alternative would have "no adverse effect" on Fort Warren NHL.

Impact Topic	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Essential Fish Habitat	The no-action alternative would have negligible to minor adverse impacts on EFH, and cumulative impacts would also be negligible, minor and adverse.	The NPS preferred alternative would have short-term, minor, adverse impacts on EFH. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, minor, adverse impacts.	This alternative would have short-term, minor, adverse impacts on EFH. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, minor, adverse impacts.	This alternative would have short-term, minor, adverse impacts on EFH. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, minor, adverse impacts.	This alternative would have short-term, minor, adverse impacts on EFH. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, minor, adverse impacts.

Impact Topic	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Special Status Species	The no-action alternative would have short-term, negligible, adverse impacts on special status species, and short-term, negligible, adverse cumulative impacts stemming from maintenance work on the piers.	The NPS preferred alternative would have short-term, negligible to minor, adverse impacts on special status species. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, negligible to minor, adverse impacts.	This alternative would have short-term, negligible to minor, adverse impacts on special status species. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, negligible to minor, adverse impacts.	This alternative would have short-term, negligible to minor, adverse impacts on special status species. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, negligible to minor, adverse impacts.	This alternative would have short-term, negligible to minor, adverse impacts on special status species. Impacts would be minimized through the implementation of mitigation measures, including a time-of-year construction restriction and/or the use of a siltation curtain surrounding the immediate work zone for work in water. In combination with the building projects on Georges Island, the cumulative impact would also be short-term, negligible to minor, adverse impacts.
Health and Safety	Implementation of alternative A would result in long-term, moderate, adverse impacts to health and safety as a result of the ongoing deterioration of the pier facility. When added to negligible short-term adverse impacts of other projects, the cumulative impact would be long-term, moderate and adverse.	The NPS preferred alternative would have long-term, beneficial impacts on health and safety. Cumulative impacts would also be long-term and beneficial.	This alternative would have long-term, beneficial impacts on health and safety. Cumulative impacts would also be long-term and beneficial.	This alternative would have long-term, beneficial impacts on health and safety. Cumulative impacts would also be long-term and beneficial.	This alternative would have long-term, beneficial impacts on health and safety. Cumulative impacts would also be long-term and beneficial.

Impact Topic	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Park Operations	Implementation of alternative A would have long-term, moderate, adverse impacts to park operations and management, increasing future pier repair and maintenance, and the potential need to relocate the water transportation hub if the pier becomes unserviceable. Cumulative impacts to park operations would also be long-term, moderate, adverse impacts as the benefits of the new upland facilities are offset by the continued maintenance activities associated with the deteriorating pier facility.	The NPS preferred alternative would have long-term, beneficial impacts to park operations from a new facility. There would also be long-term, beneficial cumulative impacts. The contribution of this alternative to the cumulative impact would be appreciable.	This alternative would have long-term, beneficial impacts to park operations from a new facility. There would also be long-term, beneficial cumulative impacts. The contribution of this alternative to the cumulative impact would be appreciable.	This alternative would have long-term, beneficial impacts to park operations from a new facility. There would also be long-term, beneficial cumulative impacts. The contribution of this alternative to the cumulative impact would be appreciable.	This alternative would have long-term, beneficial impacts to park operations from a new facility. There would also be long-term, beneficial cumulative impacts. The contribution of this alternative to the cumulative impact would be appreciable.

Impact Topic	Alternative A: The No-Action Alternative	Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)	Alternative C: Single Basin without Fixed Main Pier	Alternative D: Dual Basins and Fixed Main Pier with Southern Marina	Alternative E: Dual Basins and Fixed Main Pier with Northern Marina
Visitor Use and Experience	The no-action alternative would have short-term, beneficial impacts on visitor use and experience, as repairs would keep the pier operational and serviceable. Construction of facilities upland from the pier at Georges Island would result in a short-term, negligible, adverse cumulative impact, but the new and updated upland facilities would also have a long-term, beneficial cumulative impact on visitor experience.	Visitor access to the island would be maintained through the duration of construction activities, leading to short-term, negligible, adverse impacts on visitor use and experience. The completion of the project would have long-term, beneficial impacts on visitor use and experience. The alternative would contribute to a short-term, negligible, adverse cumulative impact due to the possibility of overlapping construction with the seawall, and a beneficial impact with the addition of the new and upgraded facilities directly upland from the pier facility.	Visitor access to the island would be maintained through the duration of construction activities, leading to short-term, negligible, adverse impacts on visitor use and experience. The completion of the project would have long-term, beneficial impacts on visitor use and experience. The alternative would contribute to a short-term, minor, adverse cumulative impact due to the possibility of overlapping construction with the seawall, and a beneficial cumulative impact with the addition of the new and upgraded facilities directly upland from the pier facility.	Visitor access to the island would be maintained through the duration of construction activities, leading to short-term, negligible, adverse impacts on visitor use and experience. The completion of the project would have long-term, beneficial impacts on visitor use and experience. The alternative would contribute to a short-term, minor, adverse cumulative impact due to the possibility of overlapping construction with the seawall, and a beneficial cumulative impact with the addition of the new and upgraded facilities directly upland from the pier facility.	Visitor access to the island would be maintained through the duration of construction activities, leading to short-term, negligible, adverse impacts on visitor use and experience. The completion of the project would have long-term, beneficial impacts on visitor use and experience. The alternative would contribute to a short-term, minor, adverse cumulative impact due to the possibility of overlapping construction with the seawall, and a beneficial cumulative impact with the addition of the new and upgraded facilities directly upland from the pier facility.

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AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment for the following resources that may be impacted by the proposed alternatives: archeological resources, historic structures; EFH; special status species; health and safety; park operations and management; visitor use and experience; as well as the potential impacts resulting from the implementation of the proposed alternatives. Impacts were identified and assessed with regard to the anticipated level of intensity based on a review of relevant scientific literature, previously prepared environmental documents, and the professional judgment of resource specialists. Impact levels (negligible, minor, moderate and major) are defined for each resource described in this chapter and impact topics are also assessed relative to cumulative impacts, as described below.

GENERAL METHODOLOGY FOR ASSESSING IMPACTS

Potential impacts of all alternatives are described in terms of type (beneficial or adverse); context; duration (short- or long-term); and intensity (negligible, minor, moderate, major). Definitions of these descriptors include:

Beneficial: A beneficial impact is a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

Adverse: An adverse impact is change that declines, degrades, and/or moves the resource away from a desired condition or detracts from its appearance or condition.

Context: Context is the affected environment within which an impact would occur, such as local, parkwide, regional, global, affected interests, society as whole, or any combination of these. Context is variable and depends on the circumstances involved with each impact topic.

Duration: The duration of the effect is described as short-term or long-term. Duration is variable with each impact topic, therefore, definitions related to each impact topic are provided in the specific impact analysis narrative.

Intensity: Impact intensity is the degree to which a resource would be adversely affected. Because level of intensity definitions (negligible, minor, moderate, major) varies by resource, separate definitions are provided for each impact topic analyzed below under “impact thresholds”. Beneficial impacts are described but do not receive intensity definitions.

IMPACTS TO CULTURAL RESOURCES AND COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

In this environmental assessment/assessment of effect, impacts to cultural resources are described in terms of type, context, duration, and intensity, as noted above, which is consistent with the Council on Environmental Quality regulations that implement the NEPA. These impact analyses are also intended to comply with the requirements of NHPA Section 106. In accordance with the Advisory Council on Historic Preservation’s regulations implementing Section 106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to archeological resources and the cultural landscape were identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that were either listed in or eligible to be listed in the National Register of Historic Places (NRHP); (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect must be made for affected National Register eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

CEQ regulations and the NPS Conservation Planning, Environmental Impact Analysis and Decision-making (Director's Order 12) call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g., reducing the intensity of an impact from major to moderate or minor). Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis sections for historic properties (archeological resources and Fort Warren NHL). The Section 106 summary is intended to meet the requirements of Section 106 and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

CUMULATIVE IMPACT SCENARIO

NEPA regulations require an assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as, "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-Federal) or person undertakes such action" (40 CFR 1508.7). Cumulative impacts could result from individually minor but collectively significant actions taking place over a period of time.

Cumulative impacts are considered for all alternatives, including the no-action alternative. Cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present, and reasonably foreseeable future actions in the vicinity of Georges Island. Several past, present, and future projects were identified that could result in cumulative impacts on Georges Island:

- **Georges Island Initiatives 2008–2010:** A full-scale improvement project with multiple components has been initiated through a partnership with DCR, Boston Harbor Alliance, and NPS in order to enhance the visitor experience at Georges Island. The development strategy was first identified in a 1991 Master Plan for Georges Island and is currently being carried out with five main components: the visitor center, shade shelter/concession, generator building, landscape improvements, and new maintenance facility.
- **Georges Island Seawall:** The section of seawall in the vicinity of the pier facility may be rehabilitated by DCR concurrently with the pier rehabilitation project. Current rehabilitation plans include excavation on the land side of the seawall, installation of crushed stone with filter fabric against the wall, and resetting the cut stone blocks that forms the seawall. The work zone for excavation would be located from the seawall landward, back approximately 30 feet, with two

additional staging locations for equipment and fill material. No in water work would be proposed for the project.

FINDINGS ON IMPAIRMENT OF PARK RESOURCES AND VALUES

As stated in *NPS Management Policies 2006* section 1.4.7:

“Before approving a proposed action that could lead to an impairment of park resources and values, an NPS decisionmaker must consider the impacts of the proposed action and determine, in writing, that the activity will not lead to an impairment of park resources and values. If there would be an impairment, the action must not be approved.”

As stated in the *NPS Management Policies 2006* section 1.4.5:

“The impairment that is prohibited...is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values...”

An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified as a goal in the park’s general management plan or other relevant NPS planning documents as being of significance.”

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. In this “Environmental Consequences” section, a determination on impairment is made in the Conclusion section of the impact analysis for each impact topic related to natural and cultural resources. Impairment determinations are not made for socioeconomic topics, or visitor use and experience (unless impacts are resource based) because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

ARCHEOLOGICAL RESOURCES

Affected Environment

In addition to the policies and regulations cited above, Director's Order 28A, Archeology (2004) further discusses the NPS approach and commitment to the investigation, documentation, preservation, interpretation, and protection of archeological resources located within park units. As a steward of America's heritage, NPS is charged with the preservation of the commemorative, educational, scientific, and traditional cultural values of archeological resources for the benefit and enjoyment of present and future generations. Archeological sites are irreplaceable resources, so it is important that management decisions and activities throughout the park system reflect a common commitment to the preservation of archeological resources as important elements of our national heritage.

A number of archeological studies were conducted on Georges Island between 1977 and 2008. The first consisted of a metal detecting survey of Fort Warren by Fahey (1977) followed by two archeological assessments for the placement of Clivus Mulstrom brand composting toilets on several of the Harbor Islands, including Georges Island, by Stokinger (1996 and 2000). The first did not encounter any archeological feature, while the second recorded buried roadbeds and foundation components. In 2001, a subsurface investigation was conducted for a proposed septic system upgrade (Donta 2001). A total of four shovel tests and six machine-excavated trenches were excavated in three potential areas for the septic system. Two areas focused on the glacia to the west and southwest of Fort Warren indicating that it was comprised of a natural hillside and nineteenth century fill. Material recovered from these two areas consisted of mostly architectural refuse and a few historic ceramics, faunal remains and a pipe bowl fragment. The third area, located northwest of the fort, encountered fill overlying a beach stratum. The only recovered artifact was a single flake of Saugus "jasper" from the beach horizon. No other prehistoric or historic artifacts were present.

In 2004, investigations were conducted for additional upgrades of the septic system that serves the Mine Storage building, which also serves as a visitor center (Binzen et al. 2004). Four areas were tested with 16 shovel tests, 3 excavation units, and 13 machine-excavated test trenches. Fill deposits were noted throughout that represented either the construction of Fort Warren's glacia or landscaping or the demolition of outbuildings. These deposits contained some historic artifacts associated with the construction and occupation of the fort. The only potentially significant feature was a section of brick foundation that likely represents the foundation of "Building K," an "engineer's stable" identified on an 1881 map of the fort.

The University of Massachusetts Archaeological Services department conducted two investigations in 2004. The first project involved testing for proposed pavement and safety fence repairs at Fort Warren (Medina and Binzen 2005a). A total of four machine-excavated trenches were used to examine Bastion C, Bastion D and Front III. Several historic fill deposits were documented along with the recovery of a number of artifacts (ceramics, glass, nails, clay pipe, and brick fragments). In addition, six historic cultural features were recorded that consisted of a drain, sand and gravel drainage deposit, a sandy artificial substratum, an additional sand and gravel deposit, an additional drain, and a fieldstone drainage deposit. Four shovel test pits were excavated for the safety fence repairs in the demi-lune, below Front III. Historic fill deposits were also encountered in the shovel tests along with a low number of historic artifacts (bottle glass, clay pipe, and brick fragments). No pre-Contact artifacts or features were found in either the trenches or shovel tests. No additional work was recommended for the proposed project.

The second project entailed the machine-excavation of six trenches along an archeologically sensitive section for a proposed fuel line (Medina and Binzen 2005b). Multiple deposits of historic fill were encountered in addition to 159 historic artifacts (ceramics, bottle glass, nails, clay pipes, and brick and

cement fragments) recovered from the back dirt pile. Also recorded were seven subsurface cultural features comprised of a concentration of brick and mortar rubble, a concentration of decayed wooden planks, a flat concrete block that may have been used as a derrick base, a second concentration of wooden planks, a layer of unmortared brick that may have been used as pavement, a backfilled utility trench, and a stratum interpreted to be an historic grade dating to the period of wharf construction in the late 1830s. Avoidance was recommended for the flat concrete block and no additional work for the rest of the fuel line.

The final and most recent investigation was associated with an archeological overview and assessment of the Boston Harbor Islands for the NPS (Seasholes and Binzen 2008). The study provided a review of "...known and possible archeological resources and assesses previous archeological investigations, providing cultural and historical contexts to assist in site interpretation and determinations of significance (Seasholes and Binzen 2008: v)." Recommendations were also provided for future archeological resource management and research priorities. The historic documentary and cartographic research indicated that there are a large number of known and possible historical archeological resources dating from the 17th through mid-20th centuries within Georges Island (2008: 188–192). Several of these appear to be located within the area of potential effects and consist of the 1842 storehouse; the 1891 fire engine shed/house, boathouse, and latrine; the 1906 plumber's shop, boathouse, and waiting room; and the 1934 boathouse. Also present may be an historic grade dating to the construction of the wharf in the late 1830s recorded by Medina and Binzen (2005b).

To date, there have been no underwater archeological investigations conducted adjacent to Georges Island or within the location of the pier. There is a low potential for the presence of underwater resources since the area within and adjacent to the pier has been significantly disturbed from dredging and rebuilding activities over the years. The Board of Underwater Archaeological Resources concurred with this assessment and did not see the need to conduct additional research (Mastone 2009).

Study Area/Area of Potential Effect

The study area for archeological resources includes the area adjacent to and immediately upland of the seawall where it extends outward and connects to the existing pier facility, as well as the seafloor in the immediate vicinity of the existing pier facility.

Thresholds

Negligible – The action is at the lowest levels of detection, barely perceptible, and not measurable. The determination of effect for Section 106 would be no adverse effect.

Minor – The impact affects an archeological site(s) with little or no potential to yield information important to prehistory or history or results in no or little loss of integrity to a site(s) with the potential to yield information important in prehistory or history. The determination of effect for Section 106 would be no adverse effect.

Moderate – The impact affects an archeological site(s) with the potential to yield information important in prehistory or history resulting in a loss of integrity and an adverse effect finding. The adverse effect can be mitigated with consultation among consulting parties and the development and execution of a memorandum of agreement in accordance with NHPA regulations 36 CFR 800.6(b).

Major – The impact affects an archeological site(s) with the potential to yield important information about human history or prehistory resulting in a loss of integrity and an adverse effect finding. Measures to minimize or mitigate adverse impacts cannot be agreed upon and consulting parties are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Duration – There are no short-term impacts to archeological resources. All impacts to archeological resources would be long-term.

