# DRAFT RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT FOR THE BUZZARDS BAY BOUCHARD BARGE-120 (B-120) OIL SPILL SHORELINE, AQUATIC AND NATURAL RESOURCE USE INJURIES MASSACHUSETTS AND RHODE ISLAND

**February 2014**

*Prepared by:*

National Oceanic and Atmospheric Administration

United States Fish and Wildlife Service

Massachusetts Executive Office of Energy and Environmental Affairs

and

Rhode Island Department of Environmental Management

**Executive Summary**

The National Oceanic and Atmospheric Administration (NOAA), U.S. Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (USFWS), the Commonwealth of Massachusetts, acting through the Executive Office of Energy and Environmental Affairs (EEA), and the State of Rhode Island serve as the natural resource Trustees ("Bouchard B-120 Trustees") responsible for addressing the natural resource injuries that resulted from the April 2003 Bouchard Barge-120 (B-120) oil spill that affected more than 98 miles of Buzzards Bay and its shoreline and nearby coastal waters in both Massachusetts (MA) and Rhode Island (RI). The Bouchard B-120 Trustees have prepared this Draft Restoration Plan and Environmental Assessment (Draft RP/EA) for public review and comment on proposed restoration alternatives addressing shoreline and aquatic resources and lost recreational uses. The lost recreational uses include general coastal access, recreational shellfishing, and recreational boating associated with the oil spill. A separate RP/EA was prepared and completed in 2012 by the Trustees, identifying and selecting restoration alternatives for piping plover injuries caused by the Bouchard B-120 spill, to expedite and begin restoration implementation in early 2013. One additional RP/EA will be prepared to address restoration for other birds (5 bird groups other than piping plover) and shoreline injuries on Ram Island affected by the Bouchard B-120 oil spill and subsequent clean-up.

Consistent with the Oil Pollution Act of 1990 (OPA) (33 U.S.C. section 2701, *et seq*.) and the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321- 4347), the purpose of restoration planning is to identify and evaluate a reasonable set of resource and resource use-specific restoration alternatives and to provide the public with an opportunity for review and comment on the proposed restoration alternatives. Restoration planning provides the link between resource injury and restoration. The purpose of restoration, as discussed in this Draft RP/EA, is to make the environment and the public "whole" for injuries resulting from the spill by implementing one or more restoration actions that aim to return injured natural resources and services to baseline conditions and compensate for interim losses.

The Bouchard B-120 Trustees are responsible for restoring natural resources and resource services injured by the spill and spill clean-up, as authorized by the OPA. As a designated Trustee, each agency is authorized to act on behalf of the public under state[1] and/or federal law to assess and recover natural resource damages, and to plan and implement actions to restore, rehabilitate, replace, or acquire the equivalent of the natural resources or services injured or lost as a result of an unpermitted discharge of oil.

[1] MA General Law Chapter 21E, Section 5 and Chapter 21A, Section 2A, and RI General Law, Section 46-12.5.1

The Bouchard B-120 Trustees and the Bouchard Transportation Company, Inc., the Responsible Party (RP) for this spill, reached agreement on the injury assessment and restoration for several of the injuries resulting from the spill. These include injuries to shoreline and aquatic resources, piping plover, and lost recreational uses. The specific terms of this agreement were memorialized in a publicly-available consent decree executed on May 17, 2011 (Refer to: http://www.gc.noaa.gov/gc-cd/051911-cb-bouchard.pdf).

The Bouchard B-120 Trustees held two public meetings in September 2011 to introduce the restoration planning process, restoration project criteria, and solicit restoration alternative / project ideas from the public to help in addressing the Bouchard B-120 oil spill and clean-up injuries. Submittal of restoration ideas was extended to December 2011, after which time the Trustees compiled the information received from numerous submittals. In all, 63 submitted project ideas were considered by the Bouchard B-120 Trustees for addressing the natural resource injuries to shoreline and aquatic resources and lost recreational uses including lost general coastal access and use, recreational shellfishing, and recreational boating.

The Bouchard B-120 Trustees applied eligibility and evaluation criteria, as detailed in this Draft RP/EA, to identify restoration project alternatives for potential funding. Of the 63 project ideas and more than 70 project sites submitted, the Bouchard B-120 Trustees have identified a total of 29 restoration projects or project types as preferred project alternatives recommended for implementation. These 29 projects include two tiers or levels of preferred project categories recommended for funding. The Tier 1 preferred projects or project types (20) are those eligible projects that best met the evaluation criteria, and therefore, have been given the higher priority by the Trustees for funding using the settlement funds. Tier 2 preferred alternative projects (9) are those restoration activities that could be funded if Bouchard B-120 settlement funds remain after the Tier 1 projects are completed, or should Tier 1 projects no longer need funds or require less funding than previously identified during the public solicitation process. The Tier 1 and Tier 2 preferred project alternatives for shoreline and aquatic restoration (labeled as “SA” projects), lost coastal access and use (labeled as “LU” projects), and lost recreational shellfishing and shellfish restoration (labeled as “SH” projects) are summarized in the following sections, followed by the proposed funding levels for the projects or project types.

**Shoreline and Aquatic Restoration Projects**

Tier 1 preferred projects include six aquatic and shoreline restoration projects; four in MA and two in RI. These projects include: tidal marsh restoration by fill excavation/ removal and invasive non-native plant species control (two projects: SA-4, SA-11); dam removal for diadromous fish passage and other ecological services (SA-2); conservation mooring installation for eel grass protection and restoration (one project, multiple

Buzzards Bay sites: SA-10); and shellfish population enhancement projects in RI (two projects: SA-23, SA-24) including transplants of quahogs in coastal pond spawner sanctuaries, and the enhancement of bottom habitat to provide recruitment of shellfish populations.

If funds remain after the Tier 1 funding, the Trustees propose the funding of Tier 2 preferred aquatic and shoreline projects including a tidal marsh restoration in MA (SA-1) using tidal hydrology restoration, two dam removal projects in MA (SA-13, SA-14), two stream and riparian habitat restoration projects in MA (SA-16, SA-21), and improvements to an existing structural fishway in RI (SA-22).

**Coastal Access and Use Projects**

For lost general coastal access and use, the Bouchard B-120 Trustees propose to fund ten Tier 1 preferred projects (eight projects in MA and two projects in RI) including: pedestrian walking trails and improvements (four projects: LU-5, LU-6, LU-10 in MA and LU-12 in RI), land acquisition for public access and use (one project: LU-1 in MA), universal access to beach and shoreline for persons of all physical abilities (two projects: LU-7 in MA and LU-13 in RI), and a handicapped-accessible fishing pier (one project: LU-9 in MA). Improvements to two boat ramps are also proposed as Tier 1 preferred projects (LU-3, LU-15) to address the lost recreational boating impacts in Massachusetts.

The Trustees propose the funding of Tier 2 preferred projects if settlement funds are available after the Tier 1 preferred funding; these projects include an urban riverwalk (LU-11 in MA) and two property acquisitions (LU-17 and LU-18 in MA). One additional boat ramp improvement project in Massachusetts (LU-8) is also proposed as a Tier 2 preferred alternative.

**Recreational Shellfishing and Shellfish Restoration Projects**

The Bouchard B-120 Trustees propose the funding of four Tier 1 preferred project types to address lost recreational shellfishing and shellfish restoration in Massachusetts. These broadly-defined shellfish restoration/shellfishing project types include projects in Massachusetts waters: quahog relays and transplants (SH-4, SH-5, SH-8, SH-10, SH-12, SH-14, and SH-18), quahog seed releases (SH-20), bay scallop restoration (SH-11 and SH-13), and oyster restoration (SH-2, SH-3, SH-13 and SH-15) that will be targeted for high priority sites throughout Buzzards Bay providing sustainability of the target shellfish species and populations. The Bouchard B-120 Trustees propose to allocate settlement funds for each of these four shellfish restoration project types that could be used for projects in each of the Buzzards Bay municipalities, including projects other than the ones indicated above. The Trustees are not proposing any Tier 2 preferred alternatives for addressing lost recreational shellfishing and shellfish restoration.

The public is invited to review and submit comments on the Draft RP/EA during a 45-day period, through March 23, 2014. Comments on the Draft RP/EA should be submitted in writing to:

NOAA Restoration Center
Attention: Buzzards Bay RP/EA Review Coordinator
28 Tarzwell Drive
Narragansett, Rhode Island 02882
buzzardsbay.rp.ea.review@noaa.gov

The Trustees will review and consider the comments received during the comment period and determine whether a Finding of No Significant Impact (FONSI) is appropriate for the restoration alternatives selected for implementation. A FONSI is the document that describes the basis for an environmental analysis and Federal interagency review during the EA process, where one or more projects is expected to have no significant impacts on the quality of the environment. The FONSI document takes into account all applicable public comments and responses received during the Draft RP/EA review period. If determined by the Trustee agencies to be an appropriate action, a Final RP/EA with the selected restoration alternatives will be released to the public, along with the FONSI prepared by the Federal agencies on the Trustee Council. Implementation of the selected restoration activities is expected to begin in late 2014. The Bouchard B-120 Trustees recommend the following projects and project types and proposed funding levels.

**Shoreline and Aquatic Restoration Projects (Funds available: $1,339,575)**

| ***Tier 1 Preferred MA Projects*** | ***Proposed Funding Level*** |
|---|---|
| Round Hill Salt Marsh Restoration Project, Dartmouth, MA (SA-4) | $813,105 |
| Horseshoe Pond Dam Removal and Weweantic River Restoration, Wareham, MA (SA-2) | $365,000 |
| Conservation Boat Moorings, Eelgrass Restoration, multiple locations, MA (SA-10) | $100,000 |
| Allens Pond Salt Marsh restoration, Dartmouth, MA (SA-11) | $22,000 |
| **MA Shoreline and Aquatic Restoration Project Total** | **$1,300,105** |

| ***Tier 1 Preferred RI Projects*** | ***Proposed Funding Level*** |
|---|---|
| Quahog Relays and Transplants, South County, RI (SA-23) | $20,000 |
| Quahog Substrate Enhancement, South County, RI (SA-24) | $19,470 |
| **RI Shoreline and Aquatic Restoration Project Total** | **$39,470** |

| *Tier 2 Preferred MA Projects* | *Proposed Funding Level* |
|---|---|
| Gray Gables Marsh Tidal Hydrology Restoration, Bourne, MA (SA-1) | $50,000 |
| Cotley River Restoration and Fish Passage, Taunton, MA (SA-13) | $50,000 |
| Mill River and Fish Passage Restoration, Taunton, MA (SA-14) | $50,000 |
| Red Brook Headwaters Fish Passage Restoration Project, Wareham, MA (SA-16) | $50,000 |
| Agawam River Fish Passage and Riparian Wetland Restoration, Plymouth, MA (SA-21) | $50,000 |

| *Tier 2 Preferred RI Projects* | *Proposed Funding Level* |
|---|---|
| Saugatucket River Fish Passage Improvements, Wakefield, RI (SA-22) | $35,000 |

**Coastal Access and Use Projects (Funds available: $1,585,560)**

| *Tier 1 Preferred MA Projects* | *Proposed Funding Level* |
|---|---|
| Nasketucket Bay Land Acquisition, Fairhaven and Mattapoisett, MA (LU-1) | $960,000 |
| Allens Pond Sanctuary Trail Improvements, Dartmouth, MA (LU-5) | $120,000 |
| Nasketucket Bay State Reservation Trail Improvements, Mattapoisett, MA (LU-6) | $20,553 |
| State Park Universal Access to the Buzzards Bay Coast, Fairhaven, Dartmouth and Westport, MA (LU-7) | $54,000 |
| Hoppy's Landing Barrier-Free (Handicapped Accessible) Fishing Platform and Access Improvements, Fairhaven, MA (LU-9) | $200,000 |
| Palmers Island Access Improvements, New Bedford, MA (LU-10) | $19,500 |
| Clarks Cove Public Boat Ramp, Dartmouth, MA (LU-3) | $17,500 |
| Onset Harbor Boat Ramp Improvements, Wareham, MA (LU-15) | $67,500 |
| **MA Coastal Access and Use Project Total** | **$1,459,053** |

| *Tier 1 Preferred RI Projects* | *Proposed Funding Level* |
|---|---|
| Black Point Loop Trail Improvements, Narragansett, RI (LU-12) | $51,000 |
| Scarborough Beach South ADA Coastal Access Improvements, Narragansett, RI (LU-13) | $70,620 |
| **RI Coastal Access and Use Project Total** | **$121,620** |

| *Tier 2 Preferred MA Projects* | *Proposed Funding Level* |
|---|---|
| Harbor Riverwalk, New Bedford, MA (LU-11) | $306,900 |
| The Let Parcels Acquisition, Westport, MA (LU-17, LU-18) | $100,000 |
| Apponagansett Bay Boat Ramp Improvements, Dartmouth, MA (LU-8) | $85,000 |

**Recreational Shellfishing and Shellfish Restoration Projects (Funds available: $1,323,190)**

| *Tier 1 Preferred MA Projects* | *Proposed Funding Level* |
|---|---|
| Quahog Stock Enhancement through Relays and transplants, Buzzards Bay Towns (SH-4, SH-5, SH-8, SH-10, SH-12, SH-14, SH-18 – various municipalities) | $530,000 |
| Quahog Stock Enhancement through Seed Releases, Buzzards Bay Towns (SH-20 – various municipalities) | $130,000 |
| Bay Scallop Restoration (SH-11, SH-13 – various municipalities) | $330,000 |
| Oyster Restoration (SH-2, SH-3, SH-13, SH-15 – various municipalities) | $330,000 |
| **MA Shellfishing and Shellfish Restoration Project Total** | **$1,320,000** |

| | |
|---|---|
| **Total Recommended Funds for Tier 1 Preferred MA Projects** | **$4,079,158** |
| **Total Recommended Funds for Tier 1 Preferred RI Projects** | **$161,090** |
| **Total Recommended Funding Level for Tier 1 Preferred Projects** | **$4,240,248** |

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# 1.0 INTRODUCTION

## 1.1 Purpose and Need

### 1.1.1 Purpose

The purpose of the proposed restoration action is to offset natural resource injuries resulting from the April 2003 Bouchard B-120 oil spill that released oil to Buzzards Bay and contiguous coastal waters and shoreline in Massachusetts and Rhode Island. The proposed action is a set of project alternatives that if implemented, would provide compensatory restoration addressing injuries to shoreline and aquatic resources and lost recreational uses of natural resources including lost general coastal access, lost recreational boating, and lost recreational shellfishing within the affected environment. The goal of the restoration implementation is to restore, rehabilitate, replace, or acquire the equivalent of the natural resources that were injured and the lost public uses that attributed to the Bouchard B-120 oil spill.

### 1.1.2 Need for the Action

The Bouchard B-120 oil spill released oil to Buzzards Bay and contiguous coastal waters and damaged natural resources and uses. Natural resources injured by the spill include nearly 100 miles of coastal shoreline including tidal marshes and intertidal flats; aquatic resources including water column and benthic sub-tidal habitats and benthic communities; and shellfish, fish, birds, and other aquatic biota. The spill also resulted in lost general public access to beaches and other coastal areas; lost recreational boating including sailing and powerboating; and lost recreational shellfishing due to closures imposed by the state of Massachusetts due to potential exposure and health risk. More detailed information on the spill incident and the natural resource injuries is provided in Section 1.2, below.

Through the federal Oil Pollution Act (OPA) of 1990 and OPA regulations (15 CFR § 990.40), the federal Trustee agencies for the Bouchard B-120 spill include the National Oceanic and Atmospheric Administration (NOAA, as Lead Administrative Trustee) and the U.S. Fish and Wildlife Service (USFWS). Bouchard B-120 state Trustees include the Commonwealth of Massachusetts and the State of Rhode Island. Collectively, the Bouchard B-120 Trustees are responsible in accordance with OPA to make the environment and public "whole" for injuries to natural resources and services that result from incidents involving a discharge or substantial threat of a discharge of oil to the environment. For the Bouchard B-120 spill, the Trustees are responsible to address resource injuries and lost uses in the affected environment in Massachusetts and Rhode Island through the implementation of one or more shoreline and aquatic resource and lost recreational use restoration projects.

Prior to expending funds for restoration, the OPA requires Trustees to develop a Restoration Plan (RP) for public review and comment (15 CFR Part 990). The federal natural resource damage assessment (NRDA) regulations (43 CFR Part 11) require that the restoration plan identify a reasonable number of potential alternatives for the restoration, rehabilitation, replacement, and/or acquisition of equivalent resources and the services lost to the public associated with each injured resource (43 CFR §§11.93 and 11.81). This document serves as the Draft RP for shoreline and aquatic resource injuries and lost public recreational resource uses attributed to the Bouchard B-120 oil spill.

In addition, this document constitutes the Environmental Assessment (EA) as defined under the National Environmental Policy Act (NEPA) (40 CFR Part 1502.10), and addresses the potential impacts of the proposed restoration actions on the quality of the physical, biological, and cultural environment. NOAA is the lead federal agency for this EA and its responsibilities under NEPA, and the USFWS, Commonwealth of Massachusetts, and the state of Rhode Island are cooperating agencies.

## 1.2 Overview of the Incident

On April 27, 2003, the Bouchard Barge-120 (B-120), owned and operated by the Bouchard Transportation Company, Inc., struck a rocky shoal, soon after entering the western approach to Buzzards Bay (Figure 1). The grounding ruptured a 12-foot hole in the hull of the barge, releasing approximately 98,000 gallons of No. 6 fuel oil into the Bay. The oil was spread and driven ashore by winds and currents and primarily affected the north, northwest, and northeast portions of the Bay including shoreline in the towns of Westport, Dartmouth, New Bedford, Fairhaven, Mattapoisett, Marion, Wareham, Gosnold, Bourne, and Falmouth, Massachusetts (Figure 2). Oil continued to be transported throughout Buzzards Bay and nearby coastal waters. More than 98 miles of shoreline were affected, including shoreline and coastal waters in both Massachusetts and Rhode Island. Oiling was unevenly distributed and was particularly concentrated at exposed shoreline headlands and peninsulas in discrete, localized areas (e.g., Barneys Joy Point and Mishaum Point in South Dartmouth; West Island, Sconticut Neck, and Long Island in Fairhaven). Shoreline oiling was also reported for the Elizabeth Islands along the southern portion of Buzzards Bay and portions of the Rhode Island shoreline (e.g., Little Compton and Block Island).

The Buzzards Bay shoreline is comprised of a diversity of shoreline types including sand and cobble beaches, rocky shores, tidal wetlands, and sand- and mudflats under both public and private ownership. Approximately one-quarter of the affected shoreline was determined to be moderately to heavily-oiled while the remaining three-quarters of affected shoreline incurred very light or light oiling (Figure 2). Various shoreline and aquatic natural resources and uses of these injured coastal resources were adversely affected by the spill and spill clean-up activities.

The state and federal agencies responsible for the Bouchard B-120 oil spill response and clean-up included the U.S. Coast Guard as Federal On-Scene Coordinator, the

Massachusetts Department of Environmental Protection (MassDEP) as State On-Scene Coordinator, NOAA, and USFWS. Gallagher Marine Systems, Inc. (Gallagher), the firm retained by the Responsible Party (RP) to manage the emergency response activities on behalf of the RP, arrived on scene soon after the spill reporting, and began coordinating the surface boom deployment to limit spreading of the oil. By the morning of April 28, 2003, more than 1,500 feet of containment boom was deployed in open water around the barge's stern in an attempt to prevent further release / containment of the oil. On-water oil recovery efforts using skimming boats as well as floating booms and absorbent materials were deployed to contain and recover oil spilled prior to the stranding of oil on the shoreline.

For oil that reached shore, shoreline clean-up activities included manual removal and off-site disposal of oiled substrates and shoreline debris (e.g., wrack), power-washing, manual wiping, passive collection using sorbent materials (e.g., snare and pompoms), and limited mechanical excavation and replacement of heavily-oiled inter-tidal substrates. Emergency restoration consisting of re-planting salt marsh vegetation (i.e., smooth cordgrass (*Spartina alterniflora*)) was also conducted at several localized marsh sites during this initial response period. The Trustee agencies collected data during environmental clean-up operations to help document the degree of oiling of shorelines and shoreline habitat types, and to prioritize clean-up needs. These emergency oil clean-up actions by the state and federal agencies and the RP's consultant continued for several months.

Within the first few days of the spill, emergency responders and others also began collecting live and dead oiled birds in the spill area. A number of citizen volunteers provided an essential workforce to support the various activities of the rehabilitation center. Immediately following the oil spill release, the Massachusetts Division of Marine Fisheries (MA DMF) announced the closure of state shellfish areas within Buzzards Bay and adjacent to the Elizabeth Islands. Subsequent decisions to reopen shellfish areas

were based upon the collection and analyses of shellfish tissue samples by the Massachusetts Department of Public Health (MADPH), and discussions with the MA DMF and other state agencies. Massachusetts municipal shellfish area closures ranged from approximately one month to upwards of six months. During the closures, the public was not allowed to harvest shellfish.

**Figure 1:** Grounding Site and Travel Pathway of Bouchard Barge-120, Resulting in Buzzards Bay Oil Spill (Source: Massachusetts Executive Office of Environmental Affairs et al. 2005)

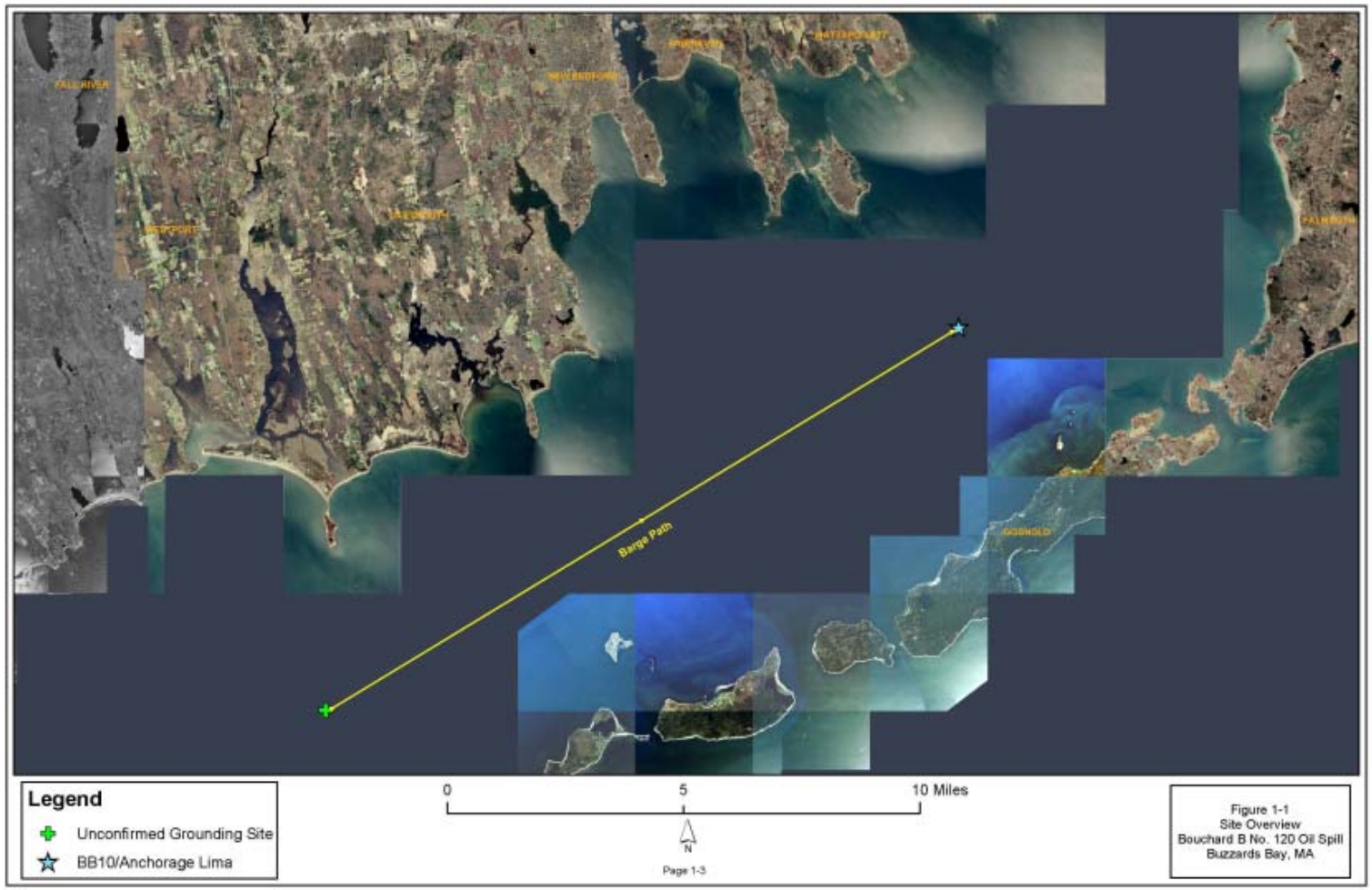
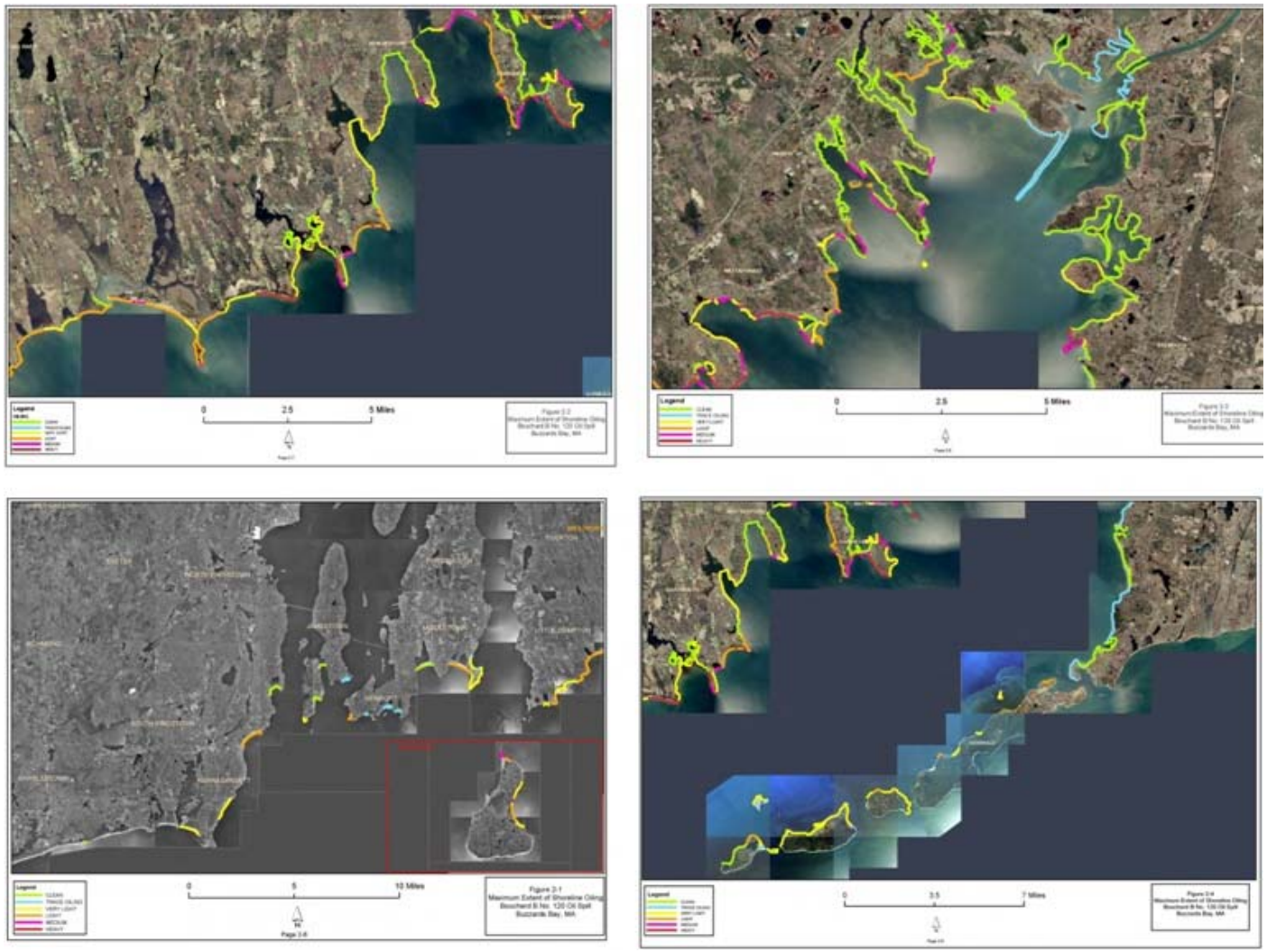


**Figure 2**: Extent of Shoreline Oiling Resulting from the Bouchard B-120 Grounding (Source: Massachusetts Executive Office of Environmental Affairs et al. 2005)



### 1.3 Natural Resources Damage Assessment

Soon after the spill event, the Trustee agencies (NOAA, USFWS, the Commonwealth of Massachusetts, and State of Rhode Island) commenced the Pre-assessment Phase of the Natural Resources Damage Assessment (NRDA) in accordance with the Oil Pollution Act of 1990 (OPA) and NRDA regulations (the "OPA regulations", 15 CFR § 990.40) to determine if the agencies had jurisdiction to pursue restoration under OPA and, if so, whether it was prudent to do so. A primary purpose of the OPA is to make the environment and public "whole" for injuries to natural resources and services that result from incidents involving a discharge or substantial threat of a discharge of oil to the environment. This mandate is carried out by first returning the injured natural resources and services to the condition in which they would have existed, if the incident had not occurred (known as "baseline conditions"). This objective may be accomplished through natural recovery of the injury and/or with human intervention. If natural recovery is not possible, the NRDA Trustees then seek compensation from a Responsible Party or Parties for the interim losses of natural resources and services from the time of the release incident, until recovery to baseline conditions is achieved through restoration, rehabilitation, replacement, or acquisition of the equivalent of the natural resources and/or services lost.

Based on the Trustee agencies' analyses of data collected during the initial spill response and Pre-assessment Phase, including the documentation of oiled shoreline, birds, and other biota, and the collection of dead, federally-listed threatened and endangered bird species (Analyses available in Massachusetts Executive Office of Environmental Affairs et al. 2005), the Trustees determined that jurisdiction through the OPA was conclusive, and restoration under OPA was appropriate. The Trustees further determined that the spill response clean-up actions had not adequately addressed the restoration of natural

resource injuries resulting from the incident, and that feasible primary[2] and/or compensatory[3] restoration actions were available and required to address the injuries. These determinations were memorialized in a Notice of Intent to Conduct Restoration Planning. The Notice was signed on July 21, 2006 and NOAA published the Notice in the Federal Register on July 28, 2006 (Refer to Federal Register Vol. 71, No. 145, pp. 42812-42814). As a result, the Trustees initiated the Restoration Planning phase of the NRDA, which includes evaluating and quantifying injuries through an injury assessment; and then using the quantified results to determine the need for and scale of the restoration action(s) to compensate for the injuries (OPA, Section 990.50).

### 1.4 Coordination

#### 1.4.1 Trustee Council Organization and Activities

OPA, Executive Orders 12580 and 12777, and 40 CFR § 300.600 designate the federal, state, and tribal Trustees for natural resources affected by oil spills. The Secretary of Commerce, acting through the NOAA, is a designated federal Trustee for certain natural resources including living marine resources and their habitats (e.g., marine, estuarine and diadromous fishes, other aquatic biota, and certain marine mammals). The Secretary of the Department of the Interior (DOI) is the designated federal Trustee for certain natural resources including, but not limited to, migratory birds, certain marine mammals, anadromous fish, federally endangered and threatened species, and their respective habitats, and federal lands managed by DOI. The Secretary of Interior designated the Northeast Regional Director, Region 5 of the USFWS to act on behalf of

[2] "Primary restoration" is any action undertaken to expedite the return of injured natural resources and services to the baseline conditions – conditions that would have existed had the oil spill not occurred.
[3] "Compensatory restoration" is a restoration action provided to offset interim losses – the natural resource injuries that accrue from the time that an oil spill occurs until baseline conditions are re-established.

the Secretary as the Authorized Official for the spill. The aforementioned Executive Orders and federal regulations also provide that each state is the designated Trustee for all natural resources within its political boundaries. The governor of each state designates the state agency or agencies that will act as the natural resource Trustee for each particular affected state. For the Bouchard B-120 spill, the Governor of Massachusetts designated the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) as the Trustee for the Commonwealth. The EEA is supported by the MassDEP which administers the state's NRDA Program. The Governor of Rhode Island designated the Rhode Island Department of Environmental Management (RIDEM) as the state's natural resource Trustee. Lastly, federally-recognized Indian tribes are Trustees for natural resources belonging to, managed by, controlled by, or appertaining to the tribes. Early on during the injury assessment phase of the Bouchard B-120 spill, the Wampanoag Tribe of Gay Head (the Aquinnah) reached a separate settlement with the Responsible Party. Therefore, the Wampanoag Tribe is not a designated Trustee in this restoration planning effort. Thus, NOAA, USFWS, EEA, and RIDEM are the designated Bouchard B-120 spill Trustees.

To memorialize the ongoing collaborative interagency efforts to accomplish the common goals of natural resource damage assessment and restoration, the Trustees entered into a Memorandum of Agreement (MOA), executed in March 2007. The MOA serves as a framework for coordination and cooperation amongst the Trustees to: (1) ensure timely and efficient implementation of a NRDA to address resource injuries, including service losses, caused by the spill; (2) avoid duplication of assessment costs and otherwise ensure costs are reasonable; (3) seek compensation for resource injuries or losses, including reimbursement of assessment costs; and (4) provide for appropriate restoration, rehabilitation, replacement or acquisition of natural resources and/or services injured or lost. The Trustee MOA also identified NOAA as the Lead Administrative Trustee (LAT) agency for the Bouchard B-120 oil spill case. The LAT

serves as a logistical, administrative and fiscal agent for the Trustee Council and coordinates Trustee Council activities.

The Bouchard B-120 Trustees have worked collaboratively to assess the natural resource injuries and identify a set of restoration alternatives identified and described in this Draft RP/EA. NOAA, as lead federal agency, and the USFWS are the federal agencies responsible for complying with NEPA, and along with the state Trustee agencies (the states along with USFWS are the cooperating agencies under NEPA) for the Bouchard B-120 spill, have prepared this Draft RP/EA for the purpose of identifying a reasonable set of restoration project alternatives and recommending preferred alternatives to address (1) shoreline resources, (2) aquatic resources, and (3) lost uses of coastal resources injured by the Bouchard B-120 oil spill.

### 1.4.2 Responsible Party Involvement

Federal regulations implementing OPA encourage Trustees to invite Responsible Parties to actively participate in the NRDA process, and enter into agreements with the natural resource Trustees to promote cost-effectiveness and cooperation (15 Code of Federal Regulations (CFR), 990.14(c)). The Bouchard Transportation Company, Inc., the Responsible Party (RP), formally responded in June 2003, indicating acceptance to participate in a cooperative NRDA with the Trustees. In October 2006, the RP entered into a cooperative NRDA agreement with the Bouchard B-120 Trustees – "Memorandum of Agreement between Bouchard Transportation Co., Inc. and the Natural Resource Trustees Governing Cooperative Natural Resource Damage Assessment and Restoration Planning Activities for the Bouchard B. 120 Oil Spill" (hereafter, "Trustee-Responsible Party MOA"), which included a reimbursement agreement supporting the Bouchard B-120 Trustees' role in injury assessment and accompanying studies and restoration project oversight.

The Bouchard B-120 Trustees prepared and provided the Responsible Party with scopes of work for assessment studies, according to the procedures for cooperative studies outlined in the Trustee-Responsible Party MOA. The Responsible Party's consultant ENTRIX (now named, Cardno ENTRIX) participated in natural resource damage assessment studies, injury determinations, restoration scaling calculations, and restoration planning discussions. In November 2010, the Trustees and Responsible Party negotiated a mutually agreeable settlement for certain specified categories of natural resource damages including shoreline and aquatic resources and lost natural resource uses (Refer to Section 3.0 of this Draft RP/EA for details).

### 1.4.3 Public Involvement, Notification and Review

Public review of the restoration plan proposed in this Draft RP/EA is an integral and important component of the restoration planning process and is consistent with all applicable state and federal laws and regulations, including NEPA and its implementing regulations, and the guidance for restoration planning found within the federal regulations (43 CFR Part 11).

The Bouchard B-120 Trustees have published a notice of the availability of this Draft RP/EA in local newspapers and issued a press release to regional newspapers and other media outlets. The Draft RP/EA is available for public review and comment for a period of 45 days. The deadline for submitting comments on the Draft RP/EA is specified in the public notice issued concurrently with the Draft RP/EA. The electronic version of this Draft RP/EA document is available for public review at the following web sites:
http://www.darrp.noaa.gov/northeast/buzzard/index.html
http://www.mass.gov/eea/agencies/massdep/cleanup/nrd/
A hardcopy of the Draft RP/EA is also available for public review at the City of Fall River and Town of Bourne public libraries.

The Bouchard B-120 Trustees will consider all written comments received during the public comment period. After review and consideration of each of the public comments received, NOAA, as lead federal agency under NEPA, and its co-Trustees will release a Final Restoration Plan and Environmental Assessment (Final RP/EA). Written comments received and the Bouchard B-120 Trustees' responses to those comments, whether in the form of restoration plan revisions or written explanatory responses to comments, will be summarized in the Final RP/EA.

### 1.4.4 Administrative Record

The Bouchard B-120 Trustees have established an Administrative Record in compliance with federal regulatory requirements for natural resource damage assessments of oil spills (15 CFR §900.45). The Administrative Record includes information and documents prepared by and/or relied upon by the Trustees during the injury assessment and determination, restoration scaling, and throughout the case. Interested persons can access or view the Administrative Record at:

NOAA Restoration Center
28 Tarzwell Drive
Narragansett, RI 02882
Attention: Bouchard B-120 Administrative Records Management

Arrangements must be made in advance to review or to obtain copies of these records by contacting the office listed, above. Access to and copying of these records is subject to all applicable laws and policies including, but not limited to, laws and policies relating to copying fees and the reproduction or use of any material that is copyrighted.

# 2.0 AFFECTED ENVIRONMENT AND SUMMARY OF NATURAL RESOURCE INJURIES

## 2.1 Physical, Biological and Cultural Environments

This section describes the physical, biological and cultural environments of the Bouchard B-120 spill area and the proposed restoration sites and surrounding areas. These descriptions form the basis for evaluation of the potential environmental impacts and social consequences of the proposed restoration actions. Much of the description of the Buzzards Bay affected environment has been excerpted from the Comprehensive Conservation and Management Plan for Buzzards Bay prepared by the Buzzards Bay National Estuarine Program (Buzzards Bay National Estuarine Program 2012; See: http://buzzardsbay.org/newccmp.htm), and *Ecology of Buzzards Bay: An Estuarine Profile* (Howes and Goehringer 1996). This section includes general descriptions of the shoreline and aquatic resources injured and coastal use areas affected by the spill.

### 2.1.1 The Physical Environment

Buzzards Bay is a moderately large estuary that is approximately 28 miles (45 km) long, averages about 8 miles (13 km) in width and covers approximately 228 square miles ($mi^2$) (595 $km^2$) of tidal waters. There are approximately 280 miles (450 km) of shoreline in the Bay. The shoreline is comprised of a variety of physical settings and habitat types including sand, cobble and boulder beaches, rocky shores, salt marsh and tidal wetlands, and tidal flats. Approximately 5,107 acres of salt marsh are present along Buzzards Bay, comprising 8.6 percent of the wetlands in the watershed (Buzzards Bay National Estuary Program 2012). Most of the known eelgrass (*Zostera marina*) beds and shellfish stocks are located in nearshore waters and embayments less than 16 feet (5 m) deep. Approximately 3% of the Bay is comprised of intertidal flats. The Bay itself is relatively

shallow with a mean depth of approximately 35 ft (11 m) and a relatively uniform basin (Howes and Goehringer 1996).

The entire watershed of Buzzards Bay covers 435 $mi^2$ (1,209 $km^2$). West of the Cape Cod Canal, seven major river basins drain into the Bay including the Agawam, Wankinco, Weweantic, Mattapoisett, Acushnet, Paskamansett, and the Westport Rivers. East of the Canal, coastland is drained mostly by groundwater and several streams including the Back and Pocasset Rivers, Wild Harbor Brook, and Herring Brook (Buzzards Bay National Estuarine Program 2012). The rivers of the Buzzards Bay drainage basin are typically slow moving, meandering for much of their length. Near the coast, particularly on the northwestern shore, past glacial erosion created broad valleys that now tidally submerged due to sea level rise, creating a network of broad tidal estuaries. On average, Buzzards Bay streams and rivers are considerably shorter (usually <20 mi (34 km)) and have smaller drainage areas than other rivers within Massachusetts. The watershed area to water surface area of Buzzards Bay is 1.9:1, relatively low as compared to other East coast estuaries (Buzzards Bay National Estuarine Program 2012).

The Bay was formed during the last ice age approximately 15,000± years ago. Before that, Buzzards Bay was periodically submerged as glaciers advanced and retreated through the region, causing sea levels to drop and rise. The southeastern side of the Bay (Bourne, Falmouth, and the Elizabeth Islands) consists of glacial moraine deposited by the glacier's leading edge. Consequently, it has a relatively smooth shoreline composed mostly of sand and gravel material. The northwestern side (Wareham to Westport), with its numerous elongated bays and inlets, was formed by the glacier's retreat to the north. Many of these bays and inlets have since become sheltered from the ocean and wave energies by barrier spits (Buzzards Bay National Estuarine Program 2012).

The distribution and stability of a bay environment depends on three primary physical characteristics of the water: circulation, salinity, and temperature. Tidal currents and

winds are the dominant circulation forces in Buzzards Bay, with the Elizabeth Islands along the southern border protecting the Bay from large, open-ocean waves. Complete tidal mixing of Bay water with ocean water is estimated to occur every 10 days (Signell 1987). Buzzards Bay is functionally divided between sub-tidal open waters (i.e., the central bay, an area of 476 $km^2$) and 27 principal embayments (an area of approximately 75 $km^2$). The embayments, because of their location and physical morphology, are the areas first subject to coastal eutrophication; embayments have restricted circulation and smaller volume for dilution of nutrient inputs from the land (Howes and Goehringer 1996).

The shallow waters of Buzzards Bay tend to have a greater range of environmental conditions than those in the central bay. For example, embayment waters frequently warm more rapidly than the Bay with approaching summer months, but cool more rapidly with the onset of fall. As a result of their structure, circulation, and proximity to nutrient inputs from the watershed, these shallow embayments tend to have higher rates of productivity than the central bay region, and are more susceptible to periodic dissolved oxygen problems – hypoxia or anoxia in their bottom waters. The net result is a relatively environmentally stable central bay region, fringed with embayments presenting not only a variety of physical habitats but also a greater range in environmental conditions of its intertidal and subtidal habitats (Howes and Goehringer 1996).

Water temperatures in Buzzards Bay range from a summer maximum of 71.6$^{\circ}$F (22$^{\circ}$C) to 28$^{\circ}$F (-3$^{\circ}$C) during winter. During colder winters, the upper reaches of the Bay sometimes freeze, whereas during the spring and summer, solar warming keeps surface waters warmer than the deeper Bay waters. The water temperature gradually decreases in relation to depth until the thermocline (i.e., distinct temperature gradient) or pycnocline (i.e., distinct density gradient) is reached, where the temperature drops abruptly. The shallowness of the Bay combined with surface wave mixing and turbulent

tidal flows, prevents strong thermal stratification, so that the Bay is well-mixed through most of the year (Buzzards Bay National Estuary Program 2012).

Bay salinity typically has a relatively limited annual range and gradually increases offshore. There are few large streams bringing fresh water into the Bay, with the result that salinity offshore is essentially the same as that of other embayments, such as Block Island and Vineyard Sounds that receive relatively little fresh water. In the semi-enclosed embayments along shore, salinity is more variable. Overall, the Bay is a tidally dominated, well-mixed estuarine system (Buzzards Bay National Estuary Program 2012).

Relative to the Bouchard B-120 oil spill, nearly 100 miles of shoreline and coastal waters were oiled in both Massachusetts and Rhode Island (Michel et al. 2008). Oiling was unevenly distributed and generally concentrated at exposed shoreline points and peninsulas (e.g., Barneys Joy Point, Mishaum Point, West Island, Sconticut Neck and Long Island, MA). Oil was also transported throughout the Bay and surrounding coastal waters, with very light to light shoreline oiling found sporadically along the Elizabeth Islands and Rhode Island coastline (e.g., Little Compton and Block Island).

### 2.1.2 The Biological Environment

Buzzards Bay maintains a wide variety of habitats, representative of most ecosystems found along the North Atlantic coast of the United States. Barrier beaches, tidal wetlands, tidal flats, rocky and boulder intertidal zones, and hard and soft benthic habitats are dispersed along the perimeter of the Bay, as well as circulation-restricted coves and embayments providing protected habitats for a variety of plant and animal species.

The composition and distribution of benthic communities within Buzzards Bay are determined primarily by the sediment grain-size and associated characteristics of the Bay bottom. Sanders (1958, 1960) characterized the benthic communities in Buzzards Bay into two faunal groups or assemblages. The first is typified by deposit feeders generally present in softer, mud-dominated sediments. The second faunal community is primarily found inshore and offshore in sand- or gravel-dominated bottoms, and consists mainly of filter feeders such as amphipods. Shellfish are benthic animals, and in most cases, infauna (i.e., organisms which are found within the sediments). Buzzards Bay, with its many protected harbors and embayments, provides numerous suitable habitats for bivalves including the recreationally and commercially-important quahog (*Mercenaria mercenaria* ) and soft-shelled clam (*Mya arenaria*). Buzzards Bay is also home to the epibenthic bay scallop (*Argopecten irradians*) and Eastern oyster (*Crassostrea virginica*). Other bivalve species are found in Buzzards Bay but provide limited recreational or commercial shellfishing harvest values. These include the common razor clam (*Ensis directus*), duck clam (*Pitar morrhuanus),* and ocean quahog (*Arctica islandica*).

The infaunal communities inhabiting the tidal flats of Buzzards Bay are valuable resources contributing to the aquatic food web. Bivalves and other marine invertebrates serve as forage items for the many species of waterfowl that feed on these organisms during low tide periods. Shorebirds (e.g., sand piper, American oystercatcher, piping plover), which feed primarily on polychaetes (worms), insects, mollusks and crustaceans, often follow the water's edge as it advances and retreats over the flats, with maximum foraging during low tide when maximum tidal flat exposure occurs.

Many other species utilize the tidal flats, including crabs such as rock crab (*Cancer irroratus*), green crab (*Carcinus maenas*), and blue crab (*Callinectes sapidus*); these species migrate on and off the flats with the movements of tide, feeding on infaunal

bivalves and worms. The lady crab (*Ovalipes ocellatus*) frequently buries itself in the sandy sediments of these flats. Hermit crabs (*Pagurus longicarpus* and *P. pollicaris*) and snails (*Ilyanassa* and *Nassarius* spp.) also coexist on the tidal flats; the hermit crab utilizes the empty shells of the snails for semi-permanent homes. The horseshoe crab *(Limulus polyphemus*) frequently uses tidal flats as feeding and spawning grounds and deposits its eggs in sands near the high tide line.

The American lobster (*Homarus americanus*) represents the most targeted crustacean for Buzzards Bay harvesting. Lobstering is an important commercial fishery for Buzzards Bay and also supports a recreational fishery. Buzzards Bay is a spawning ground for lobsters, and provides favorable conditions for growth and reproduction due to its water residency times (time period for complete water mixing exchange) and moderate spring to fall temperatures. Conversely, the abundance of lobsters in Buzzards Bay, like the other southern New England, populations, have seriously declined due to factors including shell disease, water contaminants, and elevated water temperatures.

A variety of fish species make the Bay home for all or part of their life cycles, including resident species and seasonal visitors. Some of the fish species in Buzzards Bay are recreationally important including scup or porgy (*Stenotomus chrysops*), butterfish (*Peprilus triacanthus*), winter flounder (*Pleuronectes americanus*), alewife (*Alosa pseudoharengus),* blueback herring (*Alosa aestivalis*), Atlantic menhaden (*Brevoortia tyrannus*), black sea bass (*Centropristis striata*), tautog (*Tautoga* onitis), bluefish (*Pomatomus saltatrix*), and striped bass (*Morone saxatilis*) (See for example, Davis 1989).

Buzzards Bay, with its many coves, smaller embayments, salt marshes, and tidal flats, is a significant spawning ground for many Northwest Atlantic finfish species. Migratory species such as anadromous American shad (*Alosa sapidissima*), alewife, and blueback herring enter the Bay's tributaries during their spring migration to spawn. Juvenile shad

and herring than spend a portion of the year in Buzzards Bay streams and rivers, before out-migrating to and intermixing in the Bay and other coastal waters such as the nearby Taunton River estuary and Narragansett Bay. Shad and river herring spend 3-5+ years in coastal and oceanic waters before returning to their natal rivers to spawn. American eel (*Anguilla rostrata*), a catadromous species, also migrates into streams and rivers in the Buzzards Bay watershed as elvers/juveniles ("yellow phase" eels) to spend up to 10 years in freshwaters of Buzzards Bay watershed before out-migrating (as "silver phase" adults) to spawn in oceanic waters. Collectively, these diadromous fish migrations (anadromous fishes plus the catadromous American eel) have provided a seasonally dependable source of fish for centuries of commercial and/or recreational harvest. Conversely, the diadromous fish runs on many of the Buzzards Bay streams and rivers have been significantly affected by dams, water pollution, land-based and at-sea overharvesting, and other impacts (See the Migratory Fish Passage Restoration Action Plan 8 in the 2012 BBNEP Comprehensive Conservation and Management Plan http://buzzardsbay.org/newccmp-anadromous.htm).

Salt marshes, comprising approximately 8.6 percent of the wetlands in the watershed, represent an important component in the ecology of Buzzards Bay and occur as fringes or in pockets all around the Bay. These tidal wetlands within the Bay system are typical of New England marshes, generally forming behind protective barriers such as barrier beaches, or as narrow fringing marshes in low-energy environments such as wave-protected coves and embayments. Endemic salt marshes are generally divided into two rather distinctive zones: the low marsh, dominated by smooth cordgrass (*Spartina alterniflora*) and the high marsh, dominated by the salt marsh hay (*Spartina patens*) and spike grass (*Distichlis spicata*). Invasive, non-native plants, particularly common reed (*Phragmites australis*) is a threat to native salt marshes, where common reed is often present in the high marsh, nearby freshwater wetlands, and the upper low marsh, displacing native vegetation cover.

Marine life such as snails, crabs, ribbed mussel, amphipods, and a variety of fish species, many serving as forage items for larger predatory fishes, birds and mammals, are abundant in the Buzzards Bay salt marshes. Many species of birds (e.g., rails, wading birds) feed on invertebrates, while species such as Canada Goose and Brandt are omnivores which also feed on marsh and submerged aquatic plants. Mammals such as voles, field mice, raccoon (*Procyon lotor*), and skunk (*Mephitis mephitis*) forage in the marsh during low tides. The resident species of fish found in Buzzards Bay salt marshes are typified by the mummichog, striped killifish, sheepshead minnow (*Cyprinodon variegatus*), four-spined stickleback, and Atlantic silverside, a seasonal visitor. These forage fish are often preyed upon by crabs, predatory fishes, wading birds such as herons and egrets, as well as other birds (e.g., common tern, federally-listed roseate tern) and land mammals and marine mammals (e.g., seals, dolphins).

Species listed under the federal Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531, *et seq*.), are known to be present within Buzzards Bay and contiguous coastal areas. Federally-listed species found in the Buzzards Bay waters and nearby coastal areas area include: piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii*), Atlantic sturgeon (*Acipenser oxyrinchus*), shortnose sturgeon (*Acipenser brevirostrum*), dwarf wedgemussel (*Alasmidonta heterodon*), and the northern red-bellied cooter (*Pseudemys rubriventri*). Other species such as rainbow smelt (*Osmerus mordax*), a federally-list Species of concern and alewife and blueback herring, are also candidate federal Species of Concern, and found throughout Buzzards Bay and river and stream tributaries.

### 2.1.3 The Cultural and Human Environment

The Buzzards Bay watershed encompasses all or portions of 21 municipalities, including two communities in Rhode Island. Eleven coastal communities encompass and share the bay in Massachusetts (City of New Bedford and Towns of Westport, Dartmouth,

Acushnet, Fairhaven, Mattapoisett, Marion, Wareham, Bourne, Falmouth, and Gosnold (i.e., Elizabeth Islands, Cuttyhunk Island)). Two others in Rhode Island (Little Compton and New Shoreham (i.e., Block Island)) are located at or west of the entrance to the bay. Natural resources within all these municipalities were affected by the Bouchard B-120 oiling.

Much of the watershed is rural and forested, and only a lesser amount of the watershed classified as developed (14%); conversely, within one-half mile of the coast, more than 34 percent of the land is characterized as residential, commercial, and industrial land use (Buzzards Bay National Estuary Program 2012). According to U.S. Census data, the population within the watershed was approximately 250,000 in 2010 and 41 percent of the population lives within one-half mile of the bay. An average population density of 572 persons per square mile characterizes the Buzzards Bay watershed (Buzzards Bay National Estuary Program 2012). Over the years, the population growth has transitioned from small rural communities to suburban communities for commuters working in the Boston and Providence areas, while others have experienced continued growth in response to the demand for summer or retirement homes near the water (Howes and Goehringer 1996).

Shoreline ownership in the watershed is both public and private, and a variety of shoreline uses occur on both land ownership types. Approximately 25 percent of the Buzzards Bay watershed is protected open space. Much of the use is concentrated in defined public access points such as state parks and town beaches. There are 13.4 miles (22 km) of public beaches (municipal and state owned) in Buzzards Bay, with an additional 31.9 miles (51 km) of "quasi-public" beaches. Quasi-public beaches include some large tracts of state, municipal, and private conservation coastal lands where the public has some right of use, beach association and community beaches, private pay-to-use beaches, club and resort beaches, and other stretches of coastline where more than a single owner is allowed use. Many of the quasi-public areas are not open to general

public use. The remainder of coastline is privately owned, to the low tide limit. Massachusetts is one of five states with property ownership to the low tide mark; state ownership in Rhode Island extends seaward from mean high water. Buzzards Bay beaches owned and managed by cities, towns, and the Commonwealth of Massachusetts (e.g., Demarest Lloyd State Park and Horseneck Beach State Reservation) are open to the public (Refer to: http://www.buzzardsbay.org/phbeachinfo.htm).

Buzzards Bay is home to more than 12,000 docked or moored boats, and during peak summer holiday or boat events, more than 15,000 vessels may be in the bay. Most of the registered vessels are recreational boats, while the remaining ~1,850 boats are commercial or government operated vessels (mostly fishing boats, ferries and municipal craft). More than 33 public and private marinas, 58 public boat ramps, 6,340 moorings, and more than 1,000 docks service the boats used in Buzzards Bay. Docks, moorings and boats in Buzzards Bay continue to increase in number, and in some local harbors, mooring fields cover large areas and may exceed 1,000 anchorages (Buzzards Bay National Estuary Program 2012).

Shellfishing is a significant recreational and commercial activity in Buzzards Bay. Quahog (i.e., hard clam) is the principal species harvested in Buzzards Bay terms of poundage, while bay scallop, soft-shell clam, and eastern oyster remain highly valuable in terms of dollar value. In 2003, MADMF estimated the annual value of shellfish harvested from Buzzards Bay was $4 million, and applying a standard economic multiplier of 4.5, this catch contributed approximately $18 million to the local economy. Water quality degradation due to pathogen contamination remains a serious human health risk and an economic loss. Where shellfishing closures are present, remaining open areas often receive greater fishing pressure, and may have a significant impact on these local shellfish populations. According to the Buzzards Bay National Estuary Program, more than 180,000 acres of Buzzards Bay tidal waters are open to shellfishing (approved and conditionally approved), while in contrast as of 2011, approximately

6,000 acres remain permanently closed, with an additional 3,000 acres of seasonal shellfishing closures (See: 2012 BBNEP Comprehensive Conservation and Management Plan; http://buzzardsbay.org/newccmp/newccmp-shellfish.pdf). More than 87,000 acres of shellfish beds in Massachusetts were temporarily closed soon after the Bouchard B-120 oil spill, with some areas remaining closed for more than 6 months (Buzzards Bay National Estuary Program 2012).

**2.2 Environmental Justice**

Environmental justice (EJ) is federally defined as the equal protection and meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies and the equitable distribution of environmental benefits. The federal Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was signed into law by President Clinton on February 11, 1994, calling on each Federal agency to achieve environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

The Commonwealth of Massachusetts Environmental Justice definition is based on the principle that all people have a right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment. The Massachusetts Executive Office of Environmental Affairs (EEA) has determined that EJ populations are those found to be most at risk of being unaware of or unable to participate in environmental decision-making, or to gain access to state environmental resources. The EEA EJ policy is a key factor in decision-making by its agencies. The policy can be located at:

http://www.mass.gov/eea/grants-and-tech assistance/environmental-justice-policy.html

In the context of this case, a number of EJ areas are located within the Buzzards Bay communities. The EJ designated areas within the Buzzards Bay oiling impact area are depicted in mapped materials in Appendix A. The web link for the locations of the Commonwealth of Massachusetts EJ communities can be found at: http://www.mass.gov/anf/docs/itd/services/massgis/southeast-ej-2010-map.pdf

The Rhode Island Department of Environmental Management also has an EJ policy entitled *Policy for Considering Environmental Justice in the Review of Investigation and Remediation of Contaminated Properties* (Refer to: http://www.dem.ri.gov/envequity/pdf/ejfinal.pdf). The premise of EJ is sustained through this policy, further providing a fair and effective process for public involvement in Rhode Island. In the context of this case, EJ areas are located within the State of Rhode Island. Appendix A presents a graphic illustration of these areas. Web links for the Rhode Island EJ communities are depicted are: http://www.dem.ri.gov/envequity/graphics/ejareas.jpg and interactive maps can be found at: http://204.139.0.188/website/maps/viewer.htm.

**2.3 Natural Resource Injuries Covered by This Document**

To assess injuries caused by the Bouchard B-120 spill, the Trustees established Technical Working Groups (TWGs), early during the injury assessment phase of the case. The TWGs were comprised of (1) scientists and technical staff from the federal and state agencies and (2) consultants representing the Responsible Party to determine the extent and magnitude of resource injuries and lost services attributed to the oil spill. Each TWG focused on injuries to specific natural resource categories including: (1) shoreline resources, (2) aquatic resources, (3) lost human uses, (4) birds and wildlife resources,

and (5) shoreline resources on Ram Island, a unique, state-owned wildlife preserve managed by the Massachusetts Division of Fisheries and Wildlife. The TWG investigations involved cooperative joint assessments by environmental scientists and economists representing the Trustees and Responsible Party. Copies of TWG assessments can be found on the NOAA web site listing for Bouchard B-120 case documents: http://www.darrp.noaa.gov/northeast/buzzard/admin.html.

This Draft RP/EA document describes injuries to, settlement of, and restoration alternatives for shoreline and aquatic resources and lost recreational uses including lost general coastal access, lost recreational shellfishing, and lost recreational boating. The Bouchard B-120 Trustees previously completed Draft and Final RPs/EAs (December 2012) for piping plover injuries resulting from the spill, as a means to expedite compensatory restoration of this federally-listed species; restoration activities for piping plover began in early 2013 and will continue through 2015 or beyond.

To address injuries to five other bird resource categories (e.g., terns, loons, sea ducks and other waterfowl) and Ram Island shoreline resources, a separate settlement is anticipated with the Responsible Parties for injuries resulting from the Bouchard B-120 spill. That settlement has not been reached yet, and restoration for these additional resource injuries will comply with NEPA and OPA after the anticipated settlement. At that time, an additional RP/EA document will be planned and prepared based on the settlement.

The spill also affected individual private citizens and tribal resources. The Wampanoag Tribe of Gay Head held discussions and settled separately with the Responsible Party during the earlier phase of the case. The Responsible Party also established avenues for private citizens to file and discuss claims, and those private claims were addressed by the Responsible Party, separate from the natural resource injuries and uses addressed by the Trustees on behalf of the public.

The following sections briefly summarize the injury assessment process and results of the respective TWGs. More detailed information on each of these assessments can be found at: http://www.darrp.noaa.gov/northeast/buzzard/admin.html.