Impacts of Alternative A: The No-Action Alternative

Impacts

The no-action alternative would not alter the pier. There would be no ground disturbing activities; therefore, there would be no impacts on archeological sites.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect archeological resources include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. The rehabilitation of the existing seawall would have a direct impact on archeological resources. The rehabilitation work would require the existing seawall to be restored due to its current deteriorated state. This would require a 30-foot-wide work zone for full-depth excavation with stepped construction for work access in order to install crushed stone and filter fabric along the land side of the seawall. Recent archeological investigations of Georges Island have indicated potential archeological resources could be present within the proposed work zone. DCR will need to adhere to state laws governing construction on state-owned lands (Massachusetts General Laws Chapter 9, section 26-27C) and accompanying regulations (950 CFR 70-71) that would identify and evaluate the condition of archeological sites in the work area and mitigate any adverse effects to archeological resources. This alternative would add no incremental impacts to the cumulative impact of implementing this alternative, which would be a site-specific, long-term, moderate adverse impact on archeological resources, which would occur during excavation for the seawall project.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Alternative B proposes the replacement of the existing piers with three piers oriented in similar directions to the existing one. This would result in a single basin with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The existing pier has been determined ineligible as a contributing element to the Fort Warren National Historic Landmark, while the entire existing pier area has a low potential for archeological resources. For this reason, alternative B would have site-specific, long-term, negligible impacts on archeological resources during construction activities.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect archeological resources include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. The rehabilitation of the existing seawall would have a direct impact on archeological resources. The rehabilitation work would require the existing seawall to be restored due to its current deteriorated state. This would require a 30-foot-wide work zone for full-depth excavation with stepped construction for work access in order to install crushed stone and filter fabric along the land side of the seawall. Recent archeological investigations of Georges Island have indicated potential archeological resources could be present within the proposed work zone. DCR will need to adhere to state laws governing construction on state-owned lands (Massachusetts General Laws Chapter 9, section 26-27C) and accompanying regulations (950 CFR 70-71) that would identify and evaluate the condition of archeological sites in the work area and mitigate

any adverse effects to archeological resources. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation for the seawall project.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative B would have No Adverse Effect on archeological resources due to the low potential for archeological resources in the existing pier area.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

Alternative C proposes the replacement of the existing piers with two piers oriented in similar directions to the existing one. This would result in a single basin with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The existing pier has been determined ineligible as a contributing element to the Fort Warren National Historic Landmark, while the entire existing pier area has a low potential for archeological resources. For this reason, alternative C would have site-specific, long-term, negligible impacts on archeological resources during construction activities.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect archeological resources include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. The rehabilitation of the existing seawall would have a direct impact on archeological resources. The rehabilitation work would require the existing seawall to be restored due to its current deteriorated state. This would require a 30-foot-wide work zone for full-depth excavation with stepped construction for work access in order to install crushed stone and filter fabric along the land side of the seawall. Recent archeological investigations of Georges Island have indicated that potential archeological resources could be present within the proposed work zone. The state will need to adhere to state laws governing construction on state-owned lands (Massachusetts General Laws Chapter 9, section 26-27C) and accompanying regulations (950 CFR 70-71) that would identify and evaluate the condition of archeological sites in the work area and mitigate any adverse effects to archeological resources. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative C would have No Adverse Effect on archeological resources due to the low potential for archeological resources in the existing pier area.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

Alternative D proposes the replacement of the existing piers with two piers oriented in similar directions to the existing one. This would result in two basins with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The existing pier has been determined ineligible as a contributing element to the Fort

Warren National Historic Landmark, while the entire existing pier area has a low potential for archeological resources. For this reason, alternative D would have site-specific, long-term, negligible impacts on archeological resources during construction activities.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect archeological resources include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. The rehabilitation of the existing seawall would have a direct impact on archeological resources. The rehabilitation work would require the existing seawall to be restored due to its current deteriorated state. This would require a 30-foot-wide work zone for full-depth excavation with stepped construction for work access in order to install crushed stone and filter fabric along the land side of the seawall. Recent archeological investigations of Georges Island have indicated that potential archeological resources could be present within the proposed work zone. DCR will need to adhere to state laws governing construction on state-owned lands (Massachusetts General Laws Chapter 9, section 26-27C) and accompanying regulations (950 CFR 70-71) that would identify and evaluate the condition of archeological sites in the work area and mitigate any adverse effects to archeological resources. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative D would have No Adverse Effect on archeological resources due to the low potential for archeological resources in the existing pier area.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

Alternative E proposes the replacement of the existing piers with two piers oriented in similar directions to the existing one. This would result in two basins with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The existing pier has been determined ineligible as a contributing element to the Fort Warren National Historic Landmark, while the entire existing pier area has a low potential for archeological resources. For this reason, alternative E would have site-specific, long-term, negligible impacts on archeological resources during construction activities.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect archeological resources include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. The rehabilitation of the existing seawall would have a direct impact on archeological resources. The rehabilitation work would require that the existing seawall to be restored due to its current deteriorated state. This would require a 30-foot-wide work zone for full-depth excavation with stepped construction for work access in order to install crushed stone and filter fabric along the land side of the seawall. Recent archeological investigations of Georges Island have indicated that potential archeological resources could be present with the proposed work zone. DCR will need to adhere to state laws governing construction on state-owned lands (Massachusetts General Laws Chapter 9, section 26-27C) and accompanying regulations (950 CFR 70-71) that would identify and evaluate the condition of archeological sites in the work area

and mitigate any adverse effects to archeological resources. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative E would have No Adverse Effect on archeological resources due to the low potential for archeological resources in the existing pier area.

Conclusions and Findings on Impairment for Archeological Resources

Alternative A

The no-action alternative would have no impacts on archeological resources because no work would be done that could potentially disturb archeological sites. This alternative would add no incremental impacts to the cumulative impact of implementing this alternative, which would have a site-specific, long-term, moderate adverse impact on archeological resources that would occur during excavation for the seawall project.

Alternative A would not result in impairment of archeological resources because this alternative would not alter the pier or include any ground-disturbing activities that would expose or destroy archeological resources or otherwise result in any loss of integrity of those resources.

Alternative B

The NPS preferred alternative would have site specific, long-term, negligible impacts on archeological resources due to the possibility of staging construction equipment upland of the pier compacting soils that may contain archeological resources. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation for the seawall project.

Alternative B would not result in impairment of archeological resources, because there is low potential for the presence of underwater resources and the footprint of the new construction is substantially within the previously disturbed area. There would be no excavation, and surface disturbance would be limited to compaction or disturbance from upland construction vehicles, which would be directed away from known archeological sites. The existing piers have been determined not eligible as contributing elements to the Fort Warren NHL and removing and replacing them would therefore not result in impairment of archeological resources.

Alternative C

Alternative C would have site specific, long-term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site-specific, long-term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project.

Alternative C would not result in impairment of archeological resources, because there is low potential for the presence of underwater resources and the footprint of the new construction is substantially within the previously disturbed area. There would be no excavation, and surface disturbance would be limited to compaction or disturbance from upland construction vehicles, which would be directed away from known archeological sites. The existing piers have been determined not eligible as contributing elements to the Fort Warren NHL and removing and replacing them would therefore not result in impairment of archeological resources.

Alternative D

Alternative D would have site specific, long term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site specific, long term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project.

Alternative D would result in no impairment of park cultural resources because there is low potential for the presence of underwater resources and the footprint of the new construction is substantially within the previously disturbed area. There would be no excavation, and surface disturbance would be limited to compaction or disturbance from upland construction vehicles, which would be directed away from known archeological sites. The existing piers have been determined not eligible as contributing elements to the Fort Warren NHL and removing and replacing them would therefore not result in impairment of archeological resources.

Alternative E

Alternative E would have site specific, long term, negligible impacts on archeological resources due to staging construction equipment upland of the pier. This alternative would not be perceptible as part of the cumulative impact, which would be a site specific, long term, moderate adverse impact on archeological resources, occurring during excavation of the seawall project.

Alternative E would result in no impairment of park cultural resources because there is low potential for the presence of underwater resources and the footprint of the new construction is substantially within the previously disturbed area. There would be no excavation, and surface disturbance would be limited to compaction or disturbance from upland construction vehicles, which would be directed away from known archeological sites. The existing piers have been determined not eligible as contributing elements to the Fort Warren NHL and removing and replacing them would therefore not result in impairment of archeological resources.

FORT WARREN NHL

Affected Environment

Fort Warren on Georges Island was begun in 1834 and finished in the 1860s by military engineer Syvanus Thayer. It was considered Thayer's chief work and one of the finest coastal fortifications built during that period. It was later used as a Civil War prison for notable Confederate leaders. Fort Warren was nominated a NHL in 1970 for its architecture and military history through the Civil War; however the fort remained in military use through World War II and underwent substantial modifications to support later activity. It was decommissioned in 1946, opened as a state park in 1961, and was incorporated into Boston Harbor Islands, national park area in 1996. The NHL designation includes Fort Warren and its setting on George's Island. Its boundaries extend to the water's edge. Not all structures on island contribute to the significance of the NHL but the seawall has been determined to be a contributing resource.

Analyses of the potential intensity of impacts on cultural resources were derived from available information on Georges Island and the professional judgment of park staff.

Study Area/Area of Potential Effect

The area of potential effect on the Fort Warren NHL includes the construction area, the approach to the pier from the water, and the area adjacent to and immediately upland of the seawall where it extends outward and connects to the existing pier, including the area between the seawall and the Mine Storage Building. Based on concurrence from the National Historic Landmark Program and the State Historic Preservation Office, the pier does not meet criteria for eligibility as a contributing member of the National Historic Landmark, nor is it eligible for listing in the NRHP as a 20th-century resource. The seawall does appear to retain integrity and meets both National Landmark and National Register criteria.

Thresholds

Negligible – The impact would not be perceptible or would be barely perceptible by most visitors and would be consistent with the Secretary's Standards. For the purposes of Section 106, the determination of effect would be No Adverse Effect.

Minor – The impact would not diminish the overall integrity of the Fort Warren National Historic District or its setting and would be consistent with The Secretary's Standards. For the purposes of Section 106, the determination of effect would be No Adverse Effect.

Moderate – The impact would diminish the overall integrity of the Fort Warren NHL. For the purposes of Section 106, the determination of effect would be either an Adverse Effect that could be mitigated with the consultation among consulting parties and the development and execution of a memorandum of agreement in accordance with NHPA regulations 36 CFR 800.6(b), or No Adverse Effect providing the SHPO determined that the plans are consistent with the Secretary's Standards.

Major – The impact would diminish the overall integrity of the Fort Warren National Historic District or its setting. For the purposes of Section 106, the determination of effect would be Adverse Effect. Measures to minimize or mitigate adverse impacts cannot be agreed upon and consulting parties are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6b.

Duration – There are no short-term impacts to the Fort Warren NHL. All impacts would be long-term.

Impacts of Alternative A: The No-Action Alternative

Impacts

The no-action alternative would not alter the pier in the short term. There would be no reconstruction of the pier, however DCR would continue to provide ongoing maintenance and replacement of deteriorating elements each season as funding allows. The piers would continue to deteriorate at a faster rate than repairs can take place, which could change the way they are used. For example, certain areas may be closed to the public as a result of safety concerns until proper repairs could be accomplished. There would be no changes to the overall setting, association, or feeling of the Fort Warren NHL, therefore there would be no impact to the NHL as a result of continued operation.

Cumulative Impacts

Past present and reasonably foreseeable future actions with the potential to affect the Fort Warren NHL including the adaptation of the Old Mine Storage building, Generator building, and Tank building for visitor services and park operations, planned landscape improvements, and repairs to the seawall. All of these projects will be conducted by DCR with review by the State Historic Preservation Office. The work must meet the Secretary's Standards and thus should have long-term, site-specific beneficial impacts on the Fort Warren NHL due to improvements to the conditions of structures eligible for listing in the National Register (such as the Seawall). Alternative A would provide no discernable increment to the beneficial cumulative impact.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Alternative B proposes the replacement of the existing, north and south piers with two piers oriented in similar directions to the existing configuration and replacing the main pier with a fixed pier element in the same location as the current fixed pier. The new fixed pier would be approximately 43' by 43' and would be have treated wood decking, as would the north and south finger piers that flank it. Timber wave fence attenuator systems would be attached to the finger piers. A fixed main pier with approx. 1850 square feet of wood decking would retain the feeling of a massive dock, and its associations with a working rather than pleasure dock. People seeing the dock from the ocean or experiencing the arrival on the island would be able to recognize historic uses that the fixed pier would have supported, such as the loading and offloading of troops and materials. The piers would abut the seawall rather than attaching to it and care would be taken to protect the seawall during construction. The existing pier facility is not a contributing element of the NHL. Replacing it with Alternative B, a new pier facility designed to meet the Secretary's Standards and which would retain the integrity of feeling, association and setting of the Fort Warren NHL would have long-term beneficial impact on the Fort Warren NHL.

Cumulative Impacts

Past present and reasonably foreseeable future actions with the potential to affect the Fort Warren NHL are the same as those described for Alternative A. Alternative B would provide a beneficial increment to the overall site-specific long-term beneficial impact of the cumulative impact scenario.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative B would have No Adverse Effect on the Fort Warren NHL because it would be designed to meet the Secretary's Standards.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

Alternative C proposes the replacement of the existing, north and south piers with two piers oriented in similar directions to the existing configuration and replacing the fixed main pier with a floating barge system. The north and south finger piers would have treated timber decks. Timber fence wave attenuator systems would be attached to the piers. The gangways would be attached to the mainland behind the seawall rather than attaching to the seawall and care would be taken to protect the seawall during construction. The new pier facility would be made out of compatible materials and retain integrity of location with the historic pier, however, the fact that there would not be a large fixed pier, means that the feeling and association of the pier as a working pier would be lost and that the integrity of the NHL's setting would be diminished. Replacing the existing, non-contributing pier with the alternative C design, would not meet the Secretary's Standards and which would retain the integrity of feeling, association and setting of the Fort Warren NHL would have long-term moderate adverse impact on the Fort Warren NHL.

Cumulative Impacts

Past present and reasonably foreseeable future actions with the potential to affect the Fort Warren NHL are the same as those described for Alternative A. Alternative C would contribute a noticeable, long-term, adverse increment to the overall site-specific long-term beneficial impact of the cumulative impact scenario. Despite the adverse increment contributed by the project, the cumulative impact would still be beneficial.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative C would have an Adverse Effect on the Fort Warren NHL because it would be compromise the integrity of setting, design, association and feeling of the NHL's setting and would not meet the Secretary's Standards. A Memorandum of Agreement executed by NPS, DCR, SHPO and the Advisory Council on Historic Preservation would need to be developed to mitigate the adverse effect.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

Alternative D proposes the replacement of the existing, north and south piers with two fixed piers and associated floating docks. A large fixed pier with a broad angled face and timber decking would be located in the approximate location of the existing main fixed pier. It would have a smaller angled pier leading off of its harbor-side face. The other pier would angle out from the southern corner of the seawall and turn toward the southwest. Both piers would support floating dock systems and timber fence wave attenuator systems. The large, main pier would retain the feeling of a massive dock, and its associations with a working rather than pleasure dock. People seeing the dock from the ocean or experiencing the arrival on the island would be able to recognize historic uses that the fixed pier would have supported, such as the loading and offloading of troops and materials. The piers would abut the seawall rather than attaching to and care would be taken to protect the seawall during construction. The existing pier facility is not a contributing element of the NHL. Replacing it with Alternative D, a new pier designed to meet the Secretary's Standards and which would retain the integrity of feeling, association and setting of the Fort Warren NHL would have long-term beneficial impact on the Fort Warren NHL.

Cumulative Impacts

Past present and reasonably foreseeable future actions with the potential to affect the Fort Warren NHL are the same as those described for Alternative A. Alternative D would provide a beneficial increment to the overall site-specific long-term beneficial impact of the cumulative impact scenario.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative D would have No Adverse Effect on the Fort Warren NHL because it would be designed to meet the Secretary's Standards.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

Alternative E is a variation of alternative D in which the main fixed pier would be replaced with a large rectangular timber-decked fixed pier. In this scenario, the pleasure versus passenger boat basin locations and associated floating docking systems are switched but the other elements remain the same as for alternative D. The large, fixed main pier would retain the feeling of a massive dock, and its associations with a working rather than pleasure dock. People seeing the pier from the ocean or experiencing the arrival on the island would be able to recognize historic uses that the fixed pier would have supported, such as the loading and offloading of troops and materials. The piers would abut the seawall rather than attaching to it and care would be taken to protect the seawall during construction. The existing pier facility is not a contributing element of the NHL. Replacing it with Alternative E, a new pier designed to meet the Secretary's Standards and which would retain the integrity of feeling, association and setting of the Fort Warren NHL would have long-term beneficial impact on the Fort Warren NHL.

Cumulative Impacts

Past present and reasonably foreseeable future actions with the potential to affect the Fort Warren NHL are the same as those described for Alternative A. Alternative E would provide a beneficial increment to the overall site-specific long-term beneficial impact of the cumulative impact scenario.

Section 106 Summary

In accordance with Section 106 of the NHPA, the pier replacement proposed in alternative E would have No Adverse Effect on the Fort Warren NHL because it would be designed to meet the Secretary's Standards.

Conclusions and Findings on Impairment for Fort Warren NHL

Alternative A

The no-action alternative would not alter the pier, and there would be no changes to the overall setting, association or feeling of the Fort Warren NHL, therefore there would be no impacts to Fort Warren NHL.

The no-action alternative would not result in impairment of Fort Warren NHL because no work would be done and there would be no changes to the overall setting, association or feeling of the Fort Warren NHL.

Alternative B

Alternative B would replace the existing pier facility, which is not a contributing element of the NHL, with a newly designed pier facility designed to meet the Secretary's Standards. The new pier facility

would not have the same regular maintenance requirements that the existing, deteriorating pier facility has and would therefore have a long-term beneficial impact to Fort Warren NHL.

Alternative B would not result in impairment of Fort Warren NHL because the new pier facility would retain the integrity of feeling, association and setting of the NHL.

Alternative C

Alternative C would have long-term, moderate adverse impacts to Fort Warren NHL because the design of the new pier facility would compromise the integrity of the NHL's setting, feel and association and would not meet the Secretary's Standards.

Alternative C would not result in impairment of the Boston Harbor Islands national park area because the integrity of setting at Fort Warren NHL would be only slightly diminished. The impact would also be mitigated through the development and implementation of an MOA.

Alternative D

Alternative D would have long-term, beneficial impacts to Fort Warren NHL because the design of the new pier facility would meet the Secretary's Standards and retain the feeling of association, setting and feeling of the NHL's setting.

Alternative D would not result in impairment of the Boston Harbor Islands national park area because the impacts to Fort Warren NHL would not diminish the overall integrity of the NHL.

Alternative E

Alternative E would have long-term, beneficial impacts to Fort Warren HNL because the design of the new pier facility would meet the Secretary's Standards and would retain the feeling of association, setting and feeling of the NHL's setting.

Alternative E would not result in impairment of Boston Harbor Islands, national park area, because the impacts to Fort Warren NHL would not diminish the overall integrity of the NHL.

ESSENTIAL FISH HABITAT

Affected Environment

The pier is located on the western side of Georges Island, which sits in The Narrows of Boston Harbor. The harbor is a more than 50-square-mile estuary, whose upland inflow is derived from eight primary watersheds: Quincy Bay, Inner Harbor, Winthrop Bay, Mystic River, Charles River, Neponset River, Weymouth River, and Weir River (Flora 2002). The mean tidal range at the National Oceanic Atmospheric Administration-Boston tide gage is 2.9 meters (Bell et al. 2004). The majority of Boston Harbor is relatively shallow, less than 15 meters in depth according to bathymetry maps, with one maintained channel deeper than 15 meters, located to the north of Spectacle and Long Island, known as President Roads.

The substrate in the vicinity of the pier is characterized as large-grained, coarse sand/gravel, with water depths up to 10 meters. Due to the developed nature of the island and the shore area surrounding the pier, benthic assemblages in the vicinity of the pier were classified as having biota covering less than 30% of the substrate and the remainder consisting of bare substrate (Bell et al. 2004). No assemblages of eelgrass have been identified in previous studies or site visits within the project area as the basin depth at the existing pier has fluctuated in response to storm events (DCR pilots, pers. comm. March, 2009).

The New England Fishery Management Council manages fishery resources within the exclusive economic zone (200-mile) limit off the coast of New England. The council, established by the Magnuson-Stevens Fishery Conservation and Management Act, has identified EFH for the geographic 10-minute block that includes Georges Island. The fish species that are known to occur in this block are listed in table 3.

A complete fishery survey for Boston Harbor was not available, although the Massachusetts Water Resource Authority has monitored winter flounder, lobster, and mussels since 1995. The annual reports submitted by Massachusetts Water Resource Authority detail the importance of winter flounder as an indicator species for water quality in the harbor, which has improved as a result of new treatment facilities and a decrease in combined sewer overflow systems that discharge directly into the waters surrounding Boston Harbor.

Data from New England Fishery Management Council regarding the habitat requirements of various species and life stages was used to screen the species listed in table 3 and to remove those for which the project area does not provide suitable habitat. Larval and juvenile stages of Atlantic cod; egg and larval stages of haddock; the egg stage of Pollock; all life stages of whiting, yellowtail flounder, American plaice, and Atlantic sea herring; juvenile and adult stages of Atlantic halibut and adult red hake were dismissed from further evaluation due to the depth of water in the vicinity of the pier facility (from the shore out to approximately 10 meters). These species and their life history stages were excluded because they are generally found in waters greater than 10 meters in depth and, as such, the pier area does not constitute EFH for these particular species. In addition, any impacts would be localized and would not extend to substantially deeper waters. The following species/life stages prefer habitats with a mud or fine-grained sand substrate, which is not found in the project area: Ocean pout (juveniles and adults), red hake (juvenile and adults), and white hake (all life stages). Based on the habitat present in the project area and the habitat preferences/requirements of the species and life stages listed above, the pier area does not constitute EFH for these species/life stages and an associated impact assessment is not warranted.

Table 4: Essential Fish Habitat Species Identified in Boston Harbor

Common Name	Latin Name	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Atlantic Cod	<i>Gadus morhua</i>	S	S	M, S	M, S	S
Haddock	<i>Melanogrammus aeglefinus</i>	S	S			
Pollock	<i>Pollachius virens</i>	S	S	M, S		
Whiting	<i>Merluccius bilinearis</i>	S	S	M, S	M, S	
Red Hake	<i>Urophycis chuss</i>		S	S	S	
White Hake	<i>Urophycis tenuis</i>	S	S	S	S	
Winter Flounder	<i>Pleuronectes americanus</i>	M, S	M, S	M, S	M, S	M, S
Yellowtail Flounder	<i>Pleuronectes ferruginea</i>	S	S	S	S	S
Windowpane Flounder	<i>Scopthalmus aquosus</i>	M, S	M, S	M, S	M, S	M, S
American Plaice	<i>Hippoglossoides platessoides</i>	S	S	S	S	S
Ocean Pout	<i>Macrozoarces americanus</i>			S	S	
Atlantic Halibut	<i>Hippoglossus hippoglossus</i>	S	S	S	S	S
Atlantic Sea Herring	<i>Clupea harengus</i>		S	M, S	M, S	
Bluefish	<i>Pomatomus saltatrix</i>			M, S	M, S	
Atlantic Butterfish	<i>Peprilus triacanthus</i>	S	S			
Atlantic Mackerel	<i>Scomber scombrus</i>	M, S	M, S	M, S	M, S	

S = The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0%).

M = The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0%).

Although most life stages of the windowpane flounder are either primarily pelagic (living in the open ocean) or prefer bottom habitats with mud or fine-grained sand, there may be a variety of seasonal and geographic variability in habitat preferences for this species; therefore, potential project impacts to this species have been evaluated. Other managed species, such as the Atlantic mackerel which is primarily pelagic, may be infrequent or absent from the potential project area, but cannot be excluded from evaluation without further studies of fish species in the vicinity of Georges Island. It is anticipated that mitigation measures would be put into place during construction of the new pier would reduce the likelihood of potential impact, and hence extensive fish surveys would not be needed for further evaluation.

Table 5 lists the managed fish species that were retained for evaluation for the pier improvement project. The checked boxes indicate life history stages that could not be dismissed from evaluation.

Table 5: Essential Fish Habitat Species of Concern and Life Stages in the Vicinity of Georges Island

Common Name	Latin Name	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Atlantic Cod	<i>Gadus morhua</i>	✓			✓	✓
Pollock	<i>Pollachius virens</i>		✓	✓		
Red Hake	<i>Urophycis chuss</i>		✓			
Winter Flounder	<i>Pleuronectes americanus</i>	✓	✓	✓	✓	✓

Common Name	Latin Name	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Windowpane Flounder	<i>Scopthalmus aquosus</i>	✓	✓	✓	✓	✓
Ocean Pout	<i>Macrozoarces americanus</i>			✓	✓	
Atlantic Halibut	<i>Hippoglossus hippoglossus</i>	✓	✓			✓
Bluefish	<i>Pomatomus saltatrix</i>			✓	✓	
Atlantic Butterfish	<i>Peprilus triacanthus</i>	✓	✓			
Atlantic Mackerel	<i>Scomber scombrus</i>	✓		✓	✓	

Source: New England Fishery Management Council EFH Amendment, October 7, 1998

Study Area

The study area for EFH is the waters in Boston Harbor surrounding the pier facility, including the intertidal and subtidal waters to a depth of approximately 10 meters.

Thresholds

Negligible – The action could result in a change to designated EFH, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor – The action could result in a change to designated EFH. The change would be measurable, but small and localized and not outside the range of natural variability.

Moderate – The action could result in a change to designated EFH. The change would be measurable, would occur for a short period or be temporary, and would be outside the range of natural variability. Mitigation would likely be extensive though largely successful.

Major – The action could result in a change to designated EFH. The change would be measurable, would occur over a large area, and would be outside the range of natural variability. Mitigation measures would be extensive with no guarantee of success.

Duration – Short-term impacts would occur during the two construction seasons. Long-term impacts would extend beyond the construction duration.

Impacts of Alternative A: The No-Action Alternative

Impacts

Continuing operation and maintenance activities associated with the current pier would have negligible to minor impact on EFH because maintenance activities would create minimal disturbance in the water. Existing conditions would remain the same because no construction activity would take place, however, piecemeal replacement of individual rotting piles would occur to keep the pier facility open and operational. Therefore, negligible to minor adverse impacts are expected.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect EFH include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect EFH by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on EFH,

as the components of these projects would take place upland from the shoreline and are required to install erosion and sedimentation control devices to meet stormwater regulations. The impacts on EFH would be negligible in combination with the impacts from alternative A.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Activities under alternative B that would potentially impact EFH for managed fish species listed in table 4 includes demolition of the current pier superstructure, removing the existing wood piles, driving new steel piles, and placement of the new pier superstructure. No dredging is planned for alternative B. For activities that would occur in the water, staging would be expected to take place on barges. The total in-water construction area for the project would be approximately 5 acres. However, as the construction would be completed in stages, only a portion of the construction area would be impacted during each stage.

Removing existing piles and driving piles for the new pier may temporarily increase turbidity, resulting in short-term impacts to EFH. The existing pier described in Alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 254 piles, a 67% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid impact. Time of year restrictions would eliminate direct impact to egg and larval stages. Turbidity related impacts to fish include direct impacts, such as clogging of gills, and indirect impacts, such as reduction in light penetration resulting in reduction in phytoplankton growth and potential alteration of benthic habitats (Johnson et al. 2008). Staging of equipment on barges is also likely to reduce light penetration in areas outside of the existing footprint of the current pier. Following the completion of in water activities, turbidity levels are expected to return to normal as any impacted sediment settles out of the water column.

Noise generated during pile driving and removal would create a repeated sound disturbance, resulting in localized, short-term impacts to fish species. The size and material of the piles, as well as the method for driving are all factors that affect the type and intensity of sound waves generated by the activity (Johnson et al. 2008).

Appropriate mitigation measures would be employed during construction based on NMFS recommendations set forth in Technical Memorandum NMFS NE 209, *Impacts to Marine Fisheries Habitat from Nonfishing Activities in the Northeastern United States*. Work in water is expected to take place from October 15 through January 15 in order to minimize impacts to EFH from construction activities. Additional mitigation would include use of a siltation curtain surrounding the work zone to limit the impact of turbidity outside of the work zone. If necessary during pile driving activities, mitigation measures such as air bubble curtains, fabric sleeves around piles, or similar mitigation measures could also be used to reduce the impact of pressure waves. Specific mitigation measures would be developed during the permitting process through coordination with appropriate resource agencies, such as National Oceanic Atmospheric Administration Fisheries, the Massachusetts Division of Marine Fisheries, and the U.S. Fish and Wildlife Service. Implementation of alternative B would result in short-term adverse impacts on EFH as a result of construction. Impacts would only be minor with the implementation of mitigation measures.

Alternative B would also result in long-term impacts to EFH. The replacement of pier decking would cause indirect impacts to EFH (e.g., by shading or changes in benthic communities used for feeding). Though the area of the fixed pier would be reduced compared to the existing pier as part of this project,

the addition of floating docks in this alternative would permanently increase shading due to slightly larger (2.5%) combined dock area, which would impact the benthic communities below. Despite this slight increase, permanent impacts are expected to be negligible and may be offset by the reduction in the number of permanent piles.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect EFH include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect EFH by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on EFH because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on EFH would be short-term, minor, adverse in combination with the impacts from alternative B.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

The EFH impacts associated with this alternative would be very similar, both quantitatively and qualitatively, to those associated with alternative B.

Removing existing piles and driving piles for the new pier in this alternative may also temporarily increase turbidity, resulting in short-term adverse impacts to EFH. However, the existing pier described in alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 208 piles, a 73% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal. With implementation of the same mitigation measures described for alternative B, the adverse impacts to EFH as a result of construction activities under alternative C are expected to be minor and short-term.

Alternative C would result in long-term impacts to EFH; however, the area of the fixed pier in this alternative would be reduced compared to the existing pier as part of this project and shading from the combined fixed pier and the floating dock area would be reduced by 6.6%, improving conditions for benthic communities and having less of an adverse impact on EFH.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect EFH include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect EFH by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on EFH because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on EFH would be short-term, minor, adverse in combination with the impacts from alternative C.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

The EFH impacts associated with this alternative would be very similar, both quantitatively and qualitatively, to those associated with alternative B.

Removing existing piles and driving piles for the new pier in this alternative may also temporarily increase turbidity, resulting in short-term impacts to EFH. However, the existing pier described in alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 404 piles, a 47% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal. With implementation of the same mitigation measures described for alternative B, the adverse impacts to EFH as a result of construction activities under alternative D are expected to be minor and short-term.

Under alternative D, the area of the fixed pier would be reduced compared to the existing pier; however, the addition of the floating docks would permanently increase shading due to a larger (34%) combined dock area, which could affect the benthic communities below. The increased shading under alternative D would be a permanent, minor adverse impact to EFH. This adverse impact may be offset somewhat by the reduction in the number of permanent piles.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect EFH include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect EFH by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on EFH because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on EFH would be short-term, minor, adverse in combination with the impacts from alternative D.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

The EFH impacts associated with this alternative would be very similar, both quantitatively and qualitatively, to those associated with alternative B.

Removing existing piles and driving piles for the new pier in this alternative may also temporarily increase turbidity, resulting in short-term impacts to EFH. However, the existing pier described in alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 350 piles, a 54% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal. With implementation of the same mitigation measures as described for

alternative B, the adverse impacts to EFH as a result of construction activities under alternative E are expected to be minor and short-term.

Under alternative E, the area of the fixed pier would be reduced compared to the existing pier; however, the addition of the floating docks would permanently increase shading due to a larger (38%) combined dock area, which could affect the benthic communities below. The increased shading under alternative E would be a permanent, minor adverse impact to EFH. This impact may be offset somewhat by the reduction in the number of permanent piles.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect EFH include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect EFH by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on EFH because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on EFH would be short-term, minor, adverse in combination with the impacts from alternative E.

Conclusions and Findings on Impairment for Essential Fish Habitat

Alternative A

No construction would take place with Alternative A. Piecemeal replacement of rotting piles would be necessary to keep the pier facility open and operational therefore Alternative A would have negligible to minor adverse impacts on EFH.

The no-action alternative would not result in impairment of EFH because ongoing operational and maintenance activities associated with the current pier, including occasional replacement of piles, create minimal disturbance in the water and do not cause the loss of EFH or interfere in the use of EFH by managed fish species.

Alternative B

Alternative B would have short-term, minor, adverse impacts on EFH due to construction, including generation of noise and temporary increase in turbidity during removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Though the area of the fixed pier would be reduced compared to the existing pier, the addition of the floating docks in Alternative B would permanently increase shading due to slightly larger (2.5%) combined dock area, which would impact the benthic communities below.

Alternative B would not result in impairment of EFH because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures; in addition, the area of permanent shading would be only slightly larger than the existing dock surface area, and the adverse impact may be offset somewhat by the reduction in the number of permanent piles.

Alternative C

Alternative C would have short-term, minor, adverse impacts on EFH due to construction, including generation of noise and temporary increase in turbidity during removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

The area of the fixed pier would be reduced compared to the existing pier as part of this project and permanent shading from the combined fixed pier and the floating dock area would also be reduced by 6.6%, improving conditions for benthic communities and having less of an adverse impact on EFH.

Alternative C would not result in impairment of EFH because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures; further, this alternative would improve conditions for benthic communities as a result of reducing the number of permanent piles and decreased shading from the smaller total dock surface area.

Alternative D

Alternative D would have short-term, minor, adverse impacts on EFH due to construction, including generation of noise and temporary increase in turbidity during removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Though the area of the fixed pier would be reduced compared to the existing pier as part of this project, the addition of the floating docks in this alternative would permanently increase shading due to a larger (34%) combined dock area, which could affect the benthic communities below.

Alternative D would not result in impairment of EFH because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures, and while the increase in permanent shading may affect more of the benthic communities, it would not be to the extent that the habitat becomes unsuitable for managed fish species; in addition, the effects of increased permanent shading may be offset somewhat by the reduction in the number of permanent piles.

Alternative E

Alternative E would have short-term, minor, adverse impacts on EFH due to construction, including generation of noise and temporary increase in turbidity during removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Adult and juvenile fish are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Though the area of the fixed pier would be reduced compared to the existing pier as part of this project, the addition of the floating docks in this alternative would permanently increase shading due to a larger (38%) combined dock area, which could affect the benthic communities below.

Alternative E would not result in impairment of EFH because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures, and while the increase in permanent shading may affect more of the benthic communities, it would not be to the extent that the

habitat becomes unsuitable for managed fish species; in addition, the effects of increased permanent shading may be offset somewhat by the reduction in the number of permanent piles.

SPECIAL STATUS SPECIES

Affected Environment

Informal consultation with U.S. Fish and Wildlife Service and NMFS indicates three listed species of sea turtle may be found in Massachusetts waters: Kemp's ridley (*Lepidochelys kempii*), loggerhead (*Caretta caretta*), and leatherback (*Dermochelys coriacea*). According to NMFS, the Kemp's ridley and loggerhead are typically present in the area between June and November, while the leatherback, a predominately pelagic species, is located in the area during the warmer months. No surveys have been conducted, but suitable habitat exists for these turtles in Massachusetts, and hence individuals may occasionally be found near the project site.

Consultation with the Massachusetts Natural Heritage and Endangered Species Program (NHESP) has identified the Least Tern (*Sternula antillarum*), a state species of special concern, in the project area. A Least Tern nesting colony has been identified on Lovells Island, which is a short distance from Georges. Surveys counted 154 nests on the island in 2007, but no nests were found during surveys in 2008 or 2009 (Trocki and Paton 2007) (M. Albert. pers.comm.). Rainsford Island, slightly farther away from Georges Island, has historically also been colonized by Least Tern, but surveys have identified no nests in 2007-2009 (M. Albert, pers. comm.). Least Terns arrive in Massachusetts in early-May and leave by early-September to winter in Central and South America (NHESP 2008). While the birds are not known to nest on Georges Island, they forage in open water throughout the Boston Harbor Islands, and it is safe to assume this includes waters off Georges Island.

Table 6: Special Status Species

Common Name (Scientific Name)	Status	Documented in Project Area?	Potential Presence in Project Area
Kemp's Ridley Sea Turtle (<i>Lepidochelys kempii</i>)	FE	No	Low
Loggerhead Sea Turtle (<i>Caretta caretta</i>)	FT	No	Low
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)	FE	No	Low – Leatherback sea turtles may be found in Massachusetts during the warmer months, sporadically occurring close to shore while hunting jellyfish.
Least Tern (<i>Sternula antillarum</i>)	Special Concern	No	Low – Generally arrive in the northeast in May and depart in August; 2007 survey identified nesting colony on Lovell's Island
FE=Federally Endangered, FT=Federally Threatened			

Study Area

The study area for federal- or state-listed species is the waters in Boston Harbor surrounding the pier facility, including the intertidal and subtidal waters, and the area adjacent to and immediately upland to the existing seawall.

Thresholds

Negligible – The action could result in a change to a population or individuals of a species, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor – The action could result in a change to a population or individuals of a species. The change would be measurable, but small and localized and not outside the range of natural variability. If mitigation were needed to offset adverse effects, it would be relatively simple and successful.

Moderate – The action could result in a change to a population or individuals of a species. The change would be measurable, occur over a large area, and be outside the range of natural variability. Mitigation would likely be extensive though largely successful.

Major – The action could result in a change to a population or individuals of a species. The change would be measurable, would occur over a large area, and would be outside the range of natural variability. Mitigation measures would be extensive with no guarantee of success.

Duration – Short term impacts would occur during the two construction seasons. Long-term impacts would extend beyond the construction duration.

Impacts of Alternative A: The No-Action Alternative

Impacts

Existing conditions would remain the same as no construction activity would take place, and hence no measureable change would occur outside of natural variability. Ongoing operation and maintenance activities associated with the current pier would have a negligible adverse impact on special status species.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect special status species include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect special status species by increasing erosion. The impacts of the rehabilitation of the seawall by DCR would have no direct impact on special status species, as the components of these projects take place upland from the shoreline and are required to install erosion and sedimentation control devices to meet stormwater regulations. The impacts of other projects added to the negligible impacts of the no-action alternative would result in short-term negligible adverse impacts.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Activities under alternative B that would potentially impact special status species listed in table 5 includes demolition of the current pier superstructure, removing the existing wood piles, driving new steel piles, and placement of the new pier superstructure. No dredging is planned for alternative B. For activities that would occur in the water, staging would be expected to take place on barges. It is unlikely, based on the preliminary construction phasing schedule provided by DCR, any Least Terns would be in the project area based on their migration. This species is considered to be generally rare in the project area and is mobile, and potential impacts would be short-term, negligible, and adverse (M. Albert, pers.comm.).