### 2.4.1 Shoreline Injury Assessment

The Shoreline TWG, including representatives from the Trustee agencies and consultants for the Responsible Party, were responsible for cooperatively conducting the injury assessment focused on impacts associated with the physical oiling of shoreline and clean-up activities such as heavily-oiled sediment removal and replacement, trampling of marsh and dune vegetation, and exacerbated erosion of marsh peat substrates. The Shoreline TWG evaluated the extent and duration of injury to shoreline resources using Shoreline Cleanup Assessment Team (SCAT) data and other survey data collected immediately following the spill or otherwise available for use in the assessment. The SCAT survey participants completed over 500 field reports detailing the location, thickness, and percent cover of oil on intertidal habitats throughout Buzzards Bay. The Shoreline TWG used the SCAT information to quantify and map the location of oiling for use in the injury assessment, creating maps depicting the spatial footprint of oiling and based its injury assessment on this impact footprint.

The Shoreline TWG undertook a Pre-Assessment study that involved making field observations and collecting data during September 2003 and August 2004 shoreline site field surveys to define the extent of oil exposure to the shoreline. The types of shoreline habitat and the length of shoreline that were oiled as a result of the spill are also explained in the *Bouchard B-120 Oil Spill Shoreline Injury Assessment: Exposure Characterization* (Shoreline Assessment Team 2006) (Refer to *Case Documents* link in http://www.darrp.noaa.gov/northeast/buzzard/index.html). The Exposure Characterization identified resources potentially at risk of injury including shoreline and other types of natural resources. Shorelines affected by the spill were characterized

into three broad habitat categories: coarse substrates; sand beaches; and tidal salt marshes. In total, oil adversely affected an estimated 84.7 acres (along 87 miles) of the Massachusetts shoreline and an estimated 17.1 acres (along 17 miles) of the Rhode Island shoreline.

The Shoreline TWG subsequently performed a Habitat Equivalency Analysis (HEA) for quantifying shoreline injuries. As a general overview, the HEA method is based on a services-to-services approach, with the principal concept that lost and injured habitats and resources and their ecological services can be compensated through habitat restoration or replacement projects to provide resources and/or services of the same or similar as the resource type injured (NOAA, 2000). Using HEA, injuries are quantified in terms of the percent loss of ecological services, as compared to pre-spill release, baseline levels, and the rate at which the lost services recover over time. Recovery curves are then developed for identifying the reduction in services for each injured habitat and oiling category following a spill incident and the expected rate of natural recovery to baseline conditions without human intervention once cleanup activities have been ended. Inputs to recovery curves for each injured habitat include the percent loss in services immediately after the incident; and the percent of baseline services recovered (0%-100%) at specific points in time (e.g., 0.5 years, 2 years) following the injury. Results of the HEA method quantify habitat injury in terms of Discounted Service-Acre-Years (DSAYs). The total DSAYs assessed for resources/habitats injured by a spill are considered as the restoration debit needed to be compensated by implementing one or more restoration projects.

The Shoreline TWG developed recovery curves for each shoreline injury categories based on field observations, applicable published technical literature, and data collected as part of the shoreline injury assessment activities, as well as best professional judgment. Through the HEA, the Trustees concluded that a total of 81.08 DSAYs of shoreline habitat were injured in Massachusetts (including 5.2 DSAYs attributed to

shoreline injuries on Ram Island), while 3.41 DSAYs of shoreline habitat were injured in Rhode Island, for a total damage of 84.49 DSAYs of shoreline habitats (Refer to *Shoreline Injury Assessment – Injury Quantification* (Shoreline Assessment Team 2008) which can be found under *Case Documents*, *Injury Assessment Phase* at: http://www.darrp.noaa.gov/northeast/buzzard/admin.html). The Trustees then applied this information to scale restoration projects upon which to base the settlement for monetary damages with the Responsible Party.

### 2.4.2 Aquatic Resource Injury Assessment

The Bouchard B-120 Trustees conducted an aquatic resource injury assessment and determined that aquatic resource injuries were limited to Massachusetts waters only. The Aquatic TWG evaluated potential injury to three habitat types and two resources of concern. These included: (1) acute injury to water column habitat including fish, shellfish, and ichthyoplankton in the open Bay due to dissolved fractions of polycyclic aromatic hydrocarbons (PAHs); (2) acute injury to subtidal benthic habitat due to the presence of submerged, pooled oil on the bottom of the Bay; (3) acute injury to nearshore habitats (intertidal areas outside the footprint of the stranded oil and shallow subtidal areas of the Bay) due to dissolved fractions and/or physical fouling; (4) sublethal effects on bivalves due to accumulated PAHs in their tissues; and (5) acute injury to the American lobster due to physical fouling or toxicity (Bouchard B-120 Oil Spill Aquatic Assessment Team 2008; Refer to the report found under *Case Documents*, *Injury Assessment Phase* at: http://www.darrp.noaa.gov/northeast/buzzard/admin.html).

The Trustees evaluated potential exposure and acute injury to the open Bay water column habitat applying two models to produce estimates of water column concentrations of dissolved monocyclic and PAHs resulting from the spill. These concentration estimates were used to evaluate the potential for acute toxicity to

aquatic biota in the subtidal waters affected by the spill. Based on the results of the modeling, the Trustee agencies concluded that the concentrations from the spill were not significantly high enough and of a duration to cause acute injury to aquatic organisms.

The potential exposure and injury to subtidal organisms in the open waters of the Bay due to submerged oil was evaluated though multiple submerged oil surveys. These surveys found no evidence of large amounts of oil on the bottom. However, at one location, offshore of Barneys Joy, the surveys found evidence of small amounts of oil on the bottom of the Bay in the form of tarballs from oil that mixed with sand when washed ashore, and then re-transported to subtidal areas. The acreage of this oiling area was estimated, and injury to the area was quantified using the HEA method, as described above, to determine ecological service losses and habitat recovery over time. These injuries were quantified in terms of DSAYs; the Aquatic TWG determined the aquatic injury for this oiled aquatic habitat area to total 33.9 DSAYs.

The potential exposure to organisms living in nearshore habitats from physical oil fouling or dissolved hydrocarbons was estimated and injury was calculated, again using the HEA method to determine service losses and recovery over time. Nearshore habitats were defined as intertidal areas outside both the “footprint” of the stranded oil and shallow subtidal areas (0-3 ft) adjacent to those oiled shorelines. The aquatic resource injury was calculated only for and adjacent to the shorelines designated by the Shoreline TWG as having heavy oiling or moderate oiling. The total intertidal aquatic resource injury was determined to be 42.6 DSAYs, while the total subtidal injury including the extended Barneys Joy aquatic habitat area was determined to be 76.9 DSAYs. The Aquatic TWG determined the aquatic injury to intertidal and subtidal aquatic resources to total 119.5 DSAYs.

The Aquatic TWG also evaluated injury to two specific aquatic resource organisms – bivalves and lobsters. The Aquatic TWG found that body-burden of PAHs in bivalves of oil-spill related constituents was not high enough to cause an adverse effect. Due to the time of year of the spill and associated water temperatures, the Aquatic TWG concluded that few lobster larvae were exposed to the Bouchard B-120 oil or were injured by the oiling. While the Aquatic TWG concluded that adult lobsters may have been exposed by the Bouchard B-120 oiling, the exposure was also limited. Nonetheless, potential injuries to these species were incorporated into the injury determination for the nearshore subtidal and the extended subtidal area offshore of the Barney Joy area in South Dartmouth, as described above, where the lobster was determined by the Aquatic TWG to be part of the benthic community.

### 2.4.3 Lost Use Injury Assessment

The Lost Use TWG (LUTWG) evaluated how the oil spill and related cleanup activities impacted access to, and use of, various shoreline and coastal water areas for recreation (Refer to the *Lost Use Valuation Report* (LUTWG 2009) found under *Case Documents*, *Injury Assessment Phase* at: http://www.darrp.noaa.gov/northeast/buzzard/admin.html). The results of this assessment were used to determine appropriate restoration projects that compensate the public for this lost use of natural resources. In particular, the LUTWG assessed injuries to three categories of recreational activities: (1) general shoreline use, (2) recreational shellfishing, and (3) recreational boating. The general shoreline use category included a variety of shoreline and beach-related activities affected by the spill including sunbathing, walking, picnicking, birding, fishing, and kayaking. Boating impacted by the spill included motor-boating, boat-based recreational fishing, and sailing. Where appropriate and available, the LUTWG combined existing data and previous economic studies with onsite data collected specifically for the spill to develop a thorough evaluation of the spill's impact on the public use of these coastal resources.

Losses to recreational activities were evaluated by collecting information on recreation trips affected by the spill. The assessment relied on existing information to the extent possible, and economists gathered additional data, as needed. The number of trips affected by the spill was estimated by comparing "with-spill" to "baseline" trips. "With-spill trips" refers to those trips taken under Bouchard B-120 spill conditions (i.e., those actually taken) and "baseline trips" refers to those trips that would have been taken, had the Bouchard B-120 spill not occurred. With-spill trips were estimated using data collected at affected sites following the spill. The estimation of baseline trips utilized data on recreational use in years not affected by the spill and data for recreational activity in "control" areas – nearby areas with similar recreational activities that were not affected by the spill. To develop an appropriate dollar value for lost recreation services, the LUTWG used a benefit-transfer method for shoreline use, and boating trip data and a primary site-specific study method for recreational shellfishing trips.

The lost use assessment area included all Massachusetts and Rhode Island towns in which recreation was potentially affected by the spill, including the mainland from Narragansett, Rhode Island east to Woods Hole, Massachusetts; Block Island, Rhode Island; and the Elizabeth Islands, Massachusetts. Based on information collected and analyses performed during the assessment, losses were evaluated for geographic areas specific to each activity. The recreational shellfishing assessment area included the interior of Buzzards Bay from Westport to Woods Hole, Massachusetts. The shoreline and boating assessment areas included Little Compton, Rhode Island to Woods Hole, plus Block Island. The LUTWG concluded that no boating or recreational shellfishing losses occurred in Rhode Island, and therefore the only category of losses in Rhode Island was shoreline use. Based on the information collected, it was concluded that the costs of assessing potential losses for the Elizabeth Islands were not warranted given the expected magnitude of potential damages.

The LUTWG calculated an injury loss of 36,441 trips to the general shoreline (a 2,945-trip reduction portion occurred in Rhode Island); a reduction in 47,298 recreational shellfishing trips, all occurring in Massachusetts; and a reduction of 987 recreational boating trips, all in Massachusetts.

## 3.0 Summary of Settlement for Natural Resource Damages

Natural resource damage claims include the costs of completing the primary restoration; compensatory costs for addressing the interim loss of resources and services from the time of injury until the resources recover to baseline; and the costs of the Trustee agencies' involvement in performing the injury assessment and restoration scaling. Costs for primary restoration may be expended by the Responsible Party in coordination with the Trustee agencies immediately following the oiling cleanup by installing salt marsh plants or other habitat components to expedite resource recovery, and may involve additional damage claims depending on the extent of the natural resource recovery.

Following statutory requirements, recovered damages are used to restore, replace, rehabilitate or acquire the equivalent of the injured resources. To fully compensate for interim losses, the Trustees determine the scale of the proposed compensatory restoration actions for which the resource service gains provided by the actions equal the losses due to the injury. Determining damages claims involves appropriately scaling the compensatory restoration project according to the type and area of a restoration action to ensure that the present discounted value of the project gains is equivalent to the present discounted value of interim losses. The damage claim is thus the cost of implementing the selected primary and compensatory restoration actions, plus the costs of the administrative work completed by Trustees agencies for the injury assessment and restoration planning and scaling. Thus, a portion of the settlement

funds are used by the Trustees administratively to complete restoration planning and implementation of the selected restoration projects.

Monetary damages for injured habitats are based on the quantity of DSAYs multiplied by a commonly used unit cost per area (e.g., acres) for a habitat type. Unit costs for salt marsh have been well established by NOAA and others, and for other habitat types (e.g., sand or boulder beaches), ecological services are identified and compared to services provided by salt marshes to develop habitat conversion ratios. Once the conversion of all habitat injury is determined, compensatory restoration costs for all components (restoration site assessment, design, permitting, implementation, and performance monitoring) are calculated which take into account discounting over time and inflationary factors.

The Bouchard B-120 Trustees reached agreement with the Responsible Party to resolve the Trustees' claims for injuries to lost shoreline and aquatic resources and lost recreational uses, with the terms of the agreement set forth in a May 17, 2011 Consent Decree, which the U.S. Department of Justice filed with the U.S. District Court for the District of Massachusetts (*United States of America v. Bouchard Transportation Company, Inc., Tug Evening Tide Corporation, and B. No. 120 Corporation*, May 17, 2011, US District Court, District of Massachusetts). The Consent Decree specified that the Responsible Party pay the Trustees more than $6 million to settle the specific claims for shoreline and aquatic resource injuries, injuries to piping plover, and lost recreational uses (Refer to: http://www.gc.noaa.gov/gc-cd/051911-cb-bouchard.pdf). The following is a summary of the natural resources damages paid (plus accrued interest) by the Responsible Party to the Bouchard B-120 Trustees and the intended restoration uses for a portion of the injuries from the Bouchard B-120 spill:

- $1,522,000 for injuries to address shoreline and aquatic resources in MA and RI (Massachusetts portion is $1,478,307 and Rhode Island portion is $43,693);

- $3,305,393 to address lost recreational uses in Massachusetts and Rhode Island; the settlement includes $1,801,770 for lost general coastal access and use and recreational boating. Of that amount, $1,705,583 is to address general lost coastal access (Massachusetts portion is $1,567,379 and Rhode Island portion is $138,204) and $96,187 is to address lost recreational boating in Massachusetts.
- The remaining lost use settlement, $1,503,623, is to address lost recreational shellfishing in Massachusetts. Following settlement, the Bouchard B-120 Trustees determined that the funds for lost Massachusetts recreational shellfishing would be targeted at projects that benefit restoration or stock enhancement of shellfish populations and/or recreational shellfishing in Massachusetts.
- $534,000 for injuries to shoreline resources on Ram Island, a state-owned and managed wildlife sanctuary in Mattapoisett, MA. The Bouchard B-120 Trustees discussed and agreed that the Ram Island shoreline injury settlement funds will be addressed in a separate, future RP/EA that is expected to also address terns and four other bird groups (besides piping plover) injured by the spill.
- $715,000 for injuries to piping plover, a bird species federally-listed as threatened under the Endangered Species Act. These settlement funds address piping plover injuries in both MA and RI and will be used for restoration projects identified and selected in a separate Final Piping Plover RP/EA, completed in December 2012, and scheduled for restoration project implementation beginning in spring 2013.

## 4.0 Restoration Planning and NEPA Process

The goal of natural resource restoration planning through the OPA regulations is to identify actions appropriate to restore, replace, or acquire natural resources or services equivalent to those injured by oil spills, to the condition that resources would have been if the incident had not occurred (33 U.S.C. §2706(b)). The development and

consideration of a reasonable set of project alternatives also is requisite for complying with NEPA. Through NEPA, federal agencies are required to identify and consider reasonable alternative approaches that would address the purpose and need for the restoration action(s), as well as consideration of a No Action alternative for comparison and contrast with proposed actions. This Draft RP/EA is provided to the public for gathering its input on the proposed restoration. Public input will be fully considered when the Final RP/EA has been prepared. The Final RP/EA will describe the public input and the basis for recommendations of the preferred alternatives. A decision whether to prepare an EIS will then be made at that time.

The restoration planning process may involve two types of restoration: primary restoration and compensatory restoration. Primary restoration actions are designed to assist or accelerate the return of a natural resource, including its services, to its pre-injury or baseline conditions. In contrast, compensatory restoration actions serve to compensate for the interim loss of natural resources and resource services due to injury, pending the return of the resource to baseline conditions or service levels. The scale of a compensatory restoration project depends on the nature, extent, severity, and duration of the natural resource injury. Primary restoration actions (e.g., marsh plantings at formerly oiled site) that speed resource recovery reduce interim losses, as well as the amount of restoration required to compensate for those losses. For the Bouchard B-120 spill, there was limited potential for primary restoration actions. The Trustee agencies worked collaboratively with the RP's consultants to install marsh plantings at Ram Island to expeditiously address the impacts from marsh oiling and foot trampling associated with the spill clean-up activities. The primary restoration action will be discussed in a separate future RP/EA as previously described in Section 2.3, which will consider Ram Island shoreline injuries and proposed restoration alternatives, and will be combined with bird injury restoration alternatives on Ram Island.

### 4.1 Restoration Criteria

The purpose of restoration, as outlined in this Draft RP/EA, is to make the public whole for injuries to shoreline and aquatic resources and lost recreational uses resulting from the spill, and compensating for the associated interim natural resource losses. The federal CERCLA and OPA regulations require restoration projects and activities be developed and used by NRD trustees to restore, rehabilitate, replace, or acquire the equivalent of the resources and services that were injured or lost, although these regulations provide trustees with the flexibility to identify and implement projects that best address resource injuries and their lost uses. Natural resource Trustees must consider a reasonable range of alternatives and are provided discretion in identifying and selecting restoration projects, along with input from the public.

The OPA regulations require federal and state Trustees to evaluate proposed restoration alternatives based on a minimum of the following factors:

- The cost to carry out the alternative;
- The extent to which each alternative is expected to meet the Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses;
- The likelihood of success of each alternative;
- The extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
- The extent to which each alternative benefits more than one natural resource and/or service; and
- The effect of each alternative on public health and safety.

To determine restoration project eligibility for addressing the Buzzards Bay natural resource injuries, the Bouchard B-120 Trustees incorporated these factors into their

Eligibility and Evaluation Criteria. The *Eligibility Criteria* were used by the Trustees to determine whether potential projects met minimum standards for applicability (Refer to Section 4.2, below). Potential projects that met the Eligibility Criteria were then evaluated by the Bouchard B-120 Trustees by applying the *Evaluation Criteria* (Refer to Section 4.3) as the means for assessing and evaluating project strengths and weaknesses, and determining whether a potential project should be considered as a preferred versus non-preferred project to address the natural resource injuries.

**4.2 Eligibility Criteria**

Potential restoration projects must meet a set of Eligibility Criteria to be further considered and evaluated by the Trustees. Projects that did not meet the Eligibility Criteria were not given further consideration by the Bouchard B-120 Trustees. Of note, a project's demonstrated compatibility with the Eligibility Criteria does not necessarily guarantee that the project will be selected as a preferred alternative and funded, but only establishes that the Trustees will consider the alternative for possible settlement funding. Conversely, rejection of a proposed project based on the Eligibility Criteria means that the Trustees determined that funds cannot be allocated for the project, even though the proposed project may yield a restoration benefit to injured natural resources. A potential restoration project or activity will only be considered by the Bouchard B-120 Trustees as eligible for further consideration and evaluation if the project:

- Demonstrates a significant nexus to the restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the injured natural resources or, if natural resource restoration is not possible or feasible, the project results in restoration of natural resource services that were injured by the Bouchard B-120 spill.
- In terms of cost, does not overburden the ability of the Trustees to expend funds in a manner that accomplishes Trustee restoration goals for the injury

restoration, and/or allows the Trustees to select project(s) that serve as broad a geographic area affected by the spill as possible, and benefits the restoration of the injured resource and/or resource use categories.

- Provides measurable results. A project must deliver tangible and specific resource restoration results that are identifiable and measurable, and will be capable of being assessed and evaluated using quantitative methods, so that changes to the targeted resource and/or resource use can be documented and evaluated.
- Ensures protection of human health and safety, and/or is not prohibited by federal, state, or local laws, regulations, or policies addressing public health and safety.
- Is not subject to an independent, prior obligation to perform the action or activity pursuant to statute, regulation, ordinance, consent decree, judgment, court order, permit condition, memorandum of agreement, or contract. The project must not otherwise be required by federal, state, or local law, including but not limited to enforcement actions or regulatory compensatory mitigation requirements.
- Is consistent with, or will not be negatively impacted by any future remediation activities, nor would the project adversely affect any ongoing or anticipated remedial actions in the resource injury area.

**4.3 Restoration Evaluation Criteria**

The Bouchard B-120 Trustees developed *Evaluation Criteria* as a tool for assessing project strengths and weaknesses (Refer to Sections 4.3.1-4.3.3). Evaluation criteria were weighted and ranked by the Trustees according to the importance of each criterion, relative to the natural resource or resource use. The Trustees then scored and ranked each of the eligible restoration project alternatives to identify preferred and non-preferred alternatives.

Representatives from the Bouchard B-120 Trustee agencies evaluated each restoration project alternative using the discrete Evaluation Criteria for each restoration category. Eligible restoration projects were prioritized through a qualitative assessment of the criteria. While NOAA and USFWS reviewed all project alternatives, MassDEP reviewed projects proposed to be implemented in Massachusetts, while RIDEM reviewed projects proposed to be implemented in Rhode Island.

The Bouchard B-120 Trustee Council finalized their recommendations through a series of consensus-based discussions. The selections of proposed alternatives were largely based on individual project rankings; however, the following other factors were also taken into consideration:

- The overall level of funds available for the settlement and funding level of each specific resource and resource use restoration category;
- A balance and distribution of funds pertaining to: the geographical distribution over the affected spill area; project activity type; restoration priority category; project and work activity approach; and the number and diversity of project proponents and partners;
- The cumulative cost of the highest-ranked projects relative to the corresponding restoration type funds available;
- Potential impacts resulting from project activities, particularly relating to the NEPA and state (MA and RI) environmental and social impact review processes;
- The likelihood of timely permits, approvals, and authorizations to be secured for the project;
- The likelihood and timeliness of obtaining requisite access easements, rights-of-way, and/or any other necessary legal documentation to implement the project;
- Past performance of a project proponent to efficiently use funds, complete project planning and design, secure regulatory approvals, and successfully

complete projects, particularly natural resource or resource use restoration projects; and

- Written public comments received by the Trustees regarding the proposed projects.

### 4.3.1 Shoreline and Aquatic Resource Restoration

The following section outlines the Evaluation Criteria used by the Bouchard B-120 Trustees to review, evaluate, and rank the restoration projects proposed to compensate for shoreline and aquatic resource injuries. Evaluation criteria were weighted (high, moderate, and low importance) and scored by the Bouchard B-120 Trustees as follows:

***High Importance***

1. **Nexus to injury – spatial proximity** (5= project will occur within or directly affect coast or watershed of heavily to moderately oiled injury area; 3= restoration will occur within or directly affect coast or watershed of light to very lightly oiled injury areas; 1= restoration location in MA or RI but outside of the geographic oiled injury area)

2. **Nexus to injury – same or similar resource type** (5= project addresses same resource type and multiple habitats or species as injured by oiling; 3= project benefits multiple species and trophic levels but different resource type than was injured; 1= project benefits single, unlike resource than was injured)

3. **Ecological services** provided or enhanced (5= multiple biological and physical and chemical processes restored; 3= single primary process restored (e.g., wildlife habitat with vegetation management); 1= minimal or indiscernible services or processes restored)

4. **Acres or miles of habitat restored/resource rehabilitated** in regional context (5=large habitat area restored for the region (>10 intertidal or subtidal acres, >5 stream miles opened; 3= moderate habitat area restored (>5 intertidal or subtidal acres, >3 river miles); 1=minimal or indiscernible habitat area restored (<2 intertidal or subtidal acres, <1 stream mile)

***Moderate Importance***

5. **Site Ownership** (5= restoration at publically-owned site or willing private owner and easements secured; 3= privately-owned site but purchase and easements are pending but likely; 1= privately owned, no written support documentation or conservation or construction access easement uncertain)

6. **Project implementation readiness** (5= project is final designed and permitted and ready for implementation; 4=preliminary design plans and permitting completed; 3= preliminary design plans completed, permitting underway; 2= preliminary plan underway, no permit applications; 1= project is concept and/or in feasibility phase)

7. **Sustainability of resource benefits** (5= restoration benefits extends into perpetuity; 3= restoration benefits likely to remain for 15-20 years, but may be substantially affected by various impacts (e.g., climatic change); 1= restoration benefits are short-term, lasting <3-5 years, or are highly uncertain due to site environmental conditions)

8. **Technical feasibility** of project (5= straightforward project activity; likelihood of success is high; 3= complex design issues need to be addressed but not insurmountable; likelihood of success moderate; 1= complex site conditions make design and likelihood of success doubtful or uncertain)

9. **Cost effectiveness** (5= Low-unit cost effort relative to unit cost for habitat type and/or project type activity; 3= moderate-unit cost relative to average unit cost for habitat type and/or project type activity; 1= High unit cost relative to average unit cost for habitat type and/or project type activity)

***Low Importance***

10. **Operation and maintenance needs** and level of commitment (5= Project demonstrates that appropriate legal, financial, and operational mechanisms are in place to complete operation and maintenance to ensure sustained public benefits; 3= Project operation, maintenance and management will be required, but entity present and committed to the work activities; 1= Project requires substantial investment of management and/or maintenance in order to provide continuing benefits but entity is not present or committed to the work activities)

11. **Impact avoidance or minimization** (5 = Project has little or no potential for short- or long-term adverse environmental impacts to natural resources or services; 3 = Modifications to the project would considerably lessen substantial environmental impacts to natural resources or services; 1 = Project will have unavoidable adverse environmental impacts to natural resources or services, and may result in extensive regulatory permitting and further investigations or design changes for regulatory approval(s))

12. **Level of funding and resources needed for project implementation** (5= >75% of project funds secured and in-kind services already provided; 3= 50%-75% of funds secured and in-kind services provided by a limited range of project partners; 1= <25% of project implementation funds secured and in-kind services limited or will be uncertain)

13. **Community Involvement** (5 = Project includes significant and meaningful community involvement throughout the life of the project (e.g., planning, implementing, monitoring, maintaining); 3 = Project includes community involvement opportunities during some project phases, although uncertainty exists as to whether these opportunities would have a significant effect on the project itself; 1 = Project has minimal community involvement, may have substantial opposition to implementation, and/or will require substantial consensus-building)

### 4.3.2 Lost Shoreline Coastal Access and Recreational Boating

The following section outlines the Evaluation Criteria used by the Bouchard B-120 Trustees to review, evaluate, and rank the restoration projects proposed to compensate for lost general coastal access and lost recreational boating. Evaluation criteria were weighted (high importance, moderate importance, and low importance) and scored by the Bouchard B-120 Trustees as follows:

***High Importance***

1. **Nexus to injury – spatial proximity** (5= project will occur within or directly affect coast or watershed of heavily to moderately oiled injury area; 3= restoration will occur within or directly affect coast or watershed of light to very lightly oiled injury areas; 1= restoration location in MA or RI but outside of geographic oiled injury area)

2. **Nexus to injury – same or similar resource type and use** (5= project addresses same resource types or services and uses as were injured; 3= project benefits multiple resource types or services and uses but different resource types or

services and uses than were injured; 1= project benefits different resource or service or uses than were injured)

3. **Natural resource use benefits** (5 = Project provides a diversity of coastal use activities (e.g., beach or shoreline access, kayaking, recreational fishing, swimming, nature viewing) and benefits to diverse populations (e.g., Environmental Justice communities, underserved populations, handicapped persons); 3 = Project provides one or two coastal use activities, but benefits diverse populations; 1 = Project provides limited coastal use activities, or addresses non-coastal use activities and benefits targeted user group or limited local population)

4. **Accessibility to injured resource use** (5 = Project creates or expands on public access and will result in accessibility by a broad general public; 3 = Project improves or enhances existing access and will result in accessibility by a broad general public; 1 = Project enhances existing access for primarily limited local community use.)

***Moderate Importance***

5. **Site Ownership** – (5= restoration at publically-owned site or willing private owner and access easements secured; 3= privately-owned site, but funds for purchase and access easements have not been fully secured, but are likely; 1= privately owned, no written support documentation secured, or permanent conservation easement or temporary construction access easement are uncertain)

6. **Project implementation readiness** (5= project is final designed and permitted and ready for implementation or acquired; 4=preliminary design plans and

permitting completed; 3= preliminary design plans completed, permitting underway; 2= preliminary plan underway, no permit applications submitted; 1= project is concept and in feasibility phase)

7. **Sustainability of resource benefits** (5= restoration benefits extends into perpetuity; 3= restoration benefits likely to remain 15-20 years, but may be substantially affected by various impacts (e.g., climatic change); 1= restoration benefits are short-term, lasting <3-5 years, or are highly uncertain due to site environmental conditions)

8. **Technical feasibility** of project (5= straightforward project activity; likelihood of success is high; 3= complex design issues need to be addressed but are not insurmountable; likelihood of success moderate; 1= complex site conditions make design and likelihood of success as doubtful or uncertain)

9. **Cost effectiveness** (5= Low-unit cost effort relative to unit cost for habitat type and/or project type activity; 3= moderate-unit cost relative to average unit cost for habitat type and/or project type activity; 1= High unit cost relative to average unit cost for habitat type and/or project type activity)

***Low Importance***

10. **Operation and maintenance needs and level of commitment** (5= Project demonstrates that appropriate legal, financial, and operational mechanisms are in place to complete operation and maintenance to ensure sustained public use benefits; 3= Project operation, maintenance and management will be required, but designated entity present and committed to the work activities to sustain public access and use; 1= Project requires substantial investment of management and/or maintenance in order to provide continuing access and use

benefits, and entity is not present or committed to and/or funded for completing the on-going work activities)

11. **Impact avoidance or minimization** (5 = Project has little or no potential for short- or long-term adverse environmental impacts to natural resources or services; 3 = Modifications to the project would considerably lessen substantial environmental impacts to natural resources or services; 1 = Project will have unavoidable adverse environmental impacts to natural resources or services and uses, and may result in extensive regulatory permitting and further investigations or design changes for securing regulatory approval(s))

12. **Level of funding and resources needed for project implementation** (5= >75% of project funds secured and in-kind services provided by a diversity of project partners; 3= 50%-75% of funds secured and in-kind services provided by a limited range of project partners; 1= <25% of project implementation funds secured with limited in-kind services representing a narrow spectrum of project partners)

13. **Community Involvement** (5 = Project includes significant and meaningful community involvement throughout the project (e.g., planning, implementing, monitoring, maintaining); 3 = Project includes community involvement opportunities during some project phases, although uncertainty exists as to whether these opportunities would have a significant effect on the project itself; 1 = Project has minimal community involvement and will require substantial consensus-building)

### 4.3.3 Lost Recreational Shellfishing and Shellfish Restoration

The following section outlines the Evaluation Criteria used by the Bouchard B-120 Trustees to review, evaluate, and rank the restoration projects to compensate for lost recreational shellfishing and shellfish population restoration and/or stock enhancement. Evaluation criteria were weighted (high importance, moderate importance, and low importance) and scored by the Bouchard B-120 Trustees as follows:

***High Importance***

1. **Nexus to injury – recreational shellfishing benefits** (5= project directly enhances sustainable recreational shellfishing opportunities for a large number of persons and diverse populations, especially environmental justice areas); 3= recreational shellfisheries benefits are more indirect, or project results in limited recreational shellfishing opportunities targeting a local community or limited number of shellfishermen; 1= project will result in minimal direct or indirect recreational fishing opportunities)

2. **Nexus to injury – same or similar shellfish resource and/or habitat type** (5= project addresses the same resource type as injured; 3= project benefits multiple shellfish and other benthic species and trophic levels but different resource type than those injured; 1= project benefits single, unlike resource than those injured but provides some resource or resource use benefits)

3. **Ecological services** provided or enhanced (5= multiple biological, physical and chemical processes restored; 3= single primary ecological process restored (e.g., bottom habitat enhancement with substrate management); 1= minimal, short-term, or indiscernible services or ecological processes restored)

4. **Regional need for project** (5=shellfish species or habitat are functionally extirpated in targeted area where once were historically present and abundant; 3= shellfish species or habitat have moderately reduced conditions throughout targeted area compared to historical levels; 1 = shellfish species or habitat is relatively abundant across targeted area, self-sustaining without restoration efforts but could benefit from habitat and/or population enhancement)

***Moderate Importance***

5. **Acres of habitat restored/shellfishing accessed** in regional context (5=large area restored or enhanced for the region (>20 subtidal acres); 3= moderate area restored or enhanced (>5-15 subtidal acres); 1=minimal area restored or enhanced (<2 subtidal acres)

6. **Shellfish resource sustainability** (5= commitment to incorporate and enforce permanent or long-term shellfish harvest closure (i.e., spawner sanctuary) component, or harvest would be predicted to have minimal impact on project performance; 3= moderate harvest closure strategy or some protection or enhancement of shellfish species incorporated into project; 1= no commitment, no secured matching funds available, or no intent for resource sustainability proposed)

7. **Technical feasibility** of project (5= straightforward project activity; likelihood of success is high; 3= complex design issues need to be addressed but will not be insurmountable; likelihood of success moderate; 1= complex site conditions make design and likelihood of success doubtful or uncertain)

8. **Cost effectiveness** (5= Low-unit cost effort relative to unit cost for shellfish habitat type and/or project type activity; 3= moderate-unit cost relative to

average unit cost for shellfish habitat type and/or project type activity; 1= High unit cost relative to average unit cost for shellfish habitat type and/or project type activity)

***Low Importance***

9. **Impact avoidance or minimization** (5 = Project has little or no potential for short- or long-term adverse environmental impacts to natural resources or services; 3 = Modifications to the project would considerably lessen substantial environmental impacts to natural resources or services; 1 = Project will have unavoidable adverse environmental impacts to natural resources or services, and may result in extensive regulatory permitting and further investigations or design changes for securing regulatory approval(s))

10. **Level of funding and resources needed for project implementation** (5= >75% of project funds secured and in-kind services provided by a diversity of project partners; 3= 50%-75% of funds secured and in-kind services provided by a limited range of project partners; 1= <25% of project implementation funds secured and in-kind services represent a narrow spectrum of project partners)

11. **Community Involvement** (5 = Project includes significant and meaningful community involvement throughout the project (e.g., planning, implementing, monitoring, maintenance); 3 = Project includes community involvement opportunities during some project phases, although uncertainty exists as to whether these opportunities would have substantial benefit the project itself; 1 = Project has minimal community involvement, may incur substantial opposition, and/or will require substantial consensus-building for project implementation)

### 4.4 Public Involvement for OPA Restoration Planning and the NEPA Process

Following the Bouchard B-120 spill, the Trustee Council met with citizens, environmental groups, and local and regional officials to inform the public about the status of the spill response, future agency actions, and the general NRDA process. Several of these public meetings were hosted by elected officials (former U.S. Senator John F. Kerry, former U.S. Congressman Barney Frank, and Massachusetts State Senator Mark Montigny), local environmental organizations (e.g., Buzzards Bay Coalition (BBC)), and the MassDEP, beginning in 2003. The public meetings provided an opportunity to explain to local residents and other interested citizens that thorough documentation and assessment of the impacts from the spill was an integral part of the process leading to restoration planning and restoring the natural resources harmed by the spill as well as restoring the public's use of these natural resources. Additionally, the Trustees released fact sheets to the public in 2006 and 2008 to outline the process and explain and update the status of the case injury assessment.

Once settlement with the Responsible Party was reached, the Bouchard B-120 Trustees placed notices in local newspapers and released media announcements regarding public information meetings to discuss restoration planning and the NEPA process. The Trustee Council held two public informational meetings (in Bourne and Fall River, MA) in September 2011 to provide the public with an opportunity to learn about the resource injuries and restoration planning process. An updated fact sheet prepared by the Trustees focusing on the restoration planning process was issued at this time. Following the public informational meetings, the Trustees developed a standardized project submittal form for use by the public, and solicited the public for potential restoration project ideas. This form is provided in Appendix B. The form is also found at the following web link: http://www.darrp.noaa.gov/northeast/buzzard/pdf/Buzzards_Bay_Restoration_Project_Form_and_Guidelines.pdf. The solicitation process for receiving restoration project

ideas extended through December 2011. Trustee Representatives were also invited to meetings held in October and November 2011 where they provided information to shellfish wardens and municipal conservation professionals.

Public comments during the meetings and restoration ideas submitted during the solicitation process were reviewed by the Bouchard B-120 Trustees. Project ideas were evaluated for eligibility, and then if eligible, considered for restoration, as described in Section 5.0, below. In total, ideas for more than 70 restoration projects/sites were received and thoroughly considered by the Bouchard B-120 Trustees, and are listed in Appendix C. This review of project alternatives considered in the Draft RP/EA was supplemented by visits by the Trustees to potential project sites, and discussions with project proponents and agency or other organizational technical staff to better understand site and natural resource conditions, project phase and components, and potential restoration activities, as appropriate.

## 5.0 Restoration and NEPA Alternatives

The Bouchard B-120 Trustees considered a broad-ranging set of potential restoration alternatives for this RP/EA, including a No Action alternative. The proposed alternatives identified by the Trustees are a suite of restoration projects identified through considerable assessment and evaluation of a reasonable set of project alternatives which are targeted to cumulatively compensate for injuries to natural resources and their services and uses.

## 5.1 No Action Alternative

With the No Action alternative, no restoration, rehabilitation, replacement or acquisition projects or actions would occur discrete from current conditions. This alternative would result in minimal to no costs since no action using Bouchard B-120 settlement funds would be taken. If selected, there would be no implementation of restoration or replacement of the lost resources and their services/uses, and there would be no intent to implement projects directed at making the public whole for past natural resource and resource use injuries. For purposes of this Draft RP/EA, the No Action Alternative could not be the preferred alternative since compensatory restoration is already required by federal statute and regulations. The No Action alternative is retained in this Draft RP/EA for comparative purposes relating to the natural resource and use restoration activities resulting from the project alternatives considered.

## 5.2 Summary and Evaluation of Proposed Alternatives

Of the project ideas submitted during the public solicitation process, the Bouchard B-120 Trustees concluded that all but one project would be eligible based on the criteria established by the Trustees. The one project idea not eligible for potential funding using Bouchard B-120 settlement funds would be the purchase and acquisition of a property (Aquacultural Research Corporation (ARC) property) in Barnstable, Massachusetts. This proposed acquisition idea, submitted by the Barnstable County Commissioners, is geographically located outside the Buzzards Bay B-120 spill injury area, and the Bouchard B-120 Trustees determined that no Buzzards Bay resources including transboundary species migrating to and from the Buzzards Bay region would benefit from the subject land acquisition. Conversely, one specific activity presented in and combined with the Barnstable land acquisition project was determined to be eligible for potential funding – a component of this project idea included shellfish seed growing on

the ARC property where a shellfish hatchery exists, and if acquired and managed by an entity, could produce seed available for Buzzards Bay shellfish restoration. The potential shellfish seed growing and purchase was considered as and determined by the Bouchard B-120 Trustees to be a project alternative eligible for potential funding.
The Bouchard B-120 Trustees have grouped preferred projects into two potential funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 preferred for project funding. The Trustees have sufficient funding available, taking into account a portion of the settlement funds that the Trustees have designated for addressing administrative costs, to fund all proposed Tier 1 preferred projects. The Trustees well recognize and acknowledge, however, that uncertainties often inherently exist in natural resource restoration project planning and implementation, including escalating costs, changes in site conditions, and design, permitting or property acquisition issues that may have an effect on the feasibility or status of projects, including Tier 1 preferred projects. Thus, the Bouchard B-120 Trustees may have funds remaining after Tier 1 preferred projects are completed, or in some unforeseen instances, a Tier 1 preferred project may be delayed, terminated or substantially change in cost due to unanticipated site or project conditions (particularly those projects that are in the early planning or design phase).

The Trustees note that for the Bouchard B-120 restoration funds that become available for a project, the project proponents are responsible for verifying any requisite matching funds for completing the project, or alternatively, present a strategy to the Trustees through which the project proponent(s) will secure any matching funds needed to complete the restoration project within a reasonable time period following a Trustee funding award. Excessive delays in the completion of a project or project tasks may result in the termination of and return of Trustee funding, so that the Trustees can apply remaining funds to alternative restoration projects for timely completion.

Projects identified as Tier 2 preferred are also presented in the following sections. One or more Tier 2 preferred projects may be funded, if settlement funds remain following the selection and implementation of Tier 1 and/or other restoration projects that will be identified in the Final RP/EA.

As described in Section 4.4 of this document, the Bouchard B-120 Trustees previously solicited the public for restoration project ideas. During the process of project idea evaluation, the Trustees identified some opportunities or strategies to modify these project ideas. In some cases, the Trustees considered funding only the phase, portion, component or specific activity of a restoration project idea that best met the evaluation criteria. In other cases, the Trustees applied an idea activity or combined elements from multiple, similar project ideas to develop a modified project idea that would best meet the Bouchard B-120 Trustees' criteria and compensate for the resource or resource use losses caused by the oil spill. For example, in the shellfish restoration category, the Bouchard B-120 Trustees have combined multiple similar, municipal proposals submitted for shellfish relays or seeding, and evaluated those proposals collectively as similar ideas for the recreational shellfishing and shellfish restoration project type.

The Trustees also note that some of the proposed restoration projects, as presented herein, are in an early planning or preliminary design phase. Due to the phase of these projects, it is not possible at this time to fully quantify or qualify the potential environmental impacts and social consequences, including cumulative impacts that would result from a project implementation. This Draft RP/EA indicates the potential impacts that could occur with the implementation of each proposed/recommended project, but the Trustees emphasize that if a project is funded through the Bouchard B-120 restoration funds, the proponent(s) for each of the projects will be required to complete on-going assessment and/or design measures that will result in environmental impact avoidance and/or minimization, to the extent practicable, and in compliance

with federal, state and local laws and regulations (Refer to Section 7 of this Draft RP/EA).

A summary of the Tier 1 and Tier 2 preferred projects that have been included as the proposed resource-specific restoration alternatives is provided in Table 1, including brief description of the project type or activity resulting from the implementation of a project. The locations of the Tier 1 and Tier 2 preferred alternatives, relative to the Buzzards Bay region are depicted in Figure 2.

The remainder of the following section consists of descriptions and an evaluation of each of the Tier 1 and Tier 2 preferred project alternatives, and presented according to natural resource and resource use categories. Following the recommended preferred project alternatives, a summary table (Table 2) is provided listing the projects that the Trustees have considered as non-preferred alternatives for funding using Bouchard B-120 Trustee Council settlement funds.

**Table 1**: Summary of Tier 1 and Tier 2 Preferred Alternatives, Bouchard B-120 Oil Spill Restoration Funds

| Bouchard B-120 Tier 1 and Tier 2 Preferred Restoration Projects | | | | |
|---|---|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Restoration Type and Category** | **Requested Funding Level** | **Trustee Funding Level** |
| **Tier 1 Preferred** | | | | |
| **Shoreline and Aquatic Resource Restoration** | | | | |
| | | | | **Shoreline and Aquatic Restoration Funds Available: $1,339,575** |
| SA-2 | Horseshoe Pond Dam -Weweantic River Restoration | Shorleine and Aquatic Restoration - Estuary restoration, diadromous fish passage, Wareham, MA | $500,000 | $365,000 |
| SA-4 | Round Hill Salt Marsh Restoration | Shoreline and Aquatic Restoration - Marsh restoration by removing fill soils, Dartmouth, MA | $813,105 | $813,105 |
| SA-10 | Conservation Hazelett Mooring Systems | Aquatic Restoration - Eelgrass bed restoration and protection, Multiple Buzzards Bay sites, MA | $100,000 | $100,000 |
| SA-11 | Allens Pond Phragmites Control | Shoreline Restoration - Mowing and herbicide application to control non-native salt marsh plants, Dartmouth, MA | $22,000 | $22,000 |
| SA-23 | Hard Clam (Quahog) Broodstock Relays | Shellfishing and Shellfish Restoration - Relay and transplant of adult quahogs, South County coastal salt ponds, RI | $25,000 | $20,000 |
| SA-24 | Shell Substrate Enhancement for Improved Quahog Larval Settlement and Survival in Rhode Island | Aquatic Restoration - Place shell to enhance salt pond bottom substrate for shellfish enhancement, South County salt ponds, RI | $19,470 | $19,470 |
| | | | | **Trustee Proposed Total: $1,339,575** |
| **Lost General Coastal Access and Use and Recreational Boating Restoration** | | | | |
| | | | | **Lost General Coastal Access and Use and Recreational Boating Restoration Funds Available: $1,585,560** |
| LU-1 | Nasketucket Bay State Reservation Expansion Project | General Lost Access and Use Restoration - Acquisition of coastal lands for shore access, Fairhaven and Marion, MA | $1,000,000 | $960,000 |
| LU-3 | Clarks Cove Public Boat Ramp | Lost Recreational Boating Restoration - Installation of boat ramp at Clarks Cove, Dartmouth, MA | $17,500 | $17,500 |
| LU-5 | Stone Barn Farm Visitor Center and Trails at Allens Pond Wildlife Sanctuary | General Lost Access and Use Restoration - Construction of walking trails and installation of public educational signage, Dartmouth, MA | $520,000 | $120,000 |
| LU-6 | Nasketucket Bay Coastal Access | General Lost Access and Use Restoration - Trail improvements, Fairhaven, MA | $20,553 | $20,553 |
| LU-7 | Universal Handicap Acess (3 park sites) | General Lost Access and Use Restoration - Handicap access to coastal waters, Fairhaven, Dartmouth, and Westport, MA | $54,000 | $54,000 |
| LU-9 | Buzzards Bay Public Access Facility (Hoppy's Landing) | General Lost Access and Use Restoration - Handicap-accessible fishing pier, Fairhaven, MA | $500,000 | $200,000 |
| LU-10 | Palmers Island Recreational Beach and Trail | General Lost Access and Use Restoration - Trail improvements, New Bedford, MA | $2,540 | $19,500 |
| LU-12 | Black Point Loop Trail | General Lost Access and Use Restoration - Trail improvements along Narragansett Bay, Narragansett, RI | $51,000 | $51,000 |
| LU-13 | South Scarborough Beach ADA Access Ramps | General Lost Access and Use Restoration -Handicap accessible ramps to Narragansett Bay, Narragansett, RI | $70,620 | $70,620 |
| LU-15 | Boat Ramp Replacement | Lost Recreational Boating Restoration - Boat ramp replacement on Onset Harbor, Wareham, MA | $75,000 | $67,500 |
| | | | | **Trustee Proposed Total: $1,580,673** |

**Table 1**: Summary of Tier 1 and Tier 2 Preferred Alternatives, Bouchard B-120 Oil Spill Restoration Funds (continued)

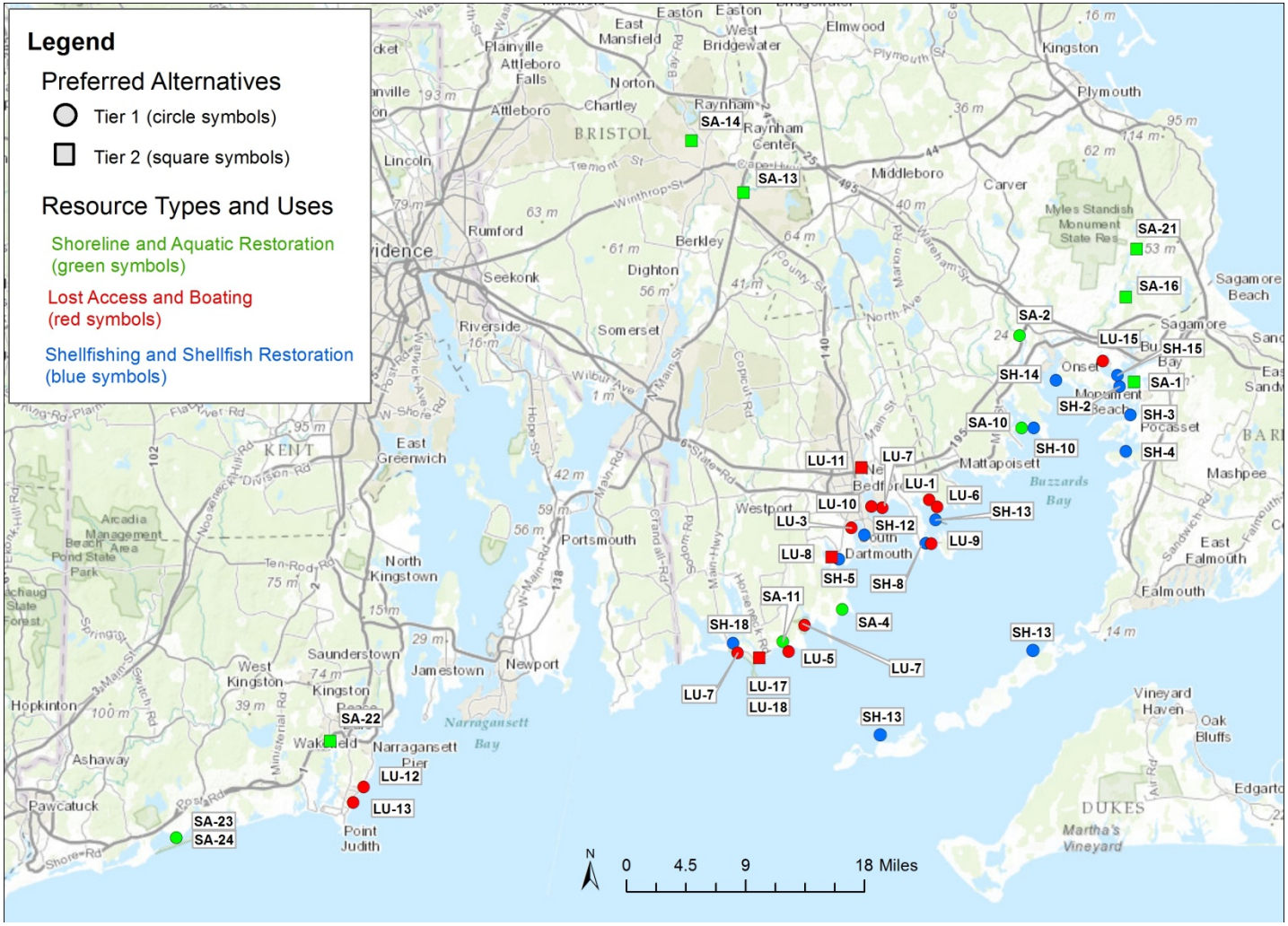
| Bouchard B-120 Tier 1 and Tier 2 Preferred Restoration Projects cont'd | | | | |
|---|---|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Restoration Type and Category** | **Requested Funding Level** | **Trustee Funding Level** |
| **Tier 1 Preferred** | | | | |
| **Lost Recreational Shellfishing and Shellfish Restoration** | | | | |
| | | | **Lost Recreational Shellfishing and Shellfish Restoration Funds Available: $1,323,190** | |
| SH-2 | Cohasset Narrows Oyster Reef | Lost Recreational Shellfishing and Shellfish Restoration - Oyster restoration, Bourne, MA | $35,000 | TBD |
| SH-3 | Pocasset River Oyster Reef | Lost Recreational Shellfishing and Shellfish Restoration - Oyster restoration, Bourne, MA | $35,000 | TBD |
| SH-4 | Winsor Cove Quahog Relay | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, Bourne, MA | $15,000 | TBD |
| SH-5 | Dartmouth Quahog Relay | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, Dartmouth, MA | $90,000 | TBD |
| SH-8 | Fairhaven Shellfish Restoration Program, Quahog Relay | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, Fairhaven, MA | $111,000 | TBD |
| SH-10 | Contaminated Shellfish Relay | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, Marion, MA | $80,000 | TBD |
| SH-11 | Buzzards Bay Cooperative Bay Scallop Restoration Project | Lost Recreational Shellfishing and Shellfish Restoration - Bay scallop restoration, Multiple Buzzards Bay sites, MA | $1,128,139 | TBD |
| SH-12 | Restoration of New Bedford Recreational Shellfishing | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, New Bedford, MA | $30,000 | TBD |
| SH-13 | Buzzards Bay Shellfish Spawner and Restoration Areas | Lost Recreational Shellfishing and Shellfish Restoration - Bay scallop and oyster restoration, Fairhaven and Gosnold, MA | TBD | TBD |
| SH-14 | Contaminated Shellfish Relay Program, Weweantic River, Onset Bay Quahog Relays | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, Wareham, MA | $102,000 | TBD |
| SH-15 | Oyster Seed, Onset Harbor | Lost Recreational Shellfishing and Shellfish Restoration - Oyster restoration, Wareham, MA | $30,000 | TBD |
| SH-18 | Contaminated Shellfish Relay | Lost Recreational Shellfishing and Shellfish Restoration - Quahog relays, Westport, MA | $36,000 | TBD |
| SH-20 | Shellfish Seed | Lost Recreational Shellfishing and Shellfish Restoration - Quahog seed, Westport, MA | $52,000 | TBD |
| | | | **Trustee Proposed Total: $1,320,000** | |

TBD = Trustees propose to distribute shellfish restoration funds according to general category types and priority for restoration and recreational shellfishing need

**Table 1**: Summary of Tier 1 and Tier 2 Preferred Alternatives, Bouchard B-120 Oil Spill Restoration Funds (continued)

| Bouchard B-120 Tier 1 and Tier 2 Preferred Restoration Projects cont'd | | | | |
|---|---|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Restoration Type and Category** | **Requested Funding Level** | **Trustee Funding Level** |
| **Tier 2 Preferred** | | | | |
| **Shoreline and Aquatic Resource Restoration** | | | | |
| SA-1 | Gray Gables Salt Marsh Restoration | Shoreline and Aquatic Restoration - Marsh restoration by culvert replacement, Bourne, MA | $460,000 | $50,000 |
| SA-13 | Cotley River Restoration (Barstowe's Dam removal) | Aquatic Restoration - Diadromous fish passage, Taunton, MA | $50,000 | $50,000 |
| SA-14 | Mill River Restoration and Fish Passage Project (West Britannia Dam removal) | Aquatic Restoration - Diadromous fish passage, Taunton, MA | $400,000 | $50,000 |
| SA-16 | Red Brook Headwaters Restoration Project | Aquatic Restoration - Diadromous fish passage, Plymouth, MA | $1,623,360 | $50,000 |
| SA-21 | Agawam River Restoration - Headwater Bogs | Aquatic Restoration - Diadromous fish passage, Plymouth, MA | $170,000 | $50,000 |
| SA-22 | Fish Passage Improvements at Main Street Dam | Aquatic Restoration - Diadromous fish passage, Wakefield, RI | $35,000 | $35,000 |
| **Lost General Coastal Access and Use and Recreational Boating Restoration** | | | | |
| LU-8 | Apponagansett Bay Public Access Facility | Lost Recreational Boating Restoration - Replace boat ramp, Dartmouth, MA | $200,000 | $85,000 |
| LU-11 | New Bedford Riverwalk | General Lost Access and Use Restoration - Boardwalk along New Bedford Harbor, New Bedford, MA | $596,000 | $306,900 |
| LU-17 | The Let (Lots 40 and 41) Parcels Acquisition | General Lost Access and Use Restoration - Land acquisition for public access to coastal waters, Westport, MA | $191,000 | $50,000 |
| LU-18 | The Let (Lot 39) Parcel Acquisition | General Lost Access and Use Restoration - Land acquisition for public access to coastal waters, Westport, MA | $120,000 | $50,000 |

**Figure 3:** Location of Tier 1 and Tier 2 Preferred Projects



### 5.3 Shoreline and Aquatic Resource Injury Restoration – Preferred Alternatives

Projects eligible to meet the resource needs for the shoreline and aquatic injuries are those projects that restore, enhance or rehabilitate the same or similar natural resources or natural resource services that were injured. In the case of the Bouchard B-120 Spill, relevant examples include: restoring or enhancing fish populations such as river herring or other species that are forage species to recreational gamefish such as striped bass, haddock, and summer flounder; restoring or rehabilitating tidal marshes by removing obstructions to normal tidal exchange, removing soil fill, or controlling non-native, invasive plants in marshes; restoring or enhancing shellfish populations such as bay scallop, oyster, and quahog and the ecological services they provide; beach nourishment for enhancing intertidal habitat and beach biota; planting or seeding of eelgrass beds; or construction of artificial reefs for enhancing benthic and fishery habitats. The Bouchard B-120 Trustees will maintain a percentage of settlement funds for restoration and contingency planning and Trustee oversight of projects to be implemented. Approximately $1,340,000 is available for shoreline and aquatic restoration projects in Massachusetts and $40,000 for shoreline and aquatic projects in Rhode Island. The shoreline and aquatic restoration projects discussed in the following section are those projects that received the highest ranking during the Bouchard B-120 Trustee proposal evaluation process.

#### 5.3.1 Tier 1 Preferred Shoreline and Aquatic Projects, Massachusetts

The Bouchard B-120 Trustees propose to fund a total of four (4) Tier 1 projects in Massachusetts with $1,339,575 in funding for this restoration category to address both Massachusetts and Rhode Island projects. Projects that best met the Evaluation Criteria were placed into Tier 1 preferred for funding. Preferred projects in Tier 1 are recommended by the Trustees as the higher priority projects for funding. The Trustees

have sufficient funding available to fund all Tier 1 preferred projects, as proposed. The following are summaries of each of the shoreline and aquatic resource Tier 1 preferred projects.

#### 5.3.1.1 Round Hill Salt Marsh Restoration Project

**Project Idea Submittal:** Round Hill Salt Marsh Restoration Project by the Town of Dartmouth, MA (SA-4)
**Project Location:** Dartmouth, Massachusetts
**Requested Funding:** $813,105
**Trustee Recommended Tier 1 Funding Level:** $813,105

**Restoration Objective**

The goal of the project is to restore 4.5+ acres of intertidal native *Spartina*-dominated high and low tidal marsh and the ecological functions and services lost from the site over nearly 100 years due to historic filling, loss of tidal exchange, and other ecological disturbances. The proposed project will also protect the ecological integrity of the nearby Meadow Shores Marsh to the immediate west by interconnecting the sustaining tidal hydrology and stabilizing the tidal inlet through which the tidal waters flow. The restored marsh will enhance the tidal exchange between this larger marsh area and Buzzards Bay to increase ecological services provided by this marsh complex.

**Summary of Proposed Activity**

The proposed Round Hill salt marsh restoration project will remove fill placed on the salt marsh and restore lost salt marsh functions and values. This will be accomplished by excavating and disposing of 45,000+ cubic yards of fill soils from the marsh, and grading, seeding and/or planting native marsh plants, and replacing the existing defunct wooden culvert beneath Ray Peck Drive with a larger, appropriately-sized, concrete box culvert. In 2008, the New Bedford Harbor Trustee Council (NBHTC) responsible for addressing

natural resource injuries associated with polychlorinated biphenyl (PCB) contamination in the New Bedford Harbor Environment, worked collaboratively with the Town of Dartmouth to complete a feasibility study, and in 2012, the NBHTC allocated funds to complete design and permitting for the salt marsh restoration. The project design is contingent on the available funds for implementation, with up to 12 acres of salt marsh that could be restored at the town-owned property. The NBHTC has also partially funded construction and funded pre- and post-construction monitoring as part of its Round IV settlement funding. Funds from the Bouchard B-120 Trustee Council and other potential grant awards are sought by the project proponents to assist with the salt marsh restoration.

The project is situated within a larger Town-owned beach and coastal park property and contains approximately 15.5 acres of historically filled salt marsh protected by a barrier beach along the South Dartmouth shoreline, between Salters Point on the west and Round Hill Point on the east. Past human activity has significantly altered this former coastal wetland and salt pond site. Historic maps confirm that this site was coastal salt marsh wetlands prior to at least the late 1800s. In the late 1920s-early 1930s, clean upland soils from nearby agricultural properties were used to fill wetlands on the site and construct an aircraft runway for blimps and planes. Additional information obtained from the Bristol County Mosquito Control indicates mosquito control activities, including ditching, occurred at this site as early as 1959. The airfield property was eventually abandoned, and vegetation naturally colonized and succeeded at the on-site uplands and non-tidal wetlands.

The proposed Round Hill wetland restoration includes areas of historically filled salt marsh which presently contains a mosaic of upland vegetation (~8.3 acres) and surrounding areas of man-made and altered freshwater wetlands that have developed on the filled landscape surface (~7.2 acres). Freshwater emergent wetlands on the site consist of areas of wet meadow and emergent marsh dominated by wool grass (*Scirpus*

spp.), switch grass (*Panicum* sp.) and other emergent wetland species, with some areas dominated by invasive non-native plants (e.g., common reed (*Phragmites austalis*) and purple loosestrife (*Lythrum salicaria*)). On-site scrub shrub swamp is dominated by highbush blueberry (*Vaccinium corymbosum*), winterberry *(Ilex verticillata*), bayberry (*Myrica pensylvanica*) and red maple (*Acer rubrum*) saplings. The upland portions of the site are shrub thickets dominated by red cedar, red maple, and non-native species (e.g., tartarian honeysuckle (*Lonicera tatarica*)).

**Monitoring and Measureable Results**

Monitoring for the project will be funded through the NBHTC with results provided to the Bouchard B-120 Trustees and available to the public. The project team expects to conduct pre- and post-construction ecological monitoring. Minimum monitoring data will be obtained by monitoring structural and functional marsh parameters, including tidal hydrology (e.g., tidal range), biota use (e.g., fish and other nekton, wading birds), and other parameters such as native marsh vegetation species presence and percent cover and marsh soil pore-water salinity.