Alternative B would temporarily increase turbidity during the removal and placement of piles. The existing pier described in Alternative A has 759 piles, and the fixed pier described in alternative B would have an estimated 253 piles, a 67% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area, resulting in potential short-term impacts to special status species. Adult and juvenile turtles are mobile and would be expected to vacate the area to avoid impact. Turbidity related impacts to turtles include indirect impacts, such as reduction in

light penetration resulting in reduction in phytoplankton growth and potential alteration of benthic habitats (Johnson et al. 2008). Staging of equipment on barges is also likely to reduce light penetration in areas outside of the existing footprint of the current pier. Following the completion of work in water activities, turbidity levels are expected to return to normal as any impacted sediment settles out of the water column.

Noise generated during pile driving and removal would create a repeated sound disturbance, resulting in localized, short-term impacts to turtle species. The size and material of the piles, as well as the method for driving are all factors that affect the type and intensity of sound waves generated by the activity (Johnson et al. 2008).

Appropriate mitigation measures that would be employed for EFH based on NMFS recommendations set forth in Technical Memorandum NMFS NE 209, *Impacts to Marine Fisheries Habitat from Nonfishing Activities in the Northeastern United States*, would also be appropriate to minimize impacts to special status species during construction. Work in water is expected to take place from October 15 through January 15 in order to minimize impacts to special status species, which are more prevalent during the summer months. Additional mitigation would include use of a siltation curtain surrounding the work zone to limit the impact of turbidity outside of the work zone. If necessary during pile driving activities, mitigation measures such as air bubble curtains, fabric sleeves around piles, or similar mitigation measures could also be used to reduce the impact of pressure waves. Specific mitigation measures would be developed during the permitting process through coordination with appropriate resource agencies, such as National Oceanic Atmospheric Administration Fisheries and the U.S. Fish and Wildlife Service. Implementation of alternative B would result in short-term adverse impacts on special status species as a result of construction. Impacts would only be minor with the implementation of mitigation measures.

Alternative B would also result in long-term impacts to special status species. Though the area of the fixed pier would be reduced compared to the existing pier as part of this project, the addition of the floating docks in alternative B would permanently increase shading due to slightly larger (2.5%) combined dock area, which may have indirect impacts to turtles as a result of changes in benthic communities. The permanent adverse impacts are expected to be negligible and may be offset by the reduction in the number of permanent piles.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect special status species include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect special status species by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on special status species because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on special status species would be short-term, negligible to minor, adverse in combination with the impacts from alternative B.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

The special status species impacts associated with this alternative would be very similar, both quantitatively and qualitatively, to those associated with alternative B.

Alternative C would also temporarily increase turbidity during the removal and placement of piles. However, the existing pier described in alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 208 piles, a 73% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area, resulting in potential short-term impacts to special status species. Adult and juvenile turtles are mobile and would be expected to vacate the area to avoid impact. Turbidity related impacts to turtles include indirect impacts, such as reduction in light penetration resulting in reduction in phytoplankton growth and potential alteration of benthic habitats (Johnson et al. 2008). Staging of equipment on barges is also likely to reduce light penetration in areas outside of the existing footprint of the current pier. Following the completion of work in water activities, turbidity levels are expected to return to normal as any impacted sediment settles out of the water column. With implementation of the same mitigation measures described for alternative B, the adverse impacts to special status species as a result of construction activities under alternative C are expected to be minor and short-term.

Alternative C would result in long-term impacts to special status species; however, the area of the fixed pier would be reduced compared to the existing pier as part of this project and shading from the combined fixed pier and the floating dock area would also be reduced by 6.6% improving conditions for benthic communities and having less of an adverse impact on special status species.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect special status species include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect special status species by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on special status species because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on special status species would be short-term, minor, adverse impacts in combination with the impacts from alternative C.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

The special status species impacts associated with this alternative would be very similar, both quantitatively and qualitatively, to those associated with alternative B.

Alternative D would also temporarily increase turbidity during the removal and placement of piles. However, the existing pier described in alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 404 piles, a 47% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area, resulting in potential short-term impacts to special status species. Adult and juvenile turtles are mobile and would be expected to vacate the area to avoid impact. Turbidity related impacts to turtles include indirect impacts, such as reduction in light penetration resulting in reduction in phytoplankton growth and potential alteration of benthic habitats (Johnson et al. 2008). Staging of equipment on barges is also likely to reduce light penetration in areas outside of the existing footprint of the current pier. Following the completion of work in water activities, turbidity levels are expected to return to normal as any impacted sediment settles out of the water column. With implementation of the same mitigation measures described for alternative B, the adverse impacts to special status species as a result of construction activities under alternative D are expected to be minor and short-term.

Under alternative D, the area of the fixed pier would be reduced compared to the existing pier; however, the addition of the floating docks in this alternative would permanently increase shading due to larger (34%) combined dock area which may result in indirect impacts to turtles due to changes in benthic communities. These impacts are expected to be minor and may be offset somewhat by the reduction in the number of permanent piles.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect special status species include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect special status species by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on special status species because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices would be required to meet stormwater regulations. The cumulative impacts on special status species would be short-term, minor, adverse impacts in combination with the impacts from alternative D.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

Alternative E would also temporarily increase turbidity during the removal and placement of piles. However, the existing pier described in alternative A has 759 piles, and the fixed pier described in this alternative would have an estimated 350 piles, a 54% reduction in piles. The removal of the excess piles and the placement of new piles would temporarily increase turbidity in the project area, resulting in potential short-term impacts to special status species. Adult and juvenile turtles are mobile and would be expected to vacate the area to avoid impact. Turbidity related impacts to turtles include indirect impacts, such as reduction in light penetration resulting in reduction in phytoplankton growth and potential alteration of benthic habitats (Johnson et al. 2008). Staging of equipment on barges is also likely to reduce light penetration in areas outside of the existing footprint of the current pier. Following the completion of work in water activities, turbidity levels are expected to return to normal as any impacted sediment settles out of the water column. With implementation of the same mitigation measures described for alternative B, the adverse impacts to special status species as a result of construction activities under alternative E are expected to be minor and short-term.

Under alternative E, the area of the fixed pier would be reduced compared to the existing pier; however, the addition of the floating docks in this alternative would permanently increase shading due to larger (38%) combined dock area which may result in indirect impacts to turtles due to changes in benthic communities. These impacts are expected to be minor and may be offset somewhat by the reduction in the number of permanent piles.

Cumulative Impacts

Past, present and reasonably foreseeable future actions with the potential to affect special status species include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect special status species by increasing erosion. The impacts of the building projects taking place on the mainland of Georges Island, including the rehabilitation of the seawall by DCR, would have no direct impact on special status species because the components of these projects would take place upland from the shoreline and the installation of erosion and sedimentation control devices

would be required to meet stormwater regulations. The cumulative impacts on special status species would be short-term, minor, adverse impacts in combination with the impacts from alternative E.

Conclusions and Findings on Impairment for Special Status Species

Alternative A

No construction would take place with Alternative A. Piecemeal replacement of rotting piles would be necessary to keep the pier facility open and operational therefore Alternative A would have negligible adverse impacts on special status species.

The no-action alternative would not result in impairment of special status species because ongoing operational and maintenance activities associated with the current pier, including occasional replacement of piles, create minimal disturbance in the water and do not cause loss of existing habitat used by special status species or interfere in the use of the area by special status species.

Alternative B

Alternative B would have short-term, negligible to minor, adverse impacts on special status species due to construction, including generation of noise and temporary increase in turbidity due to removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Least Terns are unlikely to be in the project area during construction because of phasing restrictions. Adult and juvenile turtle are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Alternative B would result in permanent adverse impacts to special status species as a result of increased shading due to a slightly larger (2.5%) combined dock area. The permanent adverse impacts are expected to be negligible.

Alternative B would not result in impairment of special status species because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures; in addition, the area of permanent shading would be only slightly larger than the existing dock surface area and some of the adverse impact may be offset by the reduction in the number of permanent piles.

Alternative C

Alternative C would have short-term, negligible to minor, adverse impacts on special status species due to construction, including generation of noise and temporary increase in turbidity during removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Least Terns are unlikely to be in the project area during construction because of phasing restrictions. Adult and juvenile turtle are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Alternative C would reduce the number of permanent piles and reduce the amount of shading due to dock surface area by 6.6%, improving conditions for benthic communities and resulting in less permanent adverse impact on special status species.

Alternative C would not result in impairment of special status species because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures;

further, this alternative would improve conditions for benthic communities as a result of reducing the number of permanent piles and decreased shading from the smaller total dock surface area, which is expected to benefit special status species.

Alternative D

Alternative D would have short-term, negligible to minor, adverse impacts on special status species due to construction, including generation of noise and temporary increase in turbidity due to removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Least Terns are unlikely to be in the project area during construction because of phasing restrictions. Adult and juvenile turtle are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Alternative D would also result in permanent adverse impacts as a result of the increase in shading due to a larger (34%) combined dock area but may also result in some improvement in conditions for benthic communities through the reduction in the number of permanent piles.

Alternative D would not result in impairment of special status species because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures, and while the increase in permanent shading may affect more of the benthic communities, it would not be to the extent that the habitat becomes unsuitable for special status species; in addition, the effects of increased permanent shading may be offset somewhat by the reduction in the number of permanent piles.

Alternative E

Alternative E would have short-term, negligible to minor, adverse impacts on special status species due to construction, including generation of noise and temporary increase in turbidity due to removal and replacement of piles. These impacts would be minimized through the implementation of mitigation measures such as time-of year construction restriction and the use of a siltation curtain surrounding the immediate work zone in the water. Least Terns are unlikely to be in the project area during construction because of phasing restrictions. Adult and juvenile turtle are highly mobile and would be expected to vacate the area to avoid these impacts and return to the area once turbidity and noise conditions return to normal.

Alternative E would also result in permanent adverse impacts as a result of the increase the shading due to a larger (38%) combined dock area but may also result in some improvement in conditions for benthic communities through the reduction in the number of permanent piles.

Alternative E would not result in impairment of special status species because increased turbidity and noise would be temporary and would be minimized by the use of appropriate mitigation measures, and while the increase in permanent shading may affect more of the benthic communities, it would not be to the extent that the habitat becomes unsuitable for special status species; in addition, the effects of increased permanent shading may be offset somewhat by the reduction in the number of permanent piles.

HEALTH AND SAFETY

Affected Environment

The pier at Georges Island is almost 50 years old, and has suffered significant deterioration. Damage from corrosion of hardware, marine borers, wind, and constant wave action were identified in technical studies in 1997, 1998, 2001, 2002, and 2007. According to the Conditions Survey and Report for Georges Island Piers (2007) from Bourne Consulting Engineering (Bourne Study), the piers were considered in sufficiently poor condition that emergency repairs were necessary and were subsequently conducted. The repairs represented a short-term solution, and replacement of the pier facility is still necessary. Two vertical load bearing piles on the north finger pier outshore of the float gangway were broken at low water. Most batter piles were non-functional due to one or more of the following: rot at the top of piles, missing block at the top of the piles, or failed hardware. The south finger pier was closed to the public following the inspection in 2007 due to immediate safety concerns and remains closed. Even with repairs in place, the main pier also suffers from substantial deterioration.

Currently, the south finger pier is closed to the public. DCR has instituted queuing restrictions on the main pier, which is used to load and offload ferry passengers to the island, in response to recent inspections of the facility. The main concern relating to health and safety is the long-term viability of the facility, and how that could affect staff and visitors.

Study Area

The study area for health and safety encompasses the pier facility on Georges Island.

Thresholds

Negligible – Health and safety would not be impacted or the impact would be at or below the lower levels of detection.

Minor – The impact would be detectable, but would be of a magnitude that would not have an appreciable adverse or beneficial impact on health and safety. If mitigation were needed to offset adverse impacts, it would be relatively simple and successful.

Moderate – The impact would be readily apparent and would result in a substantial adverse or beneficial change in health and safety. Mitigation measures would probably be necessary to offset adverse impacts and would likely be successful.

Major – The impact would be readily apparent and would result in a substantial adverse or beneficial change in health and safety. Mitigation measures to offset adverse impacts would be needed, could be expensive, and their success could not be guaranteed.

Duration – Short-term impacts would occur during the two construction seasons. Long-term impacts would extend beyond the construction duration.

Impacts of Alternative A: The No-Action Alternative

Impacts

Under alternative A, continuing operation and maintenance activities would continue to keep the pier operational as long as possible. Given the current condition of the pier and the ongoing deterioration, the viability of the pier to support the loading and unloading of passengers, workers and equipment, declines over time. DCR policy is for passenger queuing to only occur on the island and not on the pier. DCR staff continues to monitor the safety and operational status of the pier on a daily basis and periodic inspections

are conducted to monitor the structural integrity of the facility. As such, long-term, moderate, adverse impacts would result under alternative A.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect health and safety include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect health and safety by increasing use of the deteriorated pier facility. Construction of facilities upland from the pier at Georges Island could lead to short-term increases in use of the pier facility. Due to the current deteriorated condition of the pier, it is unlikely that the pier would be used for the loading and offloading of substantive materials and equipment for construction activities. The main impact would be associated with the safety of workers accessing the island during construction. Because the pier is already being used for visitor loading and offloading, the associated impact is negligible. The cumulative impacts from alternative A would be long-term, moderate, adverse impacts.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Alternative B proposes the replacement of the existing pier facility with two piers oriented in a similar direction as the existing facility. Alternative B proposes a single basin with a floating barge system that connects to a fixed main pier and would necessitate the complete removal of the existing piers. This alternative would accommodate a greater array of vessel types, (bow loading ferries, inter-island ferries, and charter vessels), a greater quantity of vessels, and larger vessels as compared to the existing pier facility. The new pier facility would be designed to modern standards, would be ADA compliant, and limited passenger queuing is proposed for the main pier. As currently planned, an exterior pier would be constructed first and the ADA compliant floating barge system would be temporarily connected to it. At the completion of construction, the ADA compliant floating barge system would be installed in its permanent location. Visitor and employee safety would be enhanced by the new pier facility and as such, would result in long-term, beneficial impacts to health and safety.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect health and safety include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect health and safety by increasing use of the deteriorated pier facility. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative B. Construction of facilities upland from the pier at Georges Island could lead to short-term increases in use of the existing pier facility. Due to the current deteriorated condition of the pier, it is unlikely that the pier would be used for the loading and offloading of substantive materials and equipment for construction activities. The main impact would be associated with the safety of workers accessing the island during the construction. Because the pier is already being used for visitor loading and offloading, the associated impact is short-term, adverse and negligible. The cumulative impacts from alternative B would be long-term, beneficial impacts to health and safety.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

Alternative C proposes the replacement of the existing piers with two piers oriented in similar directions to the existing one. This would result in a single basin with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The new pier facility would be designed to modern standards, would be ADA compliant, and limited passenger queuing is proposed for the main pier. As currently planned, an exterior pier would be constructed first and the ADA compliant floating barge system would be temporarily connected to it. At the completion of construction, the ADA compliant floating barge system would be installed in its permanent location. Visitor and employee safety would be enhanced by the new pier facility and as such, would result in long-term, beneficial impacts to health and safety.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect health and safety include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect health and safety by increasing use of the deteriorated pier facility. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative B. Construction of facilities upland from the pier at Georges Island could lead to short-term increases in use of the existing pier facility. Due to the current deteriorated condition of the pier, it is unlikely that the pier would be used for the loading and offloading of substantive materials and equipment for construction activities. The main impact would be associated with the safety of workers accessing the island during the construction. Because the pier is already being used for visitor loading and offloading, the associated impact is short-term, adverse and negligible. The cumulative impacts from alternative C would be long-term, beneficial impacts to health and safety.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

Alternative D proposes the replacement of the existing piers with two piers oriented in similar directions to the existing one. This would result in two basins with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The new pier facility would be designed to modern standards, would be ADA compliant, and maximum passenger queuing is proposed for the main pier. As currently planned, an exterior pier would be constructed first and the ADA compliant floating barge system would be temporarily connected to it. At the completion of construction, the ADA compliant floating barge system would be installed in its permanent location. Visitor and employee safety would be enhanced by the new pier facility and as such, would result in long-term, beneficial impacts to health and safety.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect health and safety include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect health and safety by increasing use of the deteriorated pier facility. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative B. Construction of facilities upland

from the pier at Georges Island could lead to short-term increases in use of the existing pier facility. Due to the current deteriorated condition of the pier, it is unlikely that the pier would be used for the loading and offloading of substantive materials and equipment for construction activities. The main impact would be associated with the safety of workers accessing the island during the construction. Because the pier is already being used for visitor loading and offloading, the associated impact is short-term, adverse and negligible. The cumulative impacts from alternative D would be long-term, beneficial impacts to health and safety.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

Alternative E proposes the replacement of the existing piers with two piers oriented in similar directions to the existing one. This would result in two basins with a floating barge system and would require the complete removal of the existing pier. More and larger vessels could be accommodated in this configuration. The new pier facility would be designed to modern standards, would be ADA compliant, and maximum passenger queuing is proposed for the main pier. As currently planned, an exterior pier would be constructed first and the ADA compliant floating barge system would be temporarily connected to it. At the completion of construction, the ADA compliant floating barge system would be installed in its permanent location. Visitor and employee safety would be enhanced by the new pier facility and as such, would result in long-term, beneficial impacts to health and safety.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect health and safety include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect health and safety by increasing use of the deteriorated pier facility. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative B. Construction of facilities upland from the pier at Georges Island could lead to short-term increases in use of the existing pier facility. Due to the current deteriorated condition of the pier, it is unlikely that the pier would be used for the loading and offloading of substantive materials and equipment for construction activities. The main impact would be associated with the safety of workers accessing the island during the construction. Because the pier is already being used for visitor loading and offloading, the associated impact is short-term, adverse and negligible. The cumulative impacts from alternative E would be long-term, beneficial impacts to health and safety.

Conclusions for Health and Safety

Implementation of alternative A would result in long-term, moderate, adverse impacts to health and safety as a result of the ongoing deterioration of the pier facility. There would be a negligible short-term adverse impact of other projects that when added with the noticeable impacts from alternative A would make long-term, moderate, adverse cumulative impacts. Alternatives B through E would have long-term, beneficial impacts on health and safety from the replacement of the old pier facility. When combined with the short-term negligible adverse impacts of other projects, these alternatives would result in long-term, beneficial cumulative impacts.

PARK OPERATIONS AND MANAGEMENT

Affected Environment

The Georges Island pier facility is owned, operated, staffed and managed by DCR. The pier is the only means of docking at the island and serves as the water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat, and private vessel. Management of the islands is coordinated by the Boston Harbor Islands Partnership, which consists of 13 members from various government agencies and non-profit groups.

Study Area

The study area for park operations and management is the Boston Harbor Island national park area.

Thresholds

Negligible – Park operations would not be affected or the effect would be at or below the lower levels of detection, and would not have an appreciable effect on park operations.

Minor – The effect would be detectable, but would be of a magnitude that would not have an appreciable adverse or beneficial effect on park operations. If mitigation were needed to offset adverse effects, it would be relatively simple and successful.

Moderate – The effects would be readily apparent and would result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.

Major – The effects would be readily apparent and would result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed, could be expensive, and their success could not be guaranteed.

Duration – Short-term impacts would occur during the two construction seasons. Long-term impacts would extend beyond the construction duration.

Impacts of Alternative A: The No-Action Alternative

Impacts

Under alternative A, continuing operation and maintenance activities would keep the pier operational as long as possible. Given the current condition of the pier and the ongoing deterioration, the viability of the pier to function as the water transportation hub for visitors exploring the Boston Harbor Islands, declines over time. In the event the pier became unserviceable, the water transportation hub would need to be relocated to another island. In addition, the ongoing pier repairs would continue to consume a larger and larger portion of DCR's maintenance staff time and maintenance budget. As such, the impacts on park operations and management would be long-term, moderate, adverse impacts under alternative A.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect park operations and management include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect park operations and management by reducing maintenance costs associated with deteriorating structures. Construction of facilities upland from the pier at Georges Island would result in a short-term, minor, adverse impact as construction activities impact the upland facilities used by park staff and DCR to manage operations at the island, specifically at the mine storage building.

Overall, the new and updated upland building facilities and seawall would have a long-term, beneficial impact on operations, but in combination with alternative A, the benefits of the upland facilities upgrades are offset by the continued deterioration and maintenance required to keep the pier operational.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Under this alternative, the new pier facility would consist of a small fixed main pier surrounded by two longer finger piers, which would create a single sheltered basin for ferry and charter vessels. The associated floating docks would accommodate DCR vessels and recreational boats. The smaller overall size of the new facility, in addition to the use of steel piles would provide a longer life and decreased maintenance costs over the lifetime of the pier. The floating docks would require the greatest amount of yearly maintenance, as they receive the greatest wear-and-tear, and are pulled from the water at the end of the season every year. The limited amount of floating docks in this design would keep the cost of maintenance activities down for this design. Additionally, the modularity of the floating docks and their compatibility with other floating docks in the harbor would decrease the cost of labor and materials over time. These factors lead to long-term, beneficial impacts associated with this alternative.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect park operations and management include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect park operations and management by reducing maintenance costs associated with deteriorating structures. Construction of new and upgraded upland building facilities would facilitate operations and maintenance activities, which would have a long-term, beneficial impact on operations. The seawall rehabilitation would have long-term, beneficial impact on operations by decreasing time and expenses associated with maintenance. The overall cumulative impacts to park operations and management from these actions in combination with this alternative would result in long-term, beneficial impacts.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

Under this alternative, the new pier facility would consist of a floating barge system surrounded by two longer finger piers, which would create a single sheltered basin for ferry and charter vessels. The associated floating docks would accommodate DCR vessels and recreational boats. The smaller overall size of the new facility, in addition to the use of steel piles would provide a longer life and decreased maintenance costs over the lifetime of the pier. The floating docks would require the greatest amount of yearly maintenance, as they receive the greatest wear-and-tear, and are pulled from the water at the end of the season every year. The limited amount of floating docks in this design would keep the cost of maintenance activities down for this design. Additionally, the modularity of the floating docks and their compatibility with other floating docks in the harbor would decrease the cost of labor and materials over time. These factors lead to long-term, beneficial impacts associated with this alternative.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect park operations and management include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These

actions have the potential to affect park operations and management by reducing maintenance costs associated with deteriorating structures. Construction of new and upgraded upland building facilities would facilitate operations and maintenance activities, which would have a long-term, beneficial impact on operations. The seawall rehabilitation would have long-term, beneficial impact on operations by decreasing time and expenses associated with maintenance. The overall cumulative impacts to park operations and management from these actions in combination with this alternative would result in long-term, beneficial impacts.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

Under this alternative, the new pier facility would consist of an angled fixed main pier and a southern finger pier, which would create two sheltered basin for recreational vessels, ferries and charter vessels. The associated floating docks would accommodate DCR vessels and recreational boats. The smaller overall size of the new facility, in addition to the use of steel piles would provide a longer life and decreased maintenance costs over the lifetime of the pier. The floating docks would require the greatest amount of yearly maintenance, as they receive the greatest wear-and-tear, and are pulled from the water at the end of the season every year. The recreational boat marina with floating docks would require greater maintenance and subsequently greater life cycle cost for this design. The modularity of the floating docks, however, and their compatibility with other floating docks in the harbor would decrease the cost of labor and materials over time. These factors lead to long-term, beneficial impacts associated with this alternative.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect park operations and management include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect park operations and management by reducing maintenance costs associated with deteriorating structures. Construction of new and upgraded upland building facilities would facilitate operations and maintenance activities, which would have a long-term, beneficial impact on operations. The seawall rehabilitation would have long-term, beneficial impact on operations by decreasing time and expenses associated with maintenance. The overall cumulative impacts to park operations and management from these actions in combination with this alternative would result in long-term, beneficial impacts.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

Under this alternative, the new pier facility would consist of an angled fixed main pier and a southern finger pier, which would create two sheltered basin for recreational vessels, ferries and charter vessels. The associated floating docks would accommodate DCR vessels and recreational boats. The smaller overall size of the new facility, in addition to the use of steel piles would provide a longer life and decreased maintenance costs over the lifetime of the pier. The floating docks would require the greatest amount of yearly maintenance, as they receive the greatest wear-and-tear, and are pulled from the water at the end of the season every year. The recreational boat marina with floating docks would require greater maintenance and subsequently greater life cycle cost for this design. The modularity of the floating docks, however, and their compatibility with other floating docks in the harbor would decrease the cost of labor

and materials over time. These factors lead to long-term, beneficial impacts associated with this alternative.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect park operations and management include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect park operations and management by reducing maintenance costs associated with deteriorating structures. Construction of new and upgraded upland building facilities would facilitate operations and maintenance activities, which would have a long-term, beneficial impact on operations. The seawall rehabilitation would have long-term, beneficial impact on operations by decreasing time and expenses associated with maintenance. The overall cumulative impacts to park operations and management from these actions in combination with this alternative would result in long-term, beneficial impacts.

Conclusions for Park Operations and Management

Implementation of alternative A would have long-term, moderate, adverse impacts to park operations and management, increasing future pier repair and maintenance, and the increasing the potential need to relocate the water transportation hub if the pier becomes unserviceable. Cumulative impacts to park operations would also be long-term, moderate, adverse impacts as the benefits of the new upland facilities are offset by the continued maintenance activities associated with the deteriorating pier facility. Alternatives B, C, D, and E would have long-term, beneficial impacts to park operations due to decreased operations and maintenance costs in the future. There would also be long-term, beneficial cumulative impacts from upgraded facilities upland from the pier. The contribution of alternatives B through E to the cumulative impact would be appreciable for a long-term beneficial cumulative impact.

VISITOR USE AND EXPERIENCE

Affected Environment

Annual visitation to the Boston Harbor Islands, including the peninsular regions of the park, was estimated at 300,000 in 2007, with a total of 80,000 visitors arriving via the park ferry system (Al Hebb, National Park Service, pers. comm. June 16, 2009). In addition to the ferry system, visitors arrive at Georges Island via commercial charter boats and private craft. As the primary transportation hub in the park area, visitors can transfer to a park-operated water shuttle between five other islands from Georges Island, which serves as a gateway to other islands in the harbor. Park ferry service is currently available from May through October.

Several factors would influence visitor use and experience in relation to the pier facility including the ability to dock at the pier, separation of uses among vessels, wave protection, recreational access, the experience of arrival and departure, and interpretive opportunities for visitors. The biggest factor impacting visitor experience at the pier would be the ability to dock at the pier. Docking at the pier is currently limited due to a general lack of recreational boat slips and the limited access on the north and south finger piers (which are currently shut down). Continued deterioration could further limit access to the main pier as well.

Study Area

The study area for visitor use and experience is Georges Island.

Thresholds

Negligible – Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.

Minor – Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.

Moderate – Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative, and would likely be able to express an opinion about the changes.

Major – Changes in visitor use and/or experience would be readily apparent and have substantial long-term consequences. The visitor would be aware of the effects associated with the alternative, and would likely express a strong opinion about the changes.

Duration – Short term impacts would occur during the two construction seasons. Long-term impacts would extend beyond the construction duration.

Impacts of Alternative A: The No-Action Alternative

Impacts

Under alternative A, continuing operation and maintenance activities would continue to keep the pier operational and serviceable. Given the current condition of the pier and the ongoing deterioration, the viability of the pier to support the loading and unloading of passengers, workers and equipment, would continue to decline over time. During routine maintenance activities, access to the pier for passengers

arriving via all modes of transportation would be inhibited, however, continued operation of the facility would have short-term, beneficial impacts on visitor use and experience.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect visitor use and experience include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect visitor use and experience by improving displays and facilities for visitors. Construction of facilities upland from the pier at Georges Island would result in a short-term, negligible, adverse impact as construction activities impact the upland facilities and are visible to visitors as they arrive and depart the island via the pier facility. Overall, the new and updated upland facilities would have a long-term, beneficial impact on visitor experience.

Impacts of Alternative B: Single Basin with Fixed Main Pier (NPS Preferred Alternative)

Impacts

Construction of a new pier facility under alternative B would impact visitor use and experience mainly through visibility of construction activities during the visitation season and through providing an alternate entrance point to the island during certain stages of construction. Visitor access would continue to remain open during construction by providing at least two construction seasons to complete the pier facility. Offseason construction would also mitigate visitor experience impacts providing short-term, minor, adverse impacts to visitor experience.

At the completion of construction, the visitor entranceway to the island would be restored and interpretive displays would likely be installed on the main pier. Visitors debarking from a fixed main pier would experience the historic arrival sequence, and interpretation of how a fixed main pier once functioned would be easier to convey to the visitor. Additionally, ADA compliant gangways would provide access to passenger vessels using the floating docks, and an increased number of slips for recreational vessels would accommodate more visitors to the island. As such, at the completion of construction, the impact on visitor experience would be long-term and beneficial.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect visitor use and experience include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect visitor use and experience by improving displays and facilities for visitors. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative B. Construction of facilities upland from the pier at Georges Island could lead to short term increases in use of the existing pier facility, however, the pier is already being utilized for visitor loading and offloading. Construction of the seawall could possibly overlap with the construction of the pier, leading to short-term, minor, adverse cumulative impacts. The overall impacts on visitor use and experience would be beneficial under alternative B with the addition of the new and upgraded facilities directly upland from the pier facility.

Impacts of Alternative C: Single Basin without Fixed Main Pier

Impacts

Construction of a new pier facility under alternative C would impact visitor use and experience mainly through visibility of construction activities during the visitation season and through providing an alternate entrance point to the island during certain stages of construction. Visitor access would continue to remain open during construction by providing at least two construction seasons to complete the pier facility. Offseason construction would also mitigate visitor experience impacts providing short-term, minor, adverse impacts to visitor experience.

At the completion of construction, the visitor entranceway to the island would be restored and interpretive displays would likely be installed near the commercial passenger gangways. Visitors debarking from the gangways would arrive on the island at the historic location, however, the experience would be diminished since it would be reminiscent of a pleasure excursion rather than of disembarking on a working dock. The interpretation of how a fixed main pier once functioned would be difficult to convey to the visitor. Additionally, ADA compliant gangways would provide access to passenger vessels using the floating docks, and an increased number of slips for recreational vessels would accommodate more visitors to the island. The benefits of better access and an increased number of slips would be somewhat offset by the diminished visitor arrival experience and interpretive opportunities. As such, at the completion of construction, the impact on visitor experience would be long-term, minor, and adverse.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect visitor use and experience include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect visitor use and experience by improving displays and facilities for visitors. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative C. Construction of facilities upland from the pier at Georges Island could lead to short term increases in use of the existing pier facility, however, the pier is already being utilized for visitor loading and offloading. Construction of the seawall could possibly overlap with the construction of the pier, leading to short-term, minor, adverse cumulative impacts. The overall impacts on visitor use and experience would be beneficial under alternative C with the addition of the new and upgraded facilities directly upland from the pier facility.

Impacts of Alternative D: Dual Basins and Fixed Main Pier with Southern Marina

Impacts

Construction of a new pier facility under alternative D would impact visitor use and experience mainly through visibility of construction activities during the visitation season and through providing an alternate entrance point to the island during certain stages of construction. Visitor access would continue to remain open during construction by providing at least two construction seasons to complete the pier facility. Offseason construction would also mitigate visitor experience impacts providing short-term, minor, adverse impacts to visitor experience.

At the completion of construction, the visitor entranceway to the island would be restored and interpretive displays would likely be installed on the main pier. Visitors debarking from a fixed main pier would experience the historic arrival sequence, and interpretation of how a fixed main pier once functioned would be easier to convey to the visitor. Additionally, ADA compliant gangways would provide access to

passenger vessels using the floating docks, and an increased number of slips for recreational vessels would accommodate more visitors to the island. As such, at the completion of construction, the impact on visitor experience would be long-term, moderate, and beneficial.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect visitor use and experience include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect visitor use and experience by improving displays and facilities for visitors. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative D. Construction of facilities upland from the pier at Georges Island could lead to short term increases in use of the existing pier facility, however, the pier is already being utilized for visitor loading and offloading. Construction of the seawall could possibly overlap with the construction of the pier, leading to short-term, minor, adverse cumulative impacts. The overall impacts on visitor use and experience would be beneficial under alternative D with the addition of the new and upgraded facilities directly upland from the pier facility.

Impacts of Alternative E: Dual Basins and Fixed Main Pier with Northern Marina

Impacts

Construction of a new pier facility under alternative E would impact visitor use and experience mainly through visibility of construction activities during the visitation season and through providing an alternate entrance point to the island during certain stages of construction. Visitor access would continue to remain open during construction by providing at least two construction seasons to complete the pier facility. Offseason construction would also mitigate visitor experience impacts providing short-term, minor, adverse impacts to visitor experience.

At the completion of construction, the visitor entranceway to the island would be restored and interpretive displays would likely be installed on the main pier. Visitors debarking from a fixed main pier would experience the historic arrival sequence, and interpretation of how a fixed main pier once functioned would be easier to convey to the visitor. Additionally, ADA compliant gangways would provide access to passenger vessels using the floating docks, and an increased number of slips for recreational vessels would accommodate more visitors to the island. As such, at the completion of construction, the impact on visitor experience would be long-term, and beneficial.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to affect visitor use and experience include building rehabilitation and reconstruction work being conducted upland of the pier facility and rehabilitation and reconstruction of the existing seawall that abuts the pier by DCR. These actions have the potential to affect visitor use and experience by improving displays and facilities for visitors. As currently scheduled, the upland building construction and seawall projects would be underway concurrently or substantially complete as compared to the schedule for alternative E. Construction of facilities upland from the pier at Georges Island could lead to short term increases in use of the existing pier facility, however, the pier is already being utilized for visitor loading and offloading. Construction of the seawall could possibly overlap with the construction of the pier, leading to short-term, minor, adverse cumulative impacts. The overall impacts on visitor use and experience would be beneficial under alternative E with the addition of the new and upgraded facilities directly upland from the pier facility.

Conclusions for Visitor Use and Experience

The no-action alternative would have short-term, beneficial impacts on visitor use and experience, as repairs would keep the pier operational and serviceable. Construction of facilities upland from the pier at Georges Island would result in a short-term, negligible, adverse cumulative impact, but the new and updated upland facilities would also have a long-term, beneficial cumulative impact on visitor experience. Visitor access to the island would be maintained through the duration of construction activities for alternative B, C, D, and E, leading to short-term, negligible, adverse impacts on visitor use and experience. The completion of the project would have long-term, beneficial impacts on visitor use and experience. The alternative would contribute to a short-term, minor, adverse cumulative impact due to the possibility of overlapping construction with the seawall, and a beneficial cumulative impact with the addition of the new and upgraded facilities directly upland from the pier facility.

SECTION 106 SUMMARY

As described in the Affected Environment and Environmental Consequences chapter, under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect must be made for affected, National Register eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register.

The preferred alternative (alternative B) and alternatives D and E are consistent with the Fort Warren NHL purpose and values. Implementation of these alternatives would have "no adverse effect" on the Fort Warren National Register District or the Fort Warren NHL.

Alternative C would have an "adverse effect" on the Fort Warren National Register District and Fort Warren NHL because it would compromise the integrity of the NHL's setting, design, association, and feeling. If this alternative were chosen, a Memorandum of Agreement would need to be executed to minimize or mitigate the effects of the alternative on the NHL.

CONSULTATION AND COORDINATION

PLANNING AND PUBLIC INVOLVEMENT

As noted in the “Purpose and Need” chapter, the park conducted two scoping meeting during November 2008: a site visit to solicit agency feedback, and an open house for general public involvement. In addition, a newsletter was mailed to individuals and organizations regarding the findings of the VA study and updating them on the progress of the project in May 2009.

Public input during the scoping process for this project has provided insight into concerns held by various stakeholders. Comments were received from agencies, marina operators, recreational boaters, and non-profit groups as to the future of the Georges Island pier facility. Substantive comments included: expandability of the pier in the future, incorporation of a mooring field, use of a floating breakwater system, floating docks, MAAB and ADA compliance, a pump out station, interpretive signs, the ability to accommodate a range of vessels, an expanded deck, and weather protection for visitors. Additional comments were supportive of the pier improvement project, and individual commenter’s regarded it as a timely and needed update to a deteriorating facility. Additionally, at the public scoping session in November 2008, attendees commented extensively on the previously developed pier replacement options, and were specifically concerned with the limited amount and availability of recreational docking. All public and agency comments were considered during the design of the alternatives presented in this report. Comments received during the comment period for the draft EA/AoE will be enumerated and responded to as part of the final EA/AoE.