**Evaluation of the Alternative**

The Round Hill site was initially identified by the NBHTC-funded *New Bedford Harbor Environment Wetlands Restoration Plan* (August 2002) as a High Priority Project and has also been identified as a Priority Project by the Massachusetts Department of Fish & Game's Division of Ecological Restoration (MA DER). This site presents a unique opportunity to restore a relatively large area of contiguous, historically filled salt marsh and barrier beach coastal ecosystem that is publicly-owned open land lacking in structures. Through the removal of fill soils, restoration of a salt marsh substrate, seeding and/or planting of salt marsh plants, and excavation and connection of historic tidal channels, this project will significantly enlarge this valuable tidal system, help stabilize and keep open the periodically-closing Meadow Shores Marsh tidal inlet, and greatly enhance the many ecological functions and services that the marsh contributes

to the Buzzards Bay environment. The anticipated functions and services include increased flood and storm surge protection, pollutant attenuation, and a broad, contiguous marsh system important as fish and wildlife habitats. A marsh restoration project at this public site will also provide valuable stewardship and educational opportunities due to its location adjacent to a Town-owned public beach.

The fill removal technique has been successfully employed in Massachusetts to restore similar, historically-filled salt marshes, and has been demonstrated to be a technically sound and an appropriate method to achieve the project goals. The completed feasibility study (FS) for this restoration project examined site conditions from the topography of the site, fill depth and composition, a Phase 1 Environmental Assessment for potential contaminants, and the hydrodynamics of the tidal inlet at Meadow Shores Marsh, to develop feasible conceptual restoration design alternatives. A technical finding of the FS is that the proposed salt marsh restoration should optimally be 6 acres or more in size such that an adequate tidal prism is created by the project to ensure the tidal channel opening at the Buzzards Bay shoreline will remain stable and kept open naturally by tidal exchange. The Bouchard B-120 funds would contribute to a full-build alternative of ~12 acres of tidal marsh restoration.

Engineering and design for this study has been funded through the NBHTC. An engineering consultant will prepare preliminary and final engineering plans and regulatory permit applications for the project. The design includes detailed design of the restoration project that also protects the Town Beach bathhouse leaching field and reserve area and adjacent privately-owned property from potential increased surface and/or ground water levels. This design will require maintaining a 50-foot buffer from the leach field area and likely require the construction of small, low-level earthen berm(s) along the northern edge of the restoration site to address potential flooding of bordering property. The project will also include the relocation of a section of waterline that serves the beach bathhouse. Another project component will include properly

sizing the replacement culvert at Ray Peck Drive to ensure that the appropriate tidal hydrology is conveyed to the restoration site while keeping the design of the culvert as safe as practicable.

The project is a partnership of local, state, and federal agency and non-governmental partners, all of whom have worked together to successfully complete several other salt marsh restoration projects in Dartmouth and other locations in Massachusetts. Partners include the Town of Dartmouth, MA DER, the Buzzards Bay Coalition (BBC), and the NBHTC.

**Recommendation**

The total estimated project cost including design and engineering, construction and pre- and post-implementation monitoring is estimated at $2,113,105 for the minimum build alternative. The NBHTC previously awarded the project proponent with a grant award amount of $1,300,000. The available funds partially cover the project construction costs, but are insufficient to complete the project based on the NBHTC consultant's engineering estimate. The Bouchard B-120 Trustee Council recommends allocating up to $813,105 to implement the minimum build alternative (~4.5+ acres) for this salt marsh restoration project. Since the time of the idea submittal of the Round Hill marsh restoration for Bouchard B-120 funding, the MA DER has been awarded additional funds for the project through a USFWS grant award of $2.2 million (with 10 percent of this award set-aside for USFWS administration) in October 2013. The availability of the combined Bouchard B-120 and USFWS funds will allow a full-build design alternative which the Bouchard B-120 Trustees support to move forward to restore a regionally-large (12+ acres), ecologically important tidal marsh, contiguous and hydrologically connected to the Shore Meadows Marsh.

### 5.3.1.2 Horseshoe Pond Dam Removal and Weweantic River Restoration

**Project Idea Submittal:** Horseshoe Pond Dam, Weweantic River Restoration by the Buzzards Bay Coalition (SA-2)

**Project Location:** Wareham, MA

**Requested Funding:** $500,000

**Trustee Recommended Tier 1 Funding Level:** $365,000

**Restoration Objective**

The two primary objectives of this project are to restore habitat and habitat access for native diadromous fish in the Weweantic River by eliminating the Horseshoe dam as a fish passage barrier, and to provide public access to the river and its estuary. The Weweantic River is one of the most important and unique diadromous fish habitats in Buzzards Bay, as the river is known to support a number of migratory species (i.e., river herring, sea lamprey, rainbow smelt, American eel, tom cod, white perch, and native Eastern brook trout) in its lower reach, and eliminating the dam barrier will help to restore the runs of a number of ecologically valuable diadromous fish species using Buzzards Bay.

**Summary of Proposed Activity**

The Weweantic River is the largest freshwater river discharging to Buzzards Bay, and is historically known to support a number of productive diadromous fish runs. The Horseshoe Pond Dam on the Weweantic River is the first obstruction to diadromous fish passage and is located at the head-of-tide on the Weweantic River estuary in Wareham, MA. This 4-foot high, defunct concrete dam with defunct roadway superstructure created a ~59-acre impoundment (Horseshoe Pond). A failing low-flow outlet gate has resulted in the lowering of the impoundment and partial tidal flooding of the habitat upstream of the dam during higher tide-cycle periods. An old millrace along the west side of the river was once capable of passing river herring and other fish species under

ideal flow conditions, although its entrance location is too far downstream of the dam, and collapsing side walls and other degraded structural conditions make fish passage through the former raceway infeasible. The proposed fish passage restoration project will open migratory fish passage to 3.2-river miles upstream of the dam, as well as allow for coastal wetland habitat climate adaptation through modification or removal of this defunct dam.

The Buzzards Bay Coalition (BBC), as owner of the dam structure is undertaking a base mapping and other feasibility study (FS) investigations in 2013 to assess potential project alternatives for diadromous fish passage design at Horseshoe Pond Dam. The study includes assessing, collecting, and mapping physical and biological site conditions and constraints (e.g., bathymetry, topography, sediment characterization/chemical analysis, hydrologic modeling) for preliminary design and evaluation of up to 3 conceptual alternatives, including full dam removal and partial dam removal with a nature-like fishway (e.g., rock ramp or riffle ramp). The results of the FS will be used by the CBB and its project partners to select the preferred design alternative that addresses diadromous fish passage, as well as other potential ecological services and impacts (both negative and positive impacts). A preliminary design of the selected design alternative will be prepared, and is anticipated to be completed using funds through grant awards or other sources. The Bouchard B-120 funds are sought to help in completing the final design plans, permitting and implementation of the diadromous fish passage restoration project.

**Monitoring and Measurable Results**

The BBC and its project partners are collecting pre-restoration data to document existing conditions of the remnant fish runs that are able to inefficiently pass the dam and central drain gate during certain tidal events, as well as plant community and water column (e.g., salinity and tide range) conditions both upstream and downstream of the dam barrier. These data are expected to be compared with post-barrier removal

conditions following implementation of the project. The BBC is committed to providing the results to the Bouchard B-120 Trustees and the general public. Public access to and use of the enhanced project site is also expected to be documented following project implementation.

**Evaluation of the Alternative**

The objectives of this project are to restore unimpeded passage by diadromous fish to important spawning and rearing habitats in the Weweantic River and to provide public access to the river and its estuary. The Weweantic is the largest river discharging to Buzzards Bay and historically was one of the most productive fish runs in Buzzards Bay. Diadromous fishes are a highly important aquatic resource of the bay. In 2012, the BBC acquired the subject property where the dam is located for natural resource restoration and public coastal access purposes, and is pursuing river restoration at this site with a number of project partners. Dam removal and/or modification will have wide-reaching benefits for fisheries, rare plant communities, associated wildlife, as well as enable coastal habitat adaptation on protected lands situated above the dam. The restoration project will include engineering design, permitting, implementation and monitoring.

The project plans are to couple the ecological restoration with enhanced public access for passive recreation/education opportunities (e.g., hiking, fishing, paddling and nature observation), including constructing a pedestrian bridge over the river at the location of the dam spillway, installing a launch area for non-motorized boats, and creating a trail network with links to adjacent conservation lands. The restoration of this property will provide unique benefits for public access and passive recreation with scenic views and water access. There is an existing recreational access parking lot and trail system on the abutting property managed by the Town of Wareham Conservation Commission that will serve as the parking area for the fish passage restoration site. Anticipated cost for project engineering design, permitting and implementation of the barrier removal

project is estimated at $500,000; additional funds may be needed for the installation of a foot-access bridge across the restored river channel.

**Recommendation**

The Bouchard B-120 Trustees support and recommend funding of the elimination of the Horseshoe Pond dam to re-establish unimpeded passage by diadromous fish species and restore these import fish runs. River herring and other diadromous fishes are important aquatic resources of Buzzards Bay, and the Weweantic River is the largest freshwater river discharging to the Bay. By restoring fish passage at this barrier at the head-of-tide, fish runs are expected to be restored on this river, with these fish populations spending a portion of their lives in Buzzards Bay and other coastal waters. These diadromous fish populations contribute important ecological services to Buzzards Bay including serving as forage species to estuarine and marine predatory fishes, wading birds and marine mammals. The Trustees propose to fund this project at $315,000 for use in project design, permitting and/or implementation.

### 5.3.1.3 Conservation Boat Moorings for Eelgrass Restoration

**Project Idea Submittal:** Conservation Hazelett Mooring Systems by the Town of Marion (SA-10)
**Project Location:** Various Buzzards Bay locations such as Sippican Harbor in Marion
**Requested Funding:** $100,000
**Trustee Recommended Tier 1 Funding Level:** $100,000, multiple MA municipalities

**Restoration Objective**

Installation of innovative boat moorings lessen impacts to ecologically important eelgrass beds of Buzzards Bay. By replacing traditional boat moorings with innovative technologically-advanced moorings, eelgrass beds will be restored and/or protected

from marine bottom sediment scour and vegetation disturbances associated with traditional moorings and mooring chains.

**Summary of Proposed Activity**

Eelgrass (*Zostera marina*) is a meadow-forming marine vascular plant that is part of a group of plant species known commonly as sea grasses. Eelgrass beds are recognized as a critical nursery habitat for a variety of marine fish species. In Massachusetts, eelgrass is nearly always found subtidally in shallow coastal waters. Eelgrass has generally been declining, and at a high rate in Massachusetts and other nearby coastal waters due to a variety of anthropogenic stressors. Water quality impairment is the most commonly cited cause of this decline, however, boating impacts, such as damage from traditional mooring systems, also play a role in the loss of eelgrass extent. Traditional block and chain moorings can create large circular scars in eelgrass beds due to the large footprint of the block and the scouring action of the chain as it drags along the substrate. For at least the past two decades, impacts from mooring blocks and chain have been reported in the literature in sea grass systems around the globe (Walker et al. 1989; Hastings et al 1995).

The vast majority of recreational boat moorings in Massachusetts are typically constructed of a large block or mushroom-style weight that anchors the mooring, and a heavy chain that adds additional weight and drag to account for changing tidal heights, winds, and tidal current direction. The block itself causes a loss of eelgrass due to its large surface area and may cause scour resulting from bottom shear stress. The chain, which is designed to drag on the substrate, often carves a broad, circular pattern into the eelgrass bed as the anchored boat swings on the mooring, ripping up plants and increasing the exposed edge of the eelgrass meadow while providing a sink for detritus. The combined effect of the block and chain may also increase sediment resuspension within the eelgrass bed, diminishing water clarity and light quality on the edge of the scar, and further degrading the eelgrass habitat.

Alternative mooring systems, called "conservation moorings," replace the block with a helical anchor that is screwed into the substrate. A reinforced, expandable elastic rode or band is fixed to the anchor and replaces the traditional metal chain, and is attached to a float, preventing the attached rode from dragging on and scouring the substrate. If installed correctly, this system has very limited potential to touch the marine bottom substrate, and therefore, minimizes direct impacts to eelgrass beds attributed to boat moorings. Some Massachusetts towns and other municipalities in New England now employ the use of conservation moorings for protecting important eelgrass beds. Conservation moorings are supported by the Massachusetts Division of Marine Fisheries (See: http://www.mass.gov/dfwele/dmf/programsandprojects/neers_mooring_poster.pdf).

**Monitoring and Measurable Results**

The Bouchard B-120 Trustees anticipate that the project proponents for conservation moorings will provide documentation of pre- versus post-project implementation eelgrass bed conditions to demonstrate performance of the conservation mooring restoration practices awarded using the Bouchard B-120 Trustee Council aquatic restoration funds. Photo and mapping documentation of bottom and eelgrass bed areas restored, as well as use by fish and other aquatic biota will help provide measurable results of the targeted mooring sites. Additionally, where mooring sites are located, dedicated public educational and outreach information that is provided and demonstrated by municipalities is expected to help measure success in the use and maintenance of the installed conservation moorings, and stimulate others to install these practices at other sites.

**Evaluation of the Alternative**

Eelgrass beds provide a number of ecosystem services, including stabilizing coastlines, providing food and shelter for diverse marine organisms and acting as a nursery ground for many fishes of commercial importance. Eelgrass meadows enhance the biodiversity

and habitat diversity of coastal waters, and also serve as nursery and foraging area for a number of commercially and recreationally important fish and shellfish and other organisms. Eelgrass beds improve water quality by acting as roughness elements that deflect currents and dissipate the kinetic energy of the water, thereby creating a relatively quiescent environment favorable for sediment deposition. Eel grass root systems help to bind estuarine bottom sediments and stabilize them. Eelgrass also plays an important role in carbon and nutrient cycling in the marine environment.

In Massachusetts, use of conservation moorings is still relatively limited, and traditional boat moorings remain the norm. The average cost for a single conservation mooring is approximately $2,500-$3,000+. Many municipalities in Massachusetts seek to improve eelgrass beds in their municipal waters and some towns have made a commitment to transition from traditional mooring systems to conservation moorings.

While the Bouchard B-120 Trustees applaud the efforts of and project idea submitted by the Town of Marion, the Trustees alternatively propose Tier 1 preferred funds be used via a competitive grant award process for municipal conservation mooring installation in Buzzards Bay waters, based on known eelgrass beds and their condition, bed location, and site selectivity criteria. Site selectivity criteria for municipal moorings will be developed by the Trustees and may include factors such as: location (e.g., water depths), area, and biotic (e.g., abundance of crabs and other grazers) and abiotic conditions (e.g., water clarity) characterizing the embayment where mooring installations are proposed; area of contiguous eelgrass habitat enhanced by the proposed work; potential for eelgrass re-establishment and restoration following implementation; and the level of matching funds, in-kind services, or installation hardware provided by the project proponents. The Trustees recognize that aquatic injury restoration funds are limited, and therefore, a grant fund solicitation with technical rating criteria will help to identify the most appropriate sites for conservation mooring funding and installation using the Bouchard B-120 Trustee Council funds.

**Recommendation**

The Bouchard B-120 Trustees support and recommend use of settlement funds in the amount of up to $100,000 to be dedicated to a grant fund that would result in the purchase and/or installation of conservation mooring systems at multiple locations as a means to conserve and restore eelgrass beds. The Trustees anticipate that multiple funding grants could be awarded through a competitive solicitation process to fund projects in Buzzards Bay municipal waters locations (e.g., Sippican Harbor in Marion as suggested or similar to the project idea submitted by the Town of Marion) where eelgrass restoration and protection would have the greatest benefits. The Trustees expect that any potential administrative costs for managing the grant program would be covered by restoration contingency funds separate from the $100,000 to be used specifically for conservation mooring project implementation.

#### 5.3.1.4 Allens Pond Sanctuary Salt Marsh Restoration

**Project Idea Submittal:** Salt Marsh Restoration with Non-Native *Phragmites* Removal by the Massachusetts Audubon Society (SA-11)
**Project Location:** Dartmouth, MA
**Requested Funding:** $22,000
**Trustee Recommended Tier 1 Funding Level:** $22,000

**Restoration Objective**

The active control and management of non-native plant species in Buzzards Bay tidal marshes are expected to increase the presence and abundance of native tidal marsh plant species which are important to the ecological services provided by tidal marshes such as cover, foraging and reproduction habitats for many aquatic and wetland-dependent animal species including finfish and crustaceans, wading and shorebirds, seasonally-migrating waterfowl, mammals, and herpetofauna such as diamondback

terrapin. Non-native, invasive plant control in Buzzards Bay salt marshes is expected to benefit plant and animal communities as important bay shoreline and aquatic resources.

**Summary of Proposed Activity**

The Allens Pond Wildlife Sanctuary is a 595-acre Massachusetts Audubon property that includes a salt pond and marsh complex in South Dartmouth, MA. The on-site salt marsh was previously identified as a priority tidal restriction site in the *Atlas of Tidally Restricted Salt Marshes in the Buzzards Bay Watershed*, published by the Buzzards Bay Project National Estuary Program. The 7-acre Allens Pond salt marsh was once restricted from normal tidal exchange due to an undersized road culvert serving as the only tidal exchange connection between Allens Pond and the marsh. The result was reduced salinity in waters affecting the marsh which allowed common reed (*Phragmites australis*), an invasive, non-native herbaceous plant, to outcompete native salt-tolerant marsh grasses and shrub species.

The first-phase culvert replacement project was completed through a partnership between the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) and the Massachusetts Audubon Society (Mass Audubon). Through the federal Wildlife Habitat Incentives Program (WHIP), NRCS provided cost-share and technical assistance, to replace the undersized culverts. This culvert system increased tidal flow and has increased the salinity to the point where water in the marsh behind the culvert is equivalent to the salinity in the downgradient tidal pond. The new culverts have also allowed the marsh to drain at low tide to restore normal daily wetting-drying of the marsh with flooding and ebbing of the tides.

Mass Audubon has been documenting the vegetation annually along transects in the hydrologically restored marsh and a nearby reference marsh beginning two years prior to the culvert replacement. The results have shown an increase in salt marsh cordgrass (*Spartina alterniflora*), limited spread of invasive *Phragmites*, and some thinning of the

*Phragmites* stands, suggesting that the management action has been beneficial. However, the hydrological restoration alone is not sufficient to reduce the aerial extent of common reed. The second phase of the Mass Audubon project is to mow and apply herbicides to best achieve the goal of completing the restoration of the salt marsh.

Current site conditions include dense *Phragmites* patches in multiple locations at the Allens Pond Wildlife sanctuary. The existing *Phragmites* cover forms a fringe 30 to 70 feet in width that extends approximately 1,625 feet along the border between native *Spartina* salt marsh bordering the tidal pond and an upland grassland restoration area. Additionally, another 2.2 acres of dense *Phragmites* are situated upgradient of the culvert replacement site. In both these areas, *Phragmites* exceed 11 feet in height, create a dense monoculture, and threaten to further encroach into valuable native plant communities providing important fish and wildlife habitats. These *Phragmites*-dominated sites will be addressed through stem-cutting of the invasive plants, followed by the application of an herbicide (glyphosate). Herbicide applications will be conducted by licensed professionals, following application procedures by the manufacturer, and in conformance with state regulations.

**Monitoring and Measurable Results**

Monitoring will be used to evaluate how well the treatments have controlled common reed and to determine future management needs. Success in control of the northwestern stands will be based upon a comparison of vegetation maps over time. Mass Audubon is committed to completing a pre- versus post-restoration project assessment to determine the potential success of the invasive *Phragmites* control at this wildlife sanctuary. Metrics are expected to include percent cover of native salt marsh plant species in comparison to non-native *Phragmites*. Other metrics such as *Phragmites* height and percent of plants flowering and reproducing will be documented by Mass Audubon.

**Evaluation of the Alternative**

The southwestern area of tidal wetlands behind the culvert is ~7.2 acres of salt marsh, salt pannes, and common reed. The area is valuable as a habitat for waterfowl and shorebirds and harbors a state-listed plant (*Setaria parviflora* – salt marsh foxtail). The common reed expanding in the north central area of the Allens Pond Wildlife Sanctuary is in the vicinity of former cropland that is being restored to and managed as native warm-season grassland. Common reed is growing along the edge of the grassland and into the salt marsh; thus disrupting the continuity of the plant community structure that would be more beneficial to coastal wildlife.

The proposed control methods will include commonly-used glyphosate that is approved for use in wetlands, with application by licensed, experienced specialists. Herbicide treatments will be carried out in September or early October, since experience by the Mass Audubon and other expert applicators have shown that common reed control with systemic herbicides is most effective during this time of year. Initially, foliar treatments with a backpack sprayer will be used. Follow-up herbicide treatments are expected. Based on how many stems reappear in subsequent years, stands will be treated with supplemental foliar spraying or with the stem cut-and-drip method.

Herbicide application is the most viable option for reducing the size of the common reed stands at Allens Pond Wildlife Sanctuary. Earlier herbicide treatments at the site with glyphosate in the vicinity of the culvert replacement were found to reduce the cover of common reed by over 95% in the first year following application, while causing minimal impact to non-target species when applied, using the manufacturer's recommendations and site conditions.

The option of further hydrological restoration to control common reed does not exist at this point. As indicated above, the previous culvert replacement in the southwestern marsh has already restored the hydrology and salinity regimes, and *Phragmites*

herbiciding is expected to complement the culvert replacement. The common reed patches adjacent to the warm season grasslands are not in an area that is subjected to a tidal restriction.

The Allens Pond sanctuary is one of Mass Audubon's premier locations for public access and education and ecological management. Over 300 bird species have been recorded during migration or nesting season. The sanctuary's one-half mile stretch of beach provides important nesting habitat for rare piping plovers and terns. The sanctuary also attracts many raptors in all seasons including nesting ospreys and migrant bald eagles. The Quansett Trail system offers visitors the opportunity to observe, interact with, and learn about the great diversity of habitats in the sanctuary.

**Recommendation**

The cost to complete the treatment of the 3.3 acres of *Phragmite*s-dominated marsh for two years is estimated at $32,000. Mass Audubon has secured $10,000 towards this phase of the marsh restoration project. Mass Audubon has also invested much staff time in ecological restoration activities at the two proposed common reed control sites at the Allens Pond Wildlife Sanctuary, in addition to the financial and in-kind contributions of NRCS, Mass Audubon, and other partners to complete the initial phase of the project to restore tidal flow. The funds required to complete this project are projected at $22,000. The Bouchard B-120 Trustees support the full funding of this project as a means to rehabilitate tidal marsh associated with the Allens Pond tidal pond and marsh complex.

### 5.3.2 Tier 1 Preferred Shoreline and Aquatic Restoration Projects, Rhode Island

The Bouchard B-120 Trustees have distinguished Rhode Island preferred projects into two funding tiers. Potential projects that best met the Evaluation Criteria were placed into Tier 1 preferred for funding. The Tier 1 project will have top priority for Bouchard

B-120Bouchard B-120 Trustee funding; the Trustees have sufficient funding available to fund the Tier 1 projects.

#### 5.3.2.1 Quahog Relays and Transplants

**Project Idea Submittal:** Hard Clam (Quahog) Broodstock Relays by the Rhode Island Department of Environmental Management, Division of Fish and Wildlife, Salt Ponds Coalition , and The Nature Conservancy of Rhode Island (SA-23)
**Project Location:** Multiple locations in South County salt ponds
**Requested Funding:** $25,000
**Trustee Recommended Tier 1 Funding Level:** $20,000

**Restoration Objective:**
The project would allow adult quahogs to be collected from bay waters where quahog growth is limited by food supply, and shellfishing is prohibited due to elevated coliform levels. By collecting quahogs from state-designated donor waters and relaying the quahogs to state-designated shellfish spawner sanctuaries in multiple coastal salt ponds, the transplanted adult quahogs are allowed to grow and reproduce in protected areas, and help to support quahog population recruitment and shellfishing in the salt ponds.

**Summary of Proposed Activity:**
RIDEM, as part of its shellfish management program, has designated quahog transplant and spawner sanctuary areas in its coastal waters including South County salt ponds, and has a sound track record in relaying and transplanting quahogs (or hard clams, *Mercenaria mercenaria*) from restricted shellfishing waters into sanctuary areas for purposes of increasing population recruitment, increasing ecological services provided by the bivalves, and benefiting local shellfisheries. RIDEM conducts its quahog transplant program by contracting with Rhode Island commercial shellfishermen to harvest adult quahogs ("broodstock") from coves within Narragansett Bay with impaired water quality (i.e., elevated fecal coliform levels) that are closed to recreational or

commercial harvest. The donor sites are typically characterized by large-sized quahogs in high densities where a plankton food supply is limited, and thus, quahog growth and survivorship is affected. With the relays, harvested healthy quahogs are placed within "spawner sanctuaries" in RIDEM-designated shellfish management areas for long-term protection. This allows the transplanted quahogs to serve as an important broodstock to increase population size in the salt ponds.

**Monitoring and Measurable Results**

RIDEM with support from TNC will conduct a structured monitoring program designed to characterize broodstock re-conditioning, survival, and post-larval settlement success. Control sites will also be monitored for comparison. Shellfish population monitoring will occur over a 2-3-year period. Pre- and post-transplant monitoring would be completed as part of the project to assess project performance results and determine the need for any adaptive management strategies into implementation.

**Evaluation of the Alternative**

RIDEM proposes quahog broodstock transplants where the agency has established protected spawner sanctuaries including Winnapaug, Quonochontaug, and Ninigret Ponds. Prior to enhancement, transplant sites will be selected by a process of population estimates and field surveys to establish baseline information and to identify suitable bottom conditions (e.g., grain size, firmness, and slope) needed to sustain quahogs and enhance benthic habitat.

The numbers of quahogs in Rhode Island's coastal salt ponds have been substantially reduced from historic levels due primarily to overfishing (Baczenski et al. 1979; Boyd 1991; Crawford 1984; Ganz et al. 1992; Rice 1989). As a foundation species, quahogs (and other filter feeding shellfish such as American oyster) play important roles in the marine and estuarine food webs by filtering large volumes of water to feed on phytoplankton and other organic particles (Grizzle et al. 2001). Abundant hard clam

populations have several ecological benefits, including making the bays and estuaries more resistant to chronic algal blooms (Cerrato *et al*. 2004, Gobler et al. 2005) by providing water column filtering capacity and algal uptake, and improving nutrient cycling (Dame 1996). Increased water clarity is anticipated to result in greater bottom substrate area that is suitable for eelgrass growth by increasing light transmission at depth (Wall et al. 2008). Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses (Peterson and Heck 1999), and creating habitat on or around living and dead shells (Coen and Grizzle 2007). Also, many species of waterfowl, fish, crustaceans, and other macro-invertebrates feed directly on quahogs. Quahogs placed in spawner sanctuaries, and protected from harvest, provide increased larval output for recruitment to areas outside of the spawner sanctuary for eventual increased harvest for recreational shellfishermen.

RIDEM traditionally involve the public in quahog transplants and restoration projects, particularly the transfer of quahogs from the donor site(s) and placing them into the sanctuary site. This project would continue that model of including community involvement into the implementation of the project.

Funds from the aquatic and shoreline settlement would be used for quahog relays and transplanting to spawner sanctuaries. RIDEM proposes to transplant between 100,000 and 150,000 adult quahogs per year, transplanting to one or two locations each year, and with appropriate seeding densities to minimize predator impacts. Funds are expected to help cover quahog relays over a 1 to 3-year period.

**Recommendation**

The Bouchard B-120 Trustees recommend the use of approximately one-half of the aquatic restoration funds (~$20,000 of the $40,000 available for Rhode Island aquatic resource restoration) secured by the State of Rhode Island through the Bouchard B-120 settlement to complete relays of quahogs harvested from closed harvest sites in Rhode

Island bay waters to be transplanted in one or more protected shellfish spawner sanctuaries in coastal salt ponds. The placement of healthy adult quahogs will contribute to the ecology of the marine aquatic benthic communities, and provide an important broodstock to help increase quahog populations in the salt ponds managed by RIDEM for recreational and commercial shellfisheries.

#### 5.3.2.2 Quahog Substrate Enhancement

**Project Idea Submittal:** Shell Substrate Enhancement for Improved Quahog Larval Settlement and Survival in Rhode Island by The Nature Conservancy of Rhode Island and Rhode Island Department of Environmental Management, Division of Fish and Wildlife (SA-24)
**Project Location:** South County salt ponds
**Requested Funding:** $19,470
**Trustee Recommended Tier 1 Funding Level:** $19,470

**Restoration Objective**

Placement of shell material is expected to enhance benthic substrates in coastal salt ponds providing important habitat for quahogs, other bivalves, and other benthic biota. The shell placement, in combination with adult quahogs collected from closed shellfish areas and transplanted to shellfish spawner sanctuary sites is expected to increase quahog populations in one or more Rhode Island coastal salt ponds.

**Summary of Proposed Activity**

Restoration in the form of substrate and quahog population enhancement has been an effective tool in remediation and mitigation efforts in coastal-marine systems. Habitat features such as shell hash increases larval recruitment, species diversity, and productivity both at local and whole-system scales. The general decline in shell-forming species has resulted in a net loss in biogenic substrates providing habitat structure for

shellfish species. Survivorship of planted and post-settled hard clams depends on the microhabitat that individuals occupy.

Working with RIDEM and community partners, TNC proposes the use of substrate and broodstock enhancement to restore hard clam populations in coastal Rhode Island salt ponds. In collaboration with RIDEM, The Nature Conservancy staff will assist with the design, coordination and implementation of this substrate enhancement project. Through a cooperative shellfish enhancement program, commercial fisherman and RIDEM staff will collect and transplant adult-hard clams from high density broodstock areas (HDBA) in bay waters to low density sites located in spawner sanctuaries (See Section 5.3.2.1, above). Prior to enhancement, transplant sites will be selected by a process of population assessment and visual survey to establish baseline conditions and identify suitable bottom habitat conditions (grain size, firmness, and slope) needed to sustain hard clam and benthic habitat enhancement. Shell hash will be loosely planted (0.25-in depth) in demarcated areas to test for differences in hard clam recruitment and post-settlement survival. TNC coastal-pond quahog survey work in 2009 and 2010 documented successful, higher abundance of juvenile hard clams in areas receiving shell hash as compared to unstructured sediments. Throughout the project, TNC is committed to foster public involvement and volunteer education opportunities.

**Monitoring and Measurable Results**

TNC staff will conduct a structured monitoring program designed to characterize broodstock reconditioning, survival, and post larval settlement success. Control sites in sandy substrates and shell plots will also be monitored for comparison. Sediment trays (0.25-m) will be deployed to monitor recruitment into shell and bare sediment plots. Monitoring will occur over a 2-3 year period. The TNC survey and monitoring work will help determine the need for any adaptive management for increasing the success of this restoration project.

**Evaluation of the Alternative**

Prior to placement of shell hash, transplant sites will be selected by a process of population and visual survey to establish baseline information and to identify suitable bottom conditions (grain size, firmness, and slope) needed to sustain hard clam and benthic habitat enhancement. Shell hash will be loosely planted in demarcated areas, following a proven method for quahog habitat enhancement. RIDEM proposes transplants where the agency has established spawner sanctuaries including Winnapaug, Quonochontaug, and Ninigret Ponds. Prior to enhancement, transplant sites will be selected by a process of population estimates and field surveys to establish baseline information and to identify suitable bottom conditions (e.g., grain size, firmness, and slope) needed to sustain quahogs and where benthic habitat enhancement will be most beneficial to increasing shellfish populations.

The numbers of quahogs in Rhode Island's coastal salt ponds have been substantially reduced from historic levels due primarily to overfishing (Baczenski et al. 1979; Boyd 1991; Crawford 1984; Ganz et al. 1992; Rice 1989). As a foundation species, quahogs (and other filter feeding shellfish such as American oyster) play important roles in the marine and estuarine food webs by filtering large volumes of water to feed on phytoplankton and other organic particles (Grizzle et al. 2001). Abundant hard clam populations have several ecological benefits, including making the bays and estuaries more resistant to chronic algal blooms (Cerrato *et al*. 2004, Gobler et al. 2005) by providing water column filtering capacity and algal uptake, and improving nutrient cycling (Dame 1996). Increased water clarity is anticipated to result in greater bottom substrate area that is suitable for eelgrass growth by increasing light transmission at depth (Wall et al. 2008). Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses (Peterson and Heck 1999), and creating habitat on or around living and dead shells (Coen and Grizzle 2007). Also, many species of waterfowl, fish, crustaceans, and other macro-invertebrates feed directly on quahogs. Quahogs planted in spawner sanctuaries, and protected from harvest, provide

increased larval output for recruitment to areas outside of the spawner sanctuary for eventual increased harvest for recreational shellfishermen.

RIDEM and TNC traditionally involve the public in quahog transplants and restoration projects, particularly the transfer of quahogs from the donor site(s) and placing them into the sanctuary site. This project would continue that model of including community involvement into the implementation of the project.

Funds from the aquatic and shoreline settlement would be used for placing shell hash in designated spawner sanctuaries. RIDEM proposes to transplant between 100,000 and 150,000 adult quahogs per year, transplanting to one or two locations each year, and with appropriate seeding densities to minimize predator impacts. Bouchard B-120 settlement funds are expected to help cover costs for the delivery and placement of clean, surf clam and other bivalve shell material from a local supplier. Some funds are requested to be used for performance monitoring activities.

**Recommendation**

The Bouchard B-120 Trustees support the use of restoration funds secured through the Bouchard B-120 settlement for aqusatic resource injury in Rhode Island to complete placement of shell hash for bottom substrate enhancement to enhance quahog populations in one or more Rhode Island salt ponds. The shell hash placement is expected to occur in one or more protected shellfish spawner sanctuaries in coastal salt ponds. The placement of healthy adult quahogs along with the substrate enhancement in the salt ponds will contribute to the ecology of the salt pond benthic and communities, and provide an important broodstock that will help to increase quahog populations in the salt ponds. Shell hash placement may also help to provide substrate favorable to the settlement of oyster larvae and contribute to restoring local oyster populations. The salt ponds are managed by RIDEM for recreational and commercial

shellfisheries, and optimally, the results of the oyster seed and/or shell hash placement will support the local shellfisheries.

### 5.3.3 Tier 2 Preferred Shoreline and Aquatic Restoration Projects, Massachusetts

As previously indicated, the Bouchard B-120 Trustees have grouped preferred projects into two funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 for funding; the Trustees have sufficient funding available to fund all Tier 1 projects. The Trustees acknowledge, however, that uncertainties inherently exist in natural resource restoration projects, including costs and conditions and status of Tier 1 preferred projects. Thus, the Trustees may have funding remaining after Tier 1 projects are completed. The priorities for funding within Tier 2 will be evaluated by the Trustees based, in part, on the outcomes of Tier 1 projects and Trustee judgments regarding what actions are best to compensate for the natural resource injuries. Thus, one or more Tier 2 projects may be funded, pending the outcomes of selected Tier 1 projects. The following are Tier 2 preferred projects identified by the Bouchard B-120 Trustees in order of preference for funding.

#### 5.3.3.1 Gray Gables Marsh Culvert Replacement and Tidal Hydrology Restoration

**Project Idea Submittal:** Gray Gables Salt Marsh Restoration by the Town of Bourne, MA (SA-1)
**Project Location:** Bourne, MA
**Requested Funding:** $460,000
**Trustee Recommended Tier 2 Funding Level:** $50,000

**Restoration Objective**

The objective of this tidal marsh restoration is to restore normal tidal hydrology to a 15±-acre degrading tidal marsh system bordering Buzzards Bay to improve fish and wildlife habitats and other ecological services derived by a restored marsh.

**Summary of Proposed Activity**

The Gray Gables salt marsh restoration project consists of two tidally-restricted, degrading marsh systems interconnected by an undersized culvert. The lower marsh is approximately 2.5 acres in size, and the upper marsh and contiguous wetlands are collectively 13 acres in area. Both marshes are located adjacent to the east end and south of the Mashnee Island causeway which extends westward to Hog and Mashnee Islands. The lower marsh discharges to the Cape Cod Canal via an existing partially blocked culvert running under Mashnee Road and traversing under an adjacent residential property (76 Mashnee Road). The culvert extends beyond the north side of Mashnee Road and ends at a shoaling, intertidal sand flat, creating poor tidal exchange conditions between Buzzards Bay and the marsh.

Baseline tidal surveys have indicated a tidal range restriction of approximately 50% between Buzzards Bay and the lower marsh and over 95% between Buzzards Bay and the upper marsh. These restrictions are caused by both the undersized culverts at the two interconnecting hydrologic locations, and shoaling abutting the north side of the Mashnee Road causeway. The causeway was constructed by the U.S. Army Corps of Engineers in the 1930s when the Cape Cod Canal was realigned to address a vessel hazard. As a result, both marshes have undergone tidal restriction for more than 70 years, and are undergoing die-off of salt marsh species, lowering of the marsh plain due to very prolonged standing water, and changing plant species composition with invasive non-native species (notably *Phragmites australis*) becoming more prevalent. Without tidal hydrology restoration and/or marsh-building activities, the 15-acre vegetated

marsh area will convert to shallow open-water areas with limited habitat values and little to no native tidal marsh vegetation remaining.

Feasibility study analysis has been conducted to determine culvert replacement options. The next step will consist of additional engineering and modeling to determine a solution that could ultimately help to restore tidal hydrology and normal tidal exchange between Buzzards Bay and the Gray Gables marsh. In particular, a new culvert structure between the marsh and Phinneys Harbor to the south of Mashnee Road may be required, although this design option would require culvert installation through a private property and impact to and restoration of state-regulated dune resources. Analysis on a potential culvert relocation and design dimensions would require modeling of the tidal hydrology using a tidally-forced numerical model and modeling of potential shoreline changes (e.g., erosion and/or accretion) in order to determine how far to extend the culvert and address potential clogging. When complete, this project will enhance fish and wildlife habitats and improve water quality within this 15-acre marsh system.

**Monitoring and Measurable Results**

Restoration of the marsh hydrology will require performance monitoring of the restored marsh conditions, and may include measuring tide heights within the two marsh areas over at least a full 29-day lunar tidal cycle and annual vegetation changes over time in comparison to a nearby non-tidally restricted reference salt marsh vegetation. Tide range monitoring could be completed using water level loggers and annual vegetation composition surveys are typically completed using 1-square meter sampling quadrats along one or more transects across each marsh from the edge of the tidal exchange creek to the marsh-upland boundary. Seasonal nekton (i.e., fish, crustaceans) or bird surveys are also completed to assess habitat services provided by restoring marshes. It is expected that the Town of Bourne and/or its project partners or consultant would

complete performance assessments of the Gray Gables and reference marshes over a 3+-year period to document ecological changes in the Gray Gables marsh.

**Evaluation of the Alternative**

This project was designated as a priority restoration project by the MADER in 1999. Project assessments have been completed by consultants in 2006 and 2008, although additional analysis is required for the project. There is strong support from land abutters to the project. Effective hydrologic restoration would help to restore normal daily wetting and drying of the marshes with tidal flood of and ebb flows from the marshes. Estimated costs for project implementation, taken from the 2008 consultant assessment is $460,000, although funds are also needed for completing further modeling and assessments to determine alternative culvert design and alignments, and then to complete engineering designs and regulatory permit applications to secure all requisite permits and approvals. Since this marsh has been tidally restricted for multiple decades, marsh building practices (e.g., sediment fine layer spraying techniques) may be required to supplement the tidal hydrology restoration at Gray Gables marsh.

**Recommendation**

The Bouchard B-120 Trustees support funding $50,000 for the supplemental assessment, design, and/or implementation of the Gray Gables marsh, but recognizing that substantial funding from other sources will be required to successfully implement the marsh restoration project. Should the Tier 2 preferred funds be available for this project, the project proponents will need to present the matching funds or a strategy to secure the matching funds within a reasonable time period following a Trustee fund award.

#### 5.3.3.2 Cotley River and Fish Passage Restoration

**Project Idea Submittal:** Barstowe's Dam Removal, Cotley River Restoration by the Massachusetts Division of Ecological Restoration (SA-13)
**Project Location:** Taunton, MA
**Requested Funding:** $50,000
**Trustee Recommended Tier 1 Funding Level:** $50,000

**Restoration Objective**

The MA DER, Save the Bay (Rhode Island), and other project partners seek to restore diadromous fish passage on the Cotley River by removing Barstowe's Dam, a fish passage barrier situated immediately upriver of the confluence of the Cotley River with the Taunton River in Taunton, Massachusetts. Removal of the barriers will reconnect ~5 miles of the Cotley River with the Taunton River and restore important diadromous fish runs to the Taunton River Estuary, Narragansett Bay, Buzzards Bay and other coastal waters. The Taunton River supports the largest river herring run in southern New England, and the proposed dam removal on the tributary Cotley River is expected to increase the annual river herring run by thousands to tens of thousands herring, and restoring important migratory aquatic resources to Buzzards Bay.

**Summary of Proposed Activity**

Barstowe's Pond Dam, on the Cotley River in Taunton, MA, is situated approximately 0.4 miles upstream from confluence of the Cotley River with the Taunton River, which flows unimpeded into the Taunton River estuary and Narragansett Bay. As no dams are located on the Taunton River below the confluence, Barstowe's Pond Dam is the first barrier to fish passage and natural sediment transport. The goal of this barrier removal project is to restore fish passage and other river ecological processes, and improve riverine habitats.

Barstowe's Pond Dam is in poor condition and has been determined by Massachusetts Office of Dam Safety as a significant hazard that is a liability to the dam owner and a risk to the downstream community. The dam consists of a 57-foot long earthen embankment, a 30-ft long timber crib spillway at the west end of the dam, and a 5-foot long sluiceway at the east end of the dam. The hydraulic height of the dam at capacity is 7.3 feet. Although the dam was historically used as a mill dam, the structure no longer serves a useful purpose and has fallen into disrepair. Approximately one-half mile upstream of the dam, railroad tracks cross the river over a 9.6-foot wide and 13.5-foot high, stone and concrete arch bridge that constricts high river flows. A privately-owned dirt road with round concrete culvert crossing, maintained for power line maintenance access is also present across the river just upriver of the railroad bridge. A 4-foot diameter, 30-foot long culvert underlies the dirt road and may act as a velocity barrier to migrating fishes during some high diadromous fish run period flows; the culvert is proposed to be replaced with a properly sized and installed structure as part of the overall diadromous fish passage restoration on the Cotley River.

Project tasks completed to date include wetland delineation, topographic and bathymetric survey and mapping, hydrologic and hydraulic assessment, sediment mapping, characterization, and contaminant testing, and coordination with regulatory staff (e.g., development of a sediment management plan). Design plans are currently near completion, and coordination with the Massachusetts Historical Commission is also occurring in summer 2013. It is anticipated that all permitting and approvals will be completed in 2013. A MEPA waiver has been granted for this important restoration project. Dam removal is expected to occur in summer 2015.

**Monitoring and Measurable Results**

The MADMF and project partners are committed to assessing fish passage and other ecological conditions derived by the dam removal project. The monitoring will include qualitative visual inspections and counts to document diadromous fish passage, and

underwater video, automated fish counter or other equipment may be used by MADMF to quantify numbers of river herring successfully passing the dam removal site.

**Evaluation of the Alternative**

The removal of Barstowe's Dam will provide passage for blueback herring, alewife and American eel in the Cotley River. This project will also restore natural riverine functions and habitat to this important tributary of the Taunton River. The Cotley River flows into the dam-free Taunton River, so migratory fish will have unimpeded passage from Narragansett By to the headwaters of Cotley River. These migratory fish are expected to spend parts of their lives in Buzzards Bay. Removing the dam will also convert 16 acres of shallow-water impoundment to a free-flowing river with restored riparian vegetated wetlands.

The Cotley River is a small river that meanders through a mostly forested watershed. The Cotley River has the potential to provide ~5 miles of diadromous fish spawning and rearing habitat. The channel is primarily of riffle-pool construction, and the channel bed is composed of gravel and cobbles in the riffles, sand in the pools, and a mix of substrates in the longer runs found further upstream in the watershed. Despite nearby industrial uses, the Cotley River has a relatively intact riparian corridor throughout much of its length, and provides quality habitat for diadromous and resident fish species.

Removal of Barstowe's Pond Dam is a high-ranking project by the MA DER for benefits to diadromous fish as compared to many other dams in Massachusetts. According to the Northeast Connectivity Project released by The Nature Conservancy and the Northeastern Association of Fish and Wildlife Agencies, this project is one of the top-ranking fish passage projects in the Northeast. Project partners include Save the Bay, MADER, the Taunton Development Corporation (non-profit, dam owner), and the NOAA Restoration Center. The implementation cost is estimated at $125,000. Partial funding has been secured from the dam owner and the MA DER, and in June 2013, NOAA

awarded additional funds (~$30,000) for completion of additional assessment tasks. A request of $50,000 in funds is sought from the Bouchard B-120 Trustees to contribute to the remainder of construction costs for dam removal in 2014.

**Recommendation**

The Bouchard B-120 Trustees support the funding of up to $50,000 for removal of Barstowe's Dam removal for purposes of restoring unimpeded diadromous fish access to 5 miles of the Cotley River, a tributary to the Taunton River. These funds may be required, if funds are insufficient to complete the dam removal project. The Trustees recognize the importance of this barrier removal on the Cotley River to restore diadromous fish runs to increase river herring populations in nearby coastal waters including Buzzards Bay.

### 5.3.3.3 Mill River and Fish Passage Restoration

**Project Idea Submittal:** Mill River Restoration and Fish Passage Project by the Massachusetts Division of Ecological Restoration (SA-14)
**Project Location:** Taunton, MA
**Requested Funding:** $400,000
**Trustee Recommended Tier 1 Funding Level:** $50,000

**Restoration Objective**

The Division of Ecological Restoration and its project partners seek to restore diadromous fish passage on the Mill River by removing the West Britannia Dam along with removing or affording fish passage at three other dams on the lower river in Taunton, Massachusetts. Removal of the barriers will reconnect 30 miles of mainstem and tributary habitats with the Taunton River and restore important diadromous fish runs to the Taunton River Estuary, Narragansett Bay, Buzzards Bay and other coastal waters. The Taunton River supports the largest river herring run in southern New

England, and the tributary Mill River fish passage restoration is expected to increase the annual river herring run by more than 100,000 fish, and restore important aquatic resources to Buzzards Bay.

**Summary of Proposed Activity**

West Britannia Dam is owned by the Reed & Barton Company and is situated on the Mill River in the City of Taunton, Massachusetts. The Mill River is a tributary to the Taunton River, and has been the focus of ongoing proactive efforts to restore diadromous fish passage, fisheries habitats, continuity of in-stream and riparian habitats, and removal of aging, defunct dams. The West Britannia Dam was constructed in the 1800s as a source of water and power, but flashboards were removed from the dam in the mid-1900s and the dam has not been used for its originally constructed purpose for multiple decades. The dam currently has no dedicated functional use, and the Reed & Barton Company, as owner is willing and seeking assistance to have the structure removed. Reed & Barton Company has pledged $50,000 in funds toward the dam removal implementation.

The West Britannia Dam is a run-of-river structure. The Hopewell Dam (aka, State Hospital Dam) formerly located 0.25 miles downstream from the West Britannia Dam, was removed in 2012 and this reach has now been restored to a natural flowing river and barrier-free for fish passage to the West Britannia Dam. Removal of West Britannia Dam would result in lower water surface elevations during higher flows upstream to the approximate vicinity of the Whittenton Street Bridge. The upriver Whittenton Mill Pond Dam was removed in the summer of 2013, and the Massachusetts Department of Transportation (MA DOT) has installed a structural Denil fishway at the uppermost Morey's Bridge Dam. While originally included in the MA DER project idea submittal for funding, the Whitteton Pond Dam removal was completed, and thus, Bouchard B-120 funds for the project are no longer needed.

**Monitoring and Measurable Results**

In April 2013, the Massachusetts Division of Marine Fisheries (MADMF) installed an underwater video recorder and directional weir fence immediately downstream of the West Britannia Dam and upriver of the former Hopewell Dam to document passage of diadromous fish species and estimated run size. During the spring 2013 herring run season, this video monitoring documented the passage of several hundred river herring to the base of the West Britannia Dam. This is the first time in nearly 200 years that river herring have accessed this reach of the Mill River. MA DMF will continue to manage and maintain this video recording station, as well as complete other investigations on the Mill River system, including presence and abundance surveys of American eel. These fish passage investigations are a high priority for MA DMF, MA DER, NOAA and other project partners, and are expected to continue annually through at least 2015. Results of the MA DMF investigations will be made available to the Bouchard B-120 Trustees and the general public, and will be used to document passage and spawning and rearing success above the West Britannia Dam once it is removed.

**Evaluation of the Alternative**

The MA DER proposes to complete the Mill River restoration and fish passage project by removing the West Britannia Dam, on the Mill River in Taunton, Massachusetts, and to date MA DER and its partners have been in removing two other dams on the river, and installing a fishway on the uppermost dam. These collective fish passage projects will reconnect 30 miles of mainstem and tributary habitat to the Taunton River and Mt. Hope Bay. The Taunton River watershed currently supports the largest herring run in Southern New England, and the MA DMF has estimated that the Mill River can support an annual herring run of more than 100,000+ fish once the passage projects are complete.

National attention focused on the Mill River in 2005 when the Whittenton Dam nearly failed during an extreme flood. The City, federal and state agencies and NGOs

conducted a feasibility study to examine the environmental and safety benefits of removing the three dams on the Mill River. The Hopewell Dam, the lowest dam on the river, was removed in 2012, opening 0.25 miles of the river. The West Britannia Dam will open 0.6 stream miles to the Whittenton Dam, and the Whittenton Dam was removed in summer 2013. The structural fishway and eel pass have been constructed by the MA DOT at the Morey's Bridge Dam.

Since the submittal of the request for Bouchard B-120 funding, TNC was awarded $50,000 from the Massachusetts Environmental Trust for assessment and design, and MA DER was awarded funds from both NOAA (~$40,000) for passage monitoring and dam assessment) and USFWS ($650,000) for dam removal design and implementation. Removal of the West Britannia Dam will afford unimpeded diadromous fish passage, an important aquatic resource of Buzzards Bay, as well as eliminate a public safety hazard and liability to the dam owner. The MA DER approach to the removal of West Britannia Dam is to complete targeted upfront assessment studies intended to minimize potential dam removal costs associated with management of sediment in the impoundment and address potential impacts to upstream infrastructure immediately adjacent to the dam. The MA DER and its project partners are seeking additional funds to complete the implementation dam removal.

**Recommendation**

The Bouchard B-120 Trustees are in support of partial funding of this diadromous fish passage restoration project to restore important fish runs to the Taunton River estuary, Narragansett Bay, Buzzards Bay and other coastal waters in which these migratory fishes spend a portion of their lives. The Trustees propose to fund up to $50,000 to the MA DER for the implementation of the West Britannia Dam, should recent fund awards be insufficient to complete the dam removal.

### 5.3.3.4 Red Brook Headwaters Fish Passage Restoration Project

**Project Idea Submittal:** Red Brook Headwaters Restoration Project at Century Bog by the Massachusetts Division of Ecological Restoration

**Project Location:** Plymouth, MA (SA-16)

**Requested Funding:** $1,623,360

**Trustee Recommended Tier 2 Funding Level:** $50,000

**Restoration Objective**

The project is proposed for restoring unimpeded passage and habitat access and use by river herring, American eel and sea-run brook. The project partners seek to: eliminate six barriers to fish passage and improve passage at a seventh in the Century Bog area; reduce temperature and sediment impacts to downstream reaches of Red Brook; and create diverse and sustainable riparian habitat. This project will result in improved access to over 300 acres of alewife spawning habitat in White Island Pond, reduced fish mortality, enhancement of 1.6 miles of brook, and restoration of up to 60 acres of native wetland bog.

**Summary of Proposed Activity**

The proposed project involves the headwaters of Red Brook, a small, spring-fed, coastal stream in the northeastern Buzzards Bay watershed. Red Brook flows out of White Island Pond (a man-made connection constructed in the 1800s) in Plymouth and through the existing Century Bog cranberry-bog complex. Red Brook is a relatively short stream; its length is ~4.5 miles from White Island Pond to Buttermilk Bay. Nearly the entire Red Brook watershed is under State or non-profit open space protection, a very unique condition for natural resource management. Red Brook provides important habitat for sea-run Eastern brook trout (*Salvelinus fontinalis*) (documented fish use of Buzzards Bay tidal waters by the MAF&G using acoustic telemetry techniques), alewife, blueback herring, and American eel. Past cranberry operation impacts to the habitats of

Red Brook have caused habitat fragmentation (i.e., fish and wildlife passage barriers), water quality impacts (water chemistry and hydrology), and native wetland conversion to commercial cranberry bogs.

Previous downstream phases of the Red Brook restoration led by MADER have already resulted in the removal of three small dams to improve habitat for the regionally rare sea-run or "salter" brook trout and other aquatic species on this spring-fed coastal stream. The proposed Century Bog project, in entirety, will improve access to over 300 acres of alewife spawning habitat in White Island Pond by eliminating six barriers to fish passage in the Century Bog area, and improving the passage efficiency of the existing fishway at the White Island Pond outlet. This project also aims to improve natural riverine functions by reducing instream temperatures and sediment impacts to lower reaches of Red Brook, and restoring a wooded riparian wetland habitat. The project is expected to be accomplished by the following techniques: (1) establish a single natural channel, the elimination of five barriers to fish passage, and improvement of passage at a sixth barrier in the Century Bog area; (2) re-establish wetland hydrology in the riparian area including Bartlett Pond; and (3) restore native riparian wetland and upland vegetation communities. The project is currently in the preliminary design phase, and MADER seeks funding to complete final design and project implementation.

**Monitoring and Measurable Results**

MADER, the Massachusetts Division of Fish & Game (MADF&G), Trout Unlimited (TU), and other project partners have been monitoring herring and sea-run trout populations in Red Brook over a number of years through annual electro-shocking census surveys telemetry studies and visuals counts, and will continue to complete annual surveys following the completion of the barrier removals and stream channel restoration. Extensive ground- and surfacewater monitoring has also been completed and will continue to be conducted post-restoration completion to document expected water quality improvements to Red Brook instream habitats.

**Evaluation of the Alternative**

The project area is entirely within the Red Brook, Century Bog Wildlife Management Area. Red Brook is a high quality coastal stream, and one of few remaining in the southern New England region that supports native sea-run brook trout, as well as river herring and American eel. This project site falls within the Trout Unlimited, MA Chapter's Southeast Massachusetts landscape program and is consistent with the Chapter's goals for landscape-scale restoration of migratory fish, coastal rivers, and estuaries.

The implementation of the proposed restoration project techniques will have multiple benefits to the ecology of the Red Brook system including: improving the efficiency of diadromous fish migration though the project area, eliminating the risk of entrainment of migrating fish within former dead-end cranberry bog channels, and reducing avian predation; removing stressors (hydrologic, water quality, and substrate) affecting the functions of coldwater habitat, by restoring a natural flow regime to the downstream reach; reducing instream temperatures and increasing dissolved oxygen levels immediately downstream of the project site; and restoring a diverse native riparian wetland and upland plant community.

The total cost of implementing all the ecological components of this upper watershed project is conceptually estimated by MADER at $1,900,000 with approximately $276,640 in funds previously secured by the project partners for the project. MA DER expects to secure regulatory authorizations and SHPO review and concurrence for the project in 2014.

**Recommendation**

The Bouchard B-120 Trustees propose to include the fish passage component of this multi-component, large-scale restoration project as a Tier 2 preferred restoration alternative. The focus on improving diadromous fish passage includes the channel

realignment, barrier removals for fish passage restoration at the existing barrier structures. The Trustees support Tier 2 preferred funding in the amount up to $50,000 to help address and contribute to diadromous fish passage final design and/or construction as a means to increase river herring populations in Buzzards Bay and nearby coastal waters.

#### 5.3.3.5 Agawam River Fish Passage and Riparian Wetland Restoration

**Project Idea Submittal:** Agawam River Restoration – Headwaters Bogs by the Town of Plymouth, MA (SA-21)
**Project Location:** Plymouth, MA
**Requested Funding:** $170,000
**Trustee Recommended Tier 2 Funding Level:** $50,000

**Restoration Objective**

The project is proposed to improve instream habitat quality, riparian wetland habitat and diadromous fish passage access to and use of spawning and rearing habitats in the upper Agawam River for river herring and American eel which are important aquatic resources of Buzzards Bay.

**Summary of Proposed Activity**

The 29-acre wetland and stream restoration project site is located 0.5 miles downstream from 232-acre Halfway Pond, which is the headwaters of the Agawam River, a relatively small coastal river. The Agawam River currently flows through an area of approximately 19 acres of active commercial cranberry bogs situated within the project area. The proposed project includes separating the river channel from the cranberry bog operations by reconstructing a natural stream channel in conjunction with restoring a woody riparian wetland plant community to re-establish important wildlife habitat and to sustain groundwater discharge to the stream. The project will

eliminate diadromous fish barriers and will reduce the nutrient input into the river, and ultimately, Buzzards Bay. Totaling 11.3 miles in length, the mainstem Agawam River supports diadromous species including alewife, blueback herring, and American eel, as well as white and yellow perch, white sucker, and other resident fish species. There are more than 100 acres of active cranberry bogs in the upper reaches of the Agawam River, and a total of 543 acres within the entire Agawam River watershed. This project will afford fish passage by diadromous fish to access spawning and rearing habitats in the large, regionally-significant Halfway Pond.

**Monitoring and Measurable Results**

The Town will be responsible for monitoring changes in diadromous fish populations in the upper Agawam River within both the proposed stream restoration reach and Halfway Pond. Fish passage monitoring is expected to be supported by MADMF through visual counts or automated fish counters to document fish passage and population changes over multiple years following restoration.

**Evaluation of the Alternative**

The Agawam River is a major contributor of freshwater, nutrients and other dissolved and particulate materials to the Wareham River Estuary and ultimately Buzzards Bay. The Agawam River once supported the largest river herring run in Buzzards Bay. The proposed Agawam River Headwater Bogs Restoration project will improve water quality and restore the natural river channel, riparian habitat, fish passage and spawning and rearing habitats for diadromous fish species.

The Town of Plymouth is working collaboratively with the property owner, A.D. Makepeace (a cranberry-producing industry), to complete the design of the project. The Town of Plymouth seeks a total of $170,000 for final project design ($70,000), permitting and construction oversight ($30,000), materials cost for a box culvert ($56,250), and native plantings associated with project implementation ($13,750). The

A.D. Makepeace Company is working with the Town on this project and has offered to contribute in-kind services for the construction of the project, estimated at approximately $50,000.

**Recommendation**

The Bouchard B-120 Trustees support up to $50,000 in funding for diadromous fish passage design and/or construction of this multi-component restoration. Trustee funds would be expected to be supplemented by the Town funding for the project design, in-kind construction services provided by A.D. Makepeace, and funds from other sources for design and construction. The funding of this project would be to restore passage by river herring and American eel and improve their spawning and/or rearing habitats in the watershed as a means to increase diadromous populations in Buzzards Bay and nearby coastal waters.

### 5.3.4 Tier 2 Preferred Shoreline and Aquatic Restoration Alternatives, Rhode Island

As previously indicated, the Trustees may have funds remaining after Tier 1 projects are implemented, no longer need the funds, or may need less funding that previously identified. The priorities for funding of Tier 2 projects will be decided by the Trustees based, in part, on the outcomes of Tier 1 projects and the Trustees' best professional judgments regarding what actions are most beneficial to compensate for the Bouchard B-120Bouchard B-120 natural resource injuries. Public input on this Draft RP/EA will also be considered by the Trustees in their determination of the Tier 2 priority of funding, if funds remain. One Tier 2 preferred project alternative has been identified for Rhode Island that may receive funding, pending on the outcome of the selected Tier 1 projects.

### 5.3.4.1 Saugatucket River Fish Passage Improvements

**Project Idea Submittal:** Diadromous Fish Passage Improvements at the Main Street Dam by the Rhode Island Department of Environmental Management, Division of Fish and Wildlife (SA-22)
**Project Location:** Wakefield, RI
**Requested Funding:** $35,000
**Trustee Recommended Tier 2 Funding Level:** $35,000

**Restoration Objective**

The project includes modifications to existing structural fishway to substantially improve river herring passage to access important spawning and rearing habitats in the Saugatucket River; and the installation of an eel pass to provide passage of juvenile eels to access upriver rearing habitats. Collectively, these actions are expected to restore fish populations which are important forage species to predatory fish, birds and mammals, and support and help to sustain both recreational and commercial fisheries.

**Summary of Proposed Activity**

Diadromous fishes such as alewife (*Alosa pseudoharengus*), blueback herring (*A. aestivalis*), and American eel (*Anguilla rostrata*) are important marine species that spend a portion of their lives in coastal waters like Buzzards Bay. Alewife and blueback herring, collectively known as river herring spawn in freshwater streams and rivers, with the offspring then spending the next 3-5+ years in estuarine and marine waters before returning to natal streams and river to spawn. American eel in contrast, spawn in marine waters and juvenile eels ("elvers") migrate to freshwater streams and rivers to spend 10 years or more maturing, before migrating back to their place of birth to spawn and then die. The Main Street Dam, owned by the Town of South Kingstown, Rhode Island, is situated on the Sauguatucket River immediately north of the Main Street Bridge crossing in the Village of Wakefield, Rhode Island. The ~100-foot long, 6-foot

high, 19th century stone structure includes a Denil fishway on the east bank of the river that was constructed in 1970 for river herring passage. The dam forms a relatively narrow but lengthy impoundment that is used for recreational boating and fishing, and is also appreciated by the local community for various waterfront activities and celebrations. Because of its village setting and substantial public use of the impoundment, dam removal is not an option for this diadromous fish passage site.

The existing Denil fishway is operational but has been determined by the Rhode Island Department of Environmental Management (RIDEM), National Oceanic and Atmospheric Administration (NOAA), and U.S. Fish and Wildlife Service (USFWS) to need improvements for increasing fish passage efficiency. Passage deficiencies associated with this fishway include a poorly located entranceway and excessive flows through the fishway during the normal operational period that limit upstream passage by adult herring; and mortality of out-migrating juvenile herring that are carried over the dam spillway and land on, or are trapped in, the boulder apron at the toe of the dam.

To improve diadromous fish passage at the Main Street Dam, the following work activities are being proposed: (1) remove and reconstruct the lower portion of the Denil fishway to relocate the entranceway closer to the base of the dam; (2) install several additional baffles in the upper portion of the existing Denil fishway to reduce excessive flows through the passageway; (3) modify the exitway to lessen trash accumulation and facilitate debris removal; (4) construct modification or replacement of the drain gate along the right bank for herring out-migration; and (5) install an eel pass on the east side of the dam with the entranceway of the eel pass to be located in the a quiescent pool at the base of the dam.

**Monitoring and Measurable Results**

RIDEM will conduct annual river herring and eel counts at the Main Street site. River herring counts will be completed by installing a white board at the fishway exit to

facilitate daily visual fish passage counts during the herring run migration period. The proposed eel pass will include a trap box to facilitate temporary holding and counting of elvers and other eels using the passage. The monitoring at this site by RIDEM will be very similar to the performance monitoring for other state-managed fish passage sites in Rhode Island, and will include reporting to the Atlantic States Marine Fisheries Commission and the Bouchard B-120 Trustees.

**Evaluation of the Alternative**

The Saugatucket River is a high priority Rhode Island watershed for restoring diadromous fish runs. Substantial quality spawning and rearing habitat (up to 300 acres) for river herring are available upstream of the Main Street Dam. Since 2005, jumpstarting of the herring run by releasing spawning adults from another healthy donor river (plus, returning Saugatucket River adults netted below the dam in 2011) into Indian Lake, a 220-acre lake located ~3 miles upriver from the dam, has resulted in substantially increasing numbers of returning herring adults in 2009-2012. However, the problems with the Main Street fishway prevent most of these returning adults from accessing the fishway entrance and upriver spawning habitat. Since 2009, manual lifting of returning river herring adults over the dam has been a common practice primarily by dedicated local volunteers, conducted over the previous run seasons, as the fishway continues to function poorly.

Project work has included field surveys of the dam, existing fishway and site conditions in the immediate vicinity of the dam, as well as engineering design which addresses the fishway entrance and exitway elevations, and fishway flows favorable for upstream passage by adult river herring. An eel pass will also be installed to provide passage by juvenile elvers migrating upriver to important rearing habitat in the watershed. The Town as owner of the dam is in support of the fish passage project. State regulatory authorization for the project has been secured and the project is ready to go to construction in summer 2014. Matching funds have been secured for the project

planning, design and construction from multiple funding sources, including two other NRD settlements (Rose Hill landfill and North Cape oil spill), the Rhode Island Coastal Habitat and Estuary Restoration Trust Fund, and the USDOI Federal Aid Program. It is uncertain at this time if supplemental funds will be needed for project construction.

**Recommendation**

The Bouchard B-120 Trustees support the use of up to $35,000 in funds to contribute to the construction of the structural fishway improvements and eel pass installation. The improvements are expected to improve on the passage efficiency of river herring and provide passage over the dam by American eel; these species are important estuarine and freshwater forage species to many other predatory fishes, birds and mammals. These forage species help to support local recreational fisheries and regional commercial fisheries. The project is expected to increase the annual run of Saugatucket River herring population to tens of thousands or more of fish that will use coastal estuarine and marine waters of Rhode Island and Massachusetts.

### 5.4 General Lost Coastal Access Preferred Alternatives

General lost coastal access describes reductions in opportunities or trips from residents and visitors from fishing from the shoreline, non-motorized near-shore boating such as canoeing and kayaking, and sunbathing, swimming, walking, birding and picnicking. Projects eligible to meet the resource needs for the general lost coastal access injuries are those projects that restore, enhance or rehabilitate the same or similar natural resources or natural resource services that were injured. The Trustees have identified two primary categories which include (1) property acquisition and (2) public access improvements. Project examples include: purchase of a coastal property along Buzzards Bay for public access to the shore; construction of a public boat ramp in an area where public facilities are lacking; or installation of a hiking trail and boardwalk to improve foot access to a beach or other public coastal property. The Trustees will

maintain a percentage of lost coastal use and access funds for contingency planning and Trustee oversight. Funding levels of approximately $1,360,000 and $121,000 are available for projects eligible for general lost coastal access restoration projects in Massachusetts and Rhode Island, respectively. An additional $85,000 is available to address lost recreational boating in Massachusetts. The general lost coastal access and boating restoration projects in the following sections are those projects that received the highest ranking during the Trustee evaluation process.

### 5.4.1 Tier 1 Preferred General Lost Coastal Access Alternatives, Massachusetts

The Trustees have grouped Massachusetts preferred projects into two funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 for funding. Projects in Tier 1 will have higher priority for funding than Tier 2 projects; the Trustees have sufficient funding available to fund all recommended Tier 1 preferred projects. One or more Tier 2 project could be funded if general lost use or lost boating funds remain after the Tier 1 projects are implemented, changes occur in the level of Tier 1 funds needed, or there is no longer a need for funds for the Tier 1 project(s).

#### 5.4.1.1 Nasketucket Bay Land Acquisition

**Project Idea Submittal:** Nasketucket Bay State Reservation Expansion Project by the Buzzards Bay Coalition (LU-1)
**Project Location:** Fairhaven and Mattapoisett, Massachusetts
**Requested Funding:** $1,000,000
**Trustee Recommended Tier 1 Funding Level:** $960,000

**Restoration Objective**

The Nasketucket Bay Land Acquisition Project will protect almost 450 acres of coastal and estuarine lands with nearly 4,000 feet of Buzzards Bay shoreline bordering

Nasketucket Bay and within its watershed in the towns of Fairhaven and Mattapoisett, Massachusetts. Acquisition of these parcels would more than double the size of the nearby Nasketucket Bay State Reservation acquired by the state in 1999 (209.7 acres in Mattapoisett and 1.6 acres in Fairhaven), and expand on and tie into a network of adjacent protected lands and passive recreational public trails. Together, the additional protected lands and integrated public access will provide ecological and aesthetic benefits, and create new and enhanced recreational opportunities along wooded trails, open fields and rocky and sand beach shoreline for the public to enjoy. Coastal-dependent passive recreation opportunities including saltwater fishing, shellfishing, birding and wildlife viewing, walking, hiking, horseback riding, cross-country skiing, and nature study will be available through this project, and will be enriched by views of the bay, coastal streams, maritime forest and adjacent preserved coastal agricultural landscapes.

**Summary of Proposed Activity**

The Nasketucket Bay Land Acquisition Project, led by the Buzzards Bay Coalition (BCC), involves multiple land conservation partners and leverages multiple funding sources towards the acquisition of fee simple and easement interests for nearly 450 acres to protect a variety of coastal resources and associated values along the coast of Buzzards Bay. The project will: (1) protect important natural resources associated with the Bay, its shoreline and coastal habitats supporting marine and estuarine fish, shellfish and state/federally protected tern species; (2) provide public access to coastal lands and shoreline for recreational activities including saltwater fishing, shellfishing, kayaking, picnicking and beach uses; and (3) create a link between the popular regional bikeway/recreational pathway and the nearby state park providing coastal access to and from the bikeway/pathway.

**Monitoring and Measurable Results**

The Nasketucket Bay Land Acquisition Project will provide permanent protection and management of valuable natural resources along Buzzards Bay for conservation purposes. Following acquisition, Massachusetts Department of Conservation and Recreation (MA DCR) will own or hold easements. In order to better protect the Nasketucket Bay's natural resources while providing appropriate recreational opportunities for visitors, habitat and trail monitoring and management activities should be integrated with existing master and management plans for the Nasketucket Bay State Reservation.

**Evaluation of the Alternative**

This section of shoreline was lightly to moderately to oiled by the Spill. The parcels proposed for acquisition comprise a significant portion of the remaining undeveloped, unprotected lands around Nasketucket Bay. According to the BBC, until establishing Nasketucket Bay State Reservation, there was no public access to the bay between Sconticut Neck in Fairhaven and Mattapoisett Harbor, nearly two miles of the Massachusetts coast. Protecting these lands is also consistent with state and local goals. The May 2012 Resource Management Plan developed by MA DCR for its Fort Phoenix Unit, which includes the nearby Fort Phoenix Beach State Reservation, Nasketucket Bay State Reservation, and West Island State Reservation, includes a priority goal to: "Continue efforts to expand the reservation and to establish connections with nearby protected open space and the Phoenix Bike Trail/Mattapoisett Rail Trail." The proposed acquisition project meets this goal by expanding the coastal frontage, total acreage and length and connectivity of the trail system at the Nasketucket Bay State Reservation through connections and linkages to an extensive network of protected areas around Nasketucket Bay and the Fairhaven-Marion Regional Equestrian Pathway and Bikeway.

Protecting these lands also protects adjacent coastal waters which support significant ecological and recreational resources including fringe salt marshes, shellfish areas,

eelgrass beds, habitats for shorebirds, waterfowl, state- and federally-endangered Roseate Tern (*Sterna dougallii*), as well as coastal streams that support federally-listed American eel (*Anguilla rostrata*). Build-out scenarios developed by the Massachusetts Estuaries Project predict varying impacts to sub-embayments due to excessive nitrogen loading at the watershed build-out; protecting these lands from development would help to lessen these impacts.

The project involves a collaborative of conservation organizations including the CBB, MA DCR, the Towns of Fairhaven and Mattapoisett, and the Mattapoisett Land Trust which has leveraged significant funding from multiple sources.

**Recommendation**

The total estimated project cost, including the acquisition of fee simple and easement interests, is $6 million. The Coalition and its partners have secured a total of $4.7 million including $2 million from the U.S. Department of Agriculture's Farm and Ranch Land Protection Program, $1.5 million from MA DCR, $1 million through a U.S. Fish and Wildlife Service National Coastal Wetlands Conservation Grant, and $200,000 from the Fairhaven Community Preservation Committee. In September 2013, the Towns of Fairhaven and Mattapoisett each received $21,730 from the Buzzards Bay National Estuary Program. Approximately $1M in funds is needed to complete this important property acquisition and protection. The Bouchard B-120 Trustees support funding of $960,000 for land acquisition as a Tier 1 preferred alternative, with a focus on creating a link between the popular regional bikeway/recreational pathway and the state park providing coastal access to and from the public bikeway. The Bouchard B-120 Trustees recommend these settlement funds particularly focus on the acquisition and protection of lands immediately bordering Buzzards Bay coastal waters.

### 5.4.1.2 Allens Pond Sanctuary Trail Improvements

**Project Idea Submittal:** Creation of the Stone Barn Farm Visitor Center at Allens Pond Wildlife Sanctuary by the Massachusetts Audubon Society (MassAudubon) (LU-5)
**Project Location:** Dartmouth, Massachusetts
**Requested Funding:** $520,000
**Trustee Recommended Tier 1 Funding Level:** $120,000

**Restoration Objective**

MassAudubon seeks to engage the public in its conservation activities through environmental education and outreach, while using their sanctuaries as a base for its education programs, as well as places that people of all ages can visit to enjoy the benefit of outdoor activities such as walking, birding, and exploring the natural environment. Creation of an all-persons accessible trail and improvements to existing trails at MassAudubon's Allens Pond Wildlife Sanctuary (Sanctuary) will provide the public with access to and increased opportunities to learn about Buzzards Bay coastal resources. As access to the coast and other natural areas becomes more valued, these improvements will help raise public awareness and inspire protection of coastal environments.

**Summary of Proposed Activity**

MassAudubon owns and maintains the 595-acre Allens Pond Sanctuary in Dartmouth, Massachusetts. As originally proposed in the idea submittal, the project would include renovating the main house building on the Stone Barn Farm, situated in the Sanctuary, to create a Nature and Visitor Center. The project would include educational interpretive exhibits to highlight the Sanctuary's natural features and provide guides for ecological management, create an all-persons trail, and improve the current trail system at specific locations to better protect the Sanctuary's natural resources while providing appropriate recreational opportunities for visitors. Two new trails are proposed: one

through a coastal forest (oak/hickory/holly) stand with an all-persons trail on the north side of the property; and a second trail on an existing easement through nearby property to link two sections of existing trails along marsh and shoreline.

The proposed all-persons trail would total 0.61 miles and involve construction of an Americans with Disabilities Act (ADA)-accessible surface suitable for wheelchairs and child-strollers, as well as for hikers with visual challenges. At other Sanctuaries, MassAudubon has found that these types of trails are also heavily used by seniors and others who prefer the stable, easy-to-walk surface. The proposed connector trail would be 0.6 miles and lie between the main Quansett Trail to the west and the Allens Neck Trail system near the grassland to the east. Trail work would involve installing one extended boardwalk along the edge of a marsh and a second shorter boardwalk, as well as a third seasonally-installed boardwalk. Improvements to the existing 7.4 miles of trails would be occur at wet spots with the combined trail totaling approximately 200 feet. Activities would include best management practices for small water diversions to direct water off the trail, and fortifying tread areas with rock steps or large flat rocks to allow access while maintaining localized drainage. Interpretive trail materials addressing natural resources (e.g., salt pond, piping plover, and beaches) will be developed and signage will be installed along the trails. MassAudubon's long-term goal for the Sanctuary is to construct an observation platform for public visitors.

**Monitoring and Measurable Results**

Visitation at this Sanctuary has grown substantially over the last decade; from 1,091 people in 2002, to 13,300 people in 2007, to 17,060 people in 2011. To better protect the Sanctuary's natural resources while providing appropriate recreational opportunities for visitors, the volume of visitor use, the type of uses, and the effects of use on the condition of the trails and the recreational, educational, and natural resource management objectives will be monitored by MassAudubon staff with results provided to the Trustees and others.

**Evaluation of the Alternative**

This section of shoreline was lightly to heavily-oiled by the Spill and following the Spill, the Sanctuary was forced to temporarily close many of its public trails. The proposed trail improvements will provide the public with extended and improved access to and opportunities to learn about Buzzards Bay coastal resources. The Sanctuary trail systems offer visitors the opportunity to observe, interact with, and learn about a great diversity of habitats. Visitors to the Sanctuary can observe bird life and salt marsh activity from a number of vantage points; over 300 bird species have been recorded during migration or nesting season. The Sanctuary's one-half mile length of beach provides important nesting habitat for rare piping plovers and terns. The Sanctuary also attracts many raptors during all seasons including nesting ospreys and migrating bald eagle. Visitors accessing trails are afforded access to a view a variety of coastal ecosystems including a freshwater pond, tidal wetlands, coastal forest, old pasture land, and vernal pools. The MassAudubon staff has developed an environmentally-sound trail improvement plan that will interconnect existing Sanctuary trail systems in the east and west portions of this large preserve to provide enhanced access to upland and wetland habitats. The construction of trails and boardwalks will provide invaluable access throughout this highly valuable preserve. As access to the coast and other natural areas becomes more valued, MassAudubon offers new opportunities to raise awareness and inspire protection of coastal environments. Visitors intrigued by the conservation efforts can express their interest by taking programs, volunteering, or learning how to manage their own properties for the highest conservation value. These practices benefit the local community and the Buzzards Bay watershed as a whole.

**Recommendation**

The total estimated cost including Visitor Center design and permitting ($45,000), Visitor Center renovation and construction ($300,000), Visitor Center exhibits ($65,000), accessible trail design and construction ($65,000), existing trail improvements ($25,000), and interpretive signage for trails ($20,000) is $520,000. The Bouchard B-120 Trustees

support Tier 1 preferred project funding of the new trail design and construction and existing trail improvements up to a level of $100,000. The Bouchard B-120 Trustees also recognize the importance of interpretive educational signage on the new and improved trails for public use. The Trustees support limited funds in the amount of up to $20,000 to design, construct and/or install kiosk(s) and other weather-proof signage and brochures and other materials that provide the public with information relating to coastal resources, particularly addressing or relevant to the Bouchard B-120 oil spill, the natural resources injured by the Spill, and restoration projects implemented to address the natural resource and use injuries from the spill and clean-up.

#### 5.4.1.3 Nasketucket Bay State Reservation Trail Improvements

**Project Idea Submittal:** Increasing Coastal Access to Nasketucket Bay by the Massachusetts Department of Conservation and Recreation (LU-6)
**Project Location:** Fairhaven and Mattapoisett, Massachusetts
**Requested Funding:** $20,553
**Trustee Recommended Tier 1 Funding Level:** $20,553

**Restoration Objective**

The Nasketucket Bay State Reservation (Reservation), owned and managed by the Massachusetts Department of Conservation and Recreation (MA DCR) is located in the towns of Fairhaven and Mattapoisett, Massachusetts. Its 209 acres and undeveloped 3,400-foot-long shoreline provides visitors with a sense of solitude that is uncommon along much of Buzzards Bay. This property provides the critical link between nearby conservation lands, recreational features (i.e., the Mattapoisett Rail Trail), and the bay coast. The proposed trail enhancements would improve coastal access to Buzzards Bay.

**Summary of Proposed Activity**

Six existing trails in the Reservation, totaling 2.9 miles, traverse upland and wetland forests and fields, providing for a variety of passive recreational activities including hiking, dog walking, running, mountain biking, horseback riding, cross-country skiing, and snowshoeing. Two of the trails, the Salt Marsh Trail and Shore Trail, provide the public with access to the Buzzards Bay shoreline. The former provides direct access to the shore, while the latter closely parallels the coast for 0.4 miles before connecting with the reservation's southern shore. The Shore Trail is closed seasonally due to flooding and muddy conditions associated with an intermittent stream that is traversed by the trail. At high tide, this path allows for safe travel between the reservation's two coastal access points; beachcombers who find their return path along the shore blocked by high tide may safely use this trail. Saturated soils and a seasonal stream have created three locations where recreationists have difficulty traversing this path. An improvised walkway, created by recreationists using downed branches and wood carried in by the tide and transported to the trail, has been established at these locations; it is neither safe nor effective.

Most of the trails on the reservation are identified by name at major intersections; however, none specifically identify coastal access points or the distance to those points. These trails also lack "reassurance markers," vertical painted marks that allow users to stay on trails and provide a sense of reassurance. The Reservation trail system also lacks resting places along the trails. Such features are important for the comfort and enjoyment of visitors, especially young children, the elderly, and others with limited mobility.

The MA DCR proposes to implement trail enhancements to improve coastal access at this Reservation by constructing three wooden trail bridges over seasonally wet portions of the Shore Trail, thereby providing additional year-round access to the coast; installing signs and trail markers to guide users to coastal access points and inform them of the

distances to these points; and installing four large, flat natural stones at major trail intersections to function as seating for those needing to rest when travelling to and from the coast. Boardwalks totaling approximately 300 feet in length, are anticipated to be constructed as part of the Shore Trail system.

Initial construction will be performed by MA DCR's partner, the Student Conservation Association; ongoing maintenance and repair will be performed by the MA DCR. Signs directing visitors to coastal access points will be installed at the reservation's parking area and at major trail intersections. Other signs and reassurance (i.e., painted) markers will be installed in accordance with MA DCR's trails guidelines (http://www.mass.gov/dcr/stewardship/ greenway/docs/DCR_guidelines.pdf). All markings will be performed and maintained by the MA DCR. Stones for use as "resting benches" will be purchased commercially, transported to the site, and placed at appropriate locations by MA DCR staff using heavy equipment and construction best management practices.

**Monitoring and Measurable Results**

There are no visitor use data for this Reservation. The Reservation's one parking lot can accommodate 25 vehicles, or approximately 60 park visitors. Many regular visitors live in nearby neighborhoods and regularly use the park for recreation and coastal access. Visitations will likely increase once a connection to the Mattapoisett Rail Trail is established and as lands adjacent to the reservation are protected for conservation purposes (Refer to 5.4.1.2 Nasketucket Bay Land Acquisition). To better protect the Reservation's natural resources while providing appropriate recreational opportunities for visitors, the volume of use, the type of use, and the effects of use on the condition of the trails and the recreational, educational, and natural resource management objectives will be monitored in accordance with the MA DCR's Trails Guidelines and Best Practices Manual, updated in March 2012.

**Evaluation of the Alternative**

This section of shoreline was light to moderately-oiled by the Spill. The proposed trail improvements will provide the public with expanded and improved access to and opportunities to learn about Buzzards Bay coastal resources. Improvements to the Shore Trail, currently closed seasonally due to flooding and mud associated with an intermittent stream that crosses the trail, will ensure safe coastal access at all times of year and during all tidal stages, and will be designed to minimize recreational damage to soils and vegetation. Additionally, the installation of signs and trail markers will increase awareness of coastal access points by trail users, provide a sense of reassurance on the trails, and offer visitors the opportunity to observe, interact with, and learn about a great diversity of habitats, including wooded trails, open field and rocky shoreline. The Reservation is characterized by a 3,400-foot-long, undeveloped coastline providing visitors with a sense of solitude that is uncommon along Buzzards Bay. The property provides a critical link between nearby conservation lands, recreation features (i.e., the Mattapoisett Rail Trail), and the coast. These linkages are expected to increase with implementation of the Nasketucket Bay Land Acquisition Project (Refer to Section 5.4.1.2). MA DCR's May 2012 Resource Management Plan for its Fort Phoenix Unit, which includes the Fort Phoenix Beach State Reservation, Nasketucket Bay State Reservation, and West Island State Reservation, includes a primary goal to: "Continue efforts to expand the reservation and to establish connections with nearby protected open space and the Phoenix Bike Trail/Mattapoisett Rail Trail."

**Recommendation**

The estimated costs to implement improvements to the Reservation trail facilities are $33,000. The MA DCR will provide $12,365, as in-kind match, to contribute towards items such as labor costs, signs, and a heavy-equipment operator and use of a backhoe. The Bouchard B-120 Trustees support Tier 1 preferred project funding of the trail improvements to a level of $20,553.

### 5.4.1.4 State Park Universal Access to the Buzzards Bay Coast

**Project Idea Submittal:** Providing Universal Access to the Buzzards Bay Coast by the Massachusetts Department of Conservation and Recreation (MA DCR) (LU-7)
**Project Location:** Westport, Dartmouth, and Fairhaven, Massachusetts
**Requested Funding:** $54,000
**Trustee Recommended Tier 1 Funding Level:** $54,000

**Restoration Objective**

The Universal Access Project will provide beach and ocean access along Buzzards Bay at Horseneck Beach State Reservation (Westport), Demarest Lloyd Memorial State Park (Dartmouth), and the Fort Phoenix Beach State Reservation (Fairhaven) to visitors of all physical abilities, including those that use wheelchairs or strollers. The goal of the project is to expand park visitors' opportunities to experience and enjoy the shores and waters of Buzzards Bay. The project will provide universally accessible pathways to the high-tide line, and specialized adaptive recreation equipment for water access at the MA DCR's three guarded beaches on Buzzards Bay.

**Summary of Proposed Activity**

Public lands along the shore are often viewed as providing full coastal access. However, beaches can be an impenetrable barrier for those with limited physical mobility. Current regulations require accessible infrastructure (e.g., parking spaces, bathhouses, and rest rooms) but not accessible beaches. The MA DCR operates five parks on the shore of Buzzards Bay; all of which provide traditional coastal access (i.e., parking near the shore with trails or sidewalks to the beach). Three of these properties, Horseneck Beach State Reservation (Westport), Demarest Lloyd Memorial State Park (Dartmouth), and Fort Phoenix Beach State Reservation (Fairhaven), have beaches monitored by lifeguards. Although these beaches are popular with the able-bodied, they are less popular with wheelchair users due to the lack of access to the Bay's shore and waters.

Accessible pathways will be created through the use of Mobi-Mat® RecPath (or an equivalent manufacturer), a seasonally installed roll-out recreation pathway designed for use by those with limited physical mobility. This 5-foot-wide mat provides access for wheelchairs and strollers, and those who have difficulty walking over irregular surfaces or in soft sand. MA DCR proposes to install two pathways, each approximately 165-feet long, at Horseneck Beach. Single pathways will be installed at both Demarest Lloyd Memorial State Park (45- feet long) and Fort Phoenix Beach (55-feet long). At all park installation locations, the mats will extend from existing accessible hard, flat surfaces (i.e., road, path, or boardwalk) to the high water line. Located near each pathway's high-tide limit, there will be a 5-feet wide by 10-foot long section of mat adjacent to, and connected with, the main trail path. This will create an accessible platform for wheelchair users using Mob-Chairs, enabling them to fully enjoy the sun and sand. Similar platforms will also be created mid-way along paths at Horseneck Beach in Westport, MA.

Water access will be provided at all three beaches through the use of Mobi-Chairs, floating beach wheelchairs that allow for the "seamless transition from boardwalk to beach to water". Chairs and associated personal flotation devices will be made available through MA DCR lifeguards, who will oversee the chair use and ensure their safe operation. Companions will be required to push the chair through the sand and to accompany the user while in the water. These chairs and the Mobi-Mat® will provide park visitors full access to the coast and waters of Buzzards Bay.

**Monitoring and Measureable Results**

Census data indicate that 8.6% of children, 17.9% of adults, and 37.8% of seniors have a disability; an estimated 5% of Americans have significant physical mobility impairments. In 2011, Horseneck Beach had approximately 151,000 visitors, and Demarest Lloyd Park 15,000, visitors (user estimates are not available for Fort Phoenix Beach). A conservative estimate of the population served by this project, based on current use

levels, is approximately 8,300 visitors per year. However, these improvements are expected to attract new park visitors; visitation and use of the pathways and adaptive equipment will be performed.

**Evaluation of the Alternative**

This section of shoreline was lightly to moderately oiled by the Spill. The proposed beach access improvements will likely attract new park visitors. Recent surveys at Horseneck Beach State Reservation revealed that the majority of visitors came from twenty-three cities and towns in eastern Massachusetts and Rhode Island. The combined population of these communities is approximately 1.7 million. It is believed that the user bases for both Demarest Lloyd Memorial State Park and Fort Phoenix Beach State Reservation, although distinct, also come from these communities. If 5% of this population has significant mobility impairment, the potential user base for the accessible pathways and adaptive recreation equipment exceeds 80,000. The MA DCR will actively promote these improvements to this potential user base. This equipment has an estimated lifetime use of 10 years. The MA DCR will provide maintenance and annual installation and removal for the lifetime of the mats and will clean, maintain, and regulate the use of the floating beach wheelchair equipment.

**Recommendation**

The total cost to implement this project is approximately $65,000. The MA DCR proposes to contribute $5,000 of cash match towards the project, plus 10 years of maintenance on the acquired property totaling over $12,000 in match. The Bouchard B-120 Trustees support Tier 1 preferred project funding of the new trail design and construction and existing trail improvements up to a level of $54,000.

### 5.4.1.5 Hoppy's Landing Barrier Free (Handicapped Accessible) Fishing Platform and Access Improvements

**Project Idea Submittal:** Buzzards Bay Public Access Facility (Hoppy's Landing) by the Massachusetts Office of Fishing and Boating Access and Town of Fairhaven (LU-9)

**Project Location:** Fairhaven, Massachusetts

**Requested Funding:** $500,000

**Trustee Recommended Tier 1 Funding:** $200,000

**Restoration Objective**

The proposed barrier-free/handicapped-accessible fishing pier at Hoppy's Landing in Fairhaven, Massachusetts would provide anglers of all ages and abilities with the opportunity to access the shore for recreational fishing. This will fulfill a regional need in Buzzards Bay; there are currently no facilities located between the Rhode Island border and Wareham, Massachusetts.

**Summary of Proposed Activity**

Hoppy's Landing is a popular fishing and boating access facility in Fairhaven, Massachusetts consisting of a crushed-shell parking area and concrete boat ramp with a pier gangway and floating dock. The dock system facilitates the launching and retrieval of boats by vehicles with trailers, and the loading and offloading of commercial lobster boats. Hoppy's Landing is open to the general public and provides access to Buzzards Bay and surrounding waters for fishing, boating, shellfishing and other water recreation. The facility is used regularly by both recreational and commercial users, particularly in the summer, spring and fall.

Currently, the facility has no or limited ability to offer coastal access for handicapped persons. The Hoppy's Landing Barrier-Free (Handicapped-Accessible) Fishing Pier and Access Improvements Project, is to construct a new sportfishing platform that will be accessible to anglers of all ages and abilities and improve the parking area. As originally proposed, the project involved constructing a new sportfishing pier that would parallel the Town-owned Causeway Road immediately east of and interconnecting to the

Hoppy's Landing property and extend along the south side of Causeway Road, with ample length and possibly a T- or L-shape configuration to allow for handicapped persons to recreational fish. Upon further consultation with fisheries biologists and Town officials, the MA OFBA determined that siting a fishing pier on land south of Causeway Street was not viable due to shallow water depths required for fish use and fishing; MA OFBA identified an alternate location and layout along Causeway Road for a fishing platform that would be located off the road and safe for angler use. This area is in close proximity to a tidal flow box culvert under Causeway Road with adequate depths for recreational fishing for gamefish such as striped bass, bluefish, summer flounder, and scup. The project is also expected to include access improvements to the existing parking area (e.g., paving of a portion of the crushed-shell parking area) and sidewalk along Causeway Road to facilitate access and use by persons in wheelchairs.

**Monitoring and Measureable Results**

The Hoppy's Landing Barrier Free (Handicapped Accessible) Fishing Pier and Access Improvements Project will provide long-term access along the coastline of Buzzards Bay for recreational fishing purposes. To better provide appropriate recreational opportunities, the volume of use, type of use, and user conflicts, if any, will be monitored by the Town of Fairhaven harbormaster and/or MA OFBA staff.

**Evaluation of the Alternative**

This section of shoreline was moderately to heavily oiled by the Spill. Providing specialized adaptive recreation equipment, offering accessible recreational programs, and working to ensure accessible outdoor environments ensures all residents and visitors to the Buzzards Bay watershed have the ability to take advantage of the state's natural resources and recreation opportunities. While most regions of the state offer handicapped accessible trails and parks, there are limited opportunities in southeastern Massachusetts and there is only one barrier- free/handicapped-accessible sportfishing pier along Buzzards Bay in Wareham. The proposed barrier-free/handicapped-

accessible fishing pier in Fairhaven, Massachusetts will afford mobility impaired persons to access the pier from the nearby public parking area at Hoppy's Landing. The project is in the early planning phase. While a design has not yet been prepared, the MA OFBA intends to contract with a design consultant to prepare engineering plans that will both provide American Disabilities Act (ADA)-compliant access to and from the pier and the parking area on Long Island, while minimizing potential impacts to the intertidal and subtidal waters of Buzzards Bay. Additionally, there is an agreement for long-term maintenance and management between the MA OFBA and the Town of Fairhaven.

**Recommendation**

The total estimated cost, including design, permitting and construction, is $500,000. The MA OFBA has funds available for completing site survey and preliminary design services. Additional matching funds are expected through the Marine Fisheries Recreational Saltwater Fishing Fund. The Bouchard B-120 Trustees support the funding of up to $200,000 targeted for the barrier free/handicapped accessible fishing pier as a Tier 1 preferred alternative to address general lost access and use including recreational rod fishing, crabbing and passive wildlife viewing. The Bouchard B-120 Trustee funds would be directed toward the sportsfishing pier, while the parking lot and other accessway improvements would be covered through other funding sources.

#### 5.4.1.6 Palmers Island Access Improvements

**Project Idea Submittal:** Palmers Island Recreational Beach and Access by the City of New Bedford (LU-10)

**Project Location:** New Bedford, Massachusetts

**Requested Funding:** $2,540

**Trustee Recommended Tier 1 Funding:** $19,500

**Restoration Objective**

The Palmers Island Access Improvements Project will re-open portions of shoreline on this 6-acre island for passive recreational use, and create a debris and hazard-free shoreline for use by both humans and wildlife. Ultimately, the project will help to restore up to one-half mile of island shoreline providing habitat values and aesthetic conditions benefiting use by the public.

**Summary of Proposed Activity**

Palmers Island is located in the Inner New Bedford Harbor (NBH), adjacent to the west end of the NBH hurricane barrier in the City of New Bedford. The City owns the Island and originally proposed to restore and enhance its use as a public access preserve by removing a variety of debris (e.g., old boat or dock timbers, plastic, Styrofoam) working in cooperation with local partners. In 2012, the New Bedford Harbor Trustee Council (NBHTC) allocated $100,000 as part of its Round IV restoration funding to complete assessment, design, implementation and coastal plant monitoring associated with upland and wetland habitat restoration on the Island. As currently envisioned, supplemental funding from the Bouchard B-120 Trustee Council would be used to restore portions of the shoreline by removing and controlling non-native invasive plants for both wildlife use and passive public access following removal of debris. The access components would include a wood-chip trail system, kiosk(s) and other weather-proof signage, and benches. The City is also considering the preparation and printing of trail guides and educational pamphlets explaining the historical importance and natural history values of the island, New Bedford Harbor, and Buzzards Bay environs.

**Monitoring and Measureable Results**

In concert with the NBHTC Round IV funding, the City will monitor, and control if necessary, the spread of invasive species into native coastal habitats and to monitor, and if necessary, protect native coastal habitats to ensure they are not being damaged from allowing excessive foot trampling associated with pedestrian access to the island

and other perturbations, and to inspect and maintain the pedestrian pathway as required.

**Evaluation of the Alternative**

New Bedford Harbor and the Acushnet River estuary are bordered by the City of New Bedford and the towns of Acushnet and Fairhaven. The project location, therefore, creates the potential to benefit the populations of all three municipalities; all of which were affected by the Bouchard B-120 Oil Spill.

Palmers Island was recognized on the New Bedford/Fairhaven 2000 Public Access Study. The study states: *The Island represents a unique cultural resource, as it is home to the recently restored and re-lighted lighthouse that has guided sailing ships, whaling vessels, cargo vessels and fishing boats in and out of the harbor for three centuries. It features exposed ledge, and natural beaches that could be featured as part of an historic and environmental education/interactive site.*

A review of the City of New Bedford's demographics reveals a high number of disadvantaged populations. Over 20 percent of the population of the City has an income at or below the poverty level. The population has historically been and largely remains a diverse ethnic population. The Commonwealth of Massachusetts has designated a number of the City's neighborhoods as Environmental Justice Areas, and thus, the Palmer's Island site would have the opportunity to benefit EJ populations in this urban harbor area.

**Recommendation**

The Bouchard B-120 Trustees propose to provide up to $19,500 for the Palmer Island access improvements project, focusing on coastal access and recreational opportunities at the site, including: installing kiosk(s) with interpretive guides regarding the historic features and significance, the natural history of the island and surrounding coastal

environments, and the importance of on-site habitats and restoration of these habitats; the construction of wood-chip foot trails for public use; and four maintenance-free benches (made from recycled plastic). Thus, the Trustee recommended funding level is greater than the relatively small request by the City to better address public education. The Bouchard B-120 Trustee funds would complement, and not overlap, with the funds totaling $100,000 secured through a NOAA federal grant on behalf of the NBHTC. The City of New Bedford is also seeking to secure private and in-kind donations for restoration and habitat clean-up work for the Palmers Island restoration and access improvement project.

### 5.4.2 Tier 1 Preferred General Lost Coastal Access Alternatives, Rhode Island

The Trustees have grouped Rhode Island preferred projects into two funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 preferred for funding. Projects in Tier 1 will have higher priority for funding; the Trustees have sufficient funding available to fund these two Tier 1 preferred projects.

#### 5.4.2.1 Black Point Trail Improvements

**Project Idea Submittal:** Black Point Loop Trail, Rhode Island Department of Environmental Management (LU-12)
**Project Location:** Narragansett, RI
**Requested Funding:** $51,000
**Trustee Recommended Tier 1 Funding Level:** $51,000

**Restoration Objective**
The goal of this project is to improve recreational access to state-owned Black Point via trail and parking facility improvements. Better demarcation of trails will also help to protect sensitive ecological resources.

**Summary of Proposed Activity**

The Black Point Trail is located in Narragansett, Rhode Island, approximately one mile north of Scarborough State Beach on Ocean Road. The 1,430-foot long loop trail at the Black Point fishing access area is the result of a partnership between RIDEM and De LaSalle Christian Brothers. The trail provides public access to the shoreline and clean view corridors to the ocean. Black Point is a free, RIDEM-managed, public fishing access area that is used by local recreational anglers fishing for species such as striped bass, tautog and scup. The walking trail passes through thick vegetation which typifies the southern coastline of Rhode Island, and offers visitors panoramic views of the Atlantic Ocean and up towards Narragansett Bay. The existing short trail leads to a rocky portion of the coast. Although there is no beach, the area offers majestic views of the ocean. Parking is available at the head of the trail and off Ocean Drive, with a lot that now provides about 25 parking spaces. The trail starts at the existing parking lot, continues north along the shoreline, and then forms a loop back to the starting point. View corridors have been strategically placed to provide views of the ocean. The path is accessible to people with disabilities and is heavily used by walkers, hikers, runners, bird watchers, fishers, nature enthusiasts and photographers.

RIDEM seeks to improve the existing Black Point foot trails. The improvement project will help eliminate soil erosion and muddy trail conditions by better demarcating the trails. This will limit foot access to where the public can be directed, and dissuade the public from entering ecologically sensitive areas.. Additionally, RIDEM proposes to complete improvements to the public parking lot to facilitate access by all users to the trail system.

**Monitoring and Measureable Results**

The Black Point trails will be monitored by RIDEM Park Rangers on a scheduled basis throughout the summer season, with routine visual inspections of the trail site to determine whether the trail improvements are working effectively to keep users on the

designated trails. RIDEM staff will also complete visual counts of users to document use of the trails by fishermen, hikers and other recreational visitors to the Black Point area.

**Evaluation of the Alternative**

The Black Point Trail provides access to a public resource that was historically inaccessible. The focus of the design was to ensure that the elderly and people of all abilities could utilize the trail to walk, get exercise, and enjoy the natural resources that Rhode Island offers. Despite the popularity of the existing trail, RIDEM seeks additional modifications and trail improvements to benefit both the recreational users of the trail and protection of natural resources and habitats along the trail, as well as to make improvements to the parking lot to increase user access to the site. RIDEM plans to provide supplemental funds for the parking lot upgrades and in-house design services for the trail improvements that will be beneficial for completing the project.

**Recommendation**

The Bouchard B-120 Trustees recommend allocating $51,000 to fund the trail and parking area improvements at Black Point. Improvements to this popular trail are expected to increase recreational use of the area while minimizing negative impacts to bordering sensitive habitat areas.

### 5.4.2.2 Scarborough Beach South Handicap Coastal Access

**Project Idea Submittal:** Scarborough Beach South Handicap ADA Access Ramps, Rhode Island Department of Environmental Management (LU-13)
**Project Location:** Narragansett, RI
**Requested Funding:** $70,620
**Trustee Recommended Tier 1 Funding Level:** $70,620

**Restoration Objective**

The goal of this project is to provide handicapped persons with coastal access to Scarborough Beach. Construction of two handicap accessible ramps between the parking area and the beach would provide important public access at a location where handicap access currently does not exist.

**Summary of Proposed Activity**

Scarborough Beach, located off Ocean Road in Narragansett, is Rhode Island's most popular and well known beach. Scarborough has long been known as the principal destination for a "day at the beach" for thousands of Rhode Islanders over the years. Collectively, Scarborough Beach North and South is a 26-acre state park facility with 2,325 feet of beach frontage. With the acquisition of Olivo's and Lido's Beaches immediately south of Scarborough Beach, the State of Rhode Island now has an additional 16 acres and more than a 1,000-foot length of additional beach frontage for expanding the saltwater recreational facilities at Scarborough Beach.

Scarborough State Beach with its newly renovated pavilion and expanded beach area along with renovations to the Olivo's and Lido's Beach areas, which are now referred to as the Scarborough South Complex, offer a wide range of beach related activities. Saltwater bathing, with lifeguards on duty, is Scarborough Beach's biggest attraction. However, currently persons of limited mobility have difficultly accessing the beach and water. RIDEM proposes to provide handicapped persons access at the southern portion of the existing state beach by constructing two access ramps for physically handicapped users.

**Monitoring and Measureable Results**

Handicapped/disabled beach user use is monitored through RIDEM entrance booths by vehicle counters and a revenue generation system which produces daily reports during the summer season. RIDEM park staff will conduct routine inspections to ensure that

the two ramps are working effectively for handicapped users to access the beach. Additionally, park staff will complete routine observations and counts of handicapped persons using the ramps to determine and project the use of these accommodations.

**Evaluation of the Alternative**

Scarborough Beach is generally considered by the general public to be one of the finest, if not, the most popular saltwater beach in Rhode Island. Handicapped accessibility is currently not available at Scarborough Beach. This project would create two handicapped access ramps at Scarborough Beach South. The ramps would connect the grassed parking areas with the beach to allow direct beach access by handicapped users where this condition is currently not available. This project would address this lack of handicap access to the coast.

**Recommendation**

The Bouchard B-120 Trustees propose funding the handicap access ramp project for a total of $70,620 as a Tier 1 preferred alternative. The total cost to construct the ramps is estimated at $130,000, with RIDEM proposing to contribute approximately $60,000 in matching contributions.

### 5.4.3 Tier 2 Preferred General Lost Coastal Access Alternatives, Massachusetts

The Trustees have grouped preferred projects into two funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 preferred for funding; the Trustees have sufficient funding available to fund all Tier 1 preferred projects. The Trustees acknowledge, however, that uncertainties inherently exist in natural resource restoration projects, including costs and conditions and status of Tier 1 preferred projects. Thus, the Trustees may have funding remaining after Tier 1 projects are completed. The priorities for funding within Tier 2 preferred will be evaluated by the Trustees based, in part, on the outcomes of Tier 1 projects and Trustee best professional

judgment regarding what actions are most beneficial to compensate for the lost use injuries.

#### 5.4.3.1 Harbor Riverwalk

**Project Idea Submittal:** New Bedford Riverwalk by the City of New Bedford (LU-11)
**Project Location:** New Bedford, Massachusetts
**Requested Funding:** $596,000
**Trustee Recommended Tier 2 Funding:** $306,900

**Restoration Objective**

The objective of the Harbor Riverwalk project is to reconnect City of New Bedford residents with their waterfront by providing passive recreational opportunities along 11,600 linear feet (~2.2 miles) of shoreline. The Harbor Riverwalk will also provide access to and enjoyment of the harbor by Environmental Justice populations and the multi-ethnic communities of the City, and nearby municipalities. The intent is to ultimately connect the proposed New Bedford Riverwalk with other walkways in the Towns of Acushnet and Fairhaven to develop a regional Harbor Riverwalk. Portions of the walkway in Acushnet and Fairhaven are being coordinated by the Southeast Regional Economic Development District (SRPEDD).

**Summary of Proposed Activity**

The City of New Bedford is proposing its high-priority Harbor Riverwalk Project in association with its Harbor Riparian Restoration Project. In 2012, the New Bedford Harbor Trustee Council (NBHTC) allocated $2.9 million in funding as part of its Round IV restoration for the Harbor Riparian Restoration Project which involves securing permanent access easements along the western shoreline of the Inner New Bedford Harbor for a shoreline length of 2.2 miles from the Coggeshall Street harbor crossing, extending north to the Tarkiln Hill Road harbor crossing. A pedestrian pathway, to be

situated within a 25-foot wide riparian zone restored with native vegetation bordering the Inner Harbor, will provide passive public recreation opportunities such as walking, viewing scenic areas along and across the estuary, and watching birds and other wildlife. Limited interpretive signage will provide public educational opportunities regarding the history of the Acushnet River and waterfront, as well as the ecological benefits, community values, and sponsorship of the public access and riparian restoration. Conservation restrictions will be placed on the easements. In September 2012, the City awarded a contract with an engineering design consultant to complete base mapping, corridor area assessments, and secure information for helping to design the Riverwalk.

Funds from the Bouchard B-120 Trustees are proposed to supplement the NBHTC Round IV funding and complete the recreational components of the Harbor Riverwalk. As originally proposed, the scope of the Harbor Riverwalk Project included supplemental funding for design, permitting and legal services, as well as funding for recreational components such as fencing, installation of benches along the trail, public educational signage, trash receptacles, and a cantilevered boardwalk for locations in close proximity with existing buildings.

**Monitoring and Measurable Results**

In concert with the NBHTC Round IV funding, the City will monitor the volume of riverwalk use and the type of uses, and inspect and maintain the pedestrian pathway as required, especially in relation to the native plantings in the encompassing riparian zone.

**Evaluation of the Alternative**

The proposed 2.2-mile long Harbor Riverwalk in association with the Harbor Riparian Restoration project led by the City of New Bedford represents a high-priority coastal access project that will revitalize the waterfront in the Upper New Bedford Harbor. The Harbor Riverwalk will also provide access to and enjoyment of the harbor by

Environmental Justice populations and the multi-ethnic communities of the City. The Southeast Regional Planning and Economic Development District has provided technical assistance to the City of New Bedford and Towns of Acushnet and Fairhaven as part of the South Coast Rail Project to develop conceptual plans for a riverwalk that would extend around the Harbor to benefit residents in all three communities and visitors to these municipalities. Implementation of these projects is expected to provide significant coastal access for passive recreation along and viewing of the Harbor.

Supplemental funds are needed to complete the project design, permitting, and legal tasks which are not fully covered by the NBHTC Round IV funds previously awarded to the City through a NOAA (as NBHTC trustee) grant award, or through in-kind services. Supplemental funds are also requested to address site amenities and public outreach signage along the riverwalk.

**Recommendation**

The total estimated cost of funds needed is $306,900, including design, permitting and legal costs ($250,000) and site amenities and public outreach components including benches ($10,900), trash cans ($16,000), and interpretive signage ($30,000). The Bouchard B-120 Trustees support Tier 2 funding, if available, to provide design and permitting services that have not been fully covered by the NBHTC Round IV funds previously awarded to the City (up to an amount of $250,000). The Bouchard B-120 Trustees also support purchasing and installing benches ($10,900), public educational signage (up to 14 signs with an estimated cost of $30,000), and trash receptacles ($16,000) for the Harbor Riverwalk. The Bouchard B-120 Trustees seek to fund signage to target the Bouchard B-120 Spill, natural resources and uses injured by the Spill, and restoration actions implemented to address the natural resource injuries and their lost uses. This signage would complement NBHTC-funded signage focusing on the history of New Bedford as a historically-significant whaling and shipping port as well as other important aspects associated with the New Bedford Harbor environment.

### 5.4.3.2 The Let Parcels Acquisition

**Project Idea Submittal:** The Let (Lots 40 and 41)(LU-17) and the Let (Lot 39) (LU-18) by the Town of Westport

**Project Location:** Westport, Massachusetts

**Requested Funding:** Lots 40 and 41: $150,000; Lot 39: $120,000 (total: $270,000)

**Trustee Recommended Tier 2 Funding Level:** $100,000

**Restoration Objective**

With the purchase of these parcels, the Town would secure greater area for the public to park a limited number of vehicles (e.g., vehicles with roof racks for kayaks) and vehicles with boat trailers, allowing access to the Let and the Westport River estuary for recreational uses (e.g., shellfishing, kayaking, canoeing, and bird watching). Additionally, the area could also be used by the Westport School Department for nature walks and other instructional education of the natural resources of Westport.

**Summary of Proposed Activity**

"The Let" is a shallow estuarine embayment of the East Branch of the Westport River estuary in Westport, MA. The Town of Westport proposes the acquisition of three small low-lying land parcels (Lots 39, 40 and 41) totaling 0.43 acres that would encompass an existing 0.2-acre Town-owned parcel (Lot 40A) located off East Beach Road. These small land parcels extend north from East Beach Road to the water's edge of the Let. These parcels include both uplands characterized by sand, gravel and crushed shell parking, as well as tidal marsh. While no paving of the parking area is proposed, the Town proposes to secure greater area for the public to park vehicles and boat trailers which would enable more people to utilize the gravel boat ramp at the Let. The Shellfish Department would also designate a significant portion of the lower portion of the Let for recreational shellfishing only. The area could also be used by the Westport School Department for nature walks and other instructional education of the natural resources of Westport.

**Monitoring and Measurable Results**

Acquisition of one or more of The Let parcels would provide public access along the coastline of Buzzards Bay for recreational boating, fishing, shellfishing and nature viewing purposes. In order to better protect natural resources of the Let while providing appropriate recreational opportunities for visitors, the volume of use, the type of use, and the effects of use on the condition of the shoreline parcels and the recreational, educational, and natural resource management objectives will be monitored by the Town harbormaster and other staff.

**Evaluation of the Alternative**

According to the Town, local community recreational shellfishermen have few access points to enjoy the natural resources of the Westport River. If these private properties were purchased for public use, more recreational users of the estuary would be afforded access for shellfishing, kayaking, canoeing, bird watching and access to the vast marsh plain of the Wesport River estuary. More people would be able to utilize the boat ramp for kayaks, canoes and other small watercraft to access The Let. Increased awareness and stewardship of coastal resources could result from use by the Westport School Department for nature walks and other instructional education of the natural resources of Westport. The properties and their collective parking areas would provide a modest increase in public parking (up to approximately 20 cars and 5 vehicles with trailers) and direct access to The Let and Westport River estuary. The Bouchard B-120 Trustee Council notes a potential risk for long-term sustainability of this property due to the low elevation of these parcels (1-2 feet above the high tide line). Access to the site is via East Beach Road which traverses the barrier beach system. The road is affected by storm events and will be affected by increasing sea level rise and climatic variability (i.e., anomalous storms with overwash impacts.

**Recommendation**

The total cost to purchase all three lots, as of December 2012, is $270,000, with $4,000 per parcel identified as fund match by the Town. The Bouchard B-120 Trustee Council supports this project as a Tier 2 preferred alternative with a recommended funding level of $100,000. The Trustees support funding each property acquisition, and suggest a funding level of $50,000 for each acquisition.

### 5.5 Lost Recreational Boating Alternatives, Massachusetts

Lost recreational boating describes reductions in opportunities or trips from residents and visitors for boating, sailing and boat-based recreational fishing. Projects eligible to meet the resource needs for the lost recreational boating injuries are those projects that restore, enhance or rehabilitate the same or similar natural resources or natural resource services that were injured. In the case of the B-120 oil spill, examples include: construction of a public boat ramp in an area where public facilities are lacking, or improvements to landings, docks or boat ramps that increases the number of users. The Trustees have set aside a portion of the lost boating settlement funds for contingency planning and Trustee administrative and project oversight costs. Approximately $85,000 is available for project implementation for eligible lost recreational boating restoration projects in Massachusetts. The lost recreational boating restoration projects in this section are those projects that received the highest ranking during the Bouchard B-120 Trustee review and evaluation process.

#### 5.5.1 Tier 1 Preferred Recreational Boating Alternatives

The Trustees have grouped preferred projects into two funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 preferred for funding. Projects in

Tier 1 will have the higher priority for funding; the Trustees have sufficient funding for the both Tier 1 preferred recreational boating projects.

#### 5.5.1.1 Clarks Cove Boat Ramp

**Project Idea Submittal:** Clarks Cove Public Boat Ramp by the Town of Dartmouth Waterways Management Committee (LU-3)

**Project Location:** Dartmouth, Massachusetts

**Requested Funding:** $17,500

**Trustee Recommended Tier 1 Funding Level:** $17,500

**Restoration Objective**

This proposed ramp would provide the only public boat access site on the western shore of Clarks Cove. The newly installed ramp would increase accessibility to Buzzards Bay, as well as provide direct public access to the shellfishing beds shared with the City of New Bedford within Clarks Cove.

**Summary of Proposed Activity**

The proposed Clarks Cove Boat Ramp is located on the seaward end of Rogers Street in Dartmouth, Massachusetts. A public parking area for vehicles and trailers is adjacent to the proposed public boat ramp on a recently converted Brownfields site, a former petrol storage area. Currently, an unimproved sand/rock access point has been used for launching of smaller, mostly car-top-carried recreational boats. The sand/rock surface is not conducive to traditional vehicle and trailer launching into Clarks Cove and Buzzards Bay. A pre-fabricated (pre-cast) concrete ramp would be installed to allow safe launching and retrieval of recreational trailer boats. The precast ramp would be 12-feet wide and 100 feet in length, extending from the existing asphalt road surface, thereby creating a continuous structure for readily launching recreational boats.

**Monitoring and Measurable Results**

The Clarks Cove Boat Ramp Project will provide long-term access along the coastline of Buzzards Bay for recreational boating, fishing and shellfishing purposes. The volume of use, type of use, and user conflicts, if any, will be monitored.

**Evaluation of the Alternative**

Significant demand for recreational boater access to the waters of Buzzards Bay typically well exceeds the availability of the existing public access ramps within Dartmouth. This ramp would provide access that is of great need in the Town. This proposed ramp would provide the only public boat access site on the western shore of Clarks Cove as well as direct public access to the shellfishing beds shared with the City of New Bedford within Clarks Cove, and into Buzzards Bay. The site for the ramp is owned by the Town, and management, maintenance and supervision of the completed launch facility would be the responsibility of the Dartmouth Waterways Committee. Funds for the continued viability of the launch facility are assured through boater-use fees, which have sustained the parking facility since successful clean-up of this brownfield site.

**Recommendation**

The total estimated project cost to install the pre-cast concrete boat ramp is estimated at $25,000, with $7,500 identified as existing matching funds from the town. The Bouchard B-120 Trustee Council recommends allocating $17,500 to implement this public boating access project.

### 5.5.1.2 Onset Harbor Boat Ramp Improvements

**Project Idea Submittal:** Boat Ramp Replacement by the Town of Wareham Harbormaster and Shellfish Constable (LU-15)

**Project Location:** Wareham, Massachusetts

**Requested Funding:** $75,000

**Trustee Recommended Tier 1 Funding Level:** $67,500

**Restoration Objective**

This project will prevent the closure of one of the most heavily used boat ramps in the upper, eastern portion of Buzzards Bay that is routinely used by recreational and commercial fishermen, kayakers and other recreational boaters to access the waters of Onset Bay, Buzzards Bay, and the nearby Cape Cod Canal. The existing concrete ramp is in poor condition, and the town seeks to maintain an invaluable public boat access site.

**Summary of Proposed Activity**

The current concrete ramp is deteriorating and will be facing closure within the next three years due to its poor condition. The existing ramp will be replaced with a poured single lane 100-foot long concrete ramp, located largely within the footprint of the existing ramp.

**Monitoring and Measureable Results**

The Onset Harbor Boat Ramp Improvement Project will provide long-term access along the coastline of Buzzards Bay for recreational boating, fishing and shellfishing purposes. The volume of use, type of use, and user conflicts, if any, will be monitored by the Town harbormaster and other staff.

**Evaluation of the Alternative**

There is substantial need for public boat ramps in this portion of Buzzards Bay. The Onset boat ramp is one of the most heavily used boat ramps in the upper portion of Buzzards Bay. It is utilized by recreational boaters, commercial boat haulers, kayakers and recreational and commercial shellfishermen to access the waters of Onset Bay, Buzzards Bay and the Cape Cod Canal. A bridge crossing of Onset Avenue at the mouth of the harbor prevents sail boats and other boats of substantial height from using this ramp site. The Town already has completed design and permitting for this project; thus

it is a shovel-ready project that would address a broad, vital need for boat access. The Town has contributed substantial funds for the project, and it will manage and maintain the ramp. A boat launch permit fee will help cover the costs of maintenance and any future repairs.

**Recommendation**

The total estimated cost to construct and install the boat ramp improvements is $175,000. The Bouchard B-120 Trustee Council proposes to provide $67,500 in funding to supplement Town funds to complete the project.

### 5.5.2 Tier 2 Preferred Recreational Boating Alternatives

The Trustees have grouped preferred projects into two funding tiers. Projects that best met the Evaluation Criteria were placed into Tier 1 for funding; the Trustees have sufficient funding available to fund all Tier 1 projects. The Trustees acknowledge, however, that uncertainties inherently exist in natural resource restoration projects, including costs and conditions and status of Tier 1 projects. Thus, the Trustees may have funding remaining after Tier 1 projects are completed. The priorities for funding of Tier 2 projects will be evaluated by the Trustees based, in part, on the outcomes of Tier 1 projects and Trustee judgments regarding what actions are most beneficial to compensate for the natural resource injuries and uses. Funding of any Tier 2 projects is contingent upon the outcome of Tier 1 project implementation.

#### 5.5.2.1 Apponagansett Bay Boat Ramp Improvements

**Project Idea Submittal:** Apponagansett Bay Public Access Facility by the Massachusetts Office of Fishing and Boating Access (MA OFBA) (LU-8)

**Project Location:** Dartmouth, Massachusetts

**Requested Funding:** $200,000

**Trustee Recommended Tier 2 Funding Level:** $85,000

**Restoration Objective**

This project will improve access to an important boating harbor used for various recreational purposes through the reconstruction of an existing, heavily-used dual-lane concrete boat ramp,

**Summary of Proposed Activity**

The current boat ramp was built in the early 1970s. Typical saltwater ramps from that era have an average life of approximately 30 years. The Town of Dartmouth has made minor repairs to extend the life of the ramp, but it is in dire need of replacement. The Town proposes to remove and reconstruct the existing two-lane concrete boat ramp. The proposed reconstruction would consist of a two-lane concrete boat ramp with an 8-foot wide boarding float system.

**Monitoring and Measureable Results**

The town would be responsible for periodic visual surveying of users of the reconstructed boat ramp and its use and performance. Information such as the daily number of boat launches during the peak summer season and off-season use would be anticipated.

**Evaluation of the Alternative**

Apponagansett Bay is a heavy boat use area used by a variety of user groups and boat types with more than 3,000 boat moorings for sailboats and powerboats. The facility is open to the general public and provides access to Buzzards Bay and surrounding waters for boating, fishing and shellfishing (e.g., quahogs) for both recreational and commercial purposes. The existing facility provides parking for 52 vehicles with trailers, and 14 single cars. The life expectancy of the new ramp would be 40 years. The Massachusetts

Office of Fishing and Boating Access (MA OFBA) has dedicated $50,000 in match towards the project.

**Recommendation**

The estimated cost for construction of the new boat ramp is $250,000 which well exceeds the amount available for eligible lost recreational boating restoration projects in Massachusetts. The Bouchard B-120 Trustee Council recommends providing up to $85,000, if available, in supporting funds as a Tier 2 preferred funding level that could help to match the MA OFBA funds and other anticipated funds to be contributed by the Town of Dartmouth and/or other entities.

### 5.6 Lost Recreational Shellfishing

Lost recreational shellfishing resulting from the Bouchard B-120 spill is based on the reductions in trips by or opportunities for residents and visitors to participate in recreational shellfishing. Projects eligible to address the resource needs for the lost recreational shellfishing injuries are those projects that restore, enhance or rehabilitate the same or similar natural resources or natural resource services that were injured. In the case of the Bouchard B-120 Spill, examples include: (1) restoration or enhancement of populations of bivalve species (e.g., quahog, Eastern oyster, bay scallop, blue mussel, soft-shelled clam) in areas that would directly or indirectly enhance and sustain recreational fisheries in each of the ten Buzzards Bay municipalities; (2) a reduction of external factors limiting shellfish production for recreational harvest such as stormwater releases that limit recreational shellfish harvest due to pollution thresholds being exceeded (e.g., elevated fecal coliform bacteria levels); (3) a reduction in predators that are reducing shellfish populations due to high predation rates; or (4) implementation of specific management strategies that would help result in sustainable shellfish populations. Projects that benefit only commercial shellfishing or have no benefits to recreational shellfishing opportunities are not eligible. Of the $1,503,623 available for

lost recreational shellfishing and shellfish restoration, the Bouchard B-120 Trustees have set aside a portion of the settlement funds for contingency planning and Trustee oversight of shellfish projects. Approximately $1,323,000 is available for project implementation for eligible shellfish restoration projects in Massachusetts. The recreational shellfishing and shellfish restoration projects in this section are those projects that received the highest ranking during the Trustee evaluation process of the project ideas submitted for restoration funding. Technical input from MADMF and RIDEM shellfish biologists on the existing state shellfish management programs and restoration and stock enhancement strategies helped to guide the Trustees as part of their project idea review and evaluation.