A replacement facility will need to undergo regulatory review and secure appropriate permits and approvals throughout the process. Anticipated permits and approvals include:

- U.S. Army Corp of Engineers (ACOE) – Section 404 Programmatic General Permit (PGP) II
- National Environmental Policy Act (NEPA) – Environmental Assessment (EA)
- National Historic Preservation Act – Section 106 Compliance
- Massachusetts Environmental Policy Act (MEPA) – Environmental Notification Form (ENF)/Certificate
- Massachusetts Department of Environmental Protection (DEP) – Chapter 91 License
- Massachusetts Office of Coastal Zone Management (CZM) – Consistency Determination
- Boston Conservation Commission – Notice of Intent (NOI)/Order of Condition

In accordance with 36 CFR 800.8 of the implementation regulations for Section 106 of the National Historic Preservation Act, the public scoping process for this EA/AoE was used to comply with S106 public involvement requirements and the EA/AoE document presents NPS findings of effect. NPS also conducted early consultation with affiliated tribes and the Massachusetts State Historic Preservation Office (SHPO), the Massachusetts Board of Underwater Archaeological Resources (MBUAR), the Boston City Archaeologist, the National Historic Landmark Program, and the Advisory Council on Historic Preservation regarding the alternatives and their effects on historic properties. This correspondence is presented in Appendix A.

Consultation with the SHPO and MBUAR regarding the presence of archeological resources within the project area resulted in the determination that significant terrestrial or underwater archeological resources are unlikely to be present or disturbed by the project, although should unexpected discoveries be made, the appropriate agency would be contacted in accordance with state and federal law. Additionally, consultation with the SHPO and the National Landmarks Program regarding the status of the seawall and dock determined that the current dock structure does not retain sufficient integrity to be included as a contributing member of the Fort Warren National Historic Landmark or listed on the National Register of Historic Places, whereas the seawall does retain integrity and should be considered a contributing member

of the NHL. These determinations and the result of the public comments were used in developing the alternatives presented in this document.

AGENCY, TRIBAL, AND ORGANIZATIONS CONSULTED

U.S. Fish and Wildlife Service
U.S. Army Corp of Engineers
NOAA National Marine Fisheries Service
Advisory Council on Historic Preservation
State Historic Preservation Officer
National Historic Landmark Program
National Register of Historic Places
Massachusetts Natural Heritage and Endangered Species Program
Massachusetts Office of Coastal Zone Management
Boston City Archeologist
Board of Underwater Archeological Resources
Nipmuc Nation Hassanamisco Band
Delaware Tribe
Masachuset-Ponkapoag Tribal Council
Natick Nipmuc Indians
Eastern Pequot Tribal Nation
Mashantucket Pequot Tribal Nation
Penobscot Nation
Narragansett Indian Tribe
Historic Nipmuck Tribe
Praying Indians Tribe of Natick and Ponkapoag
Wampanoag Tribe of Gay Head (Aquinnah)
Wampanoag (Mashpee) Tribe

LIST OF PREPARERS

Interdisciplinary Team

Bruce Jacobson, Superintendent
Kristie Franzmann, Lead NEPA Specialist
Ginger Molitor, NEPA Specialist
Steven Pendery, Archeologist
Richard Crisson, Historical Architect
Jeri DeYoung, Cultural Resource Specialist
Paul Weinbaum, Historian
Marc Albert, Natural Resource Specialist
Margie Coffin Brown, Historical Landscape Architect
Chuck Smythe, Other Advisor
Margo Muhl Davis, Regional Environmental Reviewer

Consultants

Mark Shamon, URS, Project Principal
Brian Vaillancourt, URS, Project Manager
Samuel Moffett, URS, Environmental Planner
Ed Morin, URS, Archeologist
Marc Radell, URS, Environmental Scientist
Sherri Albrecht, URS, Environmental Scientist
David Gorden, URS, Environmental Scientist
Carl Chamberlin, URS, Environmental Planner

RECIPIENTS

The public review version of this EA/AoE will be distributed via the following outlets:

- A hardcopy of the EA/AoE will be distributed to all agencies, tribes, and organizations previously noted in the Consultation Section.
- A hard copy will also be made available for public review at local libraries.
- A notice of EA/AoE availability will be sent to the over 200 entities on the park's mailing list.
- A press release will also be issued to local media outlets.
- Individuals that wish to obtain a hardcopy can submit a request: Superintendent; Boston Harbor Islands National Park Area, 408 Atlantic Avenue, Suite 228, Boston, MA 02110.

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2008 Least Tern Fact Sheet. Massachusetts Division of Fisheries & Wildlife, Westborough, Massachusetts.

Seasholes, Nancy S. and Timothy L. Binzen

2008 Archeological Overview and Assessment of the Boston Harbor Islands National Park Area: Volume I. University of Massachusetts Archaeological Services Report 553.

Simon, Brona

2009 Brona Simon, State Historic Preservation Office, to Bruce Jacobson, Superintendent, Boston Harbor National Recreational Area, National Park Service. Letter Dated April 21, 2009.

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John A. Volpe National Transportation Systems Center

2001 Boston Harbor National Park Service Sites - Alternative Transportation Systems Evaluation Report, Boston, MA. Prepared for National Park Service Northeast Region.

APPENDIXES

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APPENDIX A: COORDINATION WITH STATE HISTORIC PRESERVATION OFFICE AND NATIONAL HISTORIC LANDMARKS PROGRAM

State Historic Preservation Office Coordination Letter 12/12/08

Advisory Council on Historic Preservation Response Letter 12/19/08

State Historic Preservation Office Response Letter 12/30/08

Board of Underwater Archeological Coordination Letter 4/10/09

Board of Underwater Archeological Resources Response Letter 5/8/09

Boston City Archeologist Coordination Letter 4/9/09

National Register of Historic Places and National Historic Landmark Program Coordination Letter 3/26/09

Request for concurrence on findings Letter 3/26/09

State Historic Preservation Office Response Letter 4/21/09

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United States Department of the Interior

NATIONAL PARK SERVICE
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, Massachusetts 02110-3349

D-22 (BOHA)

December 12, 2008

VIA CERTIFIED MAIL

Ms. Brona Simon
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

Dear Ms. Simon,

Boston Harbor Islands National Recreation Area is planning to prepare an Environmental Assessment (EA) for the proposed replacement of the pier on Georges Island. The pier facility at Georges Island, owned and managed by the Massachusetts Department of Conservation & Recreation (DCR), serves as a water transportation hub for visitors exploring the national recreation area by ferry, charter boat, and private vessel. The timber pier is more than 50 years old, and the associated pilings and submerged members are in poor condition. In accordance with the National Environmental Policy Act (NEPA), an EA is being prepared to analyze and disclose potential impacts of alternatives for replacing the pier.

The National Park Service (NPS) is assisting DCR with planning for the Georges Island pier replacement. Because we anticipate that federal funds may be used for the project, we are treating the proposed action as a federal undertaking as defined in Section 106 regulations. We have determined that we will use the NEPA process for National Historic Preservation Act Section 106 purposes as outlined in 36 CFR 800.8. This letter is to provide your office with advance notification of our intent to use the NEPA process, and documentation that is required for the preparation of an EA, to comply with Section 106. In accordance with 36 CFR 800.8 (c), we are also notifying the Advisory Council on Historic Preservation by copy of this letter.

We have begun identifying consulting parties through the NEPA scoping process and held a public scoping meeting on November 19, 2008, in Boston at Marriott's Custom House. Public scoping meeting handouts and displays can be seen on the NPS Planning, Environment and Public Scoping website at: <http://parkplanning.nps.gov/BOHA>. Please follow the appropriate links to Georges Island - Evaluate and Design Hub Island Pier.

Massachusetts DCR held a pre-application meeting and site visit on November 17, 2008, to initiate agency consultation on this project and will be consulting further with your office as required under the Massachusetts Environmental Policy Act requirements as the project advances.

Together, NPS and DCR have begun research to identify historic properties (NPS Olmsted Center for Landscape Preservation is taking the lead for this research). We will be consulting with your office during this process and during the evaluation of historic properties. The results of our initial identification efforts will be provided to your office shortly.

We look forward to working with you during the NEPA process and appreciate whatever assistance and guidance you can provide. Should you have any questions, please contact me by telephone at 617-223-8669, or by e-mail at bruce_jacobson@nps.gov.

Sincerely,



Bruce Jacobson
Superintendent

cc: Kelly Yasaitis Fanizzo, JD, Program Analyst
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004
VIA Certified Mail

Martha King, Director of Waterways
Kevin Mooney, Civil Engineer V
Office of Waterways
Department of Conservation & Recreation
349 Lincoln St. Bld. #45
Hingham, MA 02043

Susan Kane, Islands District Manager
Urban Parks Division
Department of Conservation & Recreation
349 Lincoln St. Bld. #45
Hingham, MA 02043

Patrick Walsh, Project Manager
Denver Service Center
National Park Service
12795 W Alameda Pkwy
Denver, CO 80225
VIA e-mail



Preserving America's Heritage

December 19, 2008

Mr. Bruce Jacobson
Superintendent
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, MA 02110-3349

REF: *Preparation of Environmental Assessment (EA) to Comply with Section 106
Proposed Replacement of the Pier on Georges Island
Boston Harbor Islands National Recreation Area, Massachusetts*

Dear Mr. Jacobson:

The Advisory Council on Historic Preservation (ACHP) recently received Boston Harbor Islands National Recreation Area's notification for the referenced undertaking pursuant to 36 CFR § 800.8(c) of the ACHP's regulations, "Protection of Historic Properties" (36 CFR Part 800). We appreciate receiving your notification, which establishes that the National Park Service (NPS) will use the process and documentation required for the preparation of an EA to comply with Section 106 of the National Historic Preservation Act in lieu of the procedures set forth in 36 CFR §§ 800.3 through 800.6.

In addition to notification to the ACHP and the Massachusetts State Historic Preservation Officer (SHPO), the NPS must also meet the standards in 36 CFR § 800.8(c)(1)(i) through (v) for the following:

- identifying consulting parties;
- involving the public;
- identifying historic properties and assessing the undertaking's effects on historic properties; and
- consulting regarding the effects of the undertaking on historic properties with the SHPO and Indian tribes that might attach religious and cultural significance to affected historic properties, other consulting parties, and the ACHP, where appropriate, during National Environmental Policy Act (NEPA) scoping, environmental analysis, and the preparation of NEPA documents.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

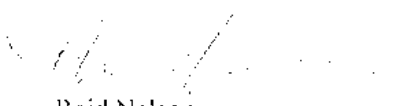
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606 8503 • Fax: 202-606 8647 • achp@achp.gov • www.achp.gov

The regulations do not specifically require that an agency submit an EA to the ACHP. However, keep in mind that in the case of an objection from the ACHP or another consulting party, 36 CFR § 800.8(c)(2)(ii) and (c)(3) provide for ACHP review of the EA to determine whether preparation of the EA has met the standards set forth in 36 CFR § 800.8(c)(1) and/or to evaluate whether the substantive resolution of the effects on historic properties proposed in the EA is adequate.

Should the NPS determine, in consultation with the SHPO, tribes, and other consulting parties, that its proposed undertaking may have an adverse effect on properties listed or eligible for listing on the National Register of Historic Places and/or that it will develop a Programmatic Agreement for this undertaking pursuant to 36 CFR § 800.14(b), we request that you notify us and provide adequate documentation for our review. Please indicate in your cover letter the schedule for Section 106 consultation and a date by which you require a response by the ACHP. The ACHP's decision to review the EA and participate in the development of a Memorandum of Agreement or Programmatic Agreement will be based on the applicability of the criteria in Appendix A of the ACHP's regulations.

Thank you for your notification pursuant to 36 CFR § 800.8(c). If you have any questions, or if we may be of further assistance, please contact Kelly Yasaitis Fanizzo at 202-606-8583 or via e-mail at kfanizzo@achp.gov.

Sincerely,



Reid Nelson
Assistant Director
Office of Federal Agency Programs



Received

JAN 01 2009

DSC - T

The Commonwealth of Massachusetts

December 30, 2008

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Bruce Jacobson
Superintendent
Boston Harbor Islands National Recreational Area
408 Atlantic Avenue, Suite 228
Boston, MA 02110-3349

RE: Georges Island Pier Replacement, Boston Harbor, MA. MHC #RC.45552.

Dear Mr. Jacobson:

Thank you for the notification of the initiation of the environmental review for the proposed project referenced above. Please provide the MHC with a USGS locus map with the boundaries of the area of potential effect clearly indicated, existing and proposed conditions plans and elevation drawings for the project, and current photographs keyed to the plan.

To assist in developing the scope for an identification effort, MHC requests the opportunity to review and comment on a draft scope (see 36 CFR 800.4). MHC notes that the identification effort will be undertaken by the Olmsted Center for Landscape Preservation. The team for that effort should include a qualified archaeologist who can assist in the identification effort to include both submerged and terrestrial archaeological resources that may be present in the area of potential effect, explicitly taking into account relevant previous research to include historical and geotechnical data.

MHC recommends that the NPS contact also the Boston City Archaeologist and the Massachusetts Board of Underwater Archaeological Resources as potentially interested or consulting parties to this review.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C, the Secretary of Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 Fed. Reg. 190 (1983)), and MEPA (301 CMR 11). Please contact Edward L. Bell or Ann Lattinville of my staff if you have any immediate questions.

Sincerely,

A handwritten signature in cursive script that reads "Brona Simon".

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

cc:
Kelly Yasaitis Fanizzo, ACHP
Martha King, DCR
Kevin Mooney, DCR
Thomas F. Mahlstedt, DCR
Susan Kane, DCR
Patrick Walsh, NPS
Victor T. Mastone, BUAR
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220 Morrissey Boulevard, Boston, Massachusetts 02125
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www.sec.state.ma.us/mhc

United States Department of the Interior



NATIONAL PARK SERVICE
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, Massachusetts 02110-3349

IN REPLY REFER TO:
D22 (BOHA)

April 10, 2009

Victor Mastone, Director
Board of Underwater Archaeological Resources
251 Causeway Street, Suite 800
Boston, MA 02114-2199

RE: Georges Island Pier Replacement, Boston Harbor, MA. MHC RC 45552., NPS PEPC, PMIS 23324/109654.

Dear Mr. Mastone,

Boston Harbor Islands National Recreation Area is preparing an environmental assessment (EA) for the proposed replacement of the pier at Georges Island. Owned and managed by the Massachusetts Department of Conservation & Recreation (DCR), the pier facility serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat, and private vessel. The timber pier is more than 50 years old and the associated piles and submerged members are in poor condition. In accordance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) and DCR are preparing the environmental assessment to analyze and disclose potential impacts of alternatives for replacing the pier.

We are using the NEPA process for National Historic Preservation Act section 106 purposes as outlined in 36 CFR 800.8. We have determined the proposed action is a federal undertaking as defined in Section 106 regulations because federal funds will be used.

We have begun identifying consulting parties through the NEPA scoping process and held a public scoping meeting on November 19, 2008, at Marriott's Custom House in Boston. Public scoping meeting handouts and displays can be seen on the NPS Planning, Environment and Public Scoping website at: <http://parkplanning.nps.gov/BOHA>. Please follow the appropriate links to *Georges Island -- Evaluate and Design Hub Island Pier*.

Massachusetts DCR held a pre-application meeting and site visit on November 17, 2008, to initiate agency consultation on this project and, as the project advances, will be consulting further with your office as required under the Massachusetts Environmental Policy Act.

We have begun research to identify historic properties with the assistance of the NPS Olmsted Center for Landscape Preservation. We will be consulting with your office during this process and during the evaluation of historic properties. We have sent a determination of eligibility to the Massachusetts State Historic Preservation Office (SHPO) regarding the Georges Island pier and seawall. NPS has determined that the main pier at Georges Island does not retain sufficient integrity of design and feeling to meet eligibility criteria for listing in the National Register of Historic Places and does not contribute to the historical significance of the Fort Warren National Historic Landmark, whereas the seawall in front of the Mine Storage Building is a contributing element of the National Historic Landmark. We are currently awaiting SHPO concurrence with this determination.

Any information that you may be able to provide on underwater archaeological resources expected within the "area of potential affect" (see attachment) would be appreciated.

We look forward to working with you during the NEPA process and appreciate whatever assistance and guidance you may provide. Should you have any questions, please contact me by telephone at 617-223-8669, or by e-mail at bruce_jacobson@nps.gov.

Sincerely,


Bruce Jacobson
Superintendent

Enclosure (1)

cc:

Brona Simon
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Blvd
Boston, MA 02125

Kelly Yasaitis Fanizzo, JD
Program Analyst
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

Martha King
Director of Waterways
Department of Conservation & Recreation
Office of Waterways
349 Lincoln St. Bld. #45
Hingham, MA 02043

Kevin Mooney
Civil Engineer V
Department of Conservation & Recreation
Office of Waterways
349 Lincoln St. Bld. #45
Hingham, MA 02043

Jeffery Harris
Planning & Engineering Preservation Planner
Department of Conservation & Recreation
251 Causeway Street, Suite 600
Boston, MA 02114-2104

Susan Kane
Islands District Manager
Department of Conservation & Recreation
349 Lincoln Street, Building 45
Hingham, MA 02043

From: Mastone, Victor (EEA)
To: Margo Davis@nps.gov
cc: Ginger Molitor@nps.gov; Bruce Jacobson@nps.gov; Jeffery.Harris@state.ma.us; Mahlstedt, Thomas (DCR); Steven Pendery@nps.gov; Jeri DeYoung@nps.gov; Ellen.Berkland@cityofboston.gov; Bell, Ed (SEC)
Subject: George's Island Pier Replacement Conference Call follow-up
Date: 05/08/2009 09:36 AM

Margo,

I am taking this opportunity to briefly follow-up on yesterday's conference call and confirm my stated findings.

My understanding is that the proposed project area has been substantially disturbed and completely modified by previous dredging activities. While DCR's Division of Waterways needs to confirm this, I am confident they will concur. Further, the historic shoreline lines a considerable distance behind rather in front of the existing seaward. Given these factors, the Board does not believe any of the proposed alternatives will have an adverse impact on the submerged cultural resources. Therefore, Board does not see the need for any additional research as it relates to submerged cultural resources.

You mentioned that there would be a survey of the area for munitions and ordnance. These would most likely to be small arms rounds rather than larger projectiles. In the event that unusual or rare (and inert) ordnance and non-ordnance items are encountered during the course of the survey, I suggest you might consider the participation an archaeological observer in that survey. The observer could facilitate identification and determine the need for recovery for curation/interpretive purposes.

In the event that heretofore-unknown and unanticipated submerged cultural resources are encountered during the course of the project, the Board expects that the project sponsors will take steps to limit adverse affects and notify the Board, as well as other appropriate agencies in accordance with the Board's Policy Guidance for the Discovery of Unanticipated Archaeological Resources (updated 9/28/06).

Thank you for your consideration of these comments. Please let me know if this email correspondence will meet your needs or do you require a formal comment letter from the Board. Do not hesitate to contact me, if I can be of further assistance.