### 5.6.1 Tier 1 Preferred Recreational Shellfishing Alternatives, Massachusetts

The Trustees have proposed only Tier 1 projects for the lost recreational shellfishing resource category, and have not recommended any Tier 2 preferred projects. All the project types identified and described below are considered to be scalable; that is, they can be increased or decreased in size, scope and impact area, depending on available funding with distribution to the Buzzards Bay municipalities and potentially to other organizations. The Trustees' intent is to provide shellfish restoration funds for multiple projects in each of the ten Buzzards Bay municipalities affected by the spill. The Trustees propose to scale the selected projects according to the degree of funding allocated to each shellfish restoration project type, the actual number of Buzzards Bay municipalities involved with each restoration type, and a projected multiple-year restoration project period for each of the selected projects.

#### 5.6.1.1 Quahog Stock Enhancement through Relays and Transplants

**Project Idea Submittal:** Multiple submittals (SH-4, SH-5, SH-8, Sh-10, SH-12, SH-14 and SH-18)

**Project Location:** Buzzards Bay municipal waters, multiple locations

**Requested Funding:** submitted ideas, collectively, $464,000

**Trustee Recommended Tier 1 Funding Level:** $530,000

**Restoration Objective**

The relay of adult quahogs (or hard clams) from state-designated closed waters and transplanting is for purpose of placing spawning broodstock at multiple Buzzards Bay managed sites to result in enhanced and sustainable quahog populations providing ecological services and supporting recreational shellfisheries.

**Summary of Proposed Activity**

The Massachusetts Division of Marine Fisheries (MADMF), through its Quahog Relay Program, authorizes municipalities to relocate fecal-contaminated shellfish to uncontaminated coastal waters for natural purification and propagation. The MADMF relay program dates back to before 1940. The quahog is the most often transplanted species in Massachusetts, at an average 14,000-18,000 bushels per year. Typically, contracted commercial shellfishermen are hired to harvest adult quahog broodstock from the closed-water source areas (e.g., Taunton River estuary) identified by MADMF. Recipient sites and technical specifications (e.g., quahog stocking densities) are typically chosen by the municipality (shellfish constable and other town officials), with administrative oversight, technical assistance and regulatory approvals by MADMF. Viable quahog transplant sites must be determined and classified by MADMF as 'approved' or 'conditionally approved' areas for authorization. Relays are conducted under stringent National Shellfish Sanitation Program (NSSP) guidelines and are supervised by state and local enforcement authorities. Contaminated shellfish must remain in a transplant site for a minimum of three months for depuration and cleansing, and also for the duration of at least one quahog spawning season, and preferably longer up to three years (as defined by MGL Chapter 130, Section 54) to allow greater resource and fishery benefits of recruitment of targeted municipal quahog populations. Towns

typically manage openings and closures of quahog harvest areas, with sub-areas rotated with up to a three-year closure. Shellfish are tested prior to relaying in transplant sites and again before allowing harvest for human consumption to insure that they meet NSSP requirements for human health and safety.

Most contaminated quahogs are obtained from the waters of the Taunton River - Mount Hope Bay area (typically a 400±-acre area of the river north of the I-195 Braga Bridge) and coastal waters in New Bedford, Fairhaven and Dartmouth where quahog populations and growth rates are high in these state-designated areas closed to shellfishing. The MADMF quahog relays are typically completed by June 15th. This method of shellfish propagation affords participating municipalities with a relatively inexpensive source of shellfish broodstock for eventual harvest (following the aforementioned mandatory closure periods) and as use as spawning stock to increase reproductive output and larval recruitment to the recipient site and nearby areas. Optimally, the transplanted quahogs are placed in spawner sanctuary sites with harvesting closures for one year and up to three years, such that greater recruitment benefit is afforded to increase quahog population size, generating greater ecological services such as water column filtering and substrate bioturbation, and benefitting local recreational and commercial shellfisheries.

**Monitoring and Measurable Results**

Municipalities receiving quahog transplants will be responsible for documenting and reporting the period of transplant site closures from any shellfishing activities, and changes in the quahog population within the municipal waters, comparing pre-transplant conditions with the quahog population following the transplant. The Trustees expect that at a minimum each municipality receiving transplants will collect data on the quahog population size and age class and size distribution (standing stock assessment) to report annually to MADMF and the Bouchard B-120 Trustees. Information on water quality and substrate conditions at the transplant site(s) is also

sought by the Trustees and expected to document environmental conditions that may affect localized quahog populations.

**Evaluation of the Alternative**

In Massachusetts, the quahog was historically abundant and ecologically and economically important in the region. The quahog is an actively targeted bivalve in the recreational fishery of Buzzards Bay, and provides multiple recreational fishing opportunities. As ecosystem "foundation" species, hard clams and other filter feeding shellfish play vital roles in the food web by filtering large volumes of water to feed on phytoplankton and other organic particles (Grizzle *et al*. 2001). Abundant hard clam populations have multiple ecological benefits, including making the bays and estuaries more resistant to chronic algal blooms (Cerrato *et al*. 2004, Gobler et al. 2005) by adding shellfish filtering capacity and improving nutrient cycling (Dame 1996). Increased water clarity results in more bottom substrates that are suitable for eelgrass establishment and growth, by increasing light transmission with depth (Wall *et al*. 2008). Clams are important for packaging primary planktonic production for benthic deposit feeders and seagrasses (Peterson and Heck 1999), and creating habitat on or around living and dead shells (Coen and Grizzle 2007). Many species of fish, waterfowl, and crustaceans feed directly on clams. Additionally, clams placed in spawner sanctuaries, and protected from harvest, provide increased larval output for recruitment to areas outside of the spawner sanctuary for potential increased harvest for recreational shellfishermen.

The Trustees propose to use recreational shellfishing restoration funds for quahog relays to designated Buzzards Bay municipal waters over a project period of three or more years. Relaying quahogs using MADMF protocols typically ensures high survival rates of transplanted animals and results in the availability of mostly larger, adult clams, which in turn, allows for quahog spawning and population recruitment.

Participating municipalities and specific transplant locations for quahog relays will be determined by assessing project need and applying site selectivity criteria. The site selectivity criteria will be developed by the Trustees in collaboration with MADMF, and include factors such as: location, area, and biotic and abiotic conditions of embayment where sanctuary transplants are being proposed (e.g., suitable bottom conditions needed to sustain quahog and benthic habitat enhancement); availability of access by the public for recreational harvest at or preferably outside of the transplanted sanctuary area; potential for quahog survival and population sustainability; municipality strategy for quahog population sustainability including municipal enforcement and management; and the level of matching funds or in-kind services (labor, equipment, and/or materials) provided by the project proponents. The Trustees also propose to set aside a portion of the funding to include pre- and post-transplant monitoring to assess project performance results and incorporate adaptive management strategies into subsequent project activities.

**Recommendation**

The Bouchard B-120 Trustees support the use of lost recreational shellfish settlement funds up to a level of $530,000 to address 3+ years of relays to Buzzards Bay municipal waters. As many as ten Buzzards Bay municipalities may receive transplants upon approval by MADMF working collaboratively with the Trustees. The Trustees seek to fund the transplants with the goal of achieving self-sustaining, local quahog populations. The Trustees support the placement of quahog transplants in spawner sanctuary sites which municipalities keep closed from harvest for at least one year or preferably longer to attain two or more quahog spawning periods to enhance population recruitment to local municipal recreational shellfishing waters.

### 5.6.1.2 Quahog Stock Enhancement through Seed Releases

**Project Idea Submittal:** Dartmouth Waterways Upweller by the Town of Dartmouth (SH-7), Fairhaven Shellfish Upweller Project by the Town of Fairhaven (SH-8), and Shellfish Seed by the Town of Westport (SH-20)
**Project Location:** Buzzards Bay municipal waters, multiple municipalities and locations
**Requested Funding:** $99,000+
**Trustee Recommended Tier 1 Funding Level:** $130,000

**Restoration Objective**

The objective of placing disease-free certified quahog seed secured from commercial or other state-approved shellfish hatcheries and grow-out facilities into multiple Buzzards Bay managed sites is to result in enhanced and sustainable quahog populations providing ecological services and supporting recreational shellfisheries.

**Summary of Proposed Activity**

With the advent of commercial and municipal shellfish hatcheries and the development of cost-effective nursery techniques such as upwellers (i.e., moored, floating flow-through systems termed "FLUPSYs"), quahog reseeding programs have flourished throughout the Atlantic and Gulf Coasts of the United States (Filming 2000). Many states and towns presently implement quahog management programs that include transplanting as well as reseeding to enhance quahog stocks (e.g., Damery 2000). Typically, seeding programs are conducted by either securing large-sized quahog seed (≥20 mm shell width) from licensed, commercial hatcheries to place in public shellfishing grounds, or purchasing large numbers of small quahog seed (~1-5 mm shell width) for placing in municipal-managed shellfish nursery grow-out upweller systems (Damery 2000; Flimlin 2000). Of these two basic seeding methods, the more cost-effective method is typically to purchase large quantities of juvenile quahog seed and grow them out to field-plant size (>20 mm) at which size, predator mortality due to

crabs and sea stars is substantially diminished (Flimlin 2000). Towns may plant seed and legal-sized shellfish from state-approved sources utilizing various culture techniques and predator exclusion methods to enhance growth and survival. MADMF shellfish managers support the use of quahog seeding optimally in combination with larger-sized quahog relays and transplants (Refer to Alternative in Section 5.6.1.1).

**Monitoring and Measurable Results**

Each municipality receiving quahog seed will be responsible for documenting and reporting the changes in the managed quahog population within its planted municipal waters for the period of closure from any shellfishing activities, and comparing pre-seeding conditions with the quahog population following the seeding. The Trustees expect that, at a minimum, each municipality receiving quahog seed will collect data on the quahog population size and age class and size distributions at the seeded management areas, and annually report to MADMF and the Trustees on the performance monitoring results. Information on water quality and substrate conditions at the seeded site(s) is also sought by the Trustees and is expected to document environmental conditions including predator populations that may affect localized quahog population size, health and growth.

**Evaluation of the Alternative**

In Massachusetts, the quahog was historically abundant and ecologically and economically important in the region. The quahog is an actively targeted bivalve in the recreational fishery of Buzzards Bay, and provides multiple recreational fishing opportunities. As ecosystem "foundation" species, hard clams and other filter feeding shellfish play vital roles in the food web by filtering large volumes of water to feed on phytoplankton and other organic particles (Grizzle *et al*. 2001). Abundant hard clam populations have multiple ecological benefits, including making the bays and estuaries more resistant to chronic algal blooms (Cerrato *et al*. 2004, Gobler et al. 2005) by adding shellfish filtering capacity and improving nutrient cycling (Dame 1996). Increased water

clarity results in more bottom substrates that are suitable for eelgrass establishment and growth, by increasing light transmission with depth (Wall *et al*. 2008). Hard clams are important for packaging primary planktonic production for benthic deposit feeders and seagrasses (Peterson and Heck 1999), and creating habitat on or around living and dead shells (Coen and Grizzle 2007). Many species of fish, waterfowl, and crustaceans feed directly on clams. Additionally, hard clams placed in spawner sanctuaries, and protected from harvest, provide increased larval output for recruitment to areas outside of the spawner sanctuary for potential increased harvest for recreational shellfishermen.

Hatchery production, rearing and seeding typically is characterized by higher mortality rates, however, this technique allows for the production and seeding of quahogs without having to remove them from a closed-water donor site. Production and seeding of quahogs also provides smaller sized animals (e.g., “little necks”, “cherry stones”), which are typically more valued in the recreational shellfishery.

An advantage of quahog seeding projects is the ability to involve community volunteers and educational institutions into the effort. Volunteers can maintain upwellers and care for young quahogs, monitor growth, survival, and disease prevalence, and help plant seed onto the shellfishing grounds.

The Bouchard B-120 Trustees propose to use lost recreational shellfish settlement funds for quahog seed purchases and/or grow-out facilities for placing seed into recreational shellfishing waters in multiple Buzzards Bay municipalities, over a project period of 3+ years. The Trustees optimally seek to purchase a large seed quantity through a competitive bid process for commercial hatcheries to secure unit costs that maximize quahog seed quantity for placement in multiple Buzzards Bay municipal sites. The Trustees prefer to use the funds for direct quahog seed purchase, although funds may

be considered by the Trustees for funding upweller and/or other grow-out equipment proposed by Buzzards Bay municipalities.

Participating municipalities and implementation locations for quahog seeding will be determined by the Trustees in consultation with MADMF based on project need and site selectivity criteria. Site selectivity criteria will be developed by the Trustees in partnership with MADMF, and include factors such as: location, area, and biotic and abiotic conditions of embayment where work is being proposed (e.g., suitable bottom conditions needed to sustain quahog populations and benthic habitat enhancement); availability of access by the public for recreational harvest; potential for quahog survival and population sustainability; municipality strategy for quahog population sustainability including municipal enforcement and management; level of matching contributions (funds, municipal shellfish constable labor and volunteer labor, equipment and/or materials) provided by the project proponents. The Trustees also propose funding to include pre- and post-seed monitoring to assess project performance results and incorporate adaptive management strategies, if needed, into subsequent project activities.

**Recommendation**

The Bouchard B-120 Trustees support the use of up to $130,000 in lost recreational shellfish settlement funds to purchase shellfish disease-free certified quahog seed through a competitive bid process from one or more state-certified commercial shellfish hatcheries providing shellfish disease-free certified seed. The Trustees seek to work collaboratively with MADMF to ensure that each municipality or entity documents the need for the seed and how each intends to use quahog seed to restore or enhance sustainable quahog populations and support local recreational shellfisheries.

### 5.6.1.3 Bay Scallop Restoration

**Project Idea Submittal:** Buzzards Bay Cooperative Bay Scallop Restoration Project by the Massachusetts Division of Marine Fisheries (SH-11), and Buzzards Bay Shellfish Spawner and Restoration Areas by The Nature Conservancy (SH-13)
**Project Location:** Buzzards Bay municipal waters, various locations
**Requested Funding:** $1,128,139+
**Trustee Recommended Tier 1 Funding Level:** $330,000

**Restoration Objective**

The purpose of placing disease-free certified bay scallop seed secured from commercial or other state-approved shellfish hatcheries and grow-out facilities into multiple Buzzards Bay managed sanctuaries is to restore sustainable bay scallop populations that provide ecological services and support seasonal recreational shellfisheries.

**Summary of Proposed Activity**

The bay scallop (*Argopecten irradians irradians*) has long been a recreationally and commercially important species along the U.S. East Coast, including Massachusetts waters. Bay scallop populations in southern New England have changed drastically over the past 100 years. In the early 1900s, coastal habitats in Connecticut, Rhode Island and Massachusetts supported prolific bay scallop populations; however, by the late 1950s, populations were experiencing serious declines, and by the mid 1980s the states' scallop fisheries had nearly ceased. Many reasons have been given for this decline, including declining water quality (low oxygen and elevated nutrients), habitat degradation (specifically loss of eelgrass beds), high predation rates, overfishing, and brown algal tides. The relatively short (18-24-months) life-span of bay scallops, in which adults may only spawn a single time, limits the potential for natural recovery once a local population has declined.

Research has indicated that low-density bay scallop populations are recruitment limited, and spawning stock enhancement can effectively increase larval supply on a basin scale (Peterson and Summerson 1992; Peterson et al. 1996). Scallops reach maturity in their second year (1+ year class) and begin spawning in the spring and early summer in Massachusetts and Rhode Island, with the survival of the animals to the third year as generally very low. This relatively short species life history lends itself to tracking the success of spawning and the resulting abundance of mature scallops the following season. Restoration by direct seeding of scallops in the North Atlantic has been successful (e.g., Tettelbach and Wenczel 1993; Tettelbach et al. 2011), and scallops suspended in "spawner" cages or lantern nets have been shown to increase population success (Goldberg et al. 2000; DeAngelis et al. 2008; Tettelbach et al. 2011).

As an example, following the *North Cape* oil spill off the southern coast of Rhode Island in 1996, a bay scallop restoration program was developed that in the years since has been implemented in three Rhode Island coastal salt ponds (Ninigret Pond in 2004 and 2005; Quonochontaug Pond in 2006 and 2007; and Point Judith Pond in 2010 and 2011). In Ninigret and Quonochontaug Ponds, a pre-restoration scallop population was functionally absent, and in Point Judith Pond, an extremely low, remnant bay scallop population was identified. At each pond location, a method of protecting reproductively mature scallops (the 'broodstock') in bags and/or cages was implemented. Caging the broodstock to protect against predation increased the survival, and therefore, the reproductive output. An added benefit to the caged spawner sanctuary method is assuring closer proximity for fertilization success (Sastry 1963; Sastry 1965). The projects have been successful in both the short and mid-term. Each location observed an appreciable boost in available spawning stock in each year following broodstock deployment.

**Monitoring and Measurable Results**

The Bouchard B-120 Trustees seek quantifiable metrics indicating the performance of bay scallop population restoration projects funded using the Bouchard B-120 lost recreational shellfish settlement funds. Project performance may include installation and seasonal monitoring of spat bag arrays to quantify young-of-the-year scallops recruited into the population as a result of broodstock releases. Annual dive surveys are another monitoring technique to help assess scallop population size, scallop distribution according to bottom habitat type, the health of bay scallops and potential predator populations. Other monitoring practices may also be employed to evaluate scallop restoration project performance. Project reporting is expected to be provided to the Trustees and MADMF on an annual basis to indicate project performance and potential adaptive management measures that may be warranted.

**Evaluation of the Alternative**

Bay scallops were once a mainstay of the shellfishery in southeastern Massachusetts. Because of the population decline, the fisheries have been in decline for decades. Similar declines have occurred in Rhode Island, Connecticut, New York, and New Jersey. The bay scallop fishery had considerable historical economic importance in the states' coastal towns, because bay scallops are a high-value product, and the fishery was active during the winter months when the economies in most towns were otherwise slow. The scallops also had cultural importance as a special food, an ornament owing to its pretty shell design, and an interesting biological component of local bays. Today, bay scallops remain a highly charismatic, prized species.

Scallops, as a bivalve, provide associated ecological services common to all bivalves (reduce turbidity, fertilize benthic habitats through bio-deposition, induce denitrification, counteract some detrimental effects of eutrophication in shallow waters, sequester carbon, provide structural habitats for other marine organisms, and stabilize habitats and shorelines). Trophic level services are generally higher with benthic fauna

like scallops compared to quahog and other infauna which are less available as prey source. Scallops support and provide trophic energy transfer at multiple stages of their life cycle (pelagic larvae, juvenile recruits, and adults) to many other marine organisms, particularly fish, crabs, and birds.

A primary method of Trustee-supported bay scallop restoration would involve the use of caged spawner sanctuaries, with broodstock placed in enclosed aquacultural gear for protection from predators. The intent is that scallop broodstock will spawn with eggs released into and fertilization in the water column; larvae will then settle naturally and recruit into the local Bay populations. The success of bay scallop restoration depends on larval retention in the system and survival throughout the planktonic phase, as well as availability of suitable settlement sites and the survival and growth of post-set to harvestable size. Other considerations include the expected timing of spawning, local hydrography, and the scale of the spawner sanctuary relative to natural stocks (Kassner and Malouf, 1982).

At locations where it has proven technically sound and allowable, the Bouchard B-120 Trustees in collaboration with MADMF may also consider funding restoration through direct seeding of larger (25+ mm) bay scallops, with the intent that the surviving direct-planted scallops reproduce and provide the larvae to the system to settle and grow. While direct seeding limits the need for labor in deploying and maintaining spawner sanctuary gear and equipment, this method has greater risk and uncertainty due to high mortality by a number of predators. Bay scallop direct releases need to be larger in size and in good health and condition at release to withstand significant predation. This typically requires significantly more broodstock releases to offset high mortality rates, as compared to rates associated with caged sanctuaries. The amount of available quality habitat restoration area and sufficiently sized, genetically local broodstock are often the limiting factors determining potential success of scallop seeding projects. Bay

scallop restoration will increase recreational opportunities for a culturally prized species, as well as increase ecological services provided by the bivalves themselves.

**Recommendation**

The Bouchard B-120 Trustees propose to set aside up to $330,000 for bay scallop restoration projects at multiple Buzzards Bay locations, and over an anticipated project implementation period of 3+ years. The Trustees expect to work collaboratively with MADMF, municipal agencies (shellfish constables and other natural resources staff), and other organizations to implement, manage and monitor scallop restoration projects. Participating municipalities and other organizations and the specific project restoration sites will be determined by project need and site selectivity criteria. Site selectivity criteria will be developed by the Trustees in collaboration with MADMF and shellfish constables, and include factors such as: location, area, and biotic and abiotic conditions of embayments where projects are proposed (e.g., potential for larval retention, water quality conditions, availability of suitable structure settlement sites and benthic habitat, potential for favorable post-settlement survival and growth, and significance of predator populations); availability for seasonal public recreational harvest; level of commitment for project management and enforcement; and level of matching contributions (e.g., volunteers and/or shellfish constable labor, equipment and/or materials) provided by the project proponents. The Trustees also propose to set aside funding to include pre- and post-restoration monitoring to assess project performance results, and incorporate adaptive management strategies, if needed, into subsequent project activities.

#### 5.6.1.4 Oyster Restoration

**Project Idea Submittal:** Cohasset Narrows Oyster Reef (SH-2) and Pocasset River Oyster Reef (SH-3) by the Town of Bourne; Buzzards Bay Shellfish Spawner and Restoration Areas by The Nature Conservancy (SH-13); and Oyster Seed, Onset Harbor by the Town of Wareham (SH-15)

**Project Location:** Buzzards Bay municipal waters, various locations

**Requested Funding:** $100,000+

**Trustee Recommended Tier 1 Funding Level:** $330,000

**Restoration Objective**

Oyster spat on shell will be placed strategically in multiple Buzzards Bay locations to increase local oyster populations to serve as spawner sanctuary sites and areas managed for sustainable recreational oyster harvesting. These and other areas may receive shell fragments/hash to enhance bottom substrates to increase oyster recruitment, survivorship and growth where substrate habitat-limited conditions exist and will benefit from shell placement.

**Summary of Proposed Activity**

The Eastern oyster has been harvested in New England for centuries, first by Native Peoples and later by European colonists. As the New England human population increased, so did the demand for oysters. By the 1800s, oystering was no longer a small boat or hand digging operation, with harvesting being later transformed using sailing vessels with bottom dredges to capture oysters for both food and as broodstock (T. Visel, unpublished document). An estimated 85% of oyster ecosystems have been lost globally, and the majority of remaining natural oyster populations is in poor condition (Beck et al. 2011). In the United States, there has been an estimated 88% decline in oyster biomass and an estimated 63% decline in the spatial extent of oyster habitat over the past 100± years, with oyster population declines being greatest in estuaries along the Atlantic Coast (zu Ermgassen et al. 2012). Overharvesting is generally accepted as the primary factor in the decline of populations. Other factors such as habitat loss and degradation due to development and pollution, as well as oyster disease have also contributed to estuarine- and regional-scale declines in oyster populations (e.g., Ewart and Ford 1993; Baker 1995; Coen and Luckenbach 2000; Beck et al 2011; Wilberg et al. 2011).

Field studies have demonstrated that good quality oyster reef habitat increases productivity of many fish species (Peterson et al. 2003). Many coastal species, some of which are commercially or recreationally important, such as blue crab (*Callinectes sapidus*), black seabass (*Centropristis striata*), winter flounder (*Pseudopleuronectes americanus*), and striped bass (*Morone saxatilis*), among others, utilize oyster reef habitats for shelter, feeding, or reproduction (Coen et al. 1999b; Breitburg 1999; Breitburg et al. 2000; Peterson et al. 2003; ASMFC 2007). Oyster reefs also support larger commercial and recreationally-important species by supporting those species that serve as prey for larger fish and other foragers (Breitburg 1999; Coen and Luckenbach 2000; Harding and Mann 2001; Harding 2001).

Traditionally, oyster restoration projects have been driven by a purpose of increasing oyster harvest. In recent time, there has been better recognition and interest in a broad array of ecological services provided by oysters and oyster reefs. These ecological values have prompted many to focus attention on restoring these broader ecological functions and societal benefits of oyster reef habitats. Ecological benefits include production of fish and invertebrates of commercial, recreational and ecological significance, water quality enhancement, removal of excess nitrogen from coastal ecosystems, and the stabilization and/or enhancement of other habitats such as seagrass beds and salt marshes.

Oyster harvesting has a long history in Massachusetts, and maintains its long-sought reputation, presently. Because these mollusks inhabit shallow coastal waters, they can be readily harvested with oyster rakes or even by hand-digging, making oyster fishing in Massachusetts a popular family activity. To provide opportunities for recreational shellfishing and increase the ecological services that bay oysters provide, the Trustees propose to fund oyster restoration projects in multiple Buzzards Bay locations working collaboratively with MADMF, municipalities and other organizations to restore oyster populations.

**Monitoring and Measurable Results**

The Bouchard B-120 Trustees seek performance metrics to be established for each oyster seed and/or substrate enhancement project that may be funded with settlement monies. A number of monitoring practices have been established for oyster restoration projects including annual spat on shell counts, dive surveys of the numbers of live versus dead oysters within survey quadrats, the vertical dimensions of oyster beds as indicators of the three-dimensionality of oyster beds, and assessments to evaluate fish and macro-invertebrate use of oyster beds for cover, foraging and reproductive habitat. The Trustees will work collaboratively with MADMF to develop and implement monitoring strategies for each funded project and throughout and/or beyond the duration of the project funding period. Reporting results will be used to determine whether adaptive management strategies are needed in subsequent restoration project activities.

**Evaluation of the Alternative**

Oyster fisheries have been an important component to the way of life in southeastern Massachusetts. The importance of the Eastern oyster as a recreational fishery is well recognized. As oyster populations in the United States and around the world have declined, scientific research has demonstrated that the benefits of oyster habitats go beyond that of oyster fisheries, and that oyster habitats provide multiple important ecosystem services including: production of oysters; water filtration and concentration of pseudofeces; provision of habitat for epi-benthic invertebrates; nitrogen sequestration; stabilization of adjacent habitats and shoreline; and diversification of the landscape and ecosystem (Grabowski and Peterson 2007). Oyster habitats are also known to augment fisheries production for recreational and commercial fish species, and may increase recreational fishing opportunities.

In bays and estuaries where local oyster populations are extremely low, and thus recruitment to the system is inadequate to counter the effects of natural and/or shellfishing mortality, it is unlikely oysters will rebound on their own without placement

of reproductive adults or broodstock and/or placement of suitable substrate material for oyster larvae to set. It is often beneficial to artificially increase the abundance and density of adult oysters in the population through "stock enhancement". Releasing oyster seed in relatively high densities often improves the chances of successful spawning and reproductive success (Brumbaugh et al. 2000).

Oyster restoration projects typically involve the rearing of oyster free-swimming larvae in hatcheries, followed by larvae set on shell cultch ("spat on shell"), with the juvenile oysters then allowed to grow out in a nursery setting. Once large enough in size to lessen the potential for being eaten by predators, oysters are then placed in designated release sites. The strategy is specifically intended to maximum reproductive contributions to local oyster populations. Despite a highly diminished population compared to historical abundances, in some locations in Massachusetts, broodstock abundance is still sufficient to provide natural recruitment to the area. In the sites not recruitment limited by available broodstock, but substrate limited by existing bottom conditions, the restoration strategy is generally to place shell fragments or "hash" substrates to serve as settlement sites for oyster larvae to set, grow and recruit more oysters.

Oyster restoration using Bouchard B-120 settlement funds is expected to increase recreational oyster harvesting opportunities for this culturally prized species, increase recreational fishing opportunities for other sought-after fish and invertebrates, and increase ecological services provided by restored oyster populations. Success of the oyster restoration projects will depend on the conditions of the site selected: bottom conditions, potential for larval recruitment and retention, tidal current velocities affecting the restoration sites, water quality, planktonic food availability for oysters, sedimentation rates affecting oyster survival and growth, the presence of oyster diseases that may affect local populations, or a combination of these factors that influence oyster population persistence.

Local shellfish constables can help identify specific favorable locations for oyster bed restoration and recommend sites to the Trustees, working in collaboration with MADMF for consideration and decision making. Participating towns will be then be responsible for being in compliance with the permitting process to obtain a Municipal Shellfish Propagation Permit from MADMF for planned oyster restoration activities.

**Recommendation**

The Trustees propose to use lost recreational shellfish settlement funds in the amount of up to $330,000 for oyster restoration projects at multiple Buzzards Bay locations, over a period of 3+ years. Participating municipalities and non-governmental organizations and project locations will be determined by project need and priority and site selectivity criteria. Site selectivity criteria will be developed by the Trustees working collaboratively with MADMF. A number of selection factors will be considered such as the aforementioned site selection factors, as well as the potential for broodstock sanctuaries to sustain reproductively capable broodstock; the potential for, and availability of public access to managed sites for recreational harvesting; the commitment of municipal staff for management and enforcement; and the level of matching contributions (e.g., volunteer and/or shellfish constable labor, equipment and materials) provided by the project proponents. The Trustees also propose using a portion of lost recreational shellfishing settlement funds to address pre- and post-restoration monitoring to assess project performance, and identify adaptive management strategies that may be needed in subsequent restoration project activities.

**5.7 Non-Preferred Restoration Alternatives**

Following the Bouchard B-120 Trustees' 2011 request for potential restoration project ideas to address the natural resource injuries resulting from the Buzzards Bay spill, the public submitted a large number of restoration project ideas. The project ideas that met

the eligibility criteria (as identified and discussed in Section 4.2) and best met the evaluation criteria (as identified and described in Section 4.3) are included as proposed Tier 1 or 2 preferred alternatives and are discussed in Sections 5.2 through 5.6. Other project ideas have been identified by the Trustees as non-preferred alternatives that are not proposed for Trustee funding, since the projects ranked lower when applying the project evaluation criteria, in comparison to the ranking of the projects identified as proposed preferred alternatives.

The Trustees determined that non-preferred alternatives are those projects considered not to or would less likely meet the requirement to restore, replace or acquire the equivalent of the natural resources injured by the Bouchard B-120 spill, or their lost uses. A list of the non-preferred project alternatives along with a brief description of the factors relating to the evaluation and the criteria applied (Refer to Section 4.3), for which the project scored low, compared to the proposed alternative projects, is presented in Table 2, below.

**Table 2**: Summary of Non-Preferred Restoration Alternatives, Bouchard B-120 Oil Spill

| Non-Preferred Alternatives and Evaluation Summary | | |
|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Trustee Review and Evaluation Summary Outcome (Numbers in parentheses indicate *High* and *Moderate* Importance criteria for which project idea received low ratings)** |
| **Shoreline and Aquatic Resource Restoration** | | |
| SA-3 | Lobster "Feeder" Restoration | There is scientific study basis to indicate that the feeding activities would not have a substantial benefit to lobster populations; uncertainty exists as to the cost-effectiveness of this project and quantifiable results not likely attainable; approach is more resource management than restoration (4, 7, 8) |
| SA-5 | Chace Road Stormwater Management and Shellfish Spawner Sanctuary | Based on follow-up site meeting, project appears to be more of a road repair than ecological restoration project; public access to shellfish likely requires boat; more information is needed on the source of the fecal coliform contamination and issues with road runoff; cost-effectiveness is highly uncertain (3, 4, 5, 7, 8) |
| SA-6 | County Road Stormwater Management, Megansett Harbor | Difficult to discern ecological resource value; more information is needed on the site conditions; cost-effectiveness is highly uncertain (3, 4, 5, 7, 8) |
| SA-7 | Dam Pond/Wild Harbor River Diadromous Fish Run Restoration | The project would result in a limited area of restored acres for fish access and alewife spawning habitat as compared to other restoration projects submitted. Project is not ready for implementation and still requires substantial design and engineering. Comparison of ecological benefits to the cost of completing the project results in this project being a low priority restoration project compared to other aquatic restoration projects (4, 6, 9) |
| SA-8 | Wild Harbor Salt Marsh Restoration, Recreational Boating and Shellfishing | Technical feasibility of the salt marsh restoration is highly uncertain; extremely long-length culvert and nearby low-lying homes pose significant technical and social constraints (3, 4, 6, 8, 9) |
| SA-9 | Carver Cotton Gin Dam Removal | Dam owner buy-in of the dam removal or other fish passage alternative is uncertain, and project design and permitting will be required; timeframe uncertain (5, 6) |
| SA-12 | Buzzards Bay Lobster V-Notch Program | The project would yield a relatively low magnitude of natural resource benefit compared to projects that more likely implement restoration. Project costs are high compared to benefits provided to injured natural resources; approach is more resource management than restoration (7, 8, 9) |
| SA-15 | Rattlesnake Brook Dam Removal and Stream Channel Restoration | Relatively small area of habitat restored for access and use by anadromous fish species; reconstruction of road and split channel poses potential passage challenge during low fish run flow period; project design still needed although MA DER is working on strategy and shcedule (4, 6, 8) |
| SA-17 | Salt Marsh Restoration, Agawam River at Route 6 | Ownership of the tidally restricted marsh is somewhat uncertain and ownership buy-in of the project not yet begun; project would require new culverts under Route 6, a major travel road in this region; costs would be very high for design and construction, and substantial time would be required for securing authorizations for the road project (5, 6, 8, 9, 12) |
| SA-18 | Tremont Mill Pond Dam Anadromous Fish Restoration on the Weweantic River | Town owns the dam but no work has been done to secure buy-in for the dam removal project by the town or persons who may use the pond; hydro-power may still be considered for the dam site; removal of the dam would pose structural issues with the Town road that bisects the impoundment; contaminated impoundment sediments may be issue greatly increasing the cost for the project; water use needs may also be issue (5, 6, 8, 9) |
| SA-19 | Bilgewater Collection and Treatment Program | Apparent logistical issues for completing bilge pumping - could be boat pump? Operation and maintenance costs make project less less cost-effective; may have restricted geographical application, and aquatic resource benefits are not readily discernable (1, 3, 8, 9, 10) |
| SA-20 | Stormwater BMP Construction for New Bedford Waterfront | Project plan has been completed but high costs for storm water quality; difficult to discern the aquatic resource and habitat value of the project; appears to have limited cost-effectiveness (1, 3, 4, 8) |

**Table 2**: Summary of Non-Preferred Restoration Alternatives, Bouchard B-120 Oil Spill (Continued)

| Non-Preferred Alternatives and Evaluation Summary | | |
|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Trustee Review and Evaluation Summary Outcome (Numbers in parentheses indicate *High* and *Moderate* Importance criteria for which project idea received low ratings)** |
| **Lost General Coastal Access and Recreational Boating Restoration** | | |
| LU-2 | Wickets Island Conservation Project | Project has difficult accessibility for some user groups as compared to other recreational use projects; existing private residence and dock on island is impediment to public access and uses on the island (4, 5, 6) |
| LU-4 | West Falmouth Harbor Boat Ramp Improvement and Stormwater Management | Multi-purpose idea, but boat ramp improvements are substantially affected by the stormwater and road layout issues associated with this site; coastal access benefit is not well discerned; substantial design and permitting is needed (1, 2, 6, 7, 9) |
| LU-5 | Stone Barn Farm Visitor Center at Allens Pond Wildlife Sanctuary | Visitor center would provide public educationa values relative to Buzzards Bay and the effects of the spill, but funds for the building not cost-effective in comparison to providing public coastal access with trails and education with proposed trail signage (3, 4, 9) |
| LU-16 | Town Dock Boat Ramp Repair | Project has minor benefit for water quality (sediment control) more than increasing public use. Project would not provide as great public use access and benefit as compared to other projects submitted (2, 3, 4) |
| **Lost Recreational Shellfishig and Shellfish Restoration** | | |
| SH-1 | ARC Property Purchase and Shellfish Hatchery | Purchase of the Barnstable property for land protection is ineligible for Bouchard B-120 funding since the property is not within the geographical area of the spill and would not have natural resource benefit or uses of Buzzards Bay resources; Shellfish seed growing at the property is eligible activity, although cost for upgrades to the shellfish growing facility would result in significant costs, making shellfish seed purchase cost-ineffective in comparison to other shellfish seed sources (1, 5, 6, 7, 8, 10) |
| SH-6 | Dartmouth Shellfish Master Management Plan | Management plan has highly uncertain, indiscernable outcome, and may result in limited to no shellfish resource benefit; also difficult to determine likelihood of shellfish resource sustainability (1, 2, 3, 5, 7) |
| SH-7 | Dartmouth Waterways Upweller | Trustees believe shellfish seed can be purchased for multiple municipalities at larger volume of seed at great cost effectiveness (4, 8) |
| SH-16 | Oyster Seed, Upweller Program | Trustees believe shellfish seed can be purchased for multiple municipalities at larger volume of seed at great cost effectiveness (4, 8) |
| SH-17 | Predator Control, Scallop Restoration Sites, Wings Cove | The project would provide limited opportunity for direct benefit to recreational shellfishing; research suggests practice provides limited shellfish restoration services or ecological benefits compared to other shellfishing project alternatives. Project does not have a substantial regional context need compared to other shellfish projects. Project has limited ability to design for or predict shellfish resource sustainability (1, 2, 3, 4, 6, 7) |
| SH-19 | Predator Control, Westport River | The project would provide limited opportunity for direct benefit to recreational shellfishing; research suggests practice provides limited shellfish restoration services or ecological benefits compared to other shellfishing project alternatives. Project does not have a substantial regional context need compared to other shellfish projects. Project has limited ability to design for or predict shellfish resource sustainability (1, 2, 3, 4, 6, 7) |
| SH-21 | Shellfish Upwellers | Trustees believe shellfish seed can be purchased for multiple municipalities at larger volume of seed at great cost effectiveness (4, 8) |

## 6.0 Environmental Impacts and Social Consequences

This section briefly describes the potential environmental impacts and social consequences of the Trustee Tier 1 and Tier 2 preferred alternatives and the No Action alternative. Actions undertaken by the Trustees to restore natural resources or services are subject to the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq.*, and the regulations guiding its implementation at 40 C.F.R. Parts 1500 through 1517. NEPA and its implementing regulations outline the responsibilities of federal agencies when preparing environmental documentation. In accordance with NEPA and its implementing regulations, this Draft RP/EA for the Bouchard B-120 oil spill summarizes the current environmental setting; assesses the injury to or loss of natural resources or ecological services associated with the site; describes the purpose and need for restoration actions; summarizes how NOAA as lead federal agency and USFWS as a federal cooperating agency on behalf of the Bouchard B-120 Trustees provide for public participation in the decision-making process; identifies alternative actions; and in this section, assesses their applicability and potential direct, indirect or cumulative impacts on the quality of the physical, biological and cultural environment. This information will be considered by NOAA, in consultation with the cooperating agencies, to determine whether preparation of an Environmental Impact Statement is warranted prior to selection of the final restoration action.

Federal agencies preparing an EA must consider the direct effects of all components of a proposed action as well as indirect and cumulative effects. According to the Council on Environmental Quality (CEQ) NEPA Regulations, direct effects are caused by the action and occur at the same time and place as the action (40 C.F.R. 1508.8(a)). Indirect effects are caused by the action but "occur later in time or are farther removed in distance but are still reasonably foreseeable". Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate (40 C.F.R. 1508.8(b)). Cumulative effects are those impacts that

result from incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes such actions.

The Environmental Consequences section as discussed, below, with Table 3 as a summary addressing the proposed action, evaluates potential impacts on the natural, built, and human environment. Impacts associated with the No Action alternative are also assessed. Impact categories considered for each project alternative include: water resources, water quality, rare, threatened and endangered species and their critical habitats, air quality, noise, public health and safety, environmental justice, historic and cultural resources, traffic, utilities, recreation, and contamination including risk to the environment and human health and safety. For some restoration projects in the early planning phase, it is not clearly possible to conclude if an impact will occur at this time, such as an impact to a federally-listed species. These projects will require further analysis during the project planning, design and permitting phases to address federal laws and regulatory requirements, as well as state and local laws and regulations (Refer to Section 7.0, below). Additionally, not all impact categories are applicable to each of the proposed restoration alternatives, as discussed below. If NOAA and its cooperating agencies considered that one or more of the impact categories were not relevant to a particular restoration alternative, the category was not included in the Environmental Consequences section for the particular restoration alternative.

**6.1 No Action Alternative**

As indicated in Section 5.1, with the No Action alternative, no restoration, rehabilitation, replacement or acquisition projects would occur discrete from the current conditions. There would be no implementation of restoration or replacement of the lost resources and their services/uses, and there would be no intent to implement projects directed at making the public whole for past natural resource and resource use injuries. The No

Action alternative does not satisfy the purpose of and need for the proposed action, since it would not provide compensatory restoration of injured natural resources and lost resource uses, as required by the federal Oil Pollution Act. The No Action alternative is evaluated in this Draft RP/EA in conformance with NEPA. The following is a summary of the environmental impacts and social consequences associated with the No action alternative.

***Water Resources:*** With the No Action alternative, there would be no improvements to tidal marshes, eelgrass beds, free-flowing rivers, or other coastal habitats that could benefit wetland plant communities or animal populations using coastal aquatic habitats in the Buzzards Bay environment.

***Water Quality:*** Improvements to the quality of coastal waters would not result since no restoration, rehabilitation or protection of tidal wetlands, eelgrass beds, shellfish beds or other coastal habitats would occur that are attributed to increasing water column clarity, decreasing excessive nutrient levels, or increasing dissolved oxygen levels.

***Rare, Threatened and Endangered Species and Their Critical Habitats:*** With the No Action alternative, there would be no improvements to tidal marshes, eelgrass beds, free-flowing rivers, or other coastal habitats that could benefit federally-listed plant or animal species.

***Air Quality:*** No air quality impacts would result with the No Action alternative.

***Noise:*** No noise impacts would result with the No Action alternative.

***Environmental Justice:*** Designated Environmental Justice communities in the Buzzards Bay affected environment would not benefit from implementation of Bouchard B-120

restoration projects providing ecological services and improvements to coastal access, recreational boating or recreational shellfishing.

***Historic and Cultural Resources:*** No impacts to historic or other cultural resources would result from the No Action alternative.

***Traffic:*** No changes in traffic would result from the No Action alternative.

***Utilities:*** No changes in utilities would result from the No Action alternative.

***Recreation:*** The No Action would result in no improvements to general coastal access, recreational boating opportunities such as boat ramp improvements, or recreational fishing or shellfishing.

***Contaminants:*** No releases of contaminants would result from the No Action alternative.

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Shoreline and Aquatic Resource Restoration, Tier 1 Preferred** | | | | | | |
| Round Hill marsh fill removal | Dartmouth, MA | Implementation of marsh restoration by fill removal, and supplementing New Bedford Harbor Trustee Council and USFWS Storm Sandy resiliency funds | Project will restore a former tidal marsh that will be contiguous and ecologically important to the larger Meadow Shores Marsh immediately west of the project site; fish, macro-invertebrate, and wildlife habitats will be restored or enhanced | Impacts to existing perched freshwater wetlands; temporary disturbances to wildlife due to excavation, grading and soil placement operations | Project includes public access trail to view the restored marsh; will provide public educational opportunities | Project site is rather remote, but near Town public beach that may cause disruption to public use of the area and alter trafffic flow to and from the beach area; construction work will result in temporary dust and noise over multiple months |
| Horseshoe Pond Dam removal/fish passage | Wareham, MA | Design and implementation of diadromous fish passage | Removal of this passage barrier will allow 6+ diadromous fish species to migrate upriver to important spawning and rearing habitats; the Weweantic River is the southernmost East Coast river with a surviving rainbow smelt population (species could benefit from passage and as spawning habitat) | Removal of the dam and/or construction of a nature-like fishway will result in short-term, temporary releases of sediments during construction; < 4 miles upstream is another dam which is total barrier to fish passage and limits amount of habitat accessible by diadromous and resident fish species | The property is available for public access; an existing state wildlife management area abuts the project site and public parking is available; project proponent has indicated that a foot bridge crossing could be installed over the restored river reach to maintain public access across the river | Persons seeking to use the upriver impoundment for flat, open-water activities would be affected if the impoundment is removed or decreases in size with dam removal or lowering of the pond with installation of a nature-like fishway serving as a new grade control; the potential historic significance of the dam structure needs to be addressed including coordination with the MA Historical Commission (MHC) |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Shoreline and Aquatic Resource Restoration, Tier 1 Preferred** | | | | | | |
| Conservation boat mooring systems | Buzzards Bay-wide, MA | Implementation through competitive grant awards to municipalities for innovative mooring installation | Priority eelgrass beds would be afforded protection from scouring by conventional boat moorings; eelgrass is a habitat type providing significant ecological services including fishery and shellfishery habitat and water column clarity | This project type focuses on protection of resource areas versus habitat restoration; secondary water quality impacts from boats (exhausts, turbidity from motor operation) placed on moorings would remain | Priority areas to be protected will allow boaters to access these moorings or access new mooring areas; greater eel grass protection is expected to result in localized water quality improvements and may help to improve on local fishing opportunities and visual aesthetics | A relatively limited number of boaters will benefit from the moorings; the moorings will also need to be properly installed and maintained; municipalities will need to ensure staff are dedicated to proper installation and maintenance |
| Allens Pond salt marsh restoration | Dartmouth, MA | Project is a follow-up to a tidal hydrology restoration project in 2005. This phase is to implement invasive *Phragmites* control with hericiding at salt pond-tidal marsh complex | Removal of non-native, invasive plants will allow native marsh plants to re-establish or increase in cover; animals that depend on native marsh plant communities are expected to benefit from the invasive plant control | Minor impacts to existing tidal marsh plant community may result from vegetation cutting or herbicide applications, but would be expected to be temporary and short-term | The site is a preserve owned and managed by MA Audubon; priority of MA Audubon for this property is to allow the public to access trails and provide public educational opportunities to view and learn about natural resource issues | *Phragmites* control through cutting and herbicide application often requires multiple treatments over consecutive years; work requires licensed herbicide applicators; work may result in temporary closure of areas of the refuge to public access |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Shoreline and Aquatic Resource Restoration, Tier 1 Preferred** | | | | | | |
| Quahog relays and transplanting | South County Salt Ponds, RI | Relay of shellfish from closed-water donor sites to multiple protected spawner sanctuary sites in Rhode Island South County salt ponds | Quahogs harvested from donor sites allows increased biomass, reproduction and recruitment at transplant sites, which may also result at the donor sites that are characterized by very high existing quahog densities; Filter feeding by quahogs provide water quality benefits; quahogs will provide forage item to higher trophic level species (e.g., crabs, lobster, fishes) | Collection of quahogs from donor sites results in temporary, localized releases of bottom sediments and increased water column turbidity; transplanting of quahogs increases the potential risk for transfer of shellfish disease or contaminants potentially present in shellfish tissue | With sound management (e.g., permanent or multiple year closures of sanctuary sites) of shellfishing areas, enhanced quahog populations will provide increased recreational shellfishing opportunities throughout ponds | Transplanted quahogs will be placed in locations where the shellfish populations are expected to achieve greater biomass and a sustainable population; these locations will not be available to shellfishermen since the sites would be closed for one or more years stock enhancement purposes |
| Substrate enhancement for quahogs | South County Salt Ponds, RI | Installation of shell fragments (hash) for modifying bottom substrate to enhance shellfish populations in sanctuary sites in Rhode Island South County salt ponds | Bottom substrates would be modified with natural shell fragments to increase substrate grain size to enhance quahog populations and other benthic biota, as documented by previous studies; Fragments provide cover habitat for macro-invertebrates and finfish | Placement of thin shell fragment layer will alter existing pond benthic substrates; existing benthic organisms would be covered by shell, or would be temprarily displaced; placing shell material would cause temporary water column turbidity | Placement of shell fragments with sound management (e.g., permanent or multiple year closures of sanctuary sites) of shellfishing areas, enhanced quahog populations will provide increased recreational shellfishing opportunities throughout ponds | Shell fragment placement would occur in locations where shellfish populations are expected to achieve greater biomass and a sustainable population; these locations will not be available to shellfishermen since the sites would be closed for one or more years for stock enhancement purposes |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Shoreline and Aquatic Resource Restoration, Tier 2 Preferred** | | | | | | |
| Gray Gables marsh restoration through tidal hydrology restoration | Bourne, MA | Assessment, design and implementation of culvert replacement | Restoration of tidal hydrology would help to improve ecological health of this tidally restricted marsh; culvert replacements or removals would allow substantially greater tidal exchange between the marsh and Buzzards Bay, increasing marsh plant primary production and enhancing fish, macro-invertebrate and wildlife habitats | Restoration of tidal hydrology using culverts; culvert alignment is uncertain and may result in impacts to dune and other coastal habitats; additional assessment is required to determine a viable design providing substantial ecological benefits; due to length of time that marsh has been tidally restricted, marsh recovery may be limited as a result of peat degradation | Restoration of the marsh would be expected to improve aesthetic values for the local community which borders and views the marsh; restoring a vegetated marsh would provide greater recreational opportunities such as bird watching and fishing for the local community | Culvert installation would occur on private properties that will require temporary construction and permanent maintenance access easements; very limited public access or wildlife viewing is currently available at the marsh site due to its setting in private residential community |
| Cotley River restoration and fish passage (Barstowe's Dam removal) | Taunton, MA | Implementation of dam removal | Removal of the structure will open 8+ Cotley River miles for river herring and American eel to access spawning and rearing habitats, restoring additional resources to Taunton River watershed and Mt. Hope Bay estuary | Dam removal will result in short-term, temporary releases of sediments during construction; ~16 acres of pond habitat will be converted to river and vegetated riparian wetlands | Restoration of the river will provide seasonal canoeing and kayaking opportunities and eliminate a portage where the dam now exists | Users of Barstowe's Pond for swimming or fishing would be affected; the potential historic significance of the dam structure needs to be addressed including coordination with the MHC (historic documentation being completed) |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Shoreline and Aquatic Resource Restoration, Tier 2 Preferred** | | | | | | |
| Mill River restoration and fish passage (West Britannia dam removal) | Taunton, MA | Design and implementation | Project is one of four fish passage projects at dams on the lower Mill River; removal or modification of this 4-ft high dam will open 0.46 miles and allow river herring and American eel to access important spawning and rearing habitats in large lakes and wetlands in the upper watershed; this project complements three other fish passage projects completed in the watershed to allow diadromous fish access to more than 500 acres of spawning and rearing habitats | Dam removal will result in short-term, temporary releases of sediments during construction; potential contaminated sediments needs to be evaluated; ~10 acres of pond habitat will be converted to river channel and vegetated riparian wetlands | Dam removal will allow kayaking and canoeing opportunities, and eliminate or lessen portage challenges; wildlife viewing and fishing opportunities would change with habitat conversion but may increase to greater area of restored riparian wetland plant community | Dam is privately owned and will require coordination and agreement with the mill; mill owner has committed matching funds to assist in implementation; potential historic resource significance of the dam structure needs to be determined including coordination with the MHC |
| Red Brook, Century Bog fish passage and riparian restoration | Plymouth, MA | Implementation; B-120 spill funds to potentially address design, permitting and/or project construction | Most of the Red Brook watershed is protected lands owned by the state; improvements to the fishway at White Sands Pond will help to improve access for alewife to spawning and rearing habitat in the pond; restoration of the riparian wetland will allow better in-stream flows and higher quality waters benefiting biotic diversity | Legacy sediments and soils with pesticides and/or other contaminants from past cranberry production at or near the site may be present; contaminants may cause impacts to aquatic biota and may require greater costs to remove or sequester contaminated soils | The project site is situated on state-protected lands that are accessible to the public; the restoration will afford substantial public educational opportunities particularly wetland educational and wildlife viewing | Restoring the riparian wetland plant community may limit the use of the site for some public use activities; minor increases in operation and maintenance of the fishway will be required of designated and dedicated officials |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Shoreline and Aquatic Resource Restoration, Tier 2 Preferred** | | | | | | |
| Agawam River Headwaters Bog fish passage and riparian restoration | Plymouth, MA | Final design and/or implementation; B-120 spill funds to potentially address a portion of fish passage and habitat restoration implementation | The Agawam River watershed is a small but important system which once supported a healthy population of river herring, and restoration of in-stream habitat is expected to help improve water quality and increase the river's annual herring run size with improved access to 232-acre Halfway Pond spawning and rearing habitat | Legacy sediments and soils with pesticides and/or other contaminants from past cranberry operations at or near the site may be present; contaminants may cause impacts to aquatic biota and may require greater costs to remove or place and cap contaminated soils with clean soils and restore native plant communities | Access to the property would provide recreational opportunities including wildlife viewing, fishing, hiking, natural heritage, and historic considerations | Public access may be limited or prohibited on this privately-owned parcel; however, project proponent is seeking to secure permanent access easement for public access and passive recreational use |
| Saugatucket River fishway reconstruction | South Kingstown, RI | Implementation of fishway reconstruction | Structural fishway reconstruction will improve river herring and American eel passage at existing dam, providing access to up to 300 acres of spawning and rearing habitat; out-migration structure at the dam's low-level outlet gate is expected to improve survival of juvenile river herring annually out-migrating to the sea | Reconstruction of the Main Street fishway will result in minor disturbances to river and developed riparian buffer (<5,000 sf); and temporary sediment disturbance and releases during construction | The Main Street fishway is situated in Wakefield village, next to a public road and boardwalk providing excellent viewing of the spring fish run; local organizations may be available to strengthen public educational opportunities at the site; RI Historic Preservation and Heritage Commission has confirmed no adverse historic resource impacts | The construction activities in the village will cause temprary construction noise and air quality impacts (exhausts and dust) that may occur for 4-6-week construction period in village setting; traffic flow on Main Street may be temporarily affected |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Access and Use and Lost Recreational Boating Restoration, Tier 1 Preferred** | | | | | | |
| Nasketucket Bay property acquisition | Fairhaven and Mattapoisett, MA | Land acquisition and purchase of land parcels (443 acres) for public access and use; complemented by funding from NRCS, USFWS, MADCR and others | Public access project may enhance invasive, non-native plant removal activities along trail system; permanent protection as conservation lands will help prevent habitat loss and potential water quality impacts from alternative land development | Minor environmental impacts (vegetation removal) may occur with foot access trail or kayak access construction; increased human presence and foot traffic, noise and activity may cause short-term disturbances to plants and wildlife | Properties would include public access directly to Buzzards Bay tidal waters (e.g., Shaw Cove); properties also abut existing public bike trail system , affording access by others and wide variety of user groups | Local community may experience greater number of users to the general area, with incremental visual and noise increase |
| Allens Pond Wildlife Sanctuary trail improvements | Dartmouth, MA | Design, permitting and implementation of trail improvements including 0.6-mile all-persons ADA-compliant trail, 1,000 ft of foot trail boardwalks, and minor drainage improvements for ~200 ft of trails | Minor impacts to wetlands (<600 $ft^2$); may enhance invasive non-native plant removal activities along trail system by property owner | Negligible loss of or disturbance of vegetation to install public access trails and drainage improvements (<12,000 sf); increased human presence and foot traffic, noise and activity may have short-term disturburnces to plants and wildlife | Existing nature preserve open to public including handicapped persons; public educational opportunities to view and learn about coastal woodlands and wetlands; project includes interpretive materials about coastal resources and optimally to include the B-120 spill | Presence of costruction equipmment may disrupt use of existing trails by the public for short-term period(s); minor , temporary visual and noise impacts to sanctuary users |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Access and Use and Lost Recreational Boating Restoration, Tier 1 Preferred** | | | | | | |
| Nasketucket Bay State Reservation coastal access trail improvements | Mattapoisett, MA | Implementation | Minor removal of invasive, non-native plants may result to help to enhance the native on-site plant communities | Trail construction may result in minor loss of native vegetation; increased human presence and foot traffic, noise and activity may disturb plants and wildlife | Foot access by the public will complement access to an a relatively large (212 acres) reservation tract popular for passive recreational use | Construction improvements to trails may temporarily disrupt public use of the trails; Minor, temporary visual and noise impcts may result |
| Universal public access, state park coastal access | Fairhaven, Dartmouth, and Westport, MA | Implementation | None | Trail construction may result in minor loss of native vegetation and disturbance to native wildlife using upland or wetland habitats at each of the park sites | Trail improvements and installation of Mobi-Mat removable path systems and Mobi-Chairs will allow users of wheelchairs to access the beach | Facilities will need to be maintained and repaired, as necessary |
| Hoppy's Landing public access improvements | Fairhaven, MA | Implementation, construction of ADA fishing pier | Site modifications may reduce parking area runoff to Buzzards Bay; site layout may permit guidance fencing for the public to access shoreline, thereby minimizing potential shoreline bank disturbances or erosion | Fishing pier construction will result in minor loss and disturbances to intertidal and subtidal habitats including Essential Fish Habitat (EFH) of managed fish species | Project will provide a fishing pier for handicapped persons to fish and crab Buzzards Bay; access will be via nearby existing parking area with access by wheelchair persons | Local community may experience greater number of users to the general area; long-term maintenance of the pier and parking area will be required |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Access and Use and Lost Recreational Boating Restoration, Tier 1 Preferred** | | | | | | |
| Palmers Island recreational beach and trail access improvements | New Bedford, MA | Implementation; targeted funded activities would supplement, not duplicate construction funds provided by the NBHTC | Removal of invasive, non-native plants should help to enhance the native plant community on a unique island setting | Trail construction may result in minor loss of native vegetation; increased human presence and foot traffic, noise and activity may disturb plants and wildlife | Foot access only by the public will allow access to a unique island setting, and address Environmental Justice need in the City of New Bedford area; kiosk at entrance from the hurricane barrier would provide public educational opportunities | The potential historic significance of the island (e.g., lighthouse) needs to be determined and addressed including coordination with the MHC; historic resource mitigation measures may need to be provided; project needs to be in conformance with existing historic deed restrictions |
| Clarks Cove public boat ramp construction | Dartmouth, MA | Implementation | None | Installation of a pre-cast ramp would affect a 1,200-square ft area of intertidal and disturbed coastal habitats, including EFH-designated habitats | Ramp would provide the only boat access along the western side of Clarks Cove; Town parking lot with ample parking of vehicles with trailers is adjacent to the site providing secured access and use | Town would need to have formal agreement with MA DCR for the ramp design; regulatory permits needed for construction; construction would result in temporary visual and noise impacts to local residents and users |
| Onset Harbor boat ramp replacement | Wareham, MA | Implementation of boat ramp replacement | None | Installation of a cast-in-place ramp would affect a 1,500-square ft area of intertidal and subtidal habitats including EFH-designated habitats | Replacement of public ramp is needed for a heavily utilized boat lunch site; and is only one of two ramps in the east end of Buzzards Bay; Town proposes use permit fee that will help to fund maintenance of the ramp | Limited parking area may affect approval by MA OFBA; constrction may have minor impact on traffic flow and temporary visual and noise impacts during construction |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Access and Use and Lost Recreational Boating Restoration, Tier 1 Preferred** | | | | | | |
| Black Point loop trail improvements | Narragansett, RI | Implementation | Soil stabilization and grading may help to eliminate existing coastal bank erosion; removal of invasive, non-native plants may result to help to enhance the native on-site plant communities | Trail construction may result in minor loss of wetlands and/or native vegetation; increased human presence and foot traffic, noise and activity may disturb plants and wildlife | The state-owned reserve is heavily used by fishermen, hikers, and others; improvements to trails along Narragansett Bay shoreline may help to eliminate potential walking safety hazard | The potential presence of archaeological features of significance needs to be determined and addressed including coordination with the RIHPHC; constrction equipment may temporaily disrupt use of trails due to visual and noise impacts |
| South Scarborough Beach handicap ADA access ramps | Narragansett, RI | Implementation | None | Minor disturbances to sand beach and coastal bank may result from the access ramps | Handicap users would be able to access the most heavily used beach in Rhode Island, from the southern end of the state facility where ample parking is available | Construction equipment may temporarily generate noise, visual and air quality impacts |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Access and Use and Lost Recreational Boating Restoration, Tier 2 Preferred** | | | | | | |
| New Bedford Harbor Riverwalk access | New Bedford, MA | Planning, design and implementation; targeted funded activities would supplement, not ovelap existing funds secured through the NBHTC | Project implementation of 2.2 miles of walking trail may help to grade and stabilize areas of eroding shoreline; native plantings will enhance 25-ft wide upland riparian habitat zone; removal and management of invasive, non-native plants is expected | Trail construction may result in minor loss of vegetation and minor direct and secondary disturbances to wildlife using nearby inter-and sub-tidal habitats | Foot access by the public will allow access to a unique urban waterfront setting, and address Environmental Justice needs in the City of New Bedford area | Project will require securing multiple temporary and permanent easements with private property owners; existing PCB contamination of harbor may have effect on construction and access; removal and disposal of contaminanted soil and solid waste debris required; potential presence of historic structures of significance needs to be addressed including coordination with the MHC |
| The Let parcels acquisition | Westport, MA | Purchase of up to three small land parcels for access to high-value estuary | Permanent protection as conservation lands will help prevent potential water quality impacts from land development | Increased public access could result in increased human presence and foot traffic, noise and activity may disturb plants and wildlife including salt marsh fringe community; low elevation of site along Bay poses risk of frequent storm damage | Additional public lands would allow other coastal recreational use area and access to Westport River estuary for various water-dependent recreation | Limited parking is available and site conditions would restrict number and types of vehicles and users of the site |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Access and Use and Lost Recreational Boating Restoration, Tier 2 Preferred** | | | | | | |
| Apponagansett Bay boat ramp reconstruction | Dartmouth, MA | Reconstruct boat ramp for high-use, popular area | None | 2-lane ramp and floating dock system may fill or disturb minor area of intertidal and subtidal habitats including EFH-designated habitats | The existing ramp is heavily used with ample public parking area for boaters, recreational fishermen and others | Local community may experience increase users in general area with increase in seasonal noise and visual impacts |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Shellfishing and Shellfish Restoration, Tier 1 Preferred** | | | | | | |
| Quahog relays and transplanting | Buzzards Bay-wide, MA | Relay of shellfish from closed-water donor sites to multiple municipal sites in Massachusetts for resource sustainability and recreational shellfishing | Quahogs harvested from donor sites allows increased biomass, reproduction and recruitment at transplant sites, which may also result at the donor sites that are characterized by very high existing quahog densities; Filter feeding by quahogs provide water quality benefits; quahogs will provide forage item to higher trophic level species (e.g., crabs, lobster, fishes) | Collection of quahogs from donor sites results in temporary, localized releases of bottom sediments and increased water column turbidity; transplanting of quahogs increases the potential risk for transfer of shellfish disease or contaminants potentially present in the shellfish tissue; transplant sites may incur greater fishing pressure and habitat disturbances | With sound management (e.g., multiple year closures) of shellfishing areas, enhanced quahog populations will provide increased recreational shellfishing opportunities | Quahog relays will be placed in locations where the shellfish populations are expected to achieve greater biomass and a sustainable population; these locations may not be convenient for some shellfishermen due to need for travel or a boat or other equipment for harvesting |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Shellfishing and Shellfish Restoration, Tier 1 Preferred** | | | | | | |
| Quahog seeding | Buzzards Bay-wide, MA | Seed purchase(s) from municipal and/or private hatcheries using native broodstock to produce seed for municipally-managed shellfishing waters for resource sustainability and public recreational shellfishing | Filter feeding by quahogs provides water quality benefits; local quahog populations are expected to increase and reach sustainable populations; quahogs will provide forage item to higher trophic level species (e.g., crabs, lobster, fishes) | Seed secured from non-local broodstock may result in genetic differences in local populations; potential low-level risk of introducing shellfish disease; supplies such as mesh netting and anchors may be needed to cover seeded bottom sites to lessen seed mortality due to predation; seeded sites may incur greater fishing pressure and habitat disturbances | With sound management (e.g., multiple year closures) of shellfishing areas, enhanced quahog populations will provide increased recreational shellfishing opportunities while achieving healthy sustainable shellfish populations. Traditional seeding/rearing techniques provide opportunities for community involvement in the process, which provide multiple public education and outreach opportunities | Quahog seed will be placed in locations where the shellfish populations are expected to achieve greater biomass and a sustainable population; these locations may not be convenient for some shellfishermen due to need for travel or a boat or other equipment for harvesting; predator control programs requiring labor, boats and other equipment may be needed to increase survival of quahog seed |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Shellfishing and Shellfish Restoration, Tier 1 Preferred** | | | | | | |
| Bay scallop spawner sanctuaries/ seeding | Buzzards Bay-wide, MA | Seed purchase(s) from private or municipal hatcheries to free plant or place animals in caged spawner sanctuaries for increasing scallop stock recruitment | Filter feeding by bay scallops provides water quality benefits; local scallop populations are expected to increase and reach sustainable populations; scallops will provide forage item to higher trophic level species (e.g., crabs, lobster, fishes) | Placement of spawner cages in nearshore coastal waters may affect small areas of subtidal bottom and water column habitats | With sound management strategies to achieve scallop spawning and recruitment, protect juvenile rearing areas, and properly timed harvesting periods, scallop restoration projects would be expected to provide important local recreational fisheries. Components of the monitoring will provide opportunities for community involvement in the process, which provide multiple public education and outreach opportunities | Placement of cages in public coastal waters may affect other water-based recreation; placement of spawner cages will require regulatory authorizations and coordination with municipal shellfish wardens; localized coastal water clousres may have limited timeframe for effectiveness |

**Table 3:** Summary of Environmental Impacts and Social Consequences Associated with Tier 1 and Tier 2 Proposed Project Alternatives, Bouchard B-120 Oil Spill Restoration (continued)

| Preferred Project Alternatives: Summary of Anticipated Environmental Impacts and Social Consequences | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Project Location** | **Project Description/Trustee Considerations** | **Environmental Impacts** | | **Social Consequences** | |
| | | | **Positive** | **Negative** | **Positive** | **Negative** |
| **Category: Lost Recreational Shellfishing and Shellfish Restoration, Tier 1 Preferred** | | | | | | |
| Oyster restoration | Buzzards Bay-wide, MA | Rearing or purchase of oyster larvae and/or spat set on shell for placement into restoration sites for restoring oysters beds | Filter feeding by oysters provides water quality benefits; local oyster populations are expected to increase and reach sustainable populations; oysters will provide forage item to higher trophic level species (e.g., crabs, lobster, fishes) | Placement of oyster spat set on shell fragments in coastal waters will result in minor modifications to bottom habitats, temporary, short-term sediment disturbances may result; there is potential for oyster disease (dermo, MSX) to be spread if disease testing protocols are not properly followed, resulting in high oyster mortalities | With sound management strategies to achieve oyster growth, spawning and recruitment, oyster restoration projects would be expected to provide important local recreational fisheries benefits; components of the implementation provide opportunities for community involvement in the process, which provide multiple public education and outreach opportunities | Placement of oyster spat set on shell materials in designated and demarkated (e.g., buoys and signage) areas of public coastal waters may have minor effects on other water-based recreation; placement of set oysters on shell will require regulatory authorizations and coordination with municipal shellfish wardens |

## 6.2 Proposed Alternatives

### 6.2.1 Round Hill Marsh Restoration Project, Dartmouth MA

***Water Resources:*** The construction phase of the project consists of removing approximately 45,000 cubic yards of fill that had been placed on the marsh in the early 1900s, re-grading the restored tidal marsh plain, planting the restored marsh with native tidal marsh plant species, and replacing an under-sized road culvert with a properly-sized culvert that will reconnect the restored marsh with normal diurnal tidal exchange with Buzzards Bay. During the construction phase, some short-term and localized impacts are expected. As a result of earth-moving activities, there would be localized, temporary increases in turbidity and sedimentation near the project area. These conditions may affect fish and filter feeders in nearby receiving waters, by clogging gills, increasing mucus production and smothering organisms found in the shallower open-water areas. Mobile fish and invertebrates would not likely be affected, since these fish and other organisms would most likely leave the area, and return after project completion.