Best regards,

Vic

Victor T. Mastone
Director and Chief Archaeologist
Board of Underwater Archaeological Resources
251 Causeway Street, Suite 800
Boston, MA 02114
Direct Line: 617-626-1141

Fax line: 617-626-1240

Email: victor.mastone@state.ma.us

Website: www.mass.gov/czm/buar/index.htm



United States Department of the Interior

NATIONAL PARK SERVICE
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, Massachusetts 02110-3349

IN REPLY REFER TO:
D22 (BOHA)

April 9, 2009

Ellen Berkland, Boston City Archaeologist
Boston Landmarks Commission
Boston City Hall
One City Hall Plaza
Boston, MA 02201

RE: Georges Island Pier Replacement, Boston Harbor, MA. MHC RC.45552. NPS
PEPC/PMIS 23324/109654.

Dear Ms. Berkland,

Boston Harbor Islands National Recreation Area is preparing an Environmental Assessment (EA) for the proposed replacement of the existing pier facility on Georges Island. Owned and managed by the Massachusetts Department of Conservation & Recreation (DCR), the pier facility at Georges Island serves as a water transportation hub for visitors exploring Boston Harbor Islands by ferry, charter boat or private vessel. The timber pier is over 50 years old, and the associated piles and submerged members are in poor condition. In accordance with the National Environmental Policy Act (NEPA), an EA is being prepared to analyze and disclose potential impacts of alternatives for replacing the pier.

The National Park Service (NPS) is planning to use the NEPA process for National Historic Preservation Act section 106 purposes as outlined in 36 CFR 800.8. We have determined the proposed action is a federal undertaking as defined in Section 106 regulations because federal funds will be used.

We have begun identifying consulting parties through the NEPA scoping process and held a public scoping meeting on November 19, 2008 at Marriott's Custom House in Boston. Public scoping meeting handouts and displays can be seen on the NPS Planning, Environment and Public Scoping website at: <http://parkplanning.nps.gov/BOHA>. Please follow the appropriate links to Georges Island -- Evaluate and Design Hub Island Pier.

The Massachusetts DCR held a pre-application meeting and site visit on November 17, 2008 to initiate agency consultation on this project and will be consulting further with your office as required under the Massachusetts Environmental Policy Act requirements as the project advances.

We have begun research to identify historic properties with the assistance of the Olmsted Center for Landscape Preservation. We will be consulting with your office during this process and during the evaluation of historic properties. We have sent a determination of eligibility to the Massachusetts SHPO regarding the Georges' Island pier and seawall. NPS has determined the main pier at Georges Island does not retain sufficient integrity of design and feeling to meet eligibility criteria for listing in the National Register of Historic Places. Furthermore, it does not contribute to the historical significance of the Ft Warren National Historic Landmark, whereas the seawall in front of the mine storage building is a contributing element of the National Historic Landmark. We are currently awaiting SHPO concurrence with this determination.

Any information you may be able to provide on archaeological resources expected within the APE (see attachment) would be appreciated.

We look forward to working with you during the NEPA process and appreciate whatever assistance and guidance you can provide. Should you have any questions, please contact me by telephone at (617) 223-8669, or by e-mail at Bruce_Jacobson@nps.gov.

Sincerely,

Bruce Jacobson
Superintendent

cc:

Brona Simon
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Blvd
Boston, MA 02125

Kelly Yasaitis Fanizzo, JD
Program Analyst
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

Martha King
Director of Waterway
Department of Conservation and Recreation
Office of Waterways
349 Lincoln St. Bld. #45
Hingham, MA 02043

Kevin Mooney
Civil Engineer V
Department of Conservation and Recreation
Office of Waterways
349 Lincoln St. Bld. #45
Hingham, MA 02043

Jeffery Harris
Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston, MA 02114-2104

Patrick Walsh
Project Manager
National Park Service
Denver Service Center
12795 W Alameda Pkwy
Denver, CO 80225



United States Department of the Interior

NATIONAL PARK SERVICE
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, Massachusetts 02110-3349

D22 (BOIIA)

March 26, 2009

Mr. Paul Loether
Chief, National Register of Historic Places
and National Historic Landmark Programs
National Historic Landmarks Program
National Center for Cultural Resources
National Park Service
1201 Eye Street, N.W. 8th floor
Washington, D.C. 20005

Dear Mr. Loether:

This letter requests that the National Historic Landmark (NHL) Program clarify the status of the main pier at Fort Warren, Georges Island, Boston Harbor (designated August 29, 1970; 70000540), now administered as part of Boston Harbor Islands National Recreation Area. The resource is not described in the existing documentation form for the NHL. In discussion with regional History Program Manager Paul Weinbaum, Historian Patty Henry confirmed the pier is not classified as a resource of the NHL. For your reference, we are enclosing information on its history. In our opinion, the pier does not have the high degree of integrity required for it to contribute to the landmark.

We are seeking clarification at this time because the National Park Service and the Massachusetts Department of Conservation & Recreation are in the pre-design phase of the Georges Island (Fort Warren) Pier Replacement and is consulting with the Massachusetts State Historic Preservation Officer (SHPO) pursuant to the regulations of the Advisory Council on Historic Preservation, 36 CFR 800 "Protection Of Historic Properties." We need to identify the historic resources that may be affected in order to determine the effects of the undertaking. We are consulting with the state of Massachusetts regarding the pier's eligibility for the time following the end of the period of significance indicated in the narrative of the National Historic Landmark form and bracketed on the National Register of Historic Places Information System (1825-1900).

Like the pier, the NHL form does not identify the seawall, a portion of which will be part of the area of potential affects. However, since we have not undertaken research into the history and integrity of the entire seawall, and it retains historic material in the project area, we intend to treat it as contributing for purposes of Section 106 of the National Historic Preservation Act. If you have additional information bearing upon the contributing status of this resource, please advise. The NHL website notes the collapse of the seawall in the condition narrative.

We would appreciate your response within thirty days, if possible, given the continuing and simultaneous consultation with the Massachusetts SHPO. If you have any questions concerning this request for clarification, please contact Elizabeth Igleheart at 617-223-5018 (elizabeth.igleheart@nps.gov). Please send your written response to me at Boston Harbor Islands National Recreation Area, 408 Atlantic Avenue, Suite 228, Boston, MA 02110-3349.

Thank you for your assistance.

Sincerely,


Bruce Jacobson
Superintendent

Enclosures: Georges Island Pier & Seawall Evaluation
Map of Area of Potential Effect

cc: Ms. Brona Simon
(State Historic Preservation Officer)
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston MA 02125

Kelly Yasaitis Fanizzo, JD
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW
Suite 803
Washington DC 20004

Jeffery Harris
Division of Planning and Engineering
Department of Conservation & Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2104

Martha King, Director of Waterway
Office of Waterways
Department of Conservation & Recreation
349 Lincoln St. Bld. #45
Hingham MA 02043

Kevin Mooney
Office of Waterways
Department of Conservation & Recreation
349 Lincoln St. Bldg. #45
Hingham MA 02043

Susan Kane
Harbor Islands District
Department of Conservation & Recreation
349 Lincoln St. Bldg. #45
Hingham, MA 02043

Victor Mastone
Board of Underwater Archaeological
Resources
251 Causeway Street, Suite 800
Boston MA 02114-2199

Patrick Walsh
Denver Service Center
National Park Service
12795 W Alameda Pkwy
Denver CO 80225

Elizabeth Igleheart
Northeast Region History Program
National Park Service
15 State Street
Boston MA 02109



United States Department of the Interior

NATIONAL PARK SERVICE
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, Massachusetts 02110-3349

D22 (BOHA)

CERTIFIED MAIL

March 26, 2009

Ms. Brona Simon, State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

RE: Georges Island Pier Replacement, Boston Harbor, MA. MHC RC.45552. NPS PEPC/PMIS
23324/109654.

Dear Ms. Simon:

Thank you for your letter regarding the project referenced above. As noted in my letter dated December 12, we are using the Environmental Assessment process for resource identification, developing alternatives, and involving the public for purposes of compliance with Section 106 of the Historic Preservation Act on this project. As we move forward in developing alternatives with the Massachusetts Department of Conservation and Recreation (DCR) we will keep your office informed of our progress and identification efforts. In the event we determine that archeological surveys are necessary, either National Park Service (NPS) or DCR will provide your office and the Board of Underwater Archaeological Resources with a scope of work and permit application. If surveys are necessary, due to contracting constraints, we may ask your office to engage in a programmatic agreement that outlines the manner in which these resources are to be identified and the effects determined.

We have begun research to identify and evaluate historic above-ground properties within the area of potential effect (APE – see enclosed map) with the assistance of NPS Olmsted Center for Landscape Preservation and Northeast Region History Program. An evaluation of the Georges Island pier and the seawall adjacent to the pier accompanies this letter for your review.

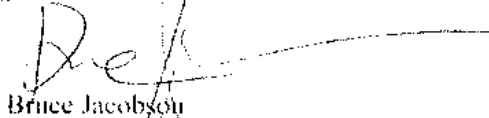
Fort Warren on Georges Island is a National Historic Landmark (NHL). The pier is not described in the existing documentation form for the NHL. We are confirming with Paul Loether, Chief of the National Register of Historic Places and National Historic Landmark Program, that the main pier does not contribute to the historical significance of Fort Warren.

In considering resources within the APE, NPS determined that the main pier does not appear to retain sufficient integrity of design and feeling to meet eligibility criteria for listing in the National Register even as a 20th century resource. We ask for your concurrence with this finding.

The seawall in the vicinity of the main pier does appear to retain integrity and will be treated as contributing to the Fort Warren National Historic Landmark for purposes of compliance with Section 106 of the National Historic Preservation Act for this project, since research into the history and integrity of the entire seawall is not feasible at this time.

If you concur with our findings, we ask that you please sign on the space provided and return this letter to us at the letterhead address.

Sincerely,



Bruce Jacobson
Superintendent

Enclosures: Georges Island Pier & Seawall Evaluation
Map of Area of Potential Effect

I concur with the above-stated finding that the Georges Island pier is not eligible for listing in the National Register as a 20th-century structure.

Massachusetts State Historic Preservation Officer

Date

cc: Kelly Yasaitis Fanizzo, JD
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW
Suite 803
Washington DC 20004

Jeffery Harris
Division of Planning & Engineering
Department of Conservation & Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2104

Martha King, Director of Waterway
Office of Waterways
Department of Conservation & Recreation
349 Lincoln St. Bld. #45
Hingham MA 02043

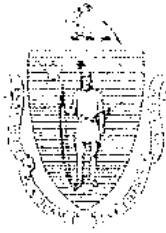
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Patrick Walsh
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National Park Service
12795 W Alameda Pkwy
Denver CO 80225

Elizabeth Igleheart
Northeast Region History Program
National Park Service
15 State Street
Boston MA 02109



The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

April 21, 2009

Bruce Jacobson
Superintendent
Boston Harbor Islands National Recreational Area
408 Atlantic Avenue, Suite 228
Boston, MA 02110-3349

RE: Georges Island Pier Replacement, Boston Harbor, MA. **MHC #RC.45552.**

Dear Mr. Jacobson:

Thank you for your letter of March 26, 2009, with further information concerning the project referenced above.

Enclosed is the MHC's opinion of eligibility for the project area, concurring that the pier does not meet the criteria of eligibility (36 CFR Part 60), and that the seawall be considered to be included as a contributing property to the Fort Warren National Historic Landmark or National Register listings.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800). Please contact Edward L. Bell of my staff if you have any immediate questions.

Sincerely,

A handwritten signature in cursive script, reading "Brona Simon".

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

Enclosure: MHC 4/15/2009

cc w/encl:
Paul Loether, NPS
Patrick Walsh, NPS
Kelly Yasaitis Fanizzo, ACHP
Martha King, DCR
Kevin Mooney, DCR
Thomas F. Mahlstedt, DCR
Susan Kane, DCR
Ellen Eipse, Boston Landmarks Commission
Ellen P. Berkland, Boston City Archaeologist
Victor T. Mastone, BUAR

Original yellow form: Eligibility file
Copies: Inventory form
Town file(w/corresp.)
Macris
NR director _____

Community: Boston
Harbor Islands

MHC OPINION: ELIGIBILITY FOR NATIONAL REGISTER

Date Received: 3/27/09

Date Due:

Date Reviewed: 4/15/09

Type: ☒ Individual

☐ District (Attach map indicating boundaries)

Name: Georges Island Main Pier

Inventory Form:

Address: Georges Island
Boston Harbor

Requested by: Ed Bell

Action: Honor ☐ JFC ☐ Grant ☐ X R & C ☐ Other:

Agency:

Staff in charge of Review: L. W. Loparto

INDIVIDUAL PROPERTIES

☐ Eligible
☐ Eligible, also in district
☐ Eligible only in district
needed
☒ Ineligible
☐ More information needed

DISTRICTS

☐ Eligible
☒ Ineligible
☐ More information

CRITERIA: ☐ A ☐ B ☐ C ☐ D

LEVEL: Local ☐ State ☒ National

STATEMENT OF SIGNIFICANCE

The Georges Island Main Pier is located in the tidal zone on the western side of Georges Island in Boston Harbor. The island is not included in the Boston Harbor Island National Historic District because of extensive disturbance related to military land use of Fort Warren. The Fort is an NHL whose boundary is coterminous with that of the island. In 1826, the United States government initiated plans to construct permanent defenses on Georges Island. Granite seawall construction began immediately on the north and east sides of the island with initial construction completed in 1842. The construction of Fort

Warren began in 1834 and was completed in the 1860's at the outset of the Civil War. An 1842 map by Thayer shows progress in the construction of the seawall and for the first time depicts a wharf at the location of the present main pier. While its overall dimensions changed during the second half of the 19th century, the main pier remained a rectangular structure until the early 20th century. The main pier is entirely made of wood, and retains its late 19th century core with additions. There is no vegetation associated with the pier. In ca. 1910, the main pier was enlarged with a wing extending east to form a broader outshore face. In the 1960's, as part of the development of the island as a public park, the state made substantial changes to the pier. The state built wings onto the outer end of the central/main pier, referred to as the main pier extension north and main pier extension south, and two finger piers on either side, referred to as the north finger pier and south finger pier. The main pier's current configuration is the result of the 1960's changes to the pier. Throughout the changes to the main pier described above, the overall configuration of the seawall that connects to the pier has remained unchanged since ca. 1872. Several structures that were located land ward of the seawall and on the pier have been removed.

On April 15, 2009, the NHC National Register Evaluation Group met to discuss the potential National Register eligibility for the Georges Island Main Pier. Background information relating to the pier, seawall, Georges Island, and Fort Warren were submitted in a March 26, 2009 letter to Mr. Brenda Simon, State Historic Preservation Officer from Anne Jacobson, Superintendent, National Park Service, Boston Harbor Islands National Recreation Area. The letter concludes with the determination that the main pier does not appear to retain sufficient integrity of design and feeling to meet eligibility criteria for listing in the National Register even as a 20th century resource. The NHC further found that the seawall in the vicinity of the main pier appears to retain integrity and, for purposes of compliance with Section 106 of the National Historic Preservation Act, would be treated as a contributing member of the Fort Warren National Historic Landmark.

Members of the NHC Evaluation Group concurred with the

findings of the NPS described above. MHC staff felt that while the original seawall appears to remain intact, the main pier has undergone several design changes since the first pier was documented in ca. 1842. The pier also retains its wooden pilings and decking, however, these materials have been replaced, probably several times, in kind due to the harsh marine environment. Metropolitan District Commission records from 1958 to 1985 identify at least 8 incidents that support frequent pier work and repairs at Georges Island. Given the above information, the demolition of historic structures associated with the pier, and the fact that most of the present pier structure was built after ca. 1960, MHC staff felt that the main pier did not retain sufficient integrity to be included as a contributing member of the Fort Warren National Historic Landmark (NHL) or listing on the National Register of Historic Places (NRHP).

MHC staff did recommend that the seawall did retain sufficient integrity to be included as a contributing member of the Fort Warren NHL or listing on the NRHP. Staff felt that the seawall's design and construction has remained basically unchanged from its initial construction in ca. 1832. The longevity of this resource may partially be the result of its granite construction. Several archaeological studies conducted landward of the seawall have also identified the pier area as having a particular archaeological sensitivity containing objects associated with military use of the site, former building sites, and historical grade surfaces in the wharf area.

**APPENDIX B: COORDINATION WITH U.S. FISH AND WILDLIFE
SERVICE AND NATIONAL MARINE FISHERIES SERVICE**

U.S. Fish and Wildlife Service Response letter

NMFS Coordination Letter 4/9/09

NMFS Response letter 5/27/09

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United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087
<http://www.fws.gov/northeast/newenglandfieldoffice>

January 2, 2009

To Whom It May Concern:

This project was reviewed for the presence of federally-listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

(<http://www.fws.gov/northeast/newenglandfieldoffice/EndangeredSpec-Consultation.htm>)

Based on the information currently available, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service (Service) are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under Section 7 of the Endangered Species Act is not required.

This concludes the review of listed species and critical habitat in the project location(s) and environs referenced above. No further Endangered Species Act coordination of this type is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Mr. Anthony Tur at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office



United States Department of the Interior

NATIONAL PARK SERVICE
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suite 228
Boston, Massachusetts 02110-3349

IN REPLY REFER TO:
D22 (BOHA)

April 08, 2009

National Marine Fisheries Service
Northeast Regional Office
Attention: Project Reviewer
55 Great Republic Drive
Gloucester, MA 01930

Dear Reviewer:

The National Park Service (NPS) and the Massachusetts Department of Conservation and Recreation (DCR) have initiated planning to replace the pier facility on Georges Island in Boston Harbor Islands National Recreation Area. The existing timber pier is almost 50 years old, and the associated piles and submerged members are in poor condition. The NPS and DCR are cooperatively undertaking the proposed project, which includes construction of a new pier facility of similar size and in the same approximate location. The goals of the project are to accommodate present and future visitor use, preserve the historical character of the island, enhance visitor enjoyment of the island, and improve public safety. The pier facility, owned and managed by DCR, serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat, and private vessel.

This letter serves as notification that we have begun the National Environmental Policy Act (NEPA) compliance process and are proposing to have an Environmental Assessment (EA) available for public and regulatory review in fall of 2009. This letter also serves as a record that the NPS is initiating informal consultation with your agency pursuant to the requirements of the 1973 Endangered Species Act, as amended, and NPS Management Policies 2006.

As part of the scoping for this project, we request any information regarding listed or proposed threatened or endangered species, critical habitat, or essential fish habitat that might occur in the project vicinity and any special management considerations for such species. An internal screening of available data has identified Essential Fish Habitat in Boston Harbor. It is anticipated that measures to avoid, minimize, and mitigate habitat impacts, if any, will be incorporated into the design as the project advances.

A site locus map (Figure 1) is included with this letter to expedite your review of this important project.

If you have any questions about this request, or require additional information, please do not hesitate to contact me at 67-223-8667.

Sincerely,

Bruce Jacobson
Superintendent

Enclosure (1)

cc (electronic): G. Molitor, NPS



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

MAY 27 2009

Bruce Jacobson
United States Department of the Interior
National Park Service
Boston Harbor Islands National Recreation Area
408 Atlantic Avenue, Suit 228
Boston, Massachusetts 02110-3349

Dear Mr. Jacobson,

This is in response to your letter dated April 8, 2009 regarding the National Park Service (NPS) and the Massachusetts Department of Conservation and Recreation (DCR) proposed replacement of the pier facility on Georges Island in Boston Harbor Islands National Recreation Area. The proposed work would involve construction of a new pier facility of similar size and in the same approximate location. The NPS has requested information on the presence of any species listed as threatened or endangered and any species of special concern by NOAA's National Marine Fisheries Service (NMFS).

Species Listed Under the Endangered Species Act

Three species of federally threatened or endangered sea turtles and three species of endangered whales may be found in Massachusetts waters. The sea turtles in Massachusetts nearshore waters are typically small juveniles with the most abundant being the federally threatened loggerhead (*Caretta caretta*) followed by the federally endangered Kemp's ridley (*Lepidochelys kempi*). Loggerheads and Kemp's ridleys have been documented in waters as cold as 11°C, but generally migrate northward when water temperatures exceed 16°C. These species are typically present in Massachusetts waters from June through November. Federally endangered leatherback sea turtles (*Dermochelys coriacea*) are located in New England waters during the warmer months as well. While leatherbacks are predominantly pelagic, they may occur close to shore, especially when pursuing their preferred jellyfish prey. Green sea turtles (*Chelonia mydas*) may also occur sporadically in New England waters, and any occurrence in Massachusetts waters is likely to be rare. Sea turtles are known to occur on Stellwagen Bank and in Massachusetts Bay. While no surveys for sea turtles have been conducted in Boston Harbor, suitable forage and habitat exists in this area. As such, it is likely that sea turtles occasionally are present in Boston Harbor and therefore, may occasionally be present in the action area.

Federally endangered North Atlantic right whales (*Eubalaena glacialis*) and humpback whales (*Megaptera novaeangliae*) are also found seasonally in Massachusetts waters. North Atlantic right whales have been documented in the nearshore waters of Massachusetts from December through June. Humpback whales feed during the spring, summer, and fall over a range that



encompasses the eastern coast of the United States, including Massachusetts Bay. While these whale species are not considered residents of the Boston Harbor area, transients occasionally enter the area as they complete seasonal migrations in nearby Massachusetts Bay. For example, in April 1996 a right whale was documented in Boston Harbor and in the fall of 2000, a humpback whale was documented in Boston Harbor. Fin (*Balaenoptera physalus*), Sei (*Balaenoptera borealis*) and Sperm (*Physeter macrocephalus*) whales are also seasonally present in New England waters but are typically found in deeper offshore waters and are not likely to occur in Boston Harbor. Based on the available information, listed whales are likely to be rare within the action area.

As listed species of sea turtles are likely to be present in the action area of this project, a consultation, pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, may be necessary. If the proposed project has the potential to affect listed species and it is being approved, permitted, funded, or carried out by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining whether the proposed action is likely to affect listed species. The lead Federal agency should submit their determination of effects, along with justification for the determination and a request for concurrence, to the attention of the Section 7 Coordinator, NMFS, Northeast Regional Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930. After reviewing this information, NMFS would then be able to conduct a consultation under section 7 of the ESA. Should you have any questions about these comments or about the section 7 consultation process in general, please contact Danielle Palmer at (978)282-8468 or by e-mail (Danielle.Palmer@noaa.gov).

Essential Fish Habitat

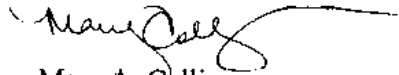
Boston Harbor has been designated as EFH for a number of federally managed species, including, but not limited to winter flounder, Atlantic cod, and windowpane flounder. A complete list of species and life stages that have been designated for the proposed project location can be found on the NMFS Habitat Conservation Division website at <http://www.nero.noaa.gov/ro/doc/webintro.html>. In addition, areas within Boston Harbor have historically contained submerged aquatic vegetation (SAV). SAV serves as important habitat for a range of federally managed species, and if present, should be identified within the EFH assessment.

The EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) require federal agencies to consult with NMFS on projects, such as this, that may adversely affect EFH. Insofar as a project involves EFH, as this project does, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure.

The required contents of an EFH assessment include: a description of the action; an analysis of the potential adverse effects of the action on EFH and the managed species; the action agency's conclusions regarding the effects of the action on EFH; and proposed mitigation, if applicable. Other information that should be contained in the EFH assessment, if appropriate, includes: the

results of on-site inspections to evaluate the habitat and site-specific effects; the views of recognized experts on the habitat or the species that may be affected; a review of pertinent literature and related information; and an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH. Additional information on the EFH assessment process can be found at <http://www.nero.noaa.gov/hcd/appguide1.html>. Should you have questions regarding the EFH assessment, please contact Christopher Boelke at 978-281-9131.

Sincerely,



Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

EC: Palmer -- F/NER3
Boelke -- F/NER4

File Code: Sec 7 Technical Assistance 2009

APPENDIX C: COORDINATION WITH MASSACHUSETTS NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM

Massachusetts Endangered Species Act Information Request Form

**Massachusetts Natural Heritage and Endangered Species Program Response
6/22/09**

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MESA Information Request Form

Please complete this form to request site-specific information from the Natural Heritage & Endangered Species Program
(Please submit only one project per request form).

Please include a check for \$50.00 made out to the Natural Heritage & Endangered Species Fund.*

Requestor Information

Name: Martha King, Director of Waterways

Affiliation: Massachusetts Department of Conservation and Recreation

Address: 349 Lincoln Street Building #45

City: Hingham

State: MA

Zip Code: 02043

Daytime Phone: 781-740-1600

Ext. 102

Project Information

Project or Site Name: Georges Island Pier Improvement Project

Location: Boston Harbor Islands

Town: Boston

Name of Landowner or Project Proponent: Massachusetts Department of Conservation and Recreation

Acreage of the Property: Island: approximately 39 acres; Pier facility: approximately 2 acres

Description of Proposed Project and Current Site Conditions: (If necessary attach additional sheet)

See attached Project Description.

- ☒ Will this project be reviewed as a Notice of Intent by the local Conservation Commission?
- ☒ Will this project be undergoing MEPA review for reasons other than rare species?
- ☒ Have you enclosed the required copy of a USGS topographic map in the scale 1:24,000 or 1:25,000 (not copy reduced) with the site location clearly marked and centered on the copy page? (Copies of Natural Heritage Atlas pages are not accepted)

Please **mail** this completed form and topographic map to:

Regulatory Review
Natural Heritage and Endangered Species Program
MA Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

Questions regarding this form should be directed to (508) 389-6380.

Persons requesting information will receive a written response within 30 days of receipt of all information required. Please do not ask for an expedited review. *If you are requesting information for habitat management or conservation purposes and you are a non-profit conservation group, government agency or working with a government agency please fill out a Data Release Form.

Project Description

The National Park Service (NPS), in cooperation with the Massachusetts Department of Conservation and Recreation (DCR), proposes to replace the pier facility located at Georges Island in the Boston Harbor Islands national park area. The pier facility, managed by the Massachusetts Department of Conservation & Recreation, serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat or private vessel. The timber pier is almost 50 years old, and the associated piles and submerged members are in poor condition. A modern pier facility that can better accommodate present and future vessel demand is proposed in the same general location.

The purpose of the Georges Island pier is to provide access to a culturally and environmentally rich resource in the Boston Harbor Islands national park area. The pier is the only means of docking at Georges Island and serves as a water transportation hub for visitors exploring the Boston Harbor Islands by ferry, charter boat or private vessel. As such, replacement of the pier would enhance public access to the park as a whole. The key objective of the proposed replacement is to accommodate present and future visitor use, preserve the historical character of the island, enhance visitor enjoyment of the island, and improve public safety.

An initial screening of available data, obtained from MassGIS, has identified Potential and Existing Priority Habitat in Boston Harbor adjacent to Georges Island. It is anticipated that measures to avoid, minimize and mitigate habitat impacts, if any, will be incorporated into the design as the project advances.

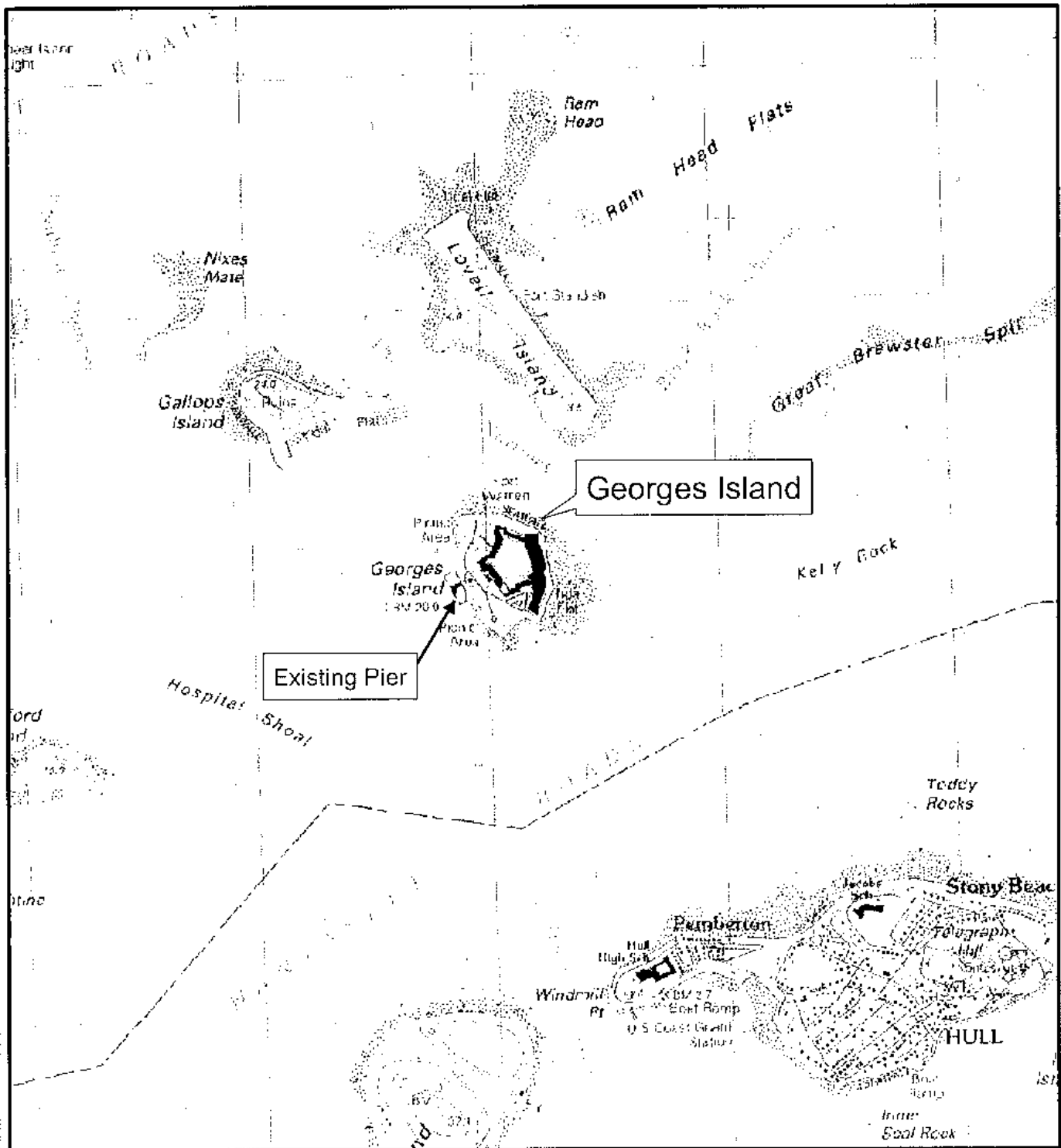


FIGURE 1
SITE LOCATION MAP

GEORGES ISLAND PIER IMPROVEMENT PROJECT
BOSTON HARBOR ISLANDS, MASSACHUSETTS

URS

260 FRANKLIN STREET, SUITE 300
BOSTON, MASSACHUSETTS
(617) 542-4244

Project No. 10160608

December 2008



Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Wayne F. MacCallum, Director

6/22/2009

Martha King
MA Department of Conservation & Recreation - Office of Waterways
249 Lincoln Street, Building 45
Hingham MA 02043

RE: Project Location: George's Island
Town: BOSTON
NHESP Tracking No.: 09-26774

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program ("NHESP") of the MA Division of Fisheries & Wildlife for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, this project site, or a portion thereof, is located within *Priority Habitat* 935 (PH 935) and *Estimated Habitat* 776 (EH 776) as indicated in the *Massachusetts Natural Heritage Atlas* (13th Edition). Our database indicates that the following state-listed rare species have been found in the vicinity of the site:

<u>Scientific name</u>	<u>Common Name</u>	<u>Taxonomic Group</u>	<u>State Status</u>
<i>Sterna antillarum</i>	Least Tern	Bird	Special Concern

The species listed above is protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (WPA) (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00). Fact sheets for most state-listed rare species can be found on our website (www.nhesp.org).

This evaluation is based on the most recent information available in the NHESP database, which is constantly being expanded and updated through ongoing research and inventory. If you have any questions regarding this letter please contact Amy Coman, Endangered Species Review Assistant, at (508) 389-6364.

Sincerely,

Thomas W. French, Ph.D.
Assistant Director

www.masswildlife.org

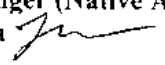
Division of Fisheries and Wildlife
Field Headquarters, North Drive, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7891
An Agency of the Department of Fish and Game

APPENDIX D: COORDINATION WITH TRIBES

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MEMORANDUM

D22(BOHA)

From: Park Ranger (Native American Consultant), Boston Harbor Islands National Recreation Area 

To: Evaluate and Design Hub Pier, Georges Island (PMIS 109654)

Re: Summary of 2009 Native American consultation notification for Georges Island pier (PMIS 109654)

A notification was sent out on January 26 and 27, 2009 to 12 Native American groups --- including;

Nipmuc Nation Hassanamisco Band, Chris Montgomery;
Delaware, Dr. Brice Obermeyer, cc'd to Chief Jerry Douglas and Cherokee representative, Richard Allen;
Massachuset-Ponkapoag Tribal Council, Chief Gill Solomon, cc'd to Dr. Elizabeth Solomon;
Natick Nipmuc Indians, Sachem Mary Anne Hendricks, cc'd to Kristen Wyman;
Eastern Pequot Tribal Nation, Chief Lewis Randall, cc'd to Brenda Geer;
Mashantucket Pequot Tribal Nation, THPO Kathleen Knowles, cc'd to Chairman Michael Thomas;
Penobscot Nation, THPO Bonnie Newsom, "cc" Chief Kirk Francis;
Narragansett Indian Tribe, THPO John Brown, "cc" Chief Sachem Matthew Thomas;
Historic Nipmuck Tribe, Larry Spotted Crow Mann;
Praying Indians Tribe of Natick & Ponkapoag, Caring Hands Rosita Andrews;
Wampanoag Tribe of Gay Head (Aquinnah), THPO Bettina Washington;
Wampanoag (Mashpee), THPO Chuckie Green.

Copies of letters and emails sent can be found in the park's Native American consultation files.

Below is a summary of responses received by the park from Native American representatives;

January 27, 2009: Email from **The Praying Indians Tribe of Natick & Ponkapoag**, Caring Hands Rosita Andrews to Bruce Jacobson, in which Mrs. Andrews thanked Bruce for the information and expressed interest in future updates.

February 12, 2009: Email from **The Natick Nipmuc Indians**, Sachem Mary Anne Hendricks to Bruce Jacobson, in which Marry Anne expresses her "main concern" was not from a Native American perspective but "is based on use by persons who are physically handicapped".

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APPENDIX E: WETLANDS BMPS

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APPENDIX E

DO- 77-1 Wetland Protection Best Management Practices

Appendix 2: "Best Management Practices (BMPs) Conditions" to be Applied when Proposed Actions Have the Potential to Have Adverse Impacts on Wetlands

The following serve as BMPs for NPS actions that may have adverse impacts on wetlands. Additional BMPs may be appropriate depending on local conditions or special circumstances. These also serve as "conditions" that must be met for the actions listed in Section 4.2 A of these procedures to qualify as "excepted."

1. **Effects on hydrology:** Action must have only negligible effects on site hydrology, including flow, circulation, velocities, hydroperiods, water level fluctuations, and so on.
2. **Water quality protection and certification:** Action is conducted so as to avoid degrading water quality to the maximum extent practicable. Measures must be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterway or wetlands. Action is consistent with state water quality standards and Clean Water Act Section 401 certification requirements (check with appropriate agency).
3. **Erosion and siltation controls:** Appropriate erosion and siltation controls must be maintained during construction, and all exposed soil or fill material must be permanently stabilized at the earliest practicable date.
4. **Effects on fauna:** Action must have only negligible effects on normal movement, migration, reproduction, or health of aquatic or terrestrial fauna, including at low flow conditions.
5. **Proper maintenance:** Structure or fill must be properly maintained so as to avoid adverse impacts on aquatic environments or public safety.
6. **Heavy equipment use:** Heavy equipment use in wetlands must be avoided if at all possible. Heavy equipment used in wetlands must be placed on mats, or other measures must be taken to minimize soil and plant root disturbance and to preserve preconstruction elevations.
7. **Stockpiling material:** Whenever possible, excavated material must be placed on an upland site. However, then this is not feasible, temporary stockpiling of excavated material in wetlands must be placed on filter cloth, mats, or some other semipermeable surface, or comparable measures must be taken to ensure that underlying wetland habitat is protected. The material must be stabilized with straw bales, filter cloth, or other appropriate means to prevent reentry into the waterway or wetland.

The **Department of Conservation and Recreation** is steward of one of the largest state parks systems in the country. Its 450,000 acres is made up of forests, parks, greenways, historic sites and landscapes, seashores, lakes, ponds, reservoirs and watersheds.



As the nation's principal conservation agency, the **Department of the Interior** has responsibility for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