Increased noise levels due to the operation of earth-moving equipment would also cause fish to leave the area until operations end. Through the re-creation of salt marsh plain, planting of salt marsh plants, and excavation of historic tidal channels, this project will significantly enlarge this valuable tidal system, help stabilize and keep open the periodically-closing Meadow Shores tidal inlet, and greatly enhance the many natural functions and values that it provides to the Buzzards Bay environment. These functions and values include flood protection, pollutant attenuation, and coastal ecosystem fish and wildlife habitat.

Additionally, as a component of the project, an earthen berm with impermeable clay core or similar design is to be constructed along the northern property boundary of the restoration area to prevent potential tidal flooding of or drainage flooding on the adjacent private property. This preliminary design to prevent potential tidal flooding or runoff hydrology has been presented to the property abutters, and will be designed incorporating input provided by the private community bordering the town-owned project site.

***Water Quality*:** In the short term, during the period of construction, earth moving activities (either the excavating or placement of soils) may increase turbidity in the immediate project vicinity, though best management practices (BMPs) during construction will minimize this effect. The newly created substrate should colonize quickly with new marsh vegetation. Vegetation helps stabilize sediments, reducing sediment transport. Over the long-term, the proposed restoration action would re-establish, enhance and increase native wetland vegetation cover at the site, and allow for conditions supporting shellfish and other organisms. Several BMPs may be implemented during construction to minimize impacts including: silt fence or sediment curtains to contain suspended sediments, avoidance of in-water work during fish migration periods, and avoidance of releases of gas, oil, and diesel from construction equipment into adjacent waters. Over the long term, the project would benefit water quality by re-establishing a native tidal marsh community, serving to trap sediments and dissipate wave energies that would benefit water quality.

***Rare, Threatened and Endangered Species and Critical Habitats*:** The southwest corner of the proposed project site is located near an Estimated Habitat and Priority Habitat for Least Tern, as identified by the Massachusetts Natural Heritage and Endangered Species Program, although the proposed project is not expected to negatively impact terns. The project is expected to improve foraging habitat for tern and other fish-foraging species. Additionally, according to the wildlife habitat assessment completed as part of the

project Feasibility Study funded by the NBHTC, it was concluded that "None of the ecological communities that occur on the site would be considered high-quality examples of those community types. No rare or exceptional communities were found; nor do these communities appear to be of value to rare wildlife species."

There is a known historic piping plover nesting site to the west, approximately 1,300 feet, from the Round Hill project site, an area which also serves as foraging grounds for listed tern species. Plovers have been sporadically observed utilizing the entire beach front at Round Hill, but public use of the beach deters pairs from nesting along the public-use areas. Some short-term, temporary disturbances may occur to these federally and state listed threatened and endangered species, as well as to other fish and wildlife in the area during construction operations; construction activities may temporarily diminish the habitat value of the project area.

Both the Endangered Species Act (ESA) and the Massachusetts Endangered Species Act (MESA) deem it illegal to kill, harm, harass, possess or remove protected animals from the wild. As per ESA and MESA regulations, federal agencies and project proponents are required to consult with the U.S. Fish and Wildlife Service (USFWS) and Massachusetts of the Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program (MANHP) to ensure that proposed activities do not have a negative effect on species listed and will not jeopardize the continued survival and recovery of a listed species. On the project design is prepared, project materials will be submitted to the USFWS for its review and completion of an ESA Biological Opinion. If needed, measures will be taken during the construction phase to avoid potential impacts to ESA species such as piping plover. Once the project is complete, the restored area will function as valuable salt marsh habitat for birds, fish and invertebrates, thereby increasing and improving habitat extent and quality for state- and federally-listed species.

***Air Quality:*** Minor temporary impacts would result from the proposed construction activities. Exhaust emissions and dust released from earth-moving equipment contain pollutants, but these emissions and dust releases would be temporary, and occur during the construction phase of the project. The exhausts would be localized and are expected to quickly dissipate. Dust releases would be suppressed by watering equipment roads during extended dry weather periods. There would be no long-term negative impacts to air quality.

***Noise*****:** Noise associated with earth-moving equipment represents a short-term adverse impact during the construction phase. It may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Noise during construction may also disrupt public recreation, but any disruption would be limited to the construction phase. No long-term noise impacts would occur once project construction is completed.

***Recreation*****:** The project would be expected to increase long-term recreational opportunities at and in the vicinity of the project site by returning natural marsh habitat and associated fish and wildlife. As a result, increased recreational opportunities including nature viewing and recreational fishing opportunities will be available. In the short-term, noise and increased turbidity of surface waters arising from earth-moving activities during project construction would be expected to discourage and temporarily decrease recreational activities at the beach, in the vicinity of the site during construction. Any such affect would be limited to the period of construction and should be minor. While the project site is rather remote, the project will provide increased public educational opportunities to residents and visitors to this town-owned site. The project includes public access trails that will allow the public to view the restored marsh.

***Traffic*****:** Construction equipment traffic would increase at the site during the period of construction. Construction vehicles would be limited to nearby roads during the

relatively short construction period (less than 6 months). It is expected that proper safety measures would be employed throughout construction so that potential traffic impacts on local roads and within the beach parking area are minimized. A potential short-term negative impact to beach parking could arise if construction activities are occurring during the peak of beach recreation season. In particular, the culvert under Ray Peck Drive will need to be replaced, and will potentially affect traffic ingress and egress to the beach. It may be possible to complete the culvert installation by leaving one lane of the road open while the culvert section is installed in the opposite side of the road. Optimally, construction would occur outside of the peak beach recreation season to avoid these user conflicts.

***Utilities:*** The proposed marsh restoration project will require relocation of an existing water line which serves the town-owned and managed Round Hill Beach bathhouse. The proposed utility line relocation may potentially disrupt water supply to the bathhouse, although the proposed work is expected to occur during the beach off-season period. The potential disruption would be relatively short-term, with reconnection within 2-3 days.

***Contaminants*:** Sampling and testing of the soils to be removed for marsh restoration was previously completed by an engineering consultant, and no contaminants of concern were identified at the project site.

***Cultural and Historic Resources*:** A formal PNF was sent by the project proponent to the Massachusetts Historical Commission (MHC) in 2008, notifying them of the project. MHC acknowledged the initiation of the project, and the fact that the project was still in the planning and development phase, and therefore was awaiting further information on the project, including the area of potential effect, existing versus proposed conditions, a description of planned restoration activities and equipment staging areas. NOAA has been designated as the lead federal agency on this project, and will continue

consulting with MHC in accordance with Section 106 of the National Historic Preservation Act (36 CRF 800), as amended. If NOAA, in consultation with MHC, determines the project to have potential effect on historic or archeological resources, NOAA in collaboration with the project partners will be responsible for ensuring the project avoids, minimizes or mitigates for these impacts, and formalized in a Memorandum of Agreement, if needed.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents, including minority and low-income populations, and will help to improve natural ecological conditions, increase local recreational opportunities, and provide additional educational opportunities.

### 6.2.2 Horseshoe Pond Dam Removal, Wareham MA

***Water Resources:*** Two potential options for restoration exist at this site; a full barrier removal versus a nature-like fishway that may include a new grade control structure to maintain the current Horseshoe Pond. Horseshoe Pond, lowered by the failing of the low-level dam outlet, is an approximately 30-acre impoundment (freshwater to low brackish conditions) created by the presence of the dam. In the event a nature-like fishway structure is built, the structure will serve as the new grade control, determining the water surface elevation, area, and salinity of impoundment upriver of the structure. If the grade control elevation is not lowered, no significant change to the impoundment area, mean annual surface water elevation, or salinity would likely occur. In the long-term, the ecological role the impoundment provides to water resources would remain largely intact. Salinity regime would not change, thereby maintaining the current, predominantly freshwater to low-brackish flora and fauna communities which the impoundment currently supports. Annual mean water surface elevation and impoundment area would also remain largely unchanged, also maintaining current

ecological conditions. Downstream of the grade-control structure, a nature-like fishway would be built; serving as a "ramp" to pass migrating fish. Currently, diadromous fish such as river herring are often blocked from passing the dam. The nature-like fishway would also provide suitable habitat for spawning rainbow smelt.

Installation of a rock ramp or riffle ramp would affect channel bottom of the downstream, tidal Weweantic River. Since no design has yet been prepared for the passage project, it is difficult to conclude the expected area of riverbed impact. Nature-like fishway ramps are typically constructed at 1:20 to 1:30 slope for addressing river herring passage. Based on the river conditions at the dam site, it is estimated that a nature-like ramp alternative could affect ~0.2-0.3 acres of boulder channel habitat. Minor additional river bank impacts (<0.1 acres) may also result from the construction of a ramp alternative. The constructed ramp would consist of rounded river boulders, cobble and gravel that would closely assimilate the existing river substrate conditions. The constructed substrate would be expected to be rapidly colonized by vascular plants, filamentous algae, and diatoms that would provide habitat conditions very similar to the existing tidal river habitat.

In the event that the project design is a complete dam removal, the grade control structure would not be required. As a result, the water surface elevation of the impoundment will be lowered, and the impoundment reduced in area. The current 30-acre impoundment would be reduced closer to the natural width of the adjoining Weweantic River, which would vary seasonally based on hydrologic conditions. Additionally, the Weweantic River would be re-established with the natural head-of-tide, allowing tidal water with higher salinity to flood upstream during high tide, and resulting in a conversion from a predominantly freshwater impoundment to a brackish water estuarine condition. The reduction of the impoundment and conversion to a more consistently brackish water condition will change the composition of wetland plants and shrubs, as well as benthic and aquatic fauna. It will return the area to pre-

dam, more natural conditions, and restore important estuarine and riverine ecological functions that were eliminated when the dam was built. Utilization of the upriver impoundment for flat, open-water activities; however, would be greatly reduced.

Both restoration options, complete removal of the passage barrier or installation of a nature-like fishway with a new grade control, will allow at least six diadromous fish species to migrate upriver to important spawning and rearing habitats. The Weweantic River is the southernmost river with remnant rainbow smelt populations and these would benefit from this passage and spawning habitat enhancement project.

With either option, during the construction phase of the project, some short-term and localized adverse impacts to water resources would occur. As a result of earth-moving activities, there would be localized, temporary increases in turbidity and sedimentation downstream of the project work area; this condition will be minimized due to construction during the low-flow season. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in the shallow open-water area. Mobile fish and invertebrates would not likely be affected, since these would most likely leave the area, and return after project completion and channel stabilization. Fish passage construction projects are typically required to occur after spring migration, so little to no impact to existing migrating diadromous fish would be expected. Increased noise levels due to the operation of earth-moving equipment would also cause mobile fish to leave the area until operations end. Mussels or other threatened or endangered aquatic species are not in the proximity of the limits of disturbance to be affected by the potential short-term increased turbidity.

***Water Quality*:** In the short term, during the period of construction, earth moving activities (either the mining or placement of sediments) may increase turbidity in the immediate project vicinity, though actions during construction will minimize this effect.

BMPs will be implemented during construction to minimize water quality impacts, including: silt fence or sediment curtains to control suspended sediments, avoidance of in-water work during fish migration periods, and prevention of gas, oil, and diesel releases from construction equipment into adjacent waters.

***Rare, Threatened and Endangered Species and Critical Habitats*:** Neither the Weweantic River nor the impoundment created by this dam is known to provide habitat to any federally-listed species. Some disturbances will occur to fish and wildlife during construction that will temporarily diminish the habitat value of the project area. Once the project is complete, the restored area will function as valuable riverine habitat for birds, fish and invertebrates. The Weweantic River is the southernmost river on the East Coast with remnant rainbow smelt populations and these would benefit from this passage and spawning habitat enhancement project. Additionally, other federally-listed candidate species (i.e., river herring) will have increased access to important spawning habitat and benefit in population recovery as a result of this fish passage project.
Two state-listed plant species were noted approximately 600+ feet downriver of the project site: Parker's pipewort (*Eriocaulon parkeri*), endangered, and pygmyweed (*Crassula aquatic* L.), threatened. These plant species were documented in 1994 and 1997, respectively by the Buzzards Bay Coalition. Considering the location of these plants, no adverse effects would be anticipated by either the dam removal or a dam removal with rock ramp, including the use of sediment control BMPs. The project area of effect would not extend this far downriver where the plants have been documented. In contrast, the dam removal and restored hydrologic conditions upriver may actually benefit these listed species by providing expanded habitat.

***Air Quality*:** Minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain pollutants, but these emissions would only occur during very brief periods during the

construction phase of the project. The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with earth-moving equipment represents a short-term adverse impact during the construction phase. It may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Similarly, persons may avoid this area due to noise during construction, but such disruption would be limited to the construction phase, and there are other recreation sites available in this area. No long-term effects would occur as a result of noise during construction.

***Recreation*:** The project would be expected to increase long-term recreational opportunities at and in the vicinity of the project site by increasing ease of site access and enhancing fish and wildlife viewing and recreational fishing opportunities. In the short-term, noise and increased turbidity of surface waters arising from earth-moving activities during project construction would be expected to discourage and temporarily decrease recreational activities. Any such affect would be limited to the period of construction (1-3-months) and would be minor; site visitors would be expected to return once project construction is completed.

Persons seeking to use the upriver impoundment for flat, open-water activities would be affected if the impoundment is removed or decreases in size due to dam removal or lowering of the pond with the installation of a nature-like fishway serving as a new grade control. The property is and will be available for public access. An existing state wildlife management area abuts the project site and public parking is available. The project proponent has indicated that a foot bridge crossing is expected to be installed to maintain and enhance public access to the west side of the river.

***Traffic*:** Local traffic would minimally increase at the site access road during the period of construction. Construction vehicles would be expected to utilize nearby road(s) during a relatively short construction period (1 to 3 months). It is expected that proper safety measures would be employed throughout construction so that potential traffic congestion or traffic hazards are minimized.

***Contaminants*:** The project area includes a historic iron smelter/foundry (1700s-1800s) that existed northeast of the dam. In 2010, Site inspection activities were requested by the USEPA and the MASSDEP, subsequent to a review of the background information and a site reconnaissance completed at the site. As part of the inspection, nine soil locations and 14 sediment sample locations along the Weweantic River were sampled and analyzed for semi-volatile organic compounds (SVOCs) and inorganics (e.g., metals). Results indicated that the sediments contained polycyclic aromatic hydrocarbons (PAHs) at three locations near the former foundry. Contaminant levels were determined to be minor. None of the remaining sediment samples contained SVOCs at detectable levels.

With the proposed project, sediments and soils excavated at the site will be removed and disposed of based on a state and federally-permitted engineering plan. If contaminated soils or sediments are removed, professionals with expertise with contaminated materials (e.g., Massachusetts Licensed Site Professional, if needed) will be involved in the project to ensure all site work is in compliance with applicable federal and state regulations addressing site contamination. Available soil and sediment data will be reviewed, and if necessary, additional testing may be required. Based on any supplemental contaminant testing, proper handling and disposal of soil and/or sediment materials will be incorporated into the design of the project, and approved through the regulatory permit process.

***Cultural and Historic Resources*:** The project partners have not yet made a determination on the potential of the project to adversely affect cultural and historic

resources. The project proponent is expected to submit a PNF to the MHC, describing the general site conditions and the potential site work activities. If a finding of adverse effect is determined by the lead federal agency, the project partners will propose ways to avoid, minimize, or mitigate the adverse effects on the area of project effect in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800).

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to local residents and visitors to the restoration site, including minority and low-income populations. These benefits are expected as a result of improved natural ecological conditions, increased recreational opportunities, and educational opportunities associated with the site restoration (led by the CBB or other organizations or schools).

### 6.2.3 Conservation Boat Moorings, Buzzards Bay-wide

***Water Resources:*** During the mooring implementation, localized, temporary increases in turbidity and sedimentation near the project area may occur; however, these will be very brief, non-significant events in which sediments would settle out of the water column rapidly with little or no discernible effect on local organisms. The reduction of bottom scour by traditional chain and tackle will improve environmental conditions of the mooring fields by allowing aquatic vegetation (eel grass) to re-establish. Installation work may have minor disruption of existing eelgrass beds, but any disturbance would be very limited and temporary in duration. Eel grass is a native, submerged habitat type providing significant ecological services, including fishery habitat and water column clarity.

***Water Quality:*** The project would have no discernible effects on water quality. During installation of the boat moorings, some localized, minor disturbances of the bottom

substrate may occur, causing localized, short-term turbidity. The increase turbidity would be short-term, with sediments settling out of the water column within minutes. The newly installed boat moorings would improve water quality conditions by removing old mooring technology which traditionally incorporates heavy chain and tackle that scours the benthos, destroying vegetation, and stirring up sediments. By reducing that scour, submerged aquatic vegetation (e.g., eel grass, possibly other species such as widgeon grass, *Ruppia maritima*) can re-establish and/or be protected from typical mooring chain scour. Eel grass is a habitat type providing significant ecological services, including fishery habitat and water column clarity.

***Recreation:*** The project would be expected to facilitate recreational opportunities in and around the project areas by promoting ecologically sensitive mooring alternatives. This in turn will promote the growth of eel grass, thereby enhancing water quality and fish and wildlife abundance. The improved environmental conditions will enhance recreational opportunities such as fishing and shellfishing.

### 6.2.4 Allens Pond Sanctuary Salt Marsh Restoration through *Phragmites* Control, Dartmouth MA

***Water Resources:*** Project proponents seek to remove 3.2 acres of common reed (*Phragmites australis*), primarily through the use of herbicidal application. Herbicide use may have unwanted impacts to the water and to the environment. Non-targeted plants as well as nuisance plants may be affected by the applied herbicides. With herbicidal application, if application is not performed correctly, there may be potential for direct short-term impacts to fish, aquatic invertebrates and non-targeted aquatic vegetation, as well as potential secondary impacts to waterfowl. Glyphosate (the formulation approved by the USEPA for use in wetlands is sold under trade names such as Rodeo, Aquaneat, and Aquastar) is a broad spectrum aquatic herbicide that is non-toxic to mammals, birds, and fish when used according to instructions.

All herbicides must include a non-ionic surfactant which allows the herbicides to adhere to the plants leaves, stalks and rhizomes for effective control. Surfactants must be acquired separately and added to tank mixtures, unless otherwise noted on label recommendations obtained with the herbicides. When applied to the foliage of actively growing plants, glyphosates are rapidly absorbed and transported throughout the plant tissues. The herbicides kill the entire plant: leaves, stems, and rhizomes. This is especially important in the control of *Phragmites australis* since it spreads via rhizomes, in addition to seed dispersal. A toxic chemical application permit will be needed to spray *Phragmites* with aquatic herbicide in wetlands, and the work will be carried out by licensed pesticide applicators.

Overall, the project would be expected to improve long-term environmental conditions. The project will increase ecological services of the restoration site through the removal of non-native, invasive plants. The removal of non-native, invasive plants will allow native marsh plants to re-establish or increase in cover. Wildlife that depend on native marsh plant communities are expected to benefit from the invasive plant control.

***Water Quality*:** With herbicidal treatment for *Phragmites* control, there may be potential for short-term negative impacts to non-targeted aquatic vegetation. Aquatic vegetation provides food for waterfowl and critical habitat for shellfish and finfish. This vegetation also affects nutrient cycling, sediment stability, and water turbidity Overall, the project would be expected to improve overall marsh function by allowing native marsh vegetation to re-establish. These conditions would allow improved water quality, and improved habitat for use by fish and other species requiring surface waters for foraging, cover and reproduction.

***Rare, Threatened and Endangered Species and Critical Habitats*:** Direct impacts to rare, threatened or endangered species are not expected to occur with this project. The primary mechanism of treatment is an herbicide. In the event that mechanical removal

of *Phragmites* is incorporated, some temporary, short-duration disturbances to birds, fish and other wildlife may occur due to the increased noise. These impacts will be temporary, lasting only the duration of the mechanical removal (approximately 2-5 hours).

***Air Quality*:** Neither of the proposed control techniques (herbicidal or mechanical) is expected to have significant impacts on air quality, however, minor temporary adverse impacts could result from the use of mechanical control via small-engine machines and equipment. Equipment exhaust emissions contain pollutants, but these emissions would only occur during the brief mechanical removal of the invasive plants. The releases would be short and very localized, and should be quickly dissipated by prevailing winds. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with equipment used for mechanical control of the invasive plant represents a short-term adverse impact during the mechanical removal. It may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Similarly, noise may reduce recreational use of the area during treatment. Such disruption would be very limited. No long-term effects would occur as a result of noise during treatment.

***Recreation*:** The project would be expected to increase long-term recreational opportunities at the project site by increasing ease of site access and enhancing nature viewing. In the short-term, recreational activities may be reduced in the vicinity of the site due to herbicide application or mechanical treatment activities. Any such affect would be limited to the period of control and would be minor. *Phragmites* control through cutting and herbicide application often requires multiple treatments over consecutive years, and work may result in temporary closure of areas of the refuge to public access. The restoration site is a preserve owned and managed by MA Audubon.

The priority of MA Audubon for this property is to allow the public to access trails and provide public educational opportunities.

***Contaminants*:** The project proposes to utilize herbicide to remove invasive *Phragmites*. In instances of herbicidal treatment there is potential for direct short-term harmful side effects on fish, aquatic invertebrates and non-targeted aquatic vegetation if application of the herbicide is not performed correctly. If applied correctly, the proposed herbicide, Glyphosate is a broad spectrum aquatic herbicide that is non-toxic to mammals, birds, and fish. No endangered or threatened species are expected to be adversely affected by this practice. An applicator's permit is required and the work will be carried out by licensed pesticide applicators.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents, including minority and low-income populations, including improving natural ecological conditions, increasing local recreational opportunities, and providing additional educational opportunities.

### 6.2.5 Quahog Relays and Transplants, South County Salt Ponds, RI

***Water Resources:*** Collection of quahogs from donor sites for relay to transplant sites would result in temporary, localized disturbances of bottom sediments and increased short-term water column turbidity; however, these would be short-term effects, with sediments quickly settling out of the water column, soon after quahog raking is completed. Negligible quahog mortality results from raking, as quahogs are hardy, thick-shelled shellfish. Boats would be used to release quahogs to the transplant sites, and may have short-term disturbances to waterfowl and other aquatic biota. Transplanted quahogs are expected to provide beneficial impacts to recipient coastal salt pond site by increasing recruitment of local quahog populations. Quahogs

contribute important roles in the food web by filtering large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth. Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses, and creating habitat on or around living and dead shells. Many species of fish, waterfowl, and crustaceans (e.g., crabs and lobster) feed directly on quahogs.

***Water Quality*:** Collection of quahogs from donor sites will result in temporary, localized releases of bottom sediments and increased water column turbidity; however, these are short-term effects, and sediments quickly settle out of the water column once harvest is completed. Quahogs and other filter feeding shellfish play important roles in the food web by pumping large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth. Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses, and enhancing bottom habitats by providing bioturbation (i.e., oxygenating surface sediment) and sediment structure (i.e., shell remains).

***Rare, Threatened and Endangered Species and Critical Habitats*:** This project will have no adverse impact on rare, threatened or endangered species. Increasing bivalve abundance will increase ecological services at these sites, thereby increasing potential food items for biota and improving subtidal habitat quality.

***Recreation*:** Quahog enhancement projects result in increased number of animals, increased fecundity, and increased recruitment in the project transplant areas. These quahog relay projects serve as effective ways to increase recreational shellfishing opportunities in coastal pond areas open to shellfishing (outside of the protected sanctuary sites).

***Contaminants*:** Human health and environmental concerns: Relaying or harvesting of quahogs from source areas with known toxicity or pollutants (e.g., fecal coliform, heavy metals) poses the risk of transferring those pollutants, via contaminated shellfish tissue, to shellfish donor sites, as well as potential human health concerns, if contaminated shellfish are consumed. Prior to transplanting the quahogs from the donor location, animals collected from the site will be tested for metals contamination, and must fall within FDA tolerance levels to be moved and transplanted to another location. For Rhode Island projects, RIDEM proposes to transplant quahogs into approved "sanctuaries" where future harvest of transplanted quahogs is and will be prohibited. Waters designated for quahog harvest are monitored by RIDEM and RIDOH to ensure that the bivalves are safe for consumption. If excessive levels of contaminants are found in the water, harvesting is prohibited. State and local health authorities issue warnings and closures to alert and regulate recreational harvesters. No human health impacts are expected with the proposed quahog relays, as the quahogs are being placed in sanctuaries where shellfishing is and will be prohibited to allow quahog population recruitment and sustainability.

Communicable shellfish diseases: Transplanting quahogs may increase the potential risk for transfer of shellfish diseases potentially present in the shellfish. Shellfish pathologists will test quahog samples prior to transplanting to prevent spread of shellfish diseases, and local and regional pathologists in coordination with state and regional municipalities will grant decisions as to the ability of shellfish transfer.

Genetic contamination: Quahog relays in Rhode Island have been ongoing for a number of years. The program has targeted quahogs from multiple closed water areas and transplanted these broodstock animals into South County salt ponds and other coastal Rhode Island waters. The genetic composition of the South County salt ponds are considered to be genetically equivalent to the animals found in the proposed donor

sites. Thus, no significant genetic changes in the salt pond sanctuary populations are expected with the proposed relay and transplant program.

### 6.2.6 Substrate Enhancement for Quahogs, South County Salt Ponds, RI

***Water Resources:*** Placement of marine bivalve shell fragments would result in temporary, localized disturbances of bottom sediments and increased water column turbidity; however, these would be short-term effects, with sediments quickly settling out of the water column, soon after shells are deposited. Shell material will be weathered and free of any remaining soft tissue remains. Some mortality to existing benthic organisms would result from the placement of shell hash and burying of sessile organisms. Boats and/or barge would be used to release shell hash to the transplant sites, and may have short-term, temporary disturbances to waterfowl and other aquatic biota. The enhanced substrate combined with transplanted quahogs (previous alternative) to recipient coastal salt pond site is expected to provide beneficial impacts by increasing quahog recruitment. Quahogs contribute important roles in the food web by filtering large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth. Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses, and creating habitat on or around living and dead shells. Many species of fish, waterfowl, and crustaceans (e.g., crabs and lobster) feed directly on quahogs.

***Water Quality*:** Release of weathered shell material to recipient sites will result in increased sediment particle suspension, and increased water column turbidity; however, these are short-term effects, and sediments quickly settle out of the water column once deposition is completed. Quahogs and other filter feeding shellfish play important roles in the food web by pumping large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to

result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth. Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses, and enhancing bottom habitats by providing bioturbation (i.e., oxygenating surface sediment) and sediment structure (i.e., shell remains).

***Rare, Threatened and Endangered Species and Critical Habitats*:** This project is not expected to have any adverse impact on rare, threatened or endangered species. No known listed species are present within the proposed shell hash placement sites. Increasing bivalve abundance will increase ecological services at these sites, thereby increasing potential food items for biota and improving subtidal habitat quality.

***Recreation*:** During placement of shell material, there may be short-term impacts (on the scale of hours) where recreational boating and other water activities may be temporarily disrupted by the presence of a barge or other equipment. Quahog enhancement projects result in increased number of animals, increased fecundity, and increased recruitment in the project transplant areas. These quahog relay projects serve as effective ways to increase recreational shellfishing opportunities in coastal pond areas open to shellfishing (outside of the protected sanctuary sites). This is a secondary purpose of this project – to provide sustainable recreational shellfisheries in the coastal salt ponds.

***Contaminants*:** Human health and environmental concerns: Placement of bivalve shell material poses the risk of transferring bacteria, via contaminated shellfish tissue, to shellfish donor sites. The shell hash that is placed in each of the recipient sites will be weathered and free of soft tissue remains. For Rhode Island projects, RIDEM proposes quahog transplants and substrate enhancement into approved "sanctuaries" where future harvest of transplanted quahogs is and will be prohibited. Waters designated for quahog harvest are monitored by RIDEM and RIDOH to ensure that the bivalves are safe

for consumption. If excessive levels of contaminants are found in the water, harvesting is prohibited. State and local health authorities issue warnings and closures to alert and regulate recreational harvesters. No human health impacts are expected with the substrate enhancement, as the shells are being placed in sanctuaries where shellfishing is and will be prohibited.

Communicable shellfish diseases: Placing marine bivalve shell fragments may increase the potential risk for transfer of shellfish diseases. Shellfish pathologists will test quahog shells prior to transplanting to prevent spread of shellfish diseases, and local and regional pathologists in coordination with state and regional municipalities will grant decisions as to the ability of shellfish transfer.

Genetic contamination: No genetic changes in the salt pond sanctuary shellfish populations are expected from the shell material used for the substrate enhancement project.

### 6.2.7 Gray Gables Marsh Restoration, Bourne, MA

***Water Resources:*** The Gray Gables salt marsh consists of two separate marsh systems poorly interconnected and tidally restricted by undersized and poorly aligned culverts. As a result of the project, much of the upper marsh would undergo a habitat conversion from non-tidal wetlands to tidal wetlands. Due to 80+ years of tidal restriction, it is evident that the marsh peat substrate has substantially degraded (waterlogged soils, marsh subsidence and erosion) and with hydrologic restoration, the potential marsh area that would likely be revegetated is expected to be limited. The marsh plain would continue to subside, and peat substrate submergence is probable. Thus, the potential for a marsh with vegetated cover would be unlikely, except for the periphery of the wetland areas. In the interior a saltwater pond would likely form and along the pond's periphery, native smooth cordgrass (*Spartina alterniflora*) and other native and non-

native plants (e.g. *Phragmites australis*) would be expected to colonize, replacing salt-intolerant species (e.g., red maple, Swamp azalea).

During the construction phase of the project, short-term, localized impacts would occur. As a result of excavation and culvert installation activities, there would be localized, temporary increases in turbidity in and sedimentation to the project area wetlands. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in the shallower open-water areas. Increased noise levels due to the construction equipment operation would also cause wetland-dependent wildlife to leave the area until operations cease.

Restoration of tidal hydrology would help to improve ecological health of this tidally-restricted marsh. Culvert replacement would allow substantially greater tidal exchange between the marsh and Buzzards Bay, increasing marsh plant primary production and enhancing fish, macro-invertebrate and wildlife use of the marsh and peat flat habitats.

While the marsh has clearly been impacted by a restricted tidal hydrology, an effective culvert replacement to restore tidal hydrology needs to be more thoroughly evaluated for size and alignment to the Bay. A new culvert connection to Buzzards Bay may result in impacts to state-regulated dune and coastal bank, and intertidal and subtidal habitats. Additional assessment will be required to identify design alternative(s) potentially affecting, either negatively or beneficially, tidal and non-tidal wetlands, dunes, coastal bank and other water resources. If this project is funded through the Bouchard B-120 aquatic and shoreline restoration funds, further assessments will need to compare the benefits of hydrologic restoration to wetland and water resource impacts associated with various design alternatives. This analysis would need to consider and evaluate any potential impacts to Essential Fish Habitat (EFH) designated by the National Marine Fisheries Service. Potential EFH impacts would need to be addressed during the regulatory processing of the culvert replacement.

***Water Quality*:** During the period of construction (potentially 1-3 months), earth moving may increase turbidity in the immediate project vicinity, though actions during construction will minimize this effect. Best Management Practices and other protective measures may be implemented during construction to minimize impacts, including: silt fences or sediment curtains to contain suspended sediments, avoidance of work during fish migration periods, and avoidance of releases of gas, oil, and diesel from construction equipment into adjacent waters. BMPs would be used to minimize the amount of sediment suspension in the water. Construction would occur only within the in-water work window for the project as established by regulatory permits. Over the long term, the project would benefit water quality by re-establishing native marsh communities which would trap sediments and filter water.

Restoration of tidal hydrology would help to improve ecological health of this tidally restricted marsh. Culvert replacements or removals would allow substantially greater tidal exchange between the marsh and Buzzards Bay, increasing marsh plant primary production and enhancing fish, macro-invertebrate and wildlife habitats.

***Rare, Threatened and Endangered Species and Critical Habitats*:** Installation of a culvert through coastal beach and extending into tidal water of Buzzards Bay may result in impacts to Piping Plover, Common Tern and Least Tern. Both the Endangered Species Act (ESA) and the Massachusetts Endangered Species Act (MESA) deem it illegal to kill, harm, harass, possess or remove protected animals from the wild. As per ESA and MESA regulations, project proponents are required to consult with the U.S. Fish and Wildlife Service (for potential listed birds and other wildlife) and/or the National Marine Fisheries Service and the Massachusetts Natural Heritage Endangered Species Program of the Division of Fisheries and Wildlife to ensure that proposed work activities do not have a negative effect on listed species, and will not jeopardize the continued survival and recovery of a listed species.

Installation of a culvert may result in negative impacts to intertidal and subtidal waters and state-regulated coastal dunes. These impacts may only be temporary during construction, and dunes can be artificially returned following culvert installation. As per the Massachusetts Wetlands Protection Act, projects that affect wetlands are required to avoid impacts where possible, minimize unavoidable impacts, and mitigate for unavoidable impacts. The project proponents would be required to apply for and secure an Order of Conditions with the Town of Bourne Conservation Commission.

***Air Quality*:** Minor temporary impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project (1-3 months). The exhausts would be localized and are expected to quickly dissipate. Additionally, exposure of previously impounded marsh peat soils may result in the release of hydrogen sulfides which generate a "rotten egg" odor. These noxious odors, if they occur, would be expected to be short-term and localized. If the culvert installations are completed during the fall and winter period, potential air quality impacts due to a temporary hydrogen sulfide release would be minimized. No long-term negative impacts to air quality due to this tidal hydrology restoration would be expected.

***Noise*:** Noise associated with earth-moving equipment would be a short-term impact during the construction phase (up to an estimated 3 months). Construction noise may periodically and temporarily disturb wildlife in the immediate vicinity of the project site, or cause movement of wildlife away from the site to other, less disturbed areas. No long-term effects would occur as a result from the restoration project.

***Recreation*:** Very limited public access or wildlife viewing is currently available at the marsh site. Restoration of the marsh would be expected to improve aesthetic values for the local community which borders the marsh. Additionally, restoring the marsh would

provide greater recreational opportunities such as bird watching and fishing or crabbing by the local community.

***Utilities:*** This project may involve installation of a culvert under Mashnee Road. Potential public and private utility impacts may occur, and would need to be incorporated into the planning and design of this project.

***Traffic*:** Construction-related traffic would increase at the site during the relatively short construction period (less than 3 months). It is expected that proper safety measures would be employed throughout construction so that potential traffic congestion is minimized. If a new culvert alignment directly affects Mashnee Road, travel lane closures would be expected. A traffic management plan would need to be prepared as part of the project design plans, and implemented as a component of the construction. Municipal police may be required to assist in the temporary lane closures requisite for culvert construction under Mashnee Road.

***Contaminants*:** No soil or sediment testing for contaminants has been performed at this site. The likelihood of contaminant issues at this site is low, and no sediment contaminant issues are anticipated with the marsh restoration project. Sampling of road fill soils may be required by the regulatory agencies if culvert installation through Mashnee Road is the preferred restoration alternative.

***Cultural and Historic Resources*:** The project proponent would be responsible for submitting a PNF to the MHC regarding potential historic resource impacts. Although it is not expected, if any significant historical or cultural materials are exposed or discovered during excavation or subsurface disturbance, operations would cease, the immediate area would be cordoned off to minimize any additional disturbance, and an archaeologist would be contacted for further recommendations. The MHC and federally-recognized Native Peoples tribes (i.e., Wampanoags) would be contacted.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted by this project. This project will create minor recreational use benefits to local community residents, potentially including minority and low-income populations. This restoration project is expected to improve fish and wildlife habitat, increasing local community recreational opportunities.

### 6.2.8 Cotley River Restoration and Fish Passage, Taunton, MA

***Water Resources:*** Following the complete removal of the dam, the water surface elevation of the run-of-the-river impoundment will be lowered, and the impoundment reduced. The 11.9-acre pond is expected to be converted to about 10.5 acres of bordering vegetated wetland and 1.4 acres of free-flowing river (state-regulated land under water). The structure is a timber-crib dam, and partial draw-down of the impoundment has already occurred when the dam owner removed boards to address public safety issues. The net results of the dam removal would be to restore the wetland floodplain and river storage, lower the 100-year storm flow elevation in the impoundment area, and increase habitat complexity and diversity for riverine flora and fauna. The reduction of the impoundment will return the area to pre-dam, more natural conditions, and restore important ecological functions that were greatly altered when the dam was built.

The purpose of this project is to improve aquatic and riparian habitats by removing this river barrier. The project plans call for approximately 4,400 cubic yards of silt and sand to be passively released downstream as described in more detail in the Sediment Management Plan completed for the project. By allowing for passive sediment release downstream, the project avoids heavy equipment impacting sensitive wetland areas. The sediments that are expected to be passively released downstream will account for approximately 2% of the suspended sediment load of the Taunton River receiving water. Pre-application coordination with the MassDEP and the submittal of additional data

indicate that downstream release of these sediments will be approved. The MassDEP 401 Water Quality Certification has been submitted and project partners are awaiting response at the time of this document release.

Some short-term and localized impacts would occur as a result of earth-moving activities and sediment release. There would be localized, temporary increases in turbidity and sedimentation near and downstream of the project area, particularly with the sediment release. These conditions may affect fish and filter feeders in the local and downstream areas by clogging gills, increasing mucus production and smothering organisms found in the shallow open-water area. Mobile fish and invertebrates would likely be less affected since these organ isms would most likely leave the immediate downstream area, and repopulate the area after project completion and channel stabilization. Freshwater mussels or other rare or uncommon aquatic species are not present in the disturbance area and would not be affected by the potential short-term increased turbidity.

Silt fence will be installed around construction access routes to further minimize soil transport to the river or bordering wetlands. Within the construction zone, coir fiber and straw mats will be used to cover exposed graded banks to minimize erosion. These natural fabrics will decompose over time as the cover vegetation becomes established. Release of impoundment sediments would ultimately benefit downstream habitat and improve habitat quality for benthic and riverine species by supplying sediment-starved areas with substrate materials and greater benthic habitat complexity. Increased noise levels due to the operation of earth-moving equipment could cause mobile fish to leave the area until operation noise ceases.

The goals of this project are to remove a diadromous fish passage barrier, improve water quality, and multiple miles of stream habitat to migratory fish species for spawning and rearing.

***Water Quality*:** In the short-term, during the period of construction and shortly afterward, downstream release of sediments and earth-moving activities related to construction (either the excavation or grading of sediments and/or soils) may temporarily increase turbidity in the downstream river reach and immediate project vicinity, although construction BMPs will minimize the effect of any sediment releases. BMPs to be implemented during construction include silt fence or sediment curtain to control suspended sediments, avoidance of in-water work during fish migration periods, and minimization of potential releases of gas, oil, and diesel from construction equipment into adjacent waters.

***Air Quality*:** Minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain pollutants, but these emissions would only occur over very short periods during the construction phase of the project (1-2 months). The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with earth-moving equipment would be a short-term adverse impact during the construction phase (1-2 months). Noise may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. The project site is on private property, rarely used by the public. Disruption would be limited to the construction phase. No long-term effects would occur as a result of noise during construction.

***Recreation*:** This dam removal will allow kayaking and canoeing opportunities through the restored river reach, and eliminate or lessen portage challenges. The project will increase habitat values for fish and wildlife in the river which will ultimately benefit recreational opportunities in the area for nature viewing and recreational fishing.

***Traffic*:** Construction-related traffic would marginally increase in the vicinity of the site during the short construction period (1-2 months). Construction access and staging areas would be gained through the dam owner's property. It is expected that proper traffic management and safety measures would be employed throughout construction, so that potential traffic congestion or accidents are avoided or minimized.

***Cultural and Historic Resources*:** The project partners have not yet secured a determination on the potential of the project to adversely affect cultural and historic resources. The project partners will coordinate with the MHC to seek formal response on potential cultural resources and impacts. If federal funds are applied in the project and a finding of adverse effect is determined by the lead federal agency, the project partners will implement measures to avoid, minimize, or mitigate the adverse effects in accordance with Section 106 of the National Historic Preservation Act of 1966.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents, including minority and low-income populations. Benefits to recreational use are expected to result from improved natural ecological riverine conditions, increased local recreational opportunities (kayaking and canoeing), and educational opportunities (e.g., guided kayak tours).

### 6.2.9 Mill River Restoration and Fish Passage, Taunton MA

***Water Resources:*** Following the removal of the dam, the river impoundment will be largely reduced. The lowering of the impoundment will replace existing emergent wetlands with a more diverse riparian wetland community. The project would convert current open-water habitat to a restored woody and herbaceous riparian wetland. of The area occupied by the dam structure is also expected to be replaced by vegetated habitat. The outcome of the project would be increased floodplain area, temporary

flood storage, and increased habitat complex for terrestrial and riverine flora and fauna. The elimination of the impoundment would return the area to pre-dam, more natural conditions and restore important ecological functions that were eliminated or substantially altered with the dam construction.

During the construction phase of the project, some short-term and localized impacts would occur. As a result of earth-moving activities, there would be localized, temporary increases in water turbidity and sedimentation within and downstream of the project work area; this condition will be minimized due to construction occurring during the low-flow season. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in the shallow open-water area. Fish and invertebrates would not likely be affected, since these would most likely leave the area, and return after project completion and channel stabilization. Fish passage construction projects are typically required to occur after spring migration, so little to no impact to existing migrating diadromous fish would be expected. Increased noise levels due to the operation of earth-moving equipment could cause mobile fish to leave the area until operations cease. Freshwater mussels, including known threatened or endangered aquatic species, are not within or in the proximity of the project area, and would not be affected by any potential short-term sediment releases and increases in water turbidity.

***Water Quality*:** In the short term, during the period of construction, earth moving activities (either the mining or placement of sediments) may increase turbidity in the immediate project vicinity, though actions during construction will minimize this effect. BMPs will be implemented during construction to minimize water quality impacts, including: silt fence or sediment curtains to control suspended sediments, avoidance of in-water work during fish migration periods, and prevention of gas, oil, and diesel releases from construction equipment into adjacent waters. Long-term, the removal of the impoundment and conversion to a restored river reach is expected to result in

cooler seasonal river flows and higher dissolved oxygenated levels, particularly as a riparian shrub and forest returns to shade the river reach.

***Air Quality*:** Minor temporary impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project (1-2 months). The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with earth-moving equipment would be a short-term impact during the construction phase (up to an estimated 2 months). Construction noise may periodically and temporarily disturb wildlife in the immediate vicinity of the project site, or cause movement of wildlife away from the site to other, less disturbed areas. No long-term effects would occur as a result from construction noise.

***Recreation*:** This dam removal, particularly in conjunction with other dam removal projects immediately downstream (Hopewell Dam, already removed) and upstream (Whittenton Dam, scheduled to be removed in 2013), will enhance kayaking and canoeing opportunities, and eliminate or lessen portage challenges. Wildlife viewing and fishing opportunities are also expected to benefit from the river restoration.

***Traffic*:** Minor, localized traffic increases would occur during the relatively short construction period (1-3 months). Construction access and staging areas would likely be gained through the dam owner's parking lot, which is currently used for employee parking. Some minor impacts to employee parking may result, although the parking lot is anticipated to accomodate both daily construction vehicle operation (excavator, dump truck) and employee parking. It is expected that a traffic management plan would be employed to ensure proper safety measures and minimize traffic congestion.

***Contaminants*:** With complete dam removal, channel diversion of the river during construction and careful project sequencing is expected to limit any short-term negative impacts related to sediment transport. The impoundment sediments have not been sampled, tested or assessed for contaminants; this will be a component of the assessment phase. In the situation that elevated contaminant levels are determined, the design would be expected to incorporate sediment management measures for proper handling and disposal of the materials. Any proposed sediment management measures would be expected to be discussed during the preliminary design phase, consulting with state and/or federal regulators.

***Cultural and Historic Resources*:** The project proponent (MADER or other project partner(s)) would be responsible for submitting a PNF to the MHC regarding potential historic resource impacts. Since the dam structure and associated factory buildings are more than 50 years old, the on-site structures and features would need to be assessed for potential historic significance. Although not anticipated, if any significant historical or cultural materials are exposed or discovered during the dam removal, operations would cease, the immediate area would be cordoned off to minimize any additional disturbance, and an archaeologist would be contacted for further recommendations. The MHC and federally-recognized Native American tribes (i.e., Wampanoags) would be contacted for guidance on resource protection or recovery.

***Environmental Justice*:** Environmental Justice communities will not be negatively impacted by this project. This project will create minor recreational use benefits to local community residents, potentially including minority and low-income populations. This restoration project is expected to improve fish and wildlife habitat, increasing local community recreational opportunities.

### 6.2.10 Red Brook Headwaters and Fish Passage Restoration, Plymouth MA

***Water Resources:*** Anticipated wetland impacts due to cranberry bog surface excavation and regrading have not yet been quantified since the project is in the preliminary design phase. The goal of the project is to restore the natural channel through the former commercial cranberry bog, and eliminate ditches and other flow diversions. Regrading of the project area would result in a lower riparian habitat ground surface with higher seasonal groundwater table. The regraded riparian zone would be planted and seeded with native woody and herbaceous plants to restore the riparian wetland. During the construction phase, some short-term and localized stream and vegetated habitat impacts would occur. As a result of earth-moving activities, there may be localized, temporary increases in stream turbidity and sedimentation in and immediately downstream of the project area; however, this will be minimized due to the typically low flow though the former cranberry bog channels, and natural stream channel, with work completed during the low-flow construction season. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in the streams. Fish and mobile macro-invertebrates would less likely be affected, since these would most likely leave the area, and repopulate the restored stream channel following project completion. Increased noise levels due to the operation of earth-moving equipment could also cause fish to leave the area until operations cease.

Groundwater-fed White Sands Pond forms the headwaters of the Red Brook system. Dam removal at this site is not possible, although a structural fishway is proposed at the dam to provide passage for alewife to access spawning and rearing habitat in the pond. The fishway construction is expected to affect a minimal area (<500 square feet) of stream channel, bordering vegetated wetlands and state-regulated Riverfront Area. Fishway construction would also occur during the low-stream flow period, employing construction BMPs.

The implementation of this restoration project would have multiple benefits to the ecology of the Red Brook system, including improving the diadromous fish passage effectiveness. The project would: eliminate the risk of entrainment and mortality of migrating fish in the cranberry bog dead-end channels, reducing avian predation and extreme temperature impacts; remove stressors (hydrologic, water quality, and substrate) affecting functions of coldwater stream habitat; restore a natural flow regime, reduce instream temperatures and increase dissolved oxygen levels to the downstream reach; and re-establish/create a native riparian plant community.

***Water Quality*:** During construction, earth-moving activities (excavation and regrading of soils) may increase turbidity in the immediate project vicinity, although BMPs would be implemented to minimize impacts: silt fence or sediment curtain would be installed to contain suspended sediments; instream work would occur during the low-flow period and outside of fish migration periods; protection measures would be implemented to avoid releases of gas, oil, and diesel from construction equipment. Construction would occur only within the in-water work window for the project in conformance with the conditions of the project regulatory authorizations.

***Rare, Threatened and Endangered Species and Critical Habitats:*** No rare, threatened or endangered species will be negatively impacted by this project. Some temporary disturbances will occur to fish and wildlife during construction, which will temporarily diminish the habitat values of the project area. Once the project is complete, the restored area will function as valuable stream riparian habitat for an array of aquatic and terrestrial flora and fauna. Rare, sea-run (salter) brook trout are known to inhabit Red Brook and are expected to benefit from the project, directly through habitat use, or indirectly by enhanced coldwater base flows. Additionally, candidate fish species for federal listing (i.e., river herring) would have more effective access to important spawning habitat in and upstream of the restored Red Brook reach as a result of this project.

***Air Quality*:** Minor temporary impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project (2-4 months). The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with earth-moving equipment may periodically and temporarily disturb wildlife in the immediate vicinity of the project site, or cause movement of wildlife away from the site to other, less disturbed areas. No long-term effects would occur as a result from construction noise.

***Recreation*:** While restoring the riparian wetland plant community may limit the use of the site for some activities, the project site is situated on state-owned lands that are accessible to the public. The restoration of this property to a natural stream and riparian wetland would beneficially afford substantial public use and educational opportunities, particularly wetland education and fish and wildlife viewing.

***Traffic*:** Negligible local traffic impacts would occur from this project, due to the remote location of the project, and intent to keep as much of the soil excavation, grading and placement on-site. Minor, short-term traffic pattern changes may occur at discrete times when equipment and construction personal are entering or exiting to the project area using the nearby local access roads.

***Contaminants*:** Legacy sediments and soils with cranberry operation pesticides and/or other contaminants from past cranberry production at or near the site may be present in the existing soils. Contaminants may cause impacts to aquatic biota and contaminated soils may require greater costs to remove or place and sequester (clean-cap cover). Preliminary conversations with federal and state regulators regarding similar cranberry bog restoration projects in Massachusetts have indicated that an

appropriate avenue for handling contaminated soils would be to excavate and relocate soils and sediments within the project area away from the stream, and capping contaminated soils and sediments with clean soils to minimize the potential for groundwater exposure pathways. The project design plans are expected to address the potential for contaminants that will then require regulatory agency (MassDEP, USACE and others) review and approval for any contaminant removal and placement on- or off-site.

***Cultural and Historic Resources*:** Coordination amongst the project proponents, including the MADER, NOAA, and the MHC regarding the riparian restoration was initiated in 2012. Following submittal of a PNF and letter by MADER, the MHC responded, requesting additional information on the project area of potential effect. Consultation will continue as the project planning and development stage continues, particularly since the Century Bog is a historic site recognized by the MHC. If a finding of adverse effect is determined through the project design, the project partners would prepare measures to avoid, minimize, or mitigate any adverse effects in accordance with Section 106 of the National Historic Preservation Act.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create recreational use benefits to area residents, potentially including minority and low-income populations. This restoration project is expected to improve fish and wildlife habitat, increasing recreational opportunities, and providing educational opportunities.

### 6.2.11 Agawam River Headwaters Bog and Fish Passage Restoration, Plymouth MA

***Water Resources:*** The Agawam River, a relatively small coastal river, currently flows through an area of approximately 19 acres of active cranberry bogs within the proposed project area. The project includes separating the river channel from cranberry bog

ditches and other operations by restoring the river channel and riparian plant community. Anticipated wetland impacts due to cranberry bog surface excavation and regrading have not yet been quantified since the project is in the conceptual design phase. The goal of the project is to restore the natural channel through the former commercial cranberry bog, and eliminate ditches and other flow diversions. Regrading of the project area would result in a lower riparian habitat ground surface with higher seasonal groundwater table. The regraded riparian zone would be planted and seeded with native woody and herbaceous plants to restore the riparian wetland.

During the construction phase, some short-term and localized stream and vegetated impacts would occur. As a result of earth-moving activities, there may be localized, temporary increases in stream turbidity and sedimentation in and immediately downstream of the project area; however, this will be minimized due to the typically low flow though the former cranberry bog channels, and natural stream channel, with work completed during the low-flow construction season. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in the streams. Fish and mobile macro-invertebrates would less likely be affected, since these would most likely leave the area, and repopulate the restored stream channel following project completion. Increased noise levels due to the operation of earth-moving equipment could also cause fish to leave the area until operations cease.

The implementation of this restoration project would have multiple benefits to the ecology of the Agawam River, including improving the diadromous fish passage effectiveness. The project would: eliminate the risk of entrainment and mortality of migrating fish in the cranberry bog dead-end channels, reducing avian predation and extreme temperature impacts; remove stressors (hydrologic, water quality, and substrate) affecting functions of coldwater stream habitat; restore a natural flow regime

reduce instream temperatures and increase dissolved oxygen levels to the downstream reach; and re-establish/create a native riparian plant community.

The project would eliminate fish obstructions and would reduce the nutrient input into the river system and Buzzards Bay. The Agawam River watershed is a small but important system which once supported a large, healthy population of river herring, and restoration of in-stream habitat is expected to help improve water quality and increase the annual herring runs with improved passage and access to 232-acre Halfway Pond spawning and rearing habitat.

***Water Quality*:** During construction, earth-moving activities (excavation and regrading of soils) may increase turbidity in the immediate project vicinity, although BMPs would be implemented to minimize impacts: silt fence or sediment curtain would be installed to contain suspended sediments; instream work would occur during the low-flow period and when fish migration periods would be less likely affected; protection measures would be implemented to avoid releases of gas, oil, and diesel from construction equipment. Construction would occur only within the in-water work window for the project in conformance with the conditions of the project regulatory authorizations.

***Rare, Threatened and Endangered Species and Critical Habitats:*** No rare, threatened or endangered species will be negatively impacted by this project. Some temporary disturbances will occur to fish and wildlife during construction, which will temporarily diminish the habitat values of the project area. Once the project is complete, the restored area will function as valuable stream riparian habitat for an array of aquatic and terrestrial flora and fauna.

***Air Quality*:** Minor temporary impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of

the project (2-3 months). The exhausts would be localized and are expected to quickly dissipate. The project site is remote, and few persons would be expected to incur exhausts other than construction workers and project partners completing site inspections. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with earth-moving equipment would be a short-term impact during the construction phase (up to an estimated 3 months). Construction noise may periodically and temporarily disturb wildlife in the immediate vicinity of the project site, or cause movement of wildlife away from the site to other, less disturbed areas. No long-term effects would occur as a result of construction noise.

***Recreation*:** The restoration of this property to a natural stream and riparian wetland may beneficially afford public use and educational opportunities, particularly wetland education and fish and wildlife viewing. The property is currently privately-owned by a cranberry producer, and it is expected that if Bouchard B-120 funds are awarded for the project, that public access would be made available to the site for passive recreational use. The project proponent (Town of Plymouth) expects to secure a permanent access easement for public access to ensure availability of recreational and public education opportunities following restoration.

***Traffic*:** Negligible local traffic impacts would occur from this project, due to the relatively remote location of the project, and intent to keep as much of the soil excavation, grading and placement on-site. Minor, short-term traffic pattern changes may occur at discrete times when equipment and construction personal are entering or exiting to the project area.

***Contaminants*:** Legacy sediments and soils with cranberry operation pesticides and/or other contaminants from past cranberry production at or near the site may be present in the existing soils. Contaminants may cause impacts to aquatic biota and

contaminated soils may require greater costs to remove or place and sequester (clean-cap cover). Preliminary conversations with federal and state regulators regarding similar cranberry bog restoration projects in Massachusetts have indicated that an appropriate avenue for handling contaminated soils would be to excavate and relocate soils and sediments within the project area away from the stream, and capping contaminated soils and sediments with clean soils to minimize the potential for groundwater exposure pathways. The project design plans are expected to address the potential for contaminants that will then require regulatory agency (MassDEP, USACE and others) review and approval for any contaminant removal and placement on- or off-site.

***Cultural and Historic Resources*:** No known cultural or historic resources are associated with the project work site. The project is in the early planning phase, and as part of the project planning, the project partners will be required to submit a PNF to the MHC to verify whether any historic or archaeological resources may be affected by the proposed work. Nearby areas outside of the project work site are known as historic features associated with past cranberry operations. Local Native American tribes (e.g., Wampanoag) have been contacted for potential resources or adverse resource effects, and to date, there has been no indication of tribal concerns. Consultation with MHC and designated tribal THPOs will occur as the project planning continues. If a finding of adverse effect is determined through the project design and consultation, the project partners would prepare (though a Memorandum of Agreement) and implement measures to avoid, minimize, or mitigate any adverse effects in accordance with Section 106 of the National Historic Preservation Act.

***Environmental Justice*:** Environmental Justice communities will not be negatively impacted through this project. This project will create recreational use benefits to area residents, potentially including minority and low-income populations. This restoration

project is expected to improve fish and wildlife habitat, increasing recreational opportunities, and providing educational opportunities.

### 6.2.12 Saugatucket River Fishway Reconstruction, South Kingstown RI

***Water Resources:*** Minor impacts to federal and state-regulated wetland and water resources will result from the Main Street fish passage improvement project. For the Main Street project, temporary impacts of <0.1 acres (~3,250 square feet) will result from river bed modifications to enhance a fishway entrance resting pool and boulder relocation necessary for minimizing fish passage detraction flows. Permanent impact loss of ~200 square feet of channel bed and ~250 square feet of state-regulated Riverbank Wetlands will result from the construction of the new section of the Denil fishway. The Riverbank Wetland impact will be offset by the removal of the existing lower section of Denil fishway and restoration of this area totaling ~280 square feet. The temporarily disturbed Riverbank Wetland will be regraded and restored with a vegetation cover to minimize the potential for soil erosion and sedimentation. The in-river work is expected to require 2-3 weeks, and will be completed during the low-flow period, and in accordance with the RIDEM stipulated in-water work period.

Floodplain impacts for fishway project implementation will be negligible; existing flood flows of the ~50-year return storm event and larger storms are attributed to the backwatering of downstream tidal Pt. Judith Pond. The flood elevation both upstream and downstream of the dam will not be increased by the fishway installation. These existing conditions are documented in the FEMA FIRM study for the Town of South Kingstown. The fishway project has received all regulatory approvals for construction, taking into account all potential effects on river hydrology and water quality.

During the construction phase of this project, minor short-term and localized impacts will occur. As a result of earth-moving activities, there will be increases in turbidity and

sedimentation near the project area. These conditions may affect fish and stream macro-invertebrates in the immediate downstream area. Fish and mobile invertebrates are less likely to be affected, since these animals would most likely move from the disturbance area, and repopulate the area following project completion and site restoration. Increased noise levels (e.g., jack-hammering) due to the operation of earth-moving equipment may also cause fish to leave the area until construction activities (the source of the noise) cease.

The proposed fishway modification work would require minor, temporary diversion of flows from the fishway(s) and portions of the dam structure(s). The use of large sandbags or other water diversion practices would be employed to minimize flows through the construction work area. This may result in localized river habitat areas that receive less flow, thereby potentially resulting in minor, short-term changes in water quantity and/or quality. The proposed work at the site is expected to take no longer than two to six weeks. Once the projects is completed, river flow and channel habitat are expected to return normal conditions.

***Water Quality*:** During the construction period, concrete structural removal and placement and earth and boulder moving activities may cause short-term, minor turbidity to river flow in the immediate vicinity of the Main Street Dam, although the proposed work would be completed during the low-flow period (July 1-September 30) and procedural actions during construction will minimize any potential turbidity impacts. Dewatering activities would be employed, and any effluents released by work site dewatering practices would be minimized using sediment and erosion control best management practices (e.g., sediment bag). After construction is completed, the sites are expected to be stabilized through vegetative seeding and/or plantings where disturbed lands and final graded soils are placed around the rebuilt Main Street fishway, and therefore, negligible release of sediments to the river is expected.

***Rare, Threatened and Endangered Species and Critical Habitats*:** This project will not have an adverse impact on any rare, threatened or endangered species. Candidate species for federal listing (i.e. river herring) will have increased access to important spawning habitat as a result of this fish passage project, and will substantially benefit from this proposed fish passage improvement.

***Air Quality*:** Minor temporary impacts would result from the proposed construction activities. Exhaust emissions from earth-moving equipment contain air pollutants, but these emissions would only occur during the short-term construction phase of the project, the amounts would be small, and should be quickly dissipated by prevailing winds. Removal of concrete materials may also generate localized, short-term dust release, but would occur only during a brief period (1-2 days) when a portion of the Main Street dam fishway is removed. There would be no long-term or cumulative negative impacts to air quality associated with these restoration projects and associated work activities.

***Noise*:** Noise associated with earth-moving equipment represents a short-term impact during the construction phase. Construction noise during work hours may cause temporary impacts to persons in the vicinity of the project area. The construction noise may also temporarily disturb wildlife in the immediate vicinity of the site, or cause wildlife to temporarily avoid using the impoundment and river area and move to other more suitable areas (e.g., waterfowl and muskrat using the upstream pond). Construction noise would be limited to the construction phase (three-month period or less). No long-term or cumulative effects would occur as a result of construction noise.

***Recreation*:** The noise and construction work activities resulting from earth-moving during project construction are expected to discourage and decrease recreational activities in the immediate vicinity of the site (e.g., canoeing on the pond; strolling along the riverwalk in the vicinity of the Main Street dam fishway). Any such effects will be

limited to the period of construction and should be minor. Over the longer term, the proposed restoration action will increase the quality, productivity and quantity of fish passage in this area. Annual springtime herring runs are an attractive draw to residents and visitors of the area, and the improvement in site conditions will enhance opportunities for, and quality of, a variety of recreational uses.

***Traffic*:** Minor changes in traffic flow or patterns will occur or increase at the Main Street site during the period of construction. Because of the commercial use of this area, increased traffic associated from the restoration efforts will likely go un-noticed. Local police detail is expected to assist during construction to minimize adverse traffic flows in the Main Street areas.

***Contaminants*:** This project will modify an existing structural fishway at the Main Street Dam; the water surface elevation, hydraulic and hydrologic conditions of the river and the existing impoundment behind the dam will not be modified. No additional sediments, contaminated or otherwise, will be mobilized or released downstream as a result of this project.

***Cultural and Historic Resources*:** The project design plans were submitted to the Rhode Island Historic Preservation and Heritage Commission (RIHPHC) for review and comment in accordance with Section 106 of the National Historic Preservation Act. RIHPC formally responded that the project will have no adverse impacts on historic resources, as proposed, and no further coordination with RIHPHC will be required.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents, including minority and low-income populations, including improving natural ecological conditions, increasing local recreational opportunities, and providing additional educational opportunities.

### 6.2.13 Nasketucket Bay Land Acquisition, Fairhaven MA

***Water Resources:*** The primary action associated with this project is land acquisition, which will have no direct impacts to water resources. It will however, prevent potential future direct and indirect impacts to water resources from development (e.g. increased run off, habitat loss, or use of herbicides/pesticides). Increased public access and recreational use of the property may result. Increased recreational use of the property could result in increased foot traffic on trails in wetlands and coastal shoreline areas. Increased trail usage could potentially increase trampling, thereby impacting ground vegetation. Vegetation loss could de-stabilize soils and decrease available habitat for wildlife. Increased human activities may also have minor disturbance and avoidance impacts to wetland-dependent birds and other sensitive wildlife.

In 2011, two habitat assessments were completed for Nasketucket Bay; a benthic habitat assessment and a bird monitoring report. Those reports concluded that Nasketucket Bay serves as highly productive shellfish habitat along itsnearshore portions, as well as supporting healthy eelgrass populations throughout. Over 204 species of birds have been observed in the greater Nasketucket Bay area, including species of conservation interest. Through land acquisition, the project will protect important natural resources associated with the Bay, its shoreline and coastal habitats including fish, shellfish and state/federally protected tern species.

***Water Quality*:** During trail construction and improvements, increased machinery may cause minor soil disturbances. Soil disturbances would be negligible and of short duration. Longer-term impacts will result from permanent trails, which will likely coincide with an increase in foot/bike traffic along trails. Increased annual foot/bike traffic could potentially increase erosion in the discrete footprint of the trails, as well as increase wildlife disturbances.

***Rare, Threatened and Endangered Species and Critical Habitats*:** Piping Plover, a federally and state-listed endangered species, and Common Tern, Least Tern, Northern Harrier, and Northern Parula , are state-listed endangered species, and have been documented in the vicinity of the project area. Piping Plover are known to nest in the vicinity of the project area. This proposed project would benefit state and federally listed bird species by permanently protecting contiguous coastal habitat bordering Buzzards Bay waters.

***Noise*:** A result of the project may be increased recreational activity on the property. Noise associated with increased human use may temporarily disturb and cause relocation of sensitive wildlife to other habitats with limited human intrusion.

***Recreation*:** This project will provide substantial recreational benefits by increasing access to the coast. A goal of this project is to create public access to more shoreline and coastal lands for recreational activities including fishing, shellfishing, boating, picnicking and walking on the beach, as well as create an interconnecting access link between the popular regional bike/recreation path and Nasketucket Bay State Park. The project proponents are not expecting to increase parking areas to access the site; visitors would be able to park at the existing Nasketucket Reserve areas and walk to new sites. This may diminish the degree of increased recreational use resulting from the new land acquisition.

***Cultural and Historic Resources*:** This project is not expected to impact cultural or historic resources. The land acquisition will permanently protect farmlands and multiple pastures. The project proponents are aware that land acquisition and conservation restrictions in Massachusetts, using federal funds, require coordination with the MHC. It is expected that the project proponents will prepare and submit a PNF to MHC for determining any potential impacts to historic or archaeological resources.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents, including minority and low-income populations, including improving natural ecological conditions, increasing local recreational opportunities, and providing additional educational opportunities.

### 6.2.14 Allens Pond Sanctuary Trail Improvements, Dartmouth MA

***Water Resources:*** Short-term negative impacts to water resources may result during the implementation phase of this project. Light machinery and increased traffic due to trail construction would likely lead to increased exposed soils and potential release into nearby wetlands. Increased sediments would be negligible, and sediments would quickly settle out of suspension. Minor, wetland impacts (estimated by MA Audubon to be <1000 square feet; plus <1350 square feet of wetland buffer) will result from an increase in the number of permanent trails and the installation of permanent boardwalks, which will likely coincide with an increase in foot traffic along trails. Increased foot traffic could potentially increase soil exposure in the discrete trail areas. Increasing trail length would also require removing natural vegetation to create the trail footprint. Total wetland impacts are expected to be less than 0.1 acres in area. The trails will be largely located in the Massachusetts Wetlands Protection Act (MWPA) wetland buffer, and a portion of the boardwalk (~100 ft) would traverse an existing low brackish *Phragmites* patch along the northern portion of Allens Pond. MA Audubon would be required to secure an Order of Conditions approval from the Dartmouth Conservation Commission. MA Audubon seeks to minimize the visual impacts of the trail to wading birds and waterfowl using the adjacent pond and marsh habitat, and protection of a vegetated screen along sensitive wildlife area(s) is anticipated.

***Water Quality*:** During the trail construction period, increased machine and construction equipment may increase soil disturbances and releases to nearby

wetlands. Soil disturbances would be localized and would be expected to be addressed through routine erosion and sediment control measures. Longer-term, increased foot traffic could potentially increase soil disturbances along trails that will require maintenance by the project proponent.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While federally threatened and endangered birds (roseate turn and piping plover) exist and utilize nearby shoreline habitats, particularly for nesting, this project will have no negative impact on these species. Some disturbances will occur to fish and wildlife during construction of trails, which will temporarily diminish the habitat value of the project area.

***Air Quality*:** If light or heavy machinery is used to construct trails, then minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project. The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with light or heavy machinery that may be used to construct trails represents a short-term adverse impact during the construction phase. It may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Similarly, persons visiting the refuge may avoid this area due to noise during construction, but as with wildlife, such disruption would be limited to the construction phase, and there are many comparable substitute recreation sites readily available within the adjoining forested area. No long-term effects would occur as a result of noise during construction.

***Recreation*:** This project provides education and outreach opportunities at an existingwildlife sanctuary. The project also increases opportunities for outdoor activities such as walking, birding and exploring the natural world. These practices benefit the local community and the watershed as a whole.

***Cultural and Historic Resources*:** The project proponents are expected to submit a PNF to the MHC to determine if the project may have an effect on historic or archaeological resources. The property on which the trails would be built is a National Historic Register site. If Bouchard B-120 funds are awarded for this project, the lead federal agency would work with MA Audubon to implement measures to avoid, minimize, or mitigate any adverse effects in accordance with Section 106 of the National Historic Preservation Act.

***Environmental Justice*:** This project is located in Dartmouth, MA. Designated Environmental Justice communities are located in Dartmouth, as well as in nearby New Bedford and Fairhaven. One of the MA Audubon's primary goals of this project is to increase trail use and education opportunities for Environmental Justice communities.

### 6.2.15 Nasketucket Bay Trail Improvements, Mattapoisett, MA

***Water Resources:*** Short-term negative impacts to water resources may result during the implementation phase of this project. Light machinery and increased traffic due to trail construction would likely lead to increased exposed soils and potential release into nearby wetlands. Increased sediments would be negligible, and sediments would quickly settle out of suspension. Minor, wetland impacts may result from trail improvement activities and installation of boardwalks. Increased foot traffic could potentially increase soil exposure in the discrete trail areas. Best management practices for construction would be employed by the project proponent to minimize potential soil releases to wetlands and disturbances to wetland buffer.

***Water Quality*:** During the trail construction period, increased machine and construction equipment may increase soil disturbances and releases to nearby wetlands. Soil disturbances would be localized and would be expected to be addressed through routine erosion and sediment control measures. Longer-term, increased foot traffic could potentially increase soil disturbances along trails that will require maintenance by the project proponent.

***Rare, Threatened and Endangered Species and Critical Habitats*:** No federally threatened or endangered species are known to use the project area. Coordination with the Massachusetts Natural Heritage Program is expected to be completed by the project proponent through state and /or local conservation commission regulatory programs to address any potential impacts on listed species.

***Air Quality*:** If light or heavy machinery is used to construct trails, then minor temporary adverse impacts would be expected to occur from the proposed construction activities. Exhaust emissions from equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project. The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with light or heavy machinery that may be used to construct the trail improvements represents a short-term impact during the construction phase. Construction work may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Persons visiting the state reservation may avoid this area due to noise during construction, but such disruption would be limited to the construction phase, and there are other recreational sites available in the reserve and nearby protected lands. No long-term effects would occur as a result of noise during construction.

***Recreation*:** The project would increase opportunities for outdoor activities such as walking, birding and exploring the natural world. These activities would benefit the local community and visitors to the state reserve. This project would also provide education and outreach opportunities, while using the state reservation as a base for educational programs.

***Cultural and Historic Resources*:** The project proponents are expected to submit a PNF to the MHC to determine if the project may have an effect on historic or archaeological resources. No adverse impacts are anticipated.

***Environmental Justice*:** This project is located in Mattapoisett, MA. Designated Environmental Justice communities are located in nearby New Bedford and Fairhaven. An outcome of this project is to increase trail use and education opportunities for Environmental Justice communities through the improvements to the reserve trails.

### 6.2.16 Universal State Park Handicap Access, Fairhaven, Dartmouth, and Westport, MA

***Water Resources:*** Negligible impacts to water resources will result from this project. Temporary (seasonal) mats placed on intertidal beach would provide handicap, wheelchair access to Buzzards Bay coastal waters. The project purpose is to provide access to visitors of all physical abilities, including those that use wheelchairs or strollers. It will do so by providing universally accessible pathways to the high tide line and specialized adaptive recreation equipment for water access at three beaches on Buzzards Bay. Impacts to regulated water resources including beach, coastal bank, and intertidal and subtidal waters (state-regulated Land Under Ocean) would be minor (typically <100 square feet at each site), and would occur at active state beaches where heavy public use exists. Regulatory authorizations would be secured for the proposed project activities at each of the project sites.

***Rare, Threatened and Endangered Species and Critical Habitats*:** The mobi-mat installation projects would occur at active state beaches, and would have no impacts to federally-listed rare, threatened or endangered species.

***Recreation*:** This project will provide beach and ocean access along Buzzards Bay to visitors of all physical abilities including those persons using wheelchairs or strollers. The project will do so by providing universally accessible pathways to the high tide line, with specialized adaptive recreation equipment for water access.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted by these project activities. This project will create access benefits to area residents, including minority and low-income populations, who have disabilities requiring special assistance to access the coast.

### 6.2.17 Hoppy's Landing Handicap Fishing Pier and Access Improvements, Fairhaven MA

***Water Resources*:** The project would involve constructing a new handicap-accessible fishing pier immediately east of the Hoppy's Landing property. The construction of the pier would involve installation of permanent structures (e.g., pilings) that would have minor impacts to subtidal and intertidal habitats. It is expected that the pier would have dimensions of <300-foot total length and width <12 feet (~3,600 square feet). The walking pier platform would need to be properly constructed at a level that allows salt marsh plants to receive adequate light. The tidal water impacts would likely include federally-designated EFH of some species (e.g., winter and summer flounder, scup). The project is currently in the conceptual design phase, but the project proponent will be required to consult with the National Marine Fisheries Service during the design and permitting phase to address potential EFH impacts. The project proponents will be required to apply for an Order of Conditions from the Fairhaven Conservation

Commission and Chapter 91 license and Water Quality 401 Certification from the MADEP.

The project proponent may convert a portion of a shell-hash parking lot to a paved parking lot. This conversion would increase impervious surface area immediately adjacent to the shoreline. Impervious surfaces are much poorer at containing surface water run-off, and thus, contribute to increased non-point source pollutants entering the water. Increased run-off from the proposed parking lot could have minor impacts to water quality and inter- and subtidal habitats. Design practices are expected to minimize potential runoff impacts to tidal waters.

During construction, short-term and localized adverse impacts could occur. There may be localized, temporary increases in water turbidity in the project area. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in open-water areas. Fish and invertebrates would not likely be affected, since these would most likely leave the area, and return after project completion. Increased noise levels due to the operation of earth-moving equipment would also cause fish and macro-invertebrates to leave the area until operations cease.

***Water Quality*:** Construction activities may increase turbidity in the immediate project vicinity, although proper construction measures would minimize potential impacts. BMPSs may be implemented during construction to minimize impacts including: silt fencing or sediment curtain to contain suspended sediments, avoidance of in-water work during time-of-year restrictions, and adherence to a construction management plan to minimize potential for gas, oil, and diesel spills from construction equipment into adjacent waters.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While federally threatened and endangered birds (Roseate Tern and Piping Plover) exist and utilize nearby shoreline and coastal water habitats, this project is not expected to have a significant impact on these species. Some disturbances will occur to fish and wildlife during construction of the handicap pier, which will temporarily diminish the habitat value of the surrounding project area. The project proponent will coordinate with the MANHP and USFWS on determining whether the project will have any adverse impacts, and if so, how to minimize or mitigate for potential species impacts.

***Air Quality*:** Minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from construction equipment contain pollutants, but these emissions would only occur over short periods during the construction period (1-2 months). The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with construction equipment represents a short-term adverse impact during the construction phase. Construction noise may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Similarly, persons seeking outdoor recreation may temporarily avoid the Hoppy's Landing area due to noise and equipment exhaust during construction. No long-term effects would occur as a result of noise during construction.

***Recreation*:** Hoppy's Landing is a popular fishing and boating access facility, open to the public, providing access to Buzzards Bay and surrounding waters for fishing, boating, shellfishing and other water recreation. A user's fee is required to use the existing boat ramp facility. The facility is regularly used by both recreational users and commercial fishermen. Providing specialized adaptive recreation equipment, offering accessible recreation programs and working to ensure accessible outdoor environments ensures all

residents and visitors, including handicapped persons, would have the ability to take advantage of the state's natural resources and recreation opportunities. The project would be designed to be American Disabilities Act-compliant.

***Traffic*:** Minor increases in local traffic would occur at the site during the period of construction. Construction vehicles would be present on the local roads, but very limited during the relatively short construction period (less than 3 months). It is expected that proper safety measures would be followed throughout construction so that traffic safety is provided in and near the project area.

***Contaminants*:** The fishing pier project is in the conceptual design phase, and thus, there remains uncertainty as to the construction methods and materials to be used. Marine pilings are often composed of pressure-treated timbers that may release short-term, localized contaminants. Disturbance of bottom sediments is not expected to release contaminants, other than very brief increases in turbidity during the driving of the pilings.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will benefit area residents and visitors, including minority and low-income populations. The pier project, as previously noted, is specifically planned to allow handicap persons, including minority persons, to fish, crab, and enjoy coastal viewing at this site.

### 6.2.18 New Bedford Riverwalk, New Bedford MA

***Water Resources:*** The project is currently in the assessment and preliminary design phase, with construction of the Riverwalk project expected to have impacts to state-designated Riverfront Area and coastal bank. The conceptual plan is to avoid impacts to salt marsh fringe and intertidal estuarine flats bounding the project shoreline area. A

riparian vegetation restoration is proposed in association with the Riverwalk, and is expected to enhance existing riparian buffer bordering the harbor and marsh fringe habitats. In some locations along the proposed 2.2-mile Riverwalk corridor, building structures lie at the harbor edge, and thus, conditions may require a boardwalk cantilevered over the harbor and marsh fringe. Such features may have impacts to harbor wetlands such as shading of marsh vegetation. Preliminary design is expected to thoroughly assess design alternatives to minimize direct and secondary impacts to marsh or other intertidal or subtidal habitats.

Short-term, localized impacts will arise during the construction phase of this project. As a result of soil excavation and grading activities, there may be localized increases in erosion and sedimentation in the project area. These conditions may affect fish and macro-invertebrates in the immediate area. Fish and mobile invertebrates are less likely to be affected, since these animals would most likely move from the disturbance area, and repopulate an area following project completion and site restoration. Increased noise levels (e.g., excavator) due to construction equipment and laborers may also cause fish and wetland-dependent wildlife to leave the area until construction activities and noise cease.

***Water Quality*:** During the construction period, activities may cause short-term, minor soil releases to the harbor. Silt fence and other erosion and sediment control best management practices (BMPs) will be installed and maintained throughout the construction period to minimize potential soil releases. BMPs for storm water management will also be incorporated into the Riverwalk design. Runoff from impervious surfaces will be directed to bio-swales or other measures to treat runoff prior to discharge to harbor waters. Woody and herbaceous plantings and seeding will be a component of the riparian restoration project to enhance riparian habitat values and help reduce runoff to the harbor.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While federally threatened and endangered birds (Piping Plover and Roseate Tern) are known to utilize nearby Buzzards Bay waters and shoreline habitats, this project, with its setting in the more developed upper Inner Harbor, is not expected to have an impact on these species.

***Air Quality*:** Construction equipment used in project construction would result in minor temporary exhaust impacts. Exhaust emissions from equipment contain pollutants, but these emissions would only occur over short periods during the construction phase (8-12 months) of the project. The exhausts would be localized and expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with construction equipment would be a short-term impact. Project-related noise may temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other areas. No long-term noise impacts would be expected following completion of the project construction. Public use of the Riverwalk may incrementally increase noise by visitors that may cause sensitive wildlife to avoid the immediate harbor shoreline and fringe marsh.

***Recreation*:** This project would potentially provide important recreational benefits for a variety of users. This project would provide a place for walking, jogging, and bicycling for people of all ages to visit to enjoy the benefit of outdoor activities such birding and exploring the natural world. As public access to the coast and other natural areas becomes more difficult, projects like the Riverwalk offer opportunities to raise awareness and stewardship values for coastal environments.

***Traffic*:** Local traffic would increase at and in the vicinity of the site on local roads (Belleville Avenue and other access roads) during the construction period. The presence of laborer vehicles and construction equipment would be expected, resulting in minor

increases in local traffic over the construction period (less than 8 months). It is expected that proper safety measures would be employed throughout the construction area such that potential traffic congestion and safety hazards are minimized.

***Contaminants*:** Since the project is still in the planning phase, the potential for contaminants has not yet been determined. The project corridor is along an industrial waterfront with substantial historic fill and debris. New Bedford Harbor has been documented to have soils and sediments contaminated with PCBs. During construction, soils and debris would be excavated, regraded and disposed of in an approved off-site landfill. The excavation of contaminated soils and sediments may likely require specialized removal operations and disposal requirements. Planning and design of the project is expected to assess the extent and magnitude of contaminated materials in the project footprint area and appropriate remedial measures will be proposed and addressed through the regulatory process. As part of the project, the City of New Bedford has contracted with a design consultant which includes the services of a Massachusetts Licensed Site Professional (LSP) who would be expected to provide guidance on potential contaminant issues associated with the project.

The project would increase human access to Inner New Bedford Harbor, an estuary contaminated with PCBs. Since 1979, Massachusetts regulations have prohibited eating fish and/or shellfish caught in certain areas of New Bedford Harbor. The MassDEP) samples harbor fish and shellfish each year to determine whether PCB concentrations are declining as a result of cleanup activities in New Bedford Harbor. State and local officials regulate how contaminated water bodies can and should be used for recreational and commercial purposes, including fishing and shellfishing. Consumption of fish and shellfish from the Inner Harbor is prohibited. Visitors to the Riverwalk would be advised not to fish, consume fish or shellfish, or to contact harbor sediments in the vicinity of the trail. The USEPA continues to work on clean-up strategies for the harbor,

and an October 2012 agreement by AVX Corporation will result in funds of $366 million to be used in remediating remaining PCB-contaminated harbor sediments.

***Cultural and Historic Resources*:** The project partners have not yet made a determination on the potential of the project to adversely affect cultural and historic resources. If a finding of adverse effect is determined by the lead federal agency, the project partners will seek ways to avoid, minimize, or mitigate the adverse effects in accordance with Section 106 of the National Historic Preservation Act.

***Environmental Justice*:** New Bedford includes designated Environmental Justice (EJ) communities. This project will provide EJ communities with opportunities for increased access along Inner New Bedford Harbor and its coastal habitats. This project will benefit area residents, including minority and low-income populations. The project activities will provide improved access to coastal resources, as well as a riverwalk with educational signage for use by EJ populations and other visitors.

### 6.2.19 Palmers Island Access Improvements, New Bedford, MA

***Water Resources:*** Short-term impacts to water resources may result during the implementation phase of this project. Removal of large debris along the island shoreline, placement of rocks and other materials to improve access may cause minor impacts to tidal marsh or freshwater wetlands. Minor soil disturbances may occur, but construction practices will be employed to minimize disturbance potential. Longer-term impacts will result from the improved accessibility to the island, and with increased foot traffic, may cause soil erosion and trample native vegetation. The City of New Bedford proposes to use wood chips to construct the access trail, thereby minimizing potential for soil disturbances.

***Water Quality*:** Minor temporary water quality impacts may result during removal of larger shoreline debris. Such disturbances would be very localized and short-term. Longer-term impacts will result from an increase in the number of people visiting the island that would likely increase foot traffic, and potentially increase soil erosion.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While federally threatened and endangered birds (Piping Plover and Roseate Tern) are known to utilize nearby Buzzards Bay waters and shoreline habitats, this project, with its setting in the more developed Inner Harbor, is not expected to have an impact on these species.

***Air Quality*:** If light or heavy construction equipment is used to remove large debris or install project components, minor temporary exhaust impacts would result from equipment use. Exhaust emissions from equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project. The exhausts would be localized to the island and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with light or heavy machinery that may be used to remove large debris or other activities may be a short-term impact. Project-related noise may temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other areas. No long-term noise impacts would be expected following completion of construction activities. Public use of the island may incrementally increase noise by visitors and this may cause sensitive wildlife to relocate from or avoid the island.

***Recreation*:** This project enhances recreational opportunities by increasing access to natural resources where people can fish, bird, walk, and generally enjoy the natural environment. The project also provides education and outreach opportunities, while

using habitat restoration as a base for educational programming. These practices benefit the local community and the watershed as a whole.

***Contaminants*:** The implementation of this project is not expected to result in the release of contaminants. A portion of the project activities is to remove solid waste debris (harbor-derived flotsam) from the island shoreline. The project would increase human access to Inner New Bedford Harbor, an estuary contaminated with PCBs. Since 1979, Massachusetts regulations have prohibited eating fish and/or shellfish caught in certain areas of New Bedford Harbor. The MassDEP samples harbor fish and shellfish each year to determine whether PCB concentrations are declining as a result of cleanup activities in New Bedford Harbor. State and local officials regulate how contaminated water bodies can and should be used for recreational and commercial purposes, including fishing and shellfishing. Consumption of fish and shellfish from the Inner Harbor is prohibited. Visitors to Palmer's Island would be advised not to fish, consume fish or shellfish, or to contact harbor sediments in the vicinity of the island. The USEPA continues to work on clean-up strategies for the harbor, and an October 2012 agreement by AVX Corporation will result in funds of $366 million to be used in remediating remaining PCB-contaminated harbor sediments.

***Cultural and Historic Resources*:** The MHC has been consulted on the proposed Palmer's Island restoration and public access improvements. The MHC response indicated that historic resources (e.g., New Bedford Lighthouse) exist on Palmer's Island, and portions of the island are archaeologically sensitive. MHC encouraged the project proponents to consult with knowledgeable historians and members of Native American tribes. The proposed work is not expected to have any adverse impact on historic or archaeological resources. The City is expected to fully coordinate with MHC to avoid, minimize, or mitigate any adverse effects in accordance with Section 106 of the National Historic Preservation Act.

***Environmental Justice*:** New Bedford includes designated Environmental Justice (EJ) communities. This project will provide EJ communities with opportunities for increased access to an important coastal habitat and cultural property. This project will benefit area residents, including minority and low-income populations. The project will provide improved access to the island and its natural and historic resources, as well trails with kiosk, signage, and/or educational brochures.

**6.2.20 Clarks Cove Public Boat Ramp, Dartmouth, MA**

***Water Resources*:** The construction of the boat ramp will have minor permanent impacts to habitat within the boat ramp footprint area and immediately adjacent to the ramp. These habitats include intertidal sand and rocky cobble habitat, and which may impact fauna utilizing those habitats such as shellfish (e.g., oyster, blue mussel) and other benthic macro-invertebrates. Total permanent impact area will be less than 0.1 acres.

The tidal water impacts would likely include federally-designated EFH of federally-managed species (e.g., winter and summer flounder, scup). The project is currently in the design phase, but the project proponent will be required to consult with the National Marine Fisheries Service during the permitting phase to address potential EFH impacts. The project proponents will be required apply for an Order of Conditions from the Dartmouth Conservation Commission and Chapter 91 license and Water Quality 401 Certification from the MADEP.

During construction, short-term and localized impacts could occur. There may be localized, temporary increases in water turbidity in the project area. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in open-water areas. Fish and mobile invertebrates would not likely be affected, since these would most likely leave the area,

and return after project completion. Increased noise levels due to the operation of construction equipment may also cause fish and mobile macro-invertebrates to leave the area until operations cease.

***Water Quality*:** Construction activities would increase short-term turbidity in the immediate project vicinity, although proper construction measures would minimize potential impacts. BMPs may be implemented during construction to minimize impacts including: silt fencing or sediment curtain to contain suspended sediments, avoidance of in-water work during time-of-year restrictions, and adherence to a construction management plan to minimize potential for gas, oil, and diesel spills from construction equipment into adjacent waters.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While federally threatened and endangered birds (Roseate Tern and Piping Plover) exist and utilize nearby shoreline and coastal water habitats, this boat ramp project is not expected to have an impact on these species. Some temporary disturbances will occur to fish and wildlife during construction of the handicap pier, which will temporarily diminish the habitat value of the surrounding project area. The project proponent will coordinate with the MANHP and USFWS on determining whether the project will have any adverse impacts, and if so, how to minimize or mitigate for potential species impacts.

***Air Quality*:** Minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from construction equipment contain pollutants, but these emissions would only occur over short periods during the construction period (~1 month). The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with construction equipment represents a short-term adverse impact during the construction phase. Construction noise may temporarily disturb

wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. No long-term effects would occur as a result of noise during construction.

***Recreation*:** Users of small power boats, kayaks and other small water craft would be expected to benefit from this proposed ramp It would provide the only public boat access site on the western shore of Clarks Cove. The proposed ramp would provide direct public access to the shellfishing beds shared with the City of New Bedford within Clarks Cove, and into Buzzards Bay.

***Traffic*:** Minor increases in contractor vehicles would occur at the site during the period of construction. Construction vehicles would be present on the local roads, but very limited during the relatively short construction period (<1 month). It is expected that proper safety measures would be followed throughout construction so that traffic safety is provided in and near the project area.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents, including City of New Bedford and Town of Dartmouth EJ communities.

### 6.2.21 Onset Harbor Public Boat Ramp Replacement, Wareham, MA

***Water Resources*:** Construction of a new boat ramp at the Onset site would have minor permanent impacts to habitat within the boat ramp footprint area and immediately adjacent to the ramp. These habitats include intertidal and subtidal sand-dominated habitats. Fauna which utilize these habitats include shellfish (e.g., oyster, quahog) and other benthic macro-invertebrates. Total permanent habitat impact area would be less than 0.1 acres and will require local, MADEP and USACE regulatory approvals.

The tidal water impacts would likely include federally-designated EFH of federally-managed species (e.g., winter and summer flounder, scup). The project is currently in the design phase, but the project proponent will be required to consult with the National Marine Fisheries Service during the permitting phase to address potential EFH impacts. The project proponents will be required to apply for an Order of Conditions from the Dartmouth Conservation Commission, a potential Chapter 91 license from the MADEP, and Water Quality 401 Certification from the MADEP.

During construction, short-term and localized impacts could occur. There may be localized, temporary increases in water turbidity in the project area. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in open-water areas. Fish and mobile invertebrates would not likely be affected, since these would most likely leave the area, and return after project completion. Increased noise levels due to the operation of construction equipment may also cause fish and mobile macro-invertebrates to leave the area until operations cease.

***Water Quality*:** Construction activities would increase short-term turbidity in the immediate project vicinity, although proper construction measures would minimize potential impacts. BMPs may be implemented during construction to minimize impacts including: silt fencing or sediment curtain to contain suspended sediments, avoidance of in-water work during time-of-year restrictions, and adherence to a construction management plan to minimize potential for gas, oil, and diesel spills from construction equipment into adjacent waters.

***Rare, Threatened and Endangered Species and Critical Habitats*:** This boat ramp project, situated in a relatively developed, narrow embayment in the Town of Onset, is not expected to have any impact to federally-listed species.

***Air Quality*:** Minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from construction equipment contain pollutants, but these emissions would only occur over short periods during the construction period (~1 month). The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with construction equipment represents a short-term adverse impact during the construction phase. Construction noise may temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. No long-term effects would occur as a result of noise during construction.

***Recreation*:** Users of small recreational power boats, kayaks and other small water craft would be expected to benefit from this proposed ramp reconstruction. This boat ramp project would provide access to a portion of the Bay which has limited boat ramps.

***Traffic*:** Minor increases in contractor vehicles would occur at the site during the period of construction. Construction vehicles would be present on local roads, but very limited during the relatively short construction period (<1 month). It is expected that proper safety measures would be followed throughout construction so that traffic safety is provided in and near the project area.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area boating residents and visitors to this area.

### 6.2.22 Black Point Loop Trail Improvements, Narragansett, RI

***Water Resources:*** The construction of the Black Point Trail improvements may lead to minor wetland impacts. Impacts may include the loss of scrub-shrub woodlands, a portion of which may include regulated wetlands, for trail construction; wetland impacts are expected to be less than 0.2 acres. Light machinery and increased traffic due to trail construction would likely lead to increased exposed soils and potential release into nearby wetlands. Increased sediments would be negligible, and sediments would quickly settle out of suspension. Once the project is completed, increased foot traffic could potentially increase soil exposure in the discrete trail areas. Best management practices for construction would be employed by the project proponent to minimize potential soil releases to wetlands and disturbances to wetland buffer.

***Water Quality*:** During the trail improvement construction period, heavy equipment may increase soil disturbances and releases to nearby wetlands. Soil disturbances would be localized and would be expected to be addressed through routine erosion and sediment control measures. Longer-term, increased foot traffic could potentially increase soil disturbances along trails that will require maintenance by the project proponent.

***Rare, Threatened and Endangered Species and Critical Habitats*:** This trail improvement project will have no impacts to federally-listed rare, threatened or endangered species. The project proponent is expected to coordinate with Rhode Island's Natural Heritage Program to determine if any state-listed species may be present within the proposed project area, and if so, to determine any recommended design and construction measures to be implemented to avoid or minimize impacts to any state-listed species.

***Air Quality*:** If light or heavy machinery is used to construct trails, minor temporary adverse impacts would be expected to occur from the proposed construction activities. Exhaust emissions from equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project. The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with light or heavy machinery that may be used to construct the trail improvements represents a short-term impact during the construction phase. Construction work may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Persons who visit this state property may avoid the area due to noise during construction, but such disruption would be limited to the construction phase, and there are other recreational sites available in the reserve and nearby protected lands. No long-term effects would occur as a result of noise during construction.

***Traffic*:** Minor increases in local traffic would occur at the site, particularly the parking lot and Ocean Drive, during the relatively short construction period (less than 1 month). It is expected that proper safety measures would be followed throughout construction so that traffic safety is provided in and near the project area.

***Recreation*:** The project would provide beneficial values as a place that people of all ages can visit to enjoy outdoor activities such as walking, birding, saltwater fishing, and exploring the natural world. These activities would benefit the local community and visitors to this state preserve. This project would also provide public education and outreach opportunities, if the project proponent or non-governmental organizations use the state preserve and trails as a base for educational programs.

***Cultural and Historic Resources*:** The project proponents are expected to coordinate with the Rhode Island Historic Preservation and Heritage Commission (RIHPHC) to determine if the project may have an effect on historic or archaeological resources. No adverse impacts are anticipated.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents and other visitors, including minority and low-income populations.

### 6.2.23 South Scarborough Beach Handicap Access, Narragansett, RI

***Water Resources:*** Permanent handicap ramps would be constructed to interconnect an upland grass area to the beach to provide wheelchair access to the shoreline. Minor impacts to state-regulated coastal bank and beach may result from project implementation. The project proponent would be required to prepare site design plans that minimize state-regulated resource impacts. Application materials would need to be submitted for regulatory authorization from the Rhode Island Coastal Resources Management Council (CRMC). It is anticipated that the project with minimal coastal resource impacts (i.e., changes to developed coastal bank and buffer) would be authorized by a CRMC Category A Assent.

***Rare, Threatened and Endangered Species and Critical Habitats*:** This handicap-access ramp project will have no impacts to federally-listed rare, threatened or endangered species. The project proponent is expected to coordinate with Rhode Island's Natural Heritage Program to determine if any state-listed species may be present within the proposed project area and if so, the recommended design and construction measures to be implemented to avoid or minimize any adverse impacts to any state-listed species.

***Air Quality*:** If light or heavy machinery is used to construct the ramps, minor temporary impacts would be expected to occur from the proposed construction activities. Exhaust emissions from equipment contain pollutants, but these emissions would only occur over short periods during the construction phase of the project. The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with light or heavy machinery that may be used to construct the access ramps represents a short-term impact during the construction phase. Construction work may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Persons who visit this state beach may avoid this area due to noise during construction, but such disruption would be limited to the construction phase. No long-term effects would occur as a result of noise during construction.

***Traffic*:** Minor increases in local traffic would occur at the site during the relatively short construction period (less than 1 month). It is expected that proper safety measures would be followed throughout construction so that traffic safety is provided in and near the project area.

***Recreation*:** This project will provide beach and ocean access at Scarborough Beach South to visitors of all physical abilities, including those that use wheelchairs or strollers. The project would provide access to one of Rhode Island's most heavily-used beaches.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents and other visitors, including minority and low-income populations.

### 6.2.24 The Let Parcels Acquisition, Westport, MA

***Water Resources:*** The primary activity of this project is land acquisition, which in and of itself will have no adverse impacts to water resources or vegetation. The Town of Westport anticipates that public use of the area will increase recreational opportunities, which may cause some minor negative impacts to salt marsh and wetland buffer located on and abutting the properties. Increased vehicular parking and foot traffic would potentially negatively impact wetland vegetation and disrupt sandy soils which dominate this site. The existing parking areas are currently sand and crushed shell, and the project proponent seeks to keep site conditions for anticipated parking. Soil disturbances may result from heavy use of the site. Any proposed development of the property, such as parking lot or boat ramp improvements, would require authorizations from the Westport Conservation Commission, and would also require authorizations from the MassDEP including a Chapter 91 Waterways license and Section 401 Water Quality Certification.

The project will enhance shellfishing access, kayaking, canoeing, bird watching and access to the broad marsh plain in the Westport River Estuary. More people would also be expected to utilize the boat ramp at the Let. Considering the relatively low elevation of the subject properties, and anticipated future sea-level rise and storm frequency, the site is likely to be a high-risk site for storm-surge erosion.

***Water Quality*:** Increased use of the properties may result in increased soil disturbances and sediment release to the Let, with localized increase in water turbidity. This may be particularly the case with increased use of the boat ramp. Increased sedimentation would be localized and expected to settle out of suspension rapidly. Longer-term impacts would result from increasing or enhancing parking on the property that would reduce vegetation, reduce soil permeability, and increase run-off to the Let.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While federally threatened and endangered birds (Roseate Tern, Piping Plover) are known to utilize nearby Buzzards Bay and the Westport River Estuary waters and shoreline habitats, this project site, with its setting in an active use area with a number of private properties and Horseneck State Beach, is not expected to have an impact on these federally-listed species. During the regulatory review process, the project proponent would be expected to coordinate with the Massachusetts Natural Heritage Program and U.S. Fish and Wildlife Service to determine if the project would have an impact on federally-listed species. The project proponent would be required to submit information and request to the USFWS to determine whether a Section 7 ESA consultation and Biological Opinion may be required.

***Recreation*:** The recreational value of the project is limited due to the small number of sites available for public parking. The intent is to benefit local community shellfishermen; however, land acquisition would allow for other recreational uses of the estuary including kayaking, canoeing, bird watching and other water-dependent activities. More people would also be able to utilize the boat ramp at the Let. The Town of Westport has also indicated that the properties could be used by the Westport School Department for nature walks and other environmental education programs.

***Environmental Justice*:** Environmental justice communities will not be negatively impacted through this project. This project will create benefits to area residents and other visitors, including minority and low-income populations.

### 6.2.25 Apponagansett Bay Boat Ramp Reconstruction, Dartmouth, MA

***Water Resources*:** Construction of a replacement dual-lane boat ramp at the Apponagansett Bay site would have minor permanent impacts to habitat within the boat ramp footprint area and immediately adjacent to the ramp. These habitats include

intertidal and subtidal sand-dominated habitats. Fauna which utilize these habitats include shellfish (e.g., quahog) and other benthic macro-invertebrates. Total permanent impact area is expected to be ~3,000 square feet (0.1 acres).

The tidal water impacts would likely include federally-designated EFH of federally-managed species (e.g., winter and summer flounder, scup). The project is currently in the design phase, but the project proponent will be required to consult with the National Marine Fisheries Service during the permitting phase to address potential EFH impacts. The project proponents will be required to apply for an Order of Conditions from the Dartmouth Conservation Commission, a potential Chapter 91 license from the MADEP, and Water Quality 401 Certification from the MADEP.

During construction, short-term and localized impacts could occur. There may be localized, temporary increases in water turbidity in the project area. These conditions may affect fish and filter feeders in the local area, by clogging gills, increasing mucus production and smothering organisms found in open-water areas. Fish and mobile invertebrates would not likely be affected, since these would most likely leave the area, and return after project completion. Increased noise levels due to the operation of construction equipment may also cause fish and mobile macro-invertebrates to leave the area until operations cease.

***Water Quality*:** Construction activities would increase short-term turbidity in the immediate project vicinity, although proper construction measures would minimize potential impacts. BMPs may be implemented during construction to minimize impacts including: silt fencing or sediment curtain to contain suspended sediments, avoidance of in-water work during time-of-year restrictions, and adherence to a construction management plan to minimize potential for gas, oil, and diesel spills from construction equipment into adjacent waters.

***Rare, Threatened and Endangered Species and Critical Habitats*:** This boat ramp project, situated in a relatively developed embayment with heavy use by the public for boating, swimming, sunbathing and picnicking, is not expected to have any impact on federally-listed species.

***Air Quality*:** Minor temporary adverse impacts would result from the proposed construction activities. Exhaust emissions from construction equipment contain pollutants, but these emissions would only occur over short periods during the construction period (~1 month) for the project. The exhausts would be localized and are expected to quickly dissipate. There would be no long-term negative impacts to air quality.

***Noise*:** Noise associated with construction equipment represents a short-term adverse impact during the construction phase. Construction noise may temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. No long-term effects would occur as a result of noise during construction.

***Recreation*:** Users of small recreational power boats, kayaks and other small water craft, including commercial and recreational shellfishermen would be expected to benefit from this proposed ramp reconstruction. This boat ramp project would provide a continued access site to a heavily-used ramp.

***Traffic*:** Minor increases in contractor vehicles would occur at the site during the relatively short construction period (<1 month). It is expected that proper safety measures would be followed throughout construction so that traffic safety is provided in the heavily-used parking lot area and nearby roads.

***Environmental Justice*:** Environmental Justice communities will not be negatively impacted through this project. This project will create benefits to area boating residents and visitors to this area.

### 6.2.26 Quahog Relays and Transplants, Buzzards Bay-wide

***Water Resources:*** Collection of quahogs from donor sites for relay to transplant sites would result in temporary, localized disturbances of bottom sediments and increased short-term water column turbidity; however, these would be short-term effects, with sediments quickly settling out of the water column, soon after quahog raking is completed. Negligible quahog mortality results from tonging, as quahogs are hardy, thick-shelled shellfish. Boats would be used to release quahogs to the transplant sites, and may have short-term disturbances to waterfowl and other aquatic biota. Transplanted quahogs are expected to benefit recipient sites by increasing recruitment of local shellfish populations. Quahogs also contribute important roles in the food web by filtering large volumes of water, feeding on phytoplankton and organic particles. Increased water clarity is anticipated to result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth. Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses, and creating habitat on or around living and dead shells. Many species of fish, waterfowl, and crustaceans (e.g., crabs and lobster) feed on quahogs.

***Water Quality*:** Collection of quahogs from donor sites will result in temporary, localized releases of bottom sediments and increased water column turbidity; however, these are short-term effects, and sediments quickly settle out of the water column once harvest is completed. Quahogs and other filter feeding shellfish play important roles in the food web by pumping large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While specific donor and transplant sites are not yet known, this project type is not expected to have any adverse impact on rare, threatened or endangered species. Proposed on-the-water work activities typically would be completed within hours over one to several consecutive or varying days, thus lessening potential disturbances to listed species (e.g., foraging terns, Piping Plover). Increasing bivalve abundance will increase ecological services at these sites, thereby increasing potential food items for biota and subtidal habitat quality.

***Recreation*:** Quahog enhancement projects result in increased number of animals, increased fecundity, and increased recruitment in the project transplant areas. These quahog relay projects serve as effective ways to increase recreational shellfishing opportunities in coastal areas open to shellfishing (outside of the protected municipal sanctuary sites).

***Contaminants*:** Human health and environmental concerns: Relaying or harvesting of quahogs from source areas with known toxicity or pollutants (e.g., fecal coliform, heavy metals) poses the risk of transferring those pollutants, via contaminated shellfish tissue, to shellfish donor sites, as well as potential human health concerns, if contaminated shellfish are consumed. Prior to transplanting the quahogs from the donor location, animals collected from the site will be tested for metals contamination, and must fall within FDA tolerance levels to be moved and transplanted to another location. In Massachusetts, quahog transplants require a minimum of one-year depuration period after transplant in which harvest is prohibited. Waters designated for harvest are monitored by MADMF and local jurisdictions to ensure that the bivalves are safe for consumption. If excessive levels of contaminants are found in the water, harvesting is prohibited. State or local health authorities issue warnings and closures to advise recreational harvesters.

Communicable shellfish diseases: Transplanting quahogs may increase the potential risk for transfer of shellfish diseases potentially present in the shellfish. Shellfish pathologists will test quahog samples prior to transplanting to prevent spread of shellfish diseases, and local and regional pathologists in coordination with state and regional municipalities will grant decisions as to the ability of shellfish transfer.

Genetic contamination: Quahog relays in Massachusetts have been ongoing for a number of years. The program has targeted quahogs from multiple closed water areas and transplanted these broodstock animals into Buzzards Bay waters. The genetic composition of quahogs throughout Buzzards Bay water are considered to be genetically equivalent as the animals found in the MADMF proposed donor sites. Thus, no significant genetic changes in the local shellfish populations are expected with the proposed relay and transplant program.

### 6.2.27 Quahog Seeding, Buzzards Bay-wide

***Water Resources:*** Boats would be used to release quahog seed into the placement sites, and may result in brief, short-term disturbances (hours) to waterfowl and other aquatic biota. Seeding quahogs to planting sites is expected to provide beneficial effects by increasing animal density and population size.

Quahogs contribute important roles in the food web by filtering large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to result in more acres of bottom that is suitable for eelgrass growth by increasing light transmission at depth. Quahogs are important for packaging primary planktonic production for benthic deposit feeders and seagrasses, and creating habitat on or around living and dead shells. Many species of fish, waterfowl, and crustaceans (e.g., crabs and lobster) feed directly on quahogs.

***Water Quality:*** Quahogs and other filter feeding shellfish play important roles in the food web by pumping large volumes of water to feed on phytoplankton and other organic particles. Increased water clarity is anticipated to result from quahog seed placement and this may support eelgrass growth and sustainability by increasing light transmission with water depth.

***Rare, Threatened and Endangered Species and Critical Habitats:*** While specific donor and transplant sites that are proposed for funding have not yet been determined, this project type is not expected to have any adverse impact on rare, threatened or endangered species. Proposed on-the-water work activities typically would be completed within hours over one to several consecutive or varying days, thus lessening potential disturbances to listed species (e.g., foraging common and roseate terns, piping plover). Increasing bivalve abundance will increase ecological services at these sites, thereby increasing potential food items for biota and subtidal habitat quality.

***Recreation:*** Quahog enhancement projects result in increased number of animals, increased fecundity, and increased recruitment in the project transplant areas. These quahog seeding projects serve as effective ways to increase recreational shellfishing opportunities in coastal waters open to shellfishing (outside of the protected municipal sanctuary sites and areas closed due to fecal coliform contamination).

Quahog seeding practices provide opportunities for community involvement which provides public educational and outreach opportunities. Municipalities or non-governmental organizations involved in the proposed seeding projects would be expected to welcome community involvement in the projects intended through this project alternative.

***Contaminants:*** Human health and environmental concerns: Prior to placing quahogs, seed must be certified to be free of metals contamination, and must fall within FDA

tolerance levels to be placed in shellfish harvestable waters. Waters designated for quahog harvest are also monitored by MADMF to ensure that the bivalves are safe for consumption. If excessive levels of contaminants are found in the water, harvesting is prohibited. State and local health authorities issue warnings and closures to alert and regulate recreational harvesters. No human health impacts are expected with the proposed quahog seeding, as the quahog seed is typically grown in commercial or municipal hatcheries circulating clean waters; and seed releases are expected to be placed primarily in harvestable waters (including waters with harvest closures to prevent harvest mortality, allow seed to grow to maturity, and allow reproductive success before animals can be harvested).

Communicable shellfish diseases: Release of quahog seed may increase the potential risk for transfer of shellfish diseases potentially present in the shellfish. Shellfish testing must be completed by licensed pathologists to ensure approved seed releases are certified as disease-free before they are placed in targeted sites.

Genetic contamination: Quahog seed projects are typically conducted using local or regional broodstock animals for reproduction and hatchery growing. It is anticipated that the project proponents for this restoration type would secure broodstock animals from Buzzards Bay or other nearby in-state coastal waters for completing quahog seeding projects.

### 6.2.28 Bay Scallop Restoration, Buzzards Bay-wide

***Water Resources:*** Aquaculture gear used to raise and protect bay scallops (e.g., metal cages, lantern nets, metal racks and poly bags) may have temporary, short-term impacts to marine and estuarine benthos, as well as minor localized changes in water circulation. Generally, caged spawner sanctuaries are small (<500 square feet, and limited in number of impact sites) to provide reproduction needs for coastal ponds, embayments,

and other nearshore areas. Aquacultural gear is used to retain scallops on a seasonal basis (typically June-October in southern New England), and is typically removed for storage once the scallop spawning season ends.

Relative to the rebuilding or enhancement of bay scallop populations, scallops serve as prey for a number of aquatic marine species (e.g., fish and crabs), birds, and mammals. Scallops and other filter feeding shellfish also play important eco-service roles by filtering large volumes of water in feeding on phytoplankton and other organic particles. Increased localized water clarity is anticipated to result and this helps eelgrass growth and sustainability by increasing light transmission to greater depths.

***Water Quality:*** Deploying of aquaculture equipment may result in short-lived, temporary disturbances to benthic sediments. However, these sediments typically settle out of the water column, rapidly. Aquacultural gear used to retain broodstock scallops is typically inplace seasonally, and is removed once the spawning season ends. Water quality benefits are derived from bivalves, as bay scallops and other filter feeding shellfish play important eco-service roles by filtering large volumes of water in feeding on phytoplankton and other organic particles. Water clarity services are provided by these shellfish.

***Rare, Threatened and Endangered Species and Critical Habitats:*** While specific caged sanctuary sites, scallop release sites, or spat bag monitoring array sites have not yet been determined, this shellfish restoration project type is not expected to have any adverse impact on rare, threatened or endangered species. Proposed on-the-water work activities typically would be completed within hours over one to several consecutive or varying days over a season (period of May-October), thus lessening potential disturbances to listed species (e.g., foraging terns, Piping Plover). Increasing bivalve abundance will increase ecological services at the embayment and coastal pond sites, thereby increasing potential food items for biota and subtidal habitat quality.

***Recreation:*** Bay scallop restoration and enhancement projects result in increased numbers of adult animals, increased fecundity, and increased recruitment in and around the project restoration areas. Therefore, these projects serve as effective ways to increase recreational fishing opportunities for local community resident and visitor recreational shellfishermen. Placement of aquaculture gear used to hold scallops in designated and demarked (e.g., buoys and signage) area waters may have minor, localized impacts on other water-based activities. Placement of equipment would require state regulatory authorizations and coordination with the municipal shellfish wardens to ensure conflicts with recreational boaters and other users is minimized. Bay scallop restoration and monitoring practices provide opportunities for community involvement which provides multiple public educational and outreach opportunities. Municipalities or non-governmental organizations involved in the proposed scallop restoration would be expected to seek community involvement in the projects intended through this project alternative.

***Contaminants:*** Human health and environmental concerns: Since these projects typically use hatchery-produced bay scallops, and are grown-out in cages in approved water bodies, the concern for risks to human health is low. Waters designated for harvest are monitored by state agencies including MADMF and local jurisdictions to ensure that the bivalves are safe for consumption. If excessive levels of contaminants are found in the water, public notice is released and signage is posted, indicating a prohibition on harvesting from contaminated sites. State or local health authorities issue warnings and closures to advise recreational harvesters.

Communicable shellfish diseases: Scallop restoration typically involves importing broodstock to be free planted, or housed in protective sanctuary cages for reproduction and population recruitment. Importing scallops from outside areas increases the potential risk of transfer of shellfish diseases potentially present in the shellfish. State requirements include shellfish pathologists test scallop samples prior to placing them in

coastal waters. Disease testing prevents the spread of communicable shellfish diseases; local and regional pathologists in coordination with MADOH and municipalities make decisions as to the ability of a shellfish placement into municipal waters.

Genetic contamination: The scallop restoration techniques used in this project require importing broodstock, typically from hatchery facilities. Seed for hatchery rearing typically comes from local or regional shellfish hatcheries. Seed secured from non-local broodstock may result in genetic differences in local populations, however because the animals are reared in local area waters, the potential risk of introducing shellfish disease is low. The project participants will consult with local and regional hatcheries to ensure that acceptable genetic broodstock is being utilized in these Buzzards Bay restoration projects.

### 6.2.29 Oyster Restoration, Buzzards Bay-wide

***Water Resources:*** The project involves the rearing or purchase of oyster larvae or spat set on shell (cultch) for placement of oyster spat into coastal sites for restoring oyster populations. The placement of oyster spat set on oyster or clam shell fragments in coastal waters would result in minor modifications to bottom habitats, and temporary, short-term sediment disturbances may result. Placement of set oysters on shell will require state and federal regulatory authorizations and coordination with the USACE, MADEP, and local conservation commissions and shellfish wardens/constables.

Oysters provides numerous ecological services including water quality benefits through filter feeding; increased habitat and structural complexity for finfish and sessile and mobile invertebrates; shoreline stabilization; nitrogen reduction; and forage items for higher trophic level species (e.g., crabs, lobster, tautog and other fish species).

***Water Quality*:** The placement of oyster spat set on shell fragments in coastal waters will result in minor modifications to bottom habitats, and temporary, short-term sediment disturbances may result. Long-term benefits from oyster projects include water column filtering by oysters to increase water clarity, and the transfer of dissolved nutrients and particulate organic matter from the water column to the sediments as pseudo-feces.

***Rare, Threatened and Endangered Species and Critical Habitats*:** While specific oyster release sites have not yet been determined, this shellfish restoration project type is not expected to have any adverse impact on rare, threatened or endangered species. Proposed on-the-water work activities typically would be completed within hours over one to several consecutive or varying days over a season (period of May-December), thus lessening potential disturbances to listed species (e.g., foraging common and roseate terns, piping plover). Increasing bivalve abundance will increase ecological services at the release sites, thereby increasing potential food items for biota and subtidal habitat quality.

***Recreation*:** Oyster restoration projects result in increased numbers of adult animals, increased fecundity, and increased recruitment in and around the project areas. Therefore, these projects serve as effective ways to increase recreational fishing opportunities for local community resident and visitor recreational shellfishermen. Placement of spat-on-shell or shell hash may have minor, localized impacts on other water-based activities. Placement of shell materials and spat-on-shell would require state regulatory authorizations, and approvals from municipal conservation commissions and shellfish wardens to ensure conflicts with recreational boaters and other coastal water users are minimized.

Oyster restoration (e.g., creation of shell bags) and monitoring practices provide opportunities for community involvement which provides multiple public educational

and outreach opportunities. Municipalities or non-governmental organizations involved in the proposed oyster restoration would be expected to seek community involvement in the projects intended through this project alternative.

***Contaminants*:** Human health and environmental concerns: Oysters used for restoration would be reared in commercial or municipal hatcheries and typically placed in nursery areas for additional oyster grow-out. These nursery areas need to be approved areas that do not pose a risk to contaminating the grow-out oysters. Waters designated for oyster seed placement and oyster harvest are monitored by MADMF to ensure that the bivalves are safe for consumption. If excessive levels of contaminants are found in the water, harvesting is prohibited. State or local health authorities issue warnings and closures to advise recreational shellfishermen on harvest conditions.

Communicable shellfish diseases: This project will likely involve placing spat on shell into restoration areas. While spat-on-cultch is typically produced in a hatchery, it is often overwintered in a nursery for additional seed growth. Moving oysters from the nursery areas to a restoration site increases the potential risk for transfer of shellfish diseases (e.g., dermo, MSX) potentially present in raised oysters. The MADMF requires testing for shellfish disease by state-approved pathologists to ensure animals are disease-free certified before oysters can be placed in selected restoration sites, to prevent the spread of communicable shellfish diseases.

Genetic contamination: The seeding of oysters requires the rearing of the animals in a hatchery and then nursery system for grow-out. Seed for rearing typically is provided by regional commercial or municipal shellfish hatcheries. Seed secured from non-local broodstock may result in genetic differences in local populations, however it is anticipated that through these projects, hatcheries providing seed or larvae would use broodstock consisting of Buzzards Bay animals. The project proponents would be

expected to consult with the hatcheries to ensure that appropriate genetic broodstock is utilized in these projects.

### 6.3 Cumulative Impacts

Cumulative impacts are those changes to the physical, biological, and cultural environments that would result from the combination of construction, operation, maintenance and adaptive management activities resulting from the proposed action when added to other past, present, and reasonably foreseeable actions. Included within the concept of past projects are geographically relevant salt marsh restoration, river restoration and other diadromous fish passage restoration, shellfish restoration and stock enhancement, public land protection and access projects to the coast, project operation and maintenance activities, and other actions that occurred before detailed analysis began on this RP/EA. These projects may result in some temporary and minor additive adverse impacts to adjacent wetlands, infrastructure or other relevant resources. However, these projects are specifically designed to avoid, minimize or mitigate for specific or additive adverse impacts whenever feasible, and generally are only proposed by Trustees when net benefits substantially exceed these minor cumulative impacts. Overall, net cumulative impacts resulting from these projects generally result in a long-term positive impact to shorelines and wetlands, and dependent coastal biological resources.

The proposed action, as defined by the set of proposed shoreline and aquatic resource restoration and projects to improve general coastal access, recreational boating and recreational shellfishing, in conjunction with other coastal restoration projects that have been constructed or are planned, is intended to improve the physical, biological, and cultural environments in the Buzzards Bay affected environment area. It is foreseeable that the proposed action would lead to future environmental benefits attributed to the

implementation of one or more of the proposed project alternatives addressed in this Draft RP/EA.

The Buzzards Bay affected environment covers a broad geographical area of southeastern Massachusetts and portions of Rhode Island. Numerous pro-active and statutory-based coastal habitat restoration projects have occurred over the past two decades (e.g., New Bedford Harbor PCB compensatory projects through the NBHTC; the USACE through Section 1135 of the Water Resources Development Act; restoration through implementation the 2011 Bouchard B-120 Piping Plover RP/EA). Pro-active restoration programs administered by NOAA through its Restoration Center (e.g., annual Habitat Restoration Federal Funding Opportunities), USFWS (e.g., Storm Sandy impact funding in 2013), USACE (e.g., Estuary Restoration Act), other federal grant programs, the Massachusetts Environmental Trust (projects benefiting water quality) and MA Department of Fish and Game (MA DF&G) (e.g., through MA DER) in Massachusetts, and Coastal Resources Management Council (CRMC) through its Coastal and Estuarine Habitat Restoration Trust Fund (CEHRTF) in Rhode Island have resulted in and are expected to continue to fund projects for restoration of salt marsh, free-flowing rivers, fish passage sites, shellfish populations, and eelgrass beds implemented by state and local government and non-governmental organizations (NGOs – for example, the Coalition for Buzzards Bay, Save the Bay). Quahog relays and transplants have also been occurring in Massachusetts (through MA DMF) and Rhode Island (through RIDEM) for more than two decades with the purpose of enhancing population size and growth in both transplant and donor sites. These state programs have also implemented bay scallop and oyster restoration projects, and continue to support restoration activities addressing these commercially and recreationally-important shellfish species.

Similarly, land protection, through direct land purchase or conservation restriction or easement; and public coastal access and access improvement projects have been ongoing in the Buzzards Bay affected environment for decades, most often through

grant funding programs. Federal programs such as the USFWS (for example, matching grants through its National Coastal Wetlands Conservation Grant Program, and Cooperative Endangered Species Conservation Fund) and NOAA (for example through its Coastal and Estuarine Land Conservation Program) and state grant programs through EEA, DCR have resulted in thousands of acres of lands protected for public access and recreational uses of the coast of the Buzzards Bay environment. Grants through and technical assistance from MA DF&G (e.g., though the Office of Fishing and Boating Access), EEA and other state funding sources, and in some cases, NGOs and private funding foundations have and are expected to continue to support public access to the Buzzards Bay environment.

## 7.0 Compliance with Statutes, Regulations, and Policies

**Federal Statutes, Regulations and Policies**

**Oil Pollution Act of 1990 (OPA, 33 U.S.C. §§2701, *et seq*., 15 C.F.R. Part 990)**

OPA establishes a liability regime for oil spills that injure or are likely to injure natural resources and/or the services that those resources provide to the ecosystem or humans. OPA provides a framework for conducting sound natural resource damage assessments that achieve restoration. The process emphasizes both public involvement and participation by the Responsible Party (RP). The Trustees have prepared this Draft RP/EA and currently seek input from the RP and the public, in accordance with OPA regulations.

***Compliance:*** NOAA, as lead federal agency through NEPA and its cooperating agencies serving as the Bouchard B-120 Trustees are responsible for the Final Restoration Plan/Environmental Assessment to be in compliance with the Oil Pollution Act of 1990 (OPA). NOAA and the cooperating agencies serving as Trustees have released this Draft RP/EA for public review and comment, and will take into consideration public comments

received during the comment period and incorporate revisions into the Final RP/EA, as needed. The Trustees will select the restoration projects that best address natural resource and resource use injuries resulting from the Bouchard B-120 oil spill; the selected restoration projects will be identified in the Final RP/EA.

**National Environmental Policy Act (NEPA, 42 U.S.C. §§4321, *et seq*., 40 C.F.R. Parts 1500-1508)**

Congress enacted the National Environmental Policy Act (NEPA; 42 U.S.C. § 4321 *et seq*.) in 1969 to establish a national policy for the protection of the environment. NEPA applies to federal agency actions that affect the human environment. Federal agencies are obligated to comply with NEPA regulations adopted by the Council on Environmental Quality (CEQ). Through NEPA, an Environmental Assessment (EA) must be prepared to determine whether the proposed restoration actions will have a significant effect on the quality of the human environment. If a proposed project activity impact is determined to be significant, then an Environmental Impact Statement (EIS) is prepared. If the impact is considered not significant, then a Finding of No Significant Impact (FONSI) is prepared and issued as part of the Final RP/EA.

***Compliance**:* NOAA, as lead federal agency, and its cooperating agencies have integrated this Draft Restoration Plan with the NEPA and CEQ processes to comply, in part, with those requirements. This integrated process allows NOAA and USFWS to meet the public involvement requirements of NEPA and CEQ concurrently with the requirements for OPA. After all public input on the Draft RP/EA has been considered, if it is determined that the preparation of an EIS is not necessary to implement the proposed restoration projects, a Final RP/EA will be prepared.

**Clean Water Act (CWA, 33 U.S.C. §1251, *et seq*.)**

The CWA is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the law authorizes a permit program for the

beneficial uses of dredged or fill material in navigable waters. The U.S. Army Corps of Engineers (USACE) administers the program. In general, restoration projects, which move significant amounts of material into or out of waters or wetlands—for example, hydrologic restoration or creation of tidal marshes—require 404 permits. In Massachusetts and Rhode Island, the USACE, New England Division permits most restoration projects through a Programmatic General Permit (PGP). Under section 401 of the CWA, restoration projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards. Applications to obtain these permits will be initiated by the project proponent(s) and issuance of the required permits is expected at the completion of the process.

***Compliance:*** Coordination with the USACE, New England Division will be completed pursuant to Section 404 of this Act. Project applicants for projects in MA or RI will concurrently apply for regulatory authorizations from state agencies (MassDEP, Rhode Island Department of Environmental Management, and Rhode Island Coastal Resources Management Council) and in Massachusetts, from local conservation commissions. All joint federal, state and local regulatory approvals will be obtained prior to the start of construction activities. All construction activities will be done in compliance with Section 404 and the stipulations of any permits for project activities.

**Clean Air Act, as amended (42 U.S.C. §7401 *et seq*.)**

The fundamental goal of the Clean Air Act (CAA) is the nationwide attainment and maintenance of National Ambient Air Quality Standards (NAAQS). The Act uses two types of regulatory controls to affect two types of pollutant sources. Health-based standards represent "safe" levels of pollutants in the ambient air; technology-based standards represent the amount of a pollutant reduction within an industry's economic and technological capabilities. The CAA requires the USEPA to establish primary and secondary NAAQS. Primary NAAQS are designed to protect human health. Secondary NAAQS are designed to protect the public welfare (e.g., to prevent damage to soils,

crops, vegetation, water, visibility and property). The CAA requires permitting and reporting requirements for sources of air pollutants. Also, USEPA reviews the discussion of CAA impacts for Environmental Impact Statement (EIS) documents.

***Compliance:*** Public notice of the availability of this Draft RP/EA to the USEPA is required for compliance pursuant to Sections 176C and 309 of the Act. All construction activity will be done with conventional equipment in compliance with the pertinent local ordinances.

**National Historic Preservation Act (16 U.S.C. §470 *et seq*.)**

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies, or federally funded entities, to consider the impacts of their projects on historic properties. The NHPA regulations require that federal agencies take the lead in this process, and outline procedures to allow the Advisory Council on Historic Preservation to comment on any proposed federal action.

***Compliance:*** Section 106 consultations have been, or will be, initiated on each project which occurs in Massachusetts or Rhode Island, with each respective state historic preservation office (SHPO) – the Massachusetts Historic Commission (MHC) and the Rhode Island Historic Preservation and Heritage Commission (RIHPHC). Project proponents will also coordinate with the Tribal Historic Preservation Officer (THPO) of recognized tribes in the Buzzards Bay environment. During the early project planning phase, project proponents are required to submit project and site information by preparing a Project Notification Form (PNF) to the MHC or RIHPHC, seeking response on whether historic resources may be affected by the proposed project. Section 106 consultations will be undertaken once project design plans are completed with the determination of an area of potential effect (APE) and assessment of potential adverse effects. If a project is to be implemented and will have an adverse effect, mitigative measures will be proposed and coordinated with the MHC or RIHPHC as a component of

project implementation. The MHC requirements for processing potential historic and archaeological impacts can be found at: http://www.sec.state.ma.us/mhc/mhcrevcom/revcomidx.htm.

**Rivers and Harbors Act (33 U.S.C. §401 *et seq*.)**

U.S. Congress enacted the Rivers and Harbors Act to address the development and use of the nation's navigable waterways. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the USACE with authority to regulate discharges of fill and other materials into such waters. Restoration actions that comply with the substantive requirements of Section 404 of the CWA will also comply with the substantive requirements of Section 10 of the Rivers and Harbors Act.

***Compliance:*** Restoration actions that require Section 404 Clean Water Act permits are likely also to require authorization under Section 10 of the RHA. A single joint federal/state permit usually serves for both in MA and RI. Individual restoration activities will be addressed under the joint federal/state permit.

**Coastal Zone Management Act (CZMA, 16 U.S.C. §1451 *et seq*., 15 C.F.R. 923)**

The purpose of the Coastal Zone Management Act (CZMA) is to preserve, protect, develop and, where possible, restore and enhance the nation's coastal resources. The federal government provides grants to states with federally approved coastal management programs. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone shall be consistent, to the maximum extent practicable, with the enforceable policies of approved state management programs. No federal license or permit may be granted without giving the state the opportunity to concur that the project is consistent with the state's coastal policies.

***Compliance:*** Depending on the state in which projects are being implemented, regulatory authorization for the implementation of restoration projects will be required

from the Massachusetts Office of Coastal Zone Management (MACZM), which serves as the lead agency for implementing the state's coastal program, or the Rhode Island Coastal Resources Management Council (CRMC). A MACZM or CRMC approval will be required and obtained for proposed projects; and general concurrence from the State will be secured that the preferred restoration alternative(s) are consistent, to the maximum extent practicable, with the enforceable policies of the State's coastal program.

**Endangered Species Act (ESA, 16 U.S.C. §1531 *et seq*., 50 C.F.R. Parts 17, 222, 224)**

The federal Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531, *et seq*.) requires federal agencies to list, conserve, and recover endangered and threatened species and to conserve the ecosystems upon which these species depend. The ESA directs all federal agencies to utilize their authorities to further these purposes. Under the Act, the Department of Commerce through the National Marine Fisheries Service (NMFS) within NOAA and the Department of the Interior through the U.S. Fish and Wildlife Service (USFWS) are responsible for preparing, maintaining, and publishing lists of federally endangered and threatened species. Section 7 of the Act requires that federal agencies consult with these departments to minimize the effects of federal actions on federally-listed endangered and threatened species.

Before initiating an action, the federal action agency, or the non-federal project applicant must request the USFWS and/or NMFS to provide a list of and information on threatened, endangered, proposed, and candidate species and designated critical habitat that may be present in the project area. If no species or critical habitats are known to be present in or in the vicinity of a project action area, the federal action agency or project applicant has no further ESA obligations, per Section 7 consultation. However, if a determination is made that a project may affect a listed species or its designated critical habitat, consultation with USFWS or NMFS is required. If the USFWS or NMFS concur with the federal action agency's determination of "not likely to

adversely affect", then the consultation (informal to this stage) is completed and the decision is formalized.

If there is an USFWS/NMFS determination that the project is likely to adversely affect a listed species or its critical habitat, a formal consultation procedures are required. There is a designated period in which to consult, and beyond that, another subsequent period for the USFWS and/or NMFS to prepare a biological opinion. The determination of whether or not the proposed action would be likely to jeopardize the species or adversely modify its critical habitat is a component of each biological opinion. If a jeopardy or adverse modification determination is made, the biological opinion must identify any reasonable and prudent alternatives that could allow the project to move forward.

***Compliance:*** Coordination with the U.S. Fish and Wildlife Service (USFWS) and respective state Natural Heritage Programs and/or the National Marine Fisheries Service (NMFS) have been or will be completed during the planning or design phase of each restoration project and prior to implementation. If a listed species may be potentially affected, further consultation with USFWS or NMFS will be required, in accordance with Section 7 of the Endangered Species Act.

**Estuaries Protection Act (16 U.S.C. §§1221-1226)**

The Estuary Protection Act highlights the values of estuaries and the need to conserve natural resources. It authorizes the Secretary of the Interior, in cooperation with other federal agencies and the states, to study and inventory estuaries of the United States, to determine whether such areas should be acquired by the federal government for protection, to assess impacts of commercial and industrial developments on estuaries, to enter into cost-sharing agreements with states and subdivisions for permanent management of estuarine areas in their possession, and to encourage state and local

governments to consider the importance of estuaries in their planning activities related to federal natural resource grants.

***Compliance:*** The proposed restoration projects will enhance benefits to estuarine resources such as estuarine, marine and diadromous fish species, bivalves and other macro-invertebrates, wading and shore birds, waterfowl and mammals. The proposed lost recreational access and use projects will increase recreational opportunities for people to access and enjoy the environment, such as walking, hiking, birding, and shellfishing, as well as creating opportunities for increased education and outreach that focuses on natural resource protection and conservation.

**Fish and Wildlife Conservation Act (16 U.S.C. §§2901 *et seq*.)**

The purpose of the Fish and Wildlife Conservation Act is to protect the 83 percent of fish and wildlife species that were neglected under prior American law, e.g., non-game species that were diminishing due to habitat loss from development and other environmental ills such as pollution.

***Compliance:*** The proposed restoration projects will enhance benefits to estuarine resources such as estuarine, marine and diadromous fish species, bivalves and other macro-invertebrates, wading and shore birds, waterfowl and mammals. The proposed lost recreational access and use projects will increase recreational opportunities for people to access and enjoy the environment, such as walking, hiking, birding, and shellfishing, as well as creating opportunities for increased education and outreach that focuses on natural resource protection and conservation. During project planning and design and prior to project implementation, coordination with US Fish and Wildlife (USFWS), National Marine Fisheries Service (NMFS), Massachusetts Division of Fish and Wildlife (MADFW), Massachusetts Division of Marine Fisheries (MADMF), and Rhode Island Department of Environmental Management (RIDEM) has occurred or will occur to address compliance with this Act.

**Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. §661 *et seq*.)**

The FWCA requires that federal agencies consult with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and state wildlife agencies for activities that affect, control, or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat. This consultation is generally incorporated into the process of complying with Section 404 of the Clean Water Act, NEPA, or other federal permit, license, or review requirements. The preferred restoration projects will have either a positive effect on fish and wildlife resources or no effect. Coordination will begin between NMFS and the U.S. Fish and Wildlife Service.

***Compliance:*** The preferred restoration projects will have either a positive effect on fish and wildlife resources or no effect. Coordination will begin between NMFS and the U.S. Fish and Wildlife Service.

**Watershed Protection and Flood Prevention Act as amended (16 U.S.C. §1001 *et seq*.)**

The Watershed Protection and Flood Prevention Act (Public Law 83-566) authorizes the Secretary of Agriculture to provide technical and financial assistance to entities of state and local governments and tribes (as project sponsors) for planning and implementing watershed projects.

***Compliance:*** Potential floodplain impacts will be assessed during the planning phase of each project. No significant adverse floodplain impacts are anticipated with any of the preferred projects.

**Magnuson-Stevens Fishery Conservation and Management Act, as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297) (Magnuson-Stevens Act) (16 U.S.C. §§1801 *et seq.*)**

The Magnuson-Stevens Act provides for the conservation and management of the Nation's fishery resources within the Exclusive Economic Zone (from the 3-mile limit of coastal waters seaward to 200 miles from that baseline). The management goal is to identify and manage commercially important U.S. marine fisheries. The goal of the Act is to achieve optimum sustainable population harvest levels, and to protect essential fish habitat (EFH) for federally managed species. The Act also established a program to promote the protection of EFH in the review of projects conducted through federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. Federal agencies are obligated to consult with the Secretary of Commerce, through the National Marine Fisheries Service (NMFS) with respect to any action authorized, funded, or undertaken, or proposed to be authorized funded, or undertaken by such agency that may adversely affect any EFH.

***Compliance:*** Project proponents for the selected restoration projects will be required to coordinate with the NMFS to secure determination as whether project activities would have an adverse effect on EFH, and if expected, to identify design measures to avoid or minimize impacts to EFH prior to project implementation to comply with the EFH provisions of the MSA.

**Marine Mammal Protection Act (16 U.S.C. §§1361 *et seq.*)**

The Marine Mammal Protection Act (MMPA) provides for long-term management and research programs for marine mammals. The MMPA places a moratorium on the taking and importing of marine mammals and marine mammal products, with limited exceptions. The Department of Commerce is responsible for whales, porpoise, seals, and sea lions. The Department of the Interior is responsible for all other marine mammals.

***Compliance:*** Negligible interaction with marine mammals in the vicinity of the proposed restoration projects is expected. Any potential impacts would be evaluated by the National Marine Fisheries Service before project implementation would commence.

**Migratory Bird Conservation Act (126 U.S.C. §§715 *et seq*.)**

The Migratory Bird Conservation Act establishes a Migratory Bird Conservation Commission to approve areas of land or water recommended by the Secretary of the Interior for acquisition as reservations for migratory birds. Consultation with state and local government is required prior to property acquisition.

***Compliance:*** During the project planning phase and prior to implementation, consultation with the U.S. Fish and Wildlife Service will occur to comply with this Act. If restoration construction activities are deemed to adversely impact migratory birds, time of year restrictions will be required for avoiding or minimizing impacts from these activities.

**Archeological Resources Protection Act (16 U.S.C. §470 *et seq*.)**

The purpose of the Archaeological Resources Protection Act is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October, 31, 1979.

***Compliance:*** Section 106 consultation has been, or will be, initiated on each project in Massachusetts or Rhode Island, with the respective state historic preservation office (SHPO). Through the consultation process, the lead federal agency for each specific project and the state historic preservation office will determine if impacts to archeological resources will occur as a result of the project. Consultations will be

completed prior to project implementation after completion of final design plans and assessment of potential impacts can be determined.

**Information Quality Guidelines issued pursuant to Public Law 106-554**

Information disseminated by federal agencies to the public after October 1, 2002, is subject to information quality guidelines developed by each agency pursuant to Section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of such information (i.e., the objectivity, utility, and integrity of such information).

***Compliance:*** This Draft RP/EA is an information product covered by information quality guidelines established by the National Oceanic and Atmospheric Administration (NOAA) and U.S. Department of Interior (USDOI) for this purpose. The quality of the information contained herein is consistent with the applicable agency policy and guidelines.

**Rehabilitation Act, Section 508**

Section 508 (29 U.S.C. 794d) of the Rehabilitation Act requires all federal agencies to provide disabled employees and members of the public access to information that is comparable to the access available to others. Section 508 was enacted partly to eliminate barriers in information technology. For web accessibility under Section 508, a text equivalent must be available for any non-text element such as images, navigation arrows, multimedia objects (audio or video), logos, photographs, or artwork in order to enable users with disabilities to distinguish important content from merely decorative images. Section 508 compliance also includes making accessible other multimedia and outreach materials and platforms, acquisition of equipment and other assistive technologies (phones, PDAs, computers, scanners) and computer software compliance.

***Compliance:*** NOAA has complied with the agency's web policies, based on the World Wide Web Consortium Web Accessibility Initiative.

**Executive Order 11990 (42 FR 26,961) – Protection of Wetlands**

Executive Order 11990 requires each federal agency to take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for: acquiring, managing, and disposing of federal lands and facilities; providing federally undertaken, financed, or assisted construction and improvements; and conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities

***Compliance:*** NOAA and its cooperating agencies have concluded that the preferred restoration projects will fulfill the goals of this executive order.

**Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 12948 Amendment to Executive Order 12898**

Executive Orders 12898 and 12948 require each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations.

***Compliance*:** NOAA and its cooperating agencies have identified portions of the Town of Dartmouth, City of New Bedford, and Towns of Fairhaven, Wareham, Bourne and Gosnold, Massachusetts and Narragansett, Rhode Island as being within the resource use injury area, and having Environmental Justice Populations. Preferred projects have been located within these municipalities and are expected to benefit Environmental Justice communities.

**Executive Order 11514 (35 FR 4247) – Protection and Enhancement of Environmental Quality**

The purpose of Executive Order 11514 is to protect and enhance the quality of the Nation's environment to sustain and enrich human life. Federal agencies shall initiate measures needed to direct their policies, plans, and programs so as to meet national environmental goals.

***Compliance:*** An Environmental Assessment (EA) was prepared as part of this Draft RP/EA and environmental coordination as required by NEPA has been completed.

**Executive Order 12962 (60 FR 30,769) – Recreational Fisheries**

The purpose of Executive Order 12962 is to conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities nationwide.

***Compliance:*** The proposed restoration projects will help ensure the protection of recreational fisheries and the services they provide. These projects will have no adverse effects on recreational fisheries. Some of the proposed restoration project activities are expected to target benefits to recreational fin- and shellfisheries.

**Executive Order 13112 (64 FR 6,183) – Invasive Species**

The purpose of Executive Order 13112 is to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause.

***Compliance:*** The proposed restoration projects are not expected to cause or promote the introduction or spread of invasive species. Annual surveys for invasive species, such as non-native *Phragmites* australis, and actions to control them should they be present in the created tidal marshes have been taken into account for the preferred restoration

projects. The preferred lost use projects will also not cause or promote the introduction or spread of invasive species.

**State Statutes, Regulations and Policies**

**Massachusetts Statues, Regulations and Policies**

**Article 97 of the Commonwealth of Massachusetts Constitution (1972)**

"The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose. The general court shall have the power to enact legislation necessary or expedient to protect such rights."

"In the furtherance of the foregoing powers, the general court shall have the power to provide for the taking, upon payment of just compensation therefore, or for the acquisition by purchase or otherwise, of lands and easements or such other interests therein as may be deemed necessary to accomplish these purposes. Lands and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote, taken by yeas and nays, of each branch of the general court."

**Executive Office of Energy and Environmental Affairs (M.G.L. Chapter 21A) and its land acquisition regulations (M.G.L. Chapter 51.00) and policies (1995)**

EEA has adopted policies governing appraisals, environmental site assessments and surveys with respect to acquisition of acquisitions of real property for Article 97 purposes or interests therein.

**Inland Fisheries and Game (M.G.L. Chapter 131: Section 47. Riparian proprietors; enclosure of waters)**

No riparian proprietor of a natural pond other than a great pond, or of an artificial pond of any size, or of a non-navigable stream, shall enclose the waters thereof within the limits of his own premises unless he furnishes a suitable passage for all anadromous fish naturally frequenting such waters to spawn; nor shall any riparian proprietor enclose the waters of any such pond or stream for the purpose of artificial propagation, cultivation and maintenance of fish, except shiners as authorized in Section 52, unless he first procures a propagator's license under section twenty-three authorizing him so to do. A person, without the written consent of the proprietor or lessee of a natural pond which is not a great pond, or of an artificial pond of any size, or of a non-navigable stream, where fish are lawfully propagated or maintained under authority of a license under this chapter, shall not take, or attempt to take, fish there from these waters.

**Marine Fish and Fisheries (M.G.L. Chapter 130, Section 19)**

For the purpose of providing suitable passage for salt water fish coming into fresh water to spawn, the Massachusetts Division of Marine Fisheries, may (1) seize and remove, summarily if need be, at the expense of the owner using and maintaining the same, all illegal obstructions, except dams, mills or machinery, to the passage of such fish; (2) examine all dams and other obstructions to such passage in brooks, rivers, and streams, the waters of which flow into coastal water, where in his judgment fishways are needed; and (3) shall determine whether existing fishways, if any, are suitable and sufficient for the passage of such fish in such brooks, rivers, and streams or whether a new fishway is needed for the passage of fish over such dam or obstruction; and he shall prescribe by written order what changes or repairs, if any, shall be made therein, and where, how and when a new fishway shall be built, and at what times the same shall be kept open and shall serve a copy of such order upon the person maintaining the dam or other obstruction.

**Massachusetts Antiquities Act (M.G.L. Chapter 9, Section 27) and its implementing regulations (950 CMR 70 and 71)**

MHC was established by the legislature in 1963 to identify, evaluate, and protect important historical and archaeological assets of the Commonwealth. The act and its implementing regulations provide for MHC review of state projects, State Archaeologist's Permits, the protection of archaeological sites on public land from unauthorized digging, and the protection of unmarked burials. The MHC is the office of the State Historic Preservation Officer, as well as the office of the State Archaeologist. Any new construction projects or renovations to existing buildings that require funding, licenses, or permits from any state or federal governmental agencies must be reviewed by the MHC for impacts to historic and archaeological properties.

**Massachusetts Area of Critical Environmental Concern (M.G.L. Chapter 21A, Section 2(7); 301 CMR 12.00)**

ACECs are those areas within the Commonwealth where unique clusters of natural and human resource values exist and which are worthy of a high level of concern and protection. These areas are identified and nominated at the community level and are reviewed and designated by the state's Secretary of Environmental Affairs. ACEC designation creates a framework for local and regional stewardship of critical resources and ecosystems. After designation, the aim is to preserve and restore these areas and all EEA agencies are directed to take actions with this in mind.

**Massachusetts Clean Waters Act (M.G.L. 21, Sections 26-53)**

Authorizes MADEP to take all action necessary or appropriate to secure to the Commonwealth the benefits of the Federal Water Pollution Control Act, as amended, and other federal legislation pertaining to water pollution control by establishing a program for prevention, control, and abatement of water pollution through permits, municipal, regional and interstate planning, water quality standards, sampling and reporting, and financial and technical assistance.

**Massachusetts Contingency Plan (310 CMR 40.0000)**

The Massachusetts Contingency Plan is intended to comport with and complement the National Contingency Plan promulgated by the EPA under CERCLA, as amended. The MCP provides for the protection of health, safety, public welfare, and the environment by establishing requirements and procedures for assessment and response actions following release or threat of release of oil and/or hazardous material. Under the provisions of 310 CMR 40.1012: Application of Activity and Use Limitations, (1) the purpose of an Activity and Use Limitation is to narrow the scope of exposure assumptions used to characterize risks to human health from a release pursuant to 310 CMR 40.0900, by specifying activities and uses that are prohibited and allowed at the disposal site in the future. 310 CMR 40.1012 establishes rules for determining when an Activity and Use Limitation must be used, when one cannot be used, and when one may be a factor to be considered in appropriately characterizing soil and groundwater at a disposal site, pursuant to 310 CMR 40.0923(3).

**Massachusetts Oil and Hazardous Material Release Prevention and Response Act (MGL Chapter 21E)**

Chapter 21E describes the legal obligations of property owners and other potentially responsible parties (PRPs) when contamination is discovered. These responsibilities include notifying the MADEP of the contamination and then ensuring that the contamination is assessed and remediated. In addition to current and past property owners, PRPs may include those who generate or transport contaminated materials, and anyone else who may have caused or contributed to the problem. The law also creates an "end to liability" for eligible PRPs once a cleanup is complete.

**Massachusetts Endangered Species Act, M.G.L. Ch. 131A and its implementing regulations (321 CMR 10.00)**

MESA is the Commonwealth analogue to the Federal Endangered Species Act. MESA lists species as “endangered,” “threatened,” or a “species of special concern.” Before

project implementation, project sponsors will be required to consult with the Massachusetts Natural Heritage Endangered Species Program to ensure that proposed activities do not have a negative effect on species listed under MESA.
The Massachusetts Division of Fisheries and Wildlife's Natural Heritage Program (MANHP) collects and maintains data on the presence and distribution of federally-threatened and endangered species, as well as state-listed species in the state of Massachusetts.

**Massachusetts Environmental Policy Act (M.G.L. Chapter 30 §61 *et seq*.)**
MEPA is the Commonwealth's equivalent of NEPA; it requires that Commonwealth agencies consider and minimize the impacts of their actions on the environment. For a project that requires MEPA and NEPA review, consolidation of these two processes is encouraged. After the Final RP is completed, individual projects that are determined to trigger MEPA thresholds will be required to proceed through a MEPA review.

**Massachusetts Surface Water Quality Standards (314 CMR 4.00)**
Designates the most sensitive uses for which the various waters of the Commonwealth shall be enhanced, maintained, and protected; prescribes the minimum water quality criteria required to sustain the designated uses; and contains regulations necessary to achieve the designated uses and maintain existing water quality including, where appropriate, the prohibition of discharges.

**Public Waterfront Act ("Chapter 91 regulations", M.G.L. Chapter 91)**
The Division of Wetlands and Waterways within the MADEP administers Chapter 91, which is designed to protect the public's rights for fishing, waterfowl hunting, and navigation in Massachusetts waterways. All project sponsors with actions that affect waterways will be required to seek the approval of the Division of Wetlands and Waterways under Chapter 91, before implementation. All projects that affect waterways would be required to secure MADEP approval before implementation.

**Wetlands Protection Act (M.G.L. Ch. 131 §40 and Rivers Protection Act, St. 1996, Chapter 258)**

The WPA restricts the removal, filling, dredging, or alteration of fresh and salt water wetlands and coastal areas. The Rivers Protection Act strengthens and expands the WPA to protect watercourses and adjacent lands. Local conservation commissions, under oversight from the MADEP, are responsible for permitting under these acts. All project sponsors whose actions would be subject to these acts will be required to secure approval of the relevant local conservation commissions before proceeding with implementation, as well as notifying nearby landowners and any other potentially affected parties.

**Section 401 Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters within the Commonwealth (314 CMR 9.00)**

These regulations are promulgated by MADEP to carry out its statutory obligations to certify that proposed discharges of dredged or fill material, dredging, and dredged material disposal in waters of the United States within the Commonwealth will comply with the Surface Water Quality Standards and other appropriate requirements of state law.

**Massachusetts EEA Land Acquisition Policies in accordance with 301 CMR 51.05**

The EEA (formerly as the Executive Office of Environmental Affairs), established a set of four land due diligence acquisition policies on August 1, 1995. The policies cover appraisals, environmental site assessments, surveys, and title examinations reports.

**Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs**

It is the policy of the EEA that Environmental Justice (EJ) shall be an integral consideration to the extent applicable and allowable by law in the implementation of all

EEA programs, including but not limited to, the grant of financial resources, the promulgation, implementation and enforcement of laws, regulations, and policies, and the provision of access to both active and passive open space. Working with EJ Populations, EEA and co-trustees will take direct action as part of the implementation of this policy to restore degraded natural resources, to increase access to open space and parks, and to address environmental and health risks associated with existing and potential new sources of pollution. The EJ Policy applies to all agencies of the EEA.

**Rhode Island Statues, Regulations and Policies**

**Rhode Island Coastal Resource Management Program, as amended (replacing Chapters 1 through 5 of the program adopted by the Coastal Resources Management Council, 1977)**

All development or operations within, above or beneath the tidal waters below the mean high water line extending out to the extent of the state's jurisdiction in the territorial sea, and those occurring on coastal features (e.g., tidal marsh, dunes, coastal bank) or within all directly associated contiguous areas which are necessary to preserve the integrity of coastal resources, any portion of which extends onto the most inland shoreline feature of its 200-foot wide contiguous area, or as otherwise set out in the Coastal Resources Management Program, require a regulatory approval (Assent) from the Coastal Resources Management Council.

**Rhode Island Water Quality Regulations (R.I. Gen. Laws Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the Rhode Island General Laws of 1956, as amended)**

The purpose of these regulations is to establish water quality standards for Rhode Island's surface waters. These standards are intended to restore, preserve and enhance the physical, chemical and biological integrity of the waters of the State, to maintain existing water uses and to serve the purposes of the Clean Water Act and Rhode Island General Laws Chapter 46-12. These standards provide for the protection of the surface

waters from pollutants, so that the waters shall, where attainable, be fishable and swimmable, be available for all designated uses, taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and also taking into consideration their use and value for navigation, and thus assure protection of the public health, safety, welfare, a healthy economy and the environment.

**Rhode Island Freshwater Wetland Act (R.I. Gen. Laws Chapters 2-1-20.1, 42-17.1, and 42-17.6, as amended)**

The Rules and Regulations relating to the Rhode Island Freshwater Wetland Act are promulgated by the Rhode Island Department of Environmental Management (RIDEM). The law describes RIDEM's authority to administer and enforce Sections 2-1-18 through 2-1-25, inclusive, of the R.I.G.L., the Act; and preserve, protect and restore the purity and integrity of all freshwater wetlands in the state of Rhode Island so that these wetlands shall be available for all beneficial purposes, and thus protect the health, welfare and general well being of the people and the environment of Rhode Island.

**Rhode Island Endangered Species Act. (R.I. Gen. Laws Section 20-37-1)**

The Rhode Island Endangered Species Act is the state's analogue to the Federal ESA. Listed animals, such as the piping plover, are protected under the provisions of the Rhode Island State Endangered Species Act. Rhode Island's Natural Heritage Program (RINHP), collects and maintains data on the presence and distribution of federally-threatened and endangered species, as well as state-listed species in the state of Rhode Island. For restoration projects in Rhode Island, projects that may have an impact on state-listed species will require consultation with the RINHP and review by and response from RIDEM and/or Coastal Resources Management Council (CRMC) regulatory staff for permitting of each project to be implemented.

**Rules and Regulations Governing Nuisance Wildlife Control Specialists**

The purpose of these regulations is to establish the standards under which nuisance wildlife-control specialists may be permitted to conduct the capture, handling, disposition, exclusion and other activities as related to wildlife protected by RIDEM under Rhode Island General Laws, Chapter 20-1.

State of Rhode Island and Providence Plantations Constitution, Article 1, Section 17

The state constitution address the rights to fish, access to, and be allowed other activities in coastal waters: "Fishery rights – Shore privileges – Preservation of natural resources. – The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state, including but not limited to fishing from the shore, the gathering of seaweed, leaving the shore to swim in the sea and passage along the shore; and they shall be secure in their rights to the use and enjoyment of the natural resources of the state with due regard for the preservation of their values; and it shall be the duty of the general assembly to provide for the conservation of the air, land, water, plant, animal, mineral and other natural resources of the state, and to adopt all means necessary and proper by law to protect the natural environment of the people of the state by providing adequate resource planning for the control and regulation of the use of the natural resources of the state and for the preservation, regeneration and restoration of the natural environment of the state."

**Rhode Island Oil Spill Pollution Prevention and Control Act (R.I. Gen. Laws Section 46-12.5.1-1 et. seq.)**

The Rhode Island Oil Spill Pollution Prevention and Control Act prohibits the discharge of oil upon the waters or lands of the State except by regulation or permit from the Director of the Rhode Island Department of Environmental Management. Civil penalties, damages, reimbursement for cleanup expenses, and criminal penalties are authorized pursuant to this Act.

**Local Laws**

As appropriate, restoration actions will take into account and comply with local ordinances, and to the extent practicable, local and/or regional plans. Relevant local and regional plans may include shoreline and growth management plans. Relevant local ordinances could include but not be limited to zoning, construction, noise limits, and wetlands protection. For example, in Massachusetts, municipal Conservation Commissions are empowered to administer the MWPA (M.G.L. Chapter 131 §40) and may also adopt local bylaws and undertake other activities such as natural resource planning and land acquisition. Projects that are selected by the Bouchard B-120 Trustees through the restoration planning process for implementation will need to have the project lead agency or organization coordinate with local municipalities to address local requirements, and to the extent practicable, be in conformance with any relevant local or regional plans.

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## 10.0 Agencies, Organizations, and Parties Consulted for Information

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Association to Preserve Cape Cod, Barnstable, MA

Buzzards Bay National Estuary Program, Wareham, MA

City of New Bedford, New Bedford, MA

Coalition for Buzzards Bay, New Bedford, MA

Kennebec Reborn, Augusta, ME

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Rhode Island Historic Preservation and Heritage Commission, Providence, RI

Rhode Island Department of Environmental Management, Division of Fish and Wildlife, Jamestown, RI

Rhode Island Department of Environmental Management, Division of Freshwater Wetlands, Providence, RI

Rhode Island Department of Environmental Management, Office of Planning and Development, Providence, RI

Save the Bay, Providence, RI

The Nature Conservancy, Boston, MA and Narragansett, RI

Town of Barnstable, MA

Town of Bourne, MA

Town of Dartmouth, MA

Town of Fairhaven, MA

Town of Falmouth, MA

Town of Marion, MA

Town of Mattapoisett, MA

Town of Plymouth, MA

Town of South Kingstown, RI

Town of Wareham, MA

Town of Westport, MA

U.S. Army Corps of Engineers, New England District, Concord, MA

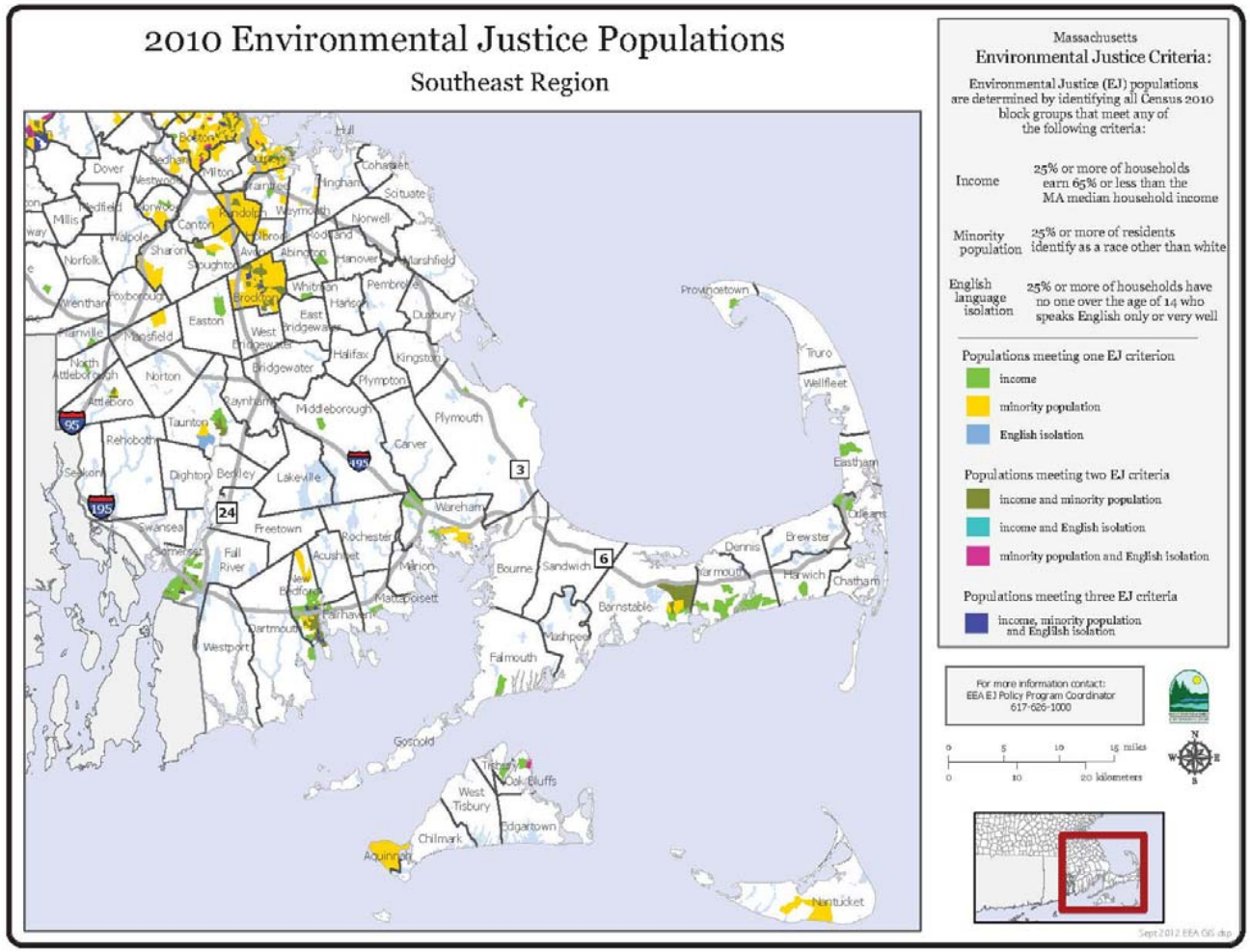
**Note:** The Trustees also held two public informational meetings in September 2011 in Bourne and Fall River, Massachusetts, at which time citizens and state and municipal agency staff, and non-governmental organizations from MA and RI participated.

**APPENDIX A:**

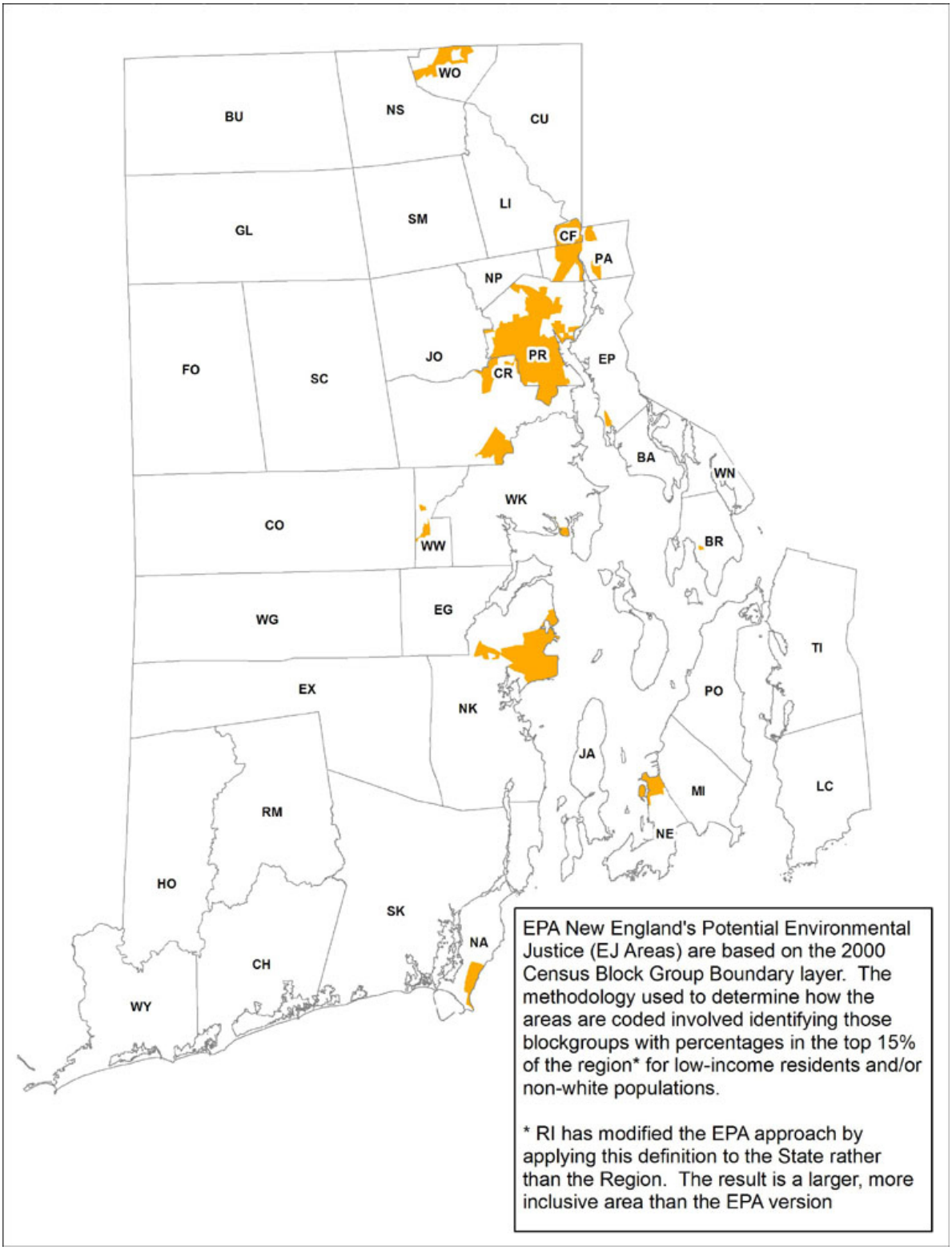
**Environmental Justice Designated Areas**

**Within the Bouchard B-120 Spill Area, Massachusetts and Rhode Island**

**Massachusetts Designated Environmental Justice Areas**



## Rhode Island Designated Environmental Justice Areas



**APPENDIX B:**

**Project Idea Submittal Form and Guidance**

# Buzzards Bay Oil Spill Restoration Planning
## Natural Resource Damage Assessment (NRDA) Restoration Project Information Sheet

### Guidelines for Completion

Please complete all of the information requested with the best information that you have available. Limited attachments are acceptable if they are necessary to adequately describe the project, however every effort should be made to have all pertinent information included on the Restoration Project Information Sheet. Below are specific guidelines for completion. A "Submit" button on the last page of the form will allow you to email the form directly to program staff once completed. If you choose to manually submit, please submit completed forms to NOAA Restoration Center, c/o James Turek, 28 Tarzwell Drive, Narragansett, Rhode Island 02882 or by email to James.G.Turek@noaa.gov.

**A. General Information**

| | |
|---|---|
| *Organization:* | The name of the organization or agency submitting the information. If you are applying as an individual indicate by filling this section with "N/A". |
| *Contact Name:* | The first and last name of a person who can be contacted for additional information. |
| *Title:* | The title (or position) of the above individual. |
| *Address:* | The mailing address of the above individual or organization. |
| *Phone number/Email:* | The phone number and email of the above individual. |
| *Organization Website:* | The web page of the above organization or agency. |

**B. Project Information**

| | |
|---|---|
| *Type of Project:* | A project is considered a "Change to an Existing Project" if the project has been previously submitted through the NRDA project information sheet. |
| *Project ID Number:* | If the project is considered a change to an existing project, the Project ID is the unique number given upon submission through the NRDA project information sheet. Otherwise, leave this blank. |
| *Project name:* | The common name of the project, usually a combination of location and restoration activity (e.g., Cross Bayou Mangrove Restoration). |
| *Location:* | The location where the restoration activity will take place (e.g., East Timbalier Island). |
| *State:* | Two-letter abbreviation of the state (s) where the project will take place. If the project occurs across several states list all states separated by commas. |
| *County/Parish:* | County or Parish where the project will be completed. If the project occurs across multiple counties or parishes list only the primary county or parish name. |
| *Watershed/Basin:* | The watershed where the project will be completed. If the project occurs across multiple watersheds list only the primary watershed. |
| *Latitude/Longitude:* | Provide a latitude/longitude of the central location of the project activity. If the activity occurs over a large area you may also attach a map of the area of the activity. |
| *Project Size:* | The size of the area where project activities will occur; designated by linear miles, acres, or tonnage (e.g., area of plantings in a riparian buffer). |
| *Affected Area:* | The area affected or influenced by the project activity; designated by acres (e.g., area of water quality improvement as a result of riparian buffer plantings). |

**C. Project Description**

A description of the project objectives, activities to be completed and expected outcomes; including information on the benefits of this project to the public and environment. If applicable, use this section to provide additional refinement to habitat and/or resource benefit (e.g., salt marsh, fish passage). In addition, feel free to attach other information, maps, or diagrams concerning your project. Maximum 2,500 characters.

**D. Project Activity(s)**

The type of activity the project will complete to address the impacts to priority resources or habitats. Check all that apply.

| | |
|---|---|
| *Restoration:* | Activities conducted to create, enhance, or restore an injured resource or habitat. |
| *Protection:* | Activities conducted to protect a resource or habitat by removing the threat to that resource or habitat (e.g., shoreline stabilization, nest protection). |
| *Debris Removal:* | - Not applicable for this case. - |
| *Land Acquisition:* | The acquisition and conservation of land in perpetuity to protect priority resources or habitats. |
| *Maintenance/Management:* | - Not applicable for this case. - |
| *Education:* | Education of a targeted audience, in conjunction with one of the above project types. |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# Buzzards Bay Oil Spill Restoration Planning
## Natural Resource Damage Assessment (NRDA) Restoration Project Information Sheet

**Guidelines for Completion** *(continued)*

**E. Project Habitat(s)**
The type of habitat that the project activities are located within or will benefit. Check all that apply.

| | |
|---|---|
| *Upland:* | Higher elevation areas associated with coastlines or floodplains. |
| *Riverine:* | Areas located within or adjacent to open freshwater areas that occur within a defined channel. |
| *Marine/Estuarine Wetlands:* | Areas that are inundated or saturated by saltwater on a consistent basis. |
| *Freshwater Wetlands:* | Areas that are inundated or saturated by freshwater (e.g., surface or groundwater) on a consistent basis to support saturation tolerant plant species. |
| *Beach/Dune:* | Areas along sandy, gravel, boulder, and rocky shorelines and dune systems. Projects along rock shorelines (gravel or boulder shoreline extending from mean low water elevation through spring high tide elevation) should choose this option. |
| *Subtidal (nearshore/offshore):* | Coastal regions that are permanently inundated with salt water (e.g., ocean). |

**F. Resource Benefit(s)**
Primary resources that would benefit from the project. Check all that apply.

| | |
|---|---|
| *Marine Mammals:* | - Not applicable for this case. - |
| *Birds:* | All coastal-related birds |
| *Reptiles/amphibians:* | Terrapins, etc. |
| *Fish:* | Diadromous, estuarine, and marine fishes |
| *Shellfish:* | Bivalves (e.g., oysters, bay scallops, hard clams) |
| *Terrestrial Wildlife:* | - Not applicable for this case. - |
| *Corals:* | - Not applicable for this case. - |
| *Vegetation:* | All plants (e.g., marsh grass, eelgrass, etc.) |
| *Water column:* | Water quality and water column organisms |
| *Sediment / Benthos:* | Sediment permanently inundated with water, and associated organisms (e.g., worms) |
| *Shoreline:* | Intertidal lands affected by tides (e.g., sand and gravel beaches, rock shorelines, etc.) |
| *Human Use:* | Improved coastal access and recreation (e.g., walking trails, shellfishing, boating, etc.) |
| *Status Species:* | Will this project directly benefit State or Federally listed threatened and/or endangered species? If so, please list them. If not, please indicate N/A. |

**G. Project Status**

| | |
|---|---|
| *Property/Resource Acquisition:* | Acquisition of the property, resource, or landowner agreements (e.g., easements) in which the project activity will occur. Indicate the status by selecting NOT STARTED, IN PROGRESS, COMPLETED, or N/A. |
| *Planning/Design:* | Site assessment, planning, and project design. Indicate the status by selecting NOT STARTED, IN PROGRESS, COMPLETED, or N/A. |
| *Permitting:* | Acquisition of all local, state, and federal permits needed to implement the project activity (e.g., NEPA). Indicate the status by selecting NOT STARTED, IN PROGRESS, COMPLETED, or N/A. |
| *Time to Implementation:* | Number of months required to prepare for the start of project activity. |
| *Time to Completion:* | Following the start of the project, number of months required to complete the project activity. |
| *Regional Planning:* | Is this project included under a regional or statewide plan/initiative? (YES or NO) If yes, please list the plan/initiative in the space provided. |

**H. Project Cost**

| | |
|---|---|
| *Estimated Cost:* | The total cost of the project including any funds contributed by the applicant or other organizations (e.g., match funds). |
| *Funding available:* | Monies (from the applicant or partnering organizations/agencies) already committed for partial funding of the project activity. Indicate amount in the adjacent box. |

**H. Project Partners**
Name, contact information, and type of involvement of other organizations or agencies participating in the project (e.g., matching funds, technical assistance, equipment, in-kind assistance, etc.).


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# Natural Resource Damage Assessment (NRDA)
## Restoration Project Information Sheet

### A General Information

| | | | |
|---|---|---|---|
| Organization | | | |
| Contact Name (First Last) | | Title | |
| Address | | City | State / ZIP |
| Phone Number ext. | Email | | |
| Organization Website | | | |

### B Project Information

| | | | |
|---|---|---|---|
| Type of Project | If this is a Change to an Existing Project, enter the Project ID Number | | |
| Project Name | | | |
| Location (e.g. John Smith National Wildlife Refuge) | | | |
| State(s) (Use 2-letter abbreviations separated by commas) | County/Parish | Watershed/Basin | |
| Latitude (decimal degrees) Longitude (decimal degrees) | Project Size (Choose one) miles acres tons | | Affected Area acres |

### C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)



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# Natural Resource Damage Assessment (NRDA)

## Restoration Project Information Sheet *(continued)*

**D Project Activity(s)**

*(Check all that apply)*

- ☐ Restoration
- ☐ Protection
- ☐ Debris Removal
- ☐ Land Acquisition
- ☐ Maintenance/Management
- ☐ Education

**E Project Habitat(s)**

*(Check all that apply)*

- ☐ Upland
- ☐ Riverine
- ☐ Marine/Estuarine Wetlands
- ☐ Freshwater Wetlands
- ☐ Beach/Dune
- ☐ Subtidal (Nearshore/Offshore)

**F Resource Benefit(s)**

*(Check all that apply)*

- ☐ Marine Mammals
- ☐ Birds
- ☐ Reptiles/Amphibians
- ☐ Fish
- ☐ Shellfish
- ☐ Terrestrial Wildlife
- ☐ Corals
- ☐ Vegetation
- ☐ Water Column
- ☐ Sediment/Benthos
- ☐ Shoreline
- ☐ Human Use (Recreational, Cultural)

*Will the project directly benefit State- or Federally-listed species? If so, please list them. If not, please indicate N/A.*

**G Project Status**

*Property/Resource Acquisition*

*Project Planning/Design*

*Project Permitting.*

*Time to Implementation*

*Time to Project Completion*

*Is this project included under a regional or statewide plan?*
*If so, please list:*

**H Project Costs**

| *Estimated Cost* | *Funding Available* |
|---|---|
| | |

**I Project Partners**

| | |
|---|---|
| *Partner 1 Organization* | |
| *Partner 1 Contact* | *Partner 1 Involvement* |
| *Partner 2 Organization* | |
| *Partner 2 Contact* | *Partner 2 Involvement* |
| *Partner 3 Organization* | |
| *Partner 3 Contact* | *Partner 3 Involvement* |

Submit by Email

**Disclaimer:**
The submission of project information **does not** guarantee project funding. Projects will be evaluated using criteria identified in OPA, NEPA, implementing regulations, and related laws. Selection and funding determinations will be made by the Trustee Council.



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## Paperwork Reduction Act Information

## Natural Resource Damage Assessment
## Restoration Project Information Sheet

Responses to this collection are voluntary. Collection of restoration project information will be undertaken in order to provide information to Natural Resource Trustees to develop potential restoration alternatives for natural resource injuries and service losses requiring restoration during the restoration planning phase of the Natural Resource Damage Assessment (NRDA) process. Public reporting burden for this collection of information is estimated to average 20 minutes including the time for reviewing instructions, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden, to the NOAA Fisheries Office of Habitat Conservation, Restoration Center, Louisiana State University, Sea Grant Building, Room 124C Baton Rouge, LA 70803.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

The identity of respondents will not remain confidential. The information collected will be reviewed for compliance with the NOAA Section 515 Guidelines established in response to the Treasury and General Government Appropriations Act, and certified before dissemination.



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**APPENDIX C:**

**Bouchard B-120 Spill Restoration**

**Project Ideas Submitted and Submitters**

| Restoration Project Ideas Submitted, Assigned Project Categories and Numbers, and Trustee-Recommeded Funding Tier | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Submitter of Project Idea** | **Tier 1 Preferred** | **Tier 2 Preferred** | **Non-Preferred** | **Not Eligible** | **Submitter Withdrawn** |
| SA-1 | Gray Gables Salt Marsh Restoration | Bourne, Town of | | X | | | |
| SA-2 | Horseshoe Pond Dam -Weweantic River Restoration | Coalition for Buzzards Bay | X | | | | |
| SA-3 | Lobster "Feeder" Restoration | Crowley, David | | | X | | |
| SA-4 | Round Hill Salt Marsh Restoration | Dartmouth, Town of | X | | | | |
| SA-5 | Chace Road Stormwater Management and Shellfish Spawner Sanctuary | Falmouth, Town of | | | X | | |
| SA-6 | County Road Stormwater Management, Megansett Harbor | Falmouth, Town of | | | X | | |
| SA-7 | Dam Pond/Wild Harbor River Diadromous Fish Run Restoration | Falmouth, Town of | | | X | | |
| SA-8 | Wild Harbor Salt Marsh Restoration, Recreational Boating and Shellfishing | Falmouth, Town of | | | X | | |
| SA-9 | Carver Cotton Gin Dam Removal | Kennebec Reborn | | | X | | |
| SA-10 | Conservation Hazelett Mooring Systems | Marion, Town of | X | | | | |
| SA-11 | Allens Pond Phragmites Control | Massachusetts Audubon | X | | | | |
| SA-12 | Buzzards Bay Lobster V-Notch Program | Massachusetts Division of Marine Fisheries | | | X | | |
| SA-13 | Cotley River Restoration (Barstowe's Dam removal) | Massachusetts Division of Ecological Restoration | | X | | | |
| SA-14 | Mill River Restoration and Fish Passage Project (West Britannia and Whittteton Pond Dams removals) | Massachusetts Division of Ecological Restoration | | X | | | |
| SA-15 | Rattlesnake Brook Dam Removal and Stream Channel Restoration | Massachusetts Division of Ecological Restoration | | | X | | |
| SA-16 | Red Brook Headwaters Restoration Project | Massachusetts Division of Ecological Restoration | | X | | | |
| SA-17 | Salt Marsh Restoration, Agawam River at Route 6 | Massachusetts Office of Coastal Zone Management | | | X | | |
| SA-18 | Tremont Mill Pond Dam Anadromous Fish Restoration on the Weweantic River | Massachusetts Office of Coastal Zone Management | | | X | | |
| SA-19 | Bilgewater Collection and Treatment Program | New Bedford, City of | | | X | | |
| SA-20 | Stormwater BMP Construction for New Bedford Waterfront | New Bedford, City of | | | X | | |
| SA-21 | Agawam River Restoration - Headwater Bogs | Plymouth, Town of | | X | | | |
| SA-22 | Fish Passage Improvements at Main Street Dam | Rhode Island Department of Environmental Management, Division of Fish and Wildlife | | X | | | |
| SA-23 | Hard Clam (Quahog) Broodstock Relays | Rhode Island Department of Environmental Management, Division of Fish and Wildlife | X | | | | |
| SA-24 | Shell Substrate Enhancement for Improved Quahog Larval Settlement and Survival in Rhode Island | The Nature Conservancy | X | | | | |
| | | | | | | | |
| SH-1 | ARC Property Purchase and Shellfish Hatchery | Barnstable County Commissioners | | | X | X | |
| SH-2 | Cohasset Narrows Oyster Reef | Bourne, Town of | X | | | | |
| SH-3 | Pocasset River Oyster Reef | Bourne, Town of | X | | | | |
| SH-4 | Winsor Cove Quahog Relay | Bourne, Town of | X | | | | |

| Restoration Project Ideas Submitted, Assigned Project Categories and Numbers, and Trustee-Recommeded Funding Tier cont'd | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Submitter of Project Idea** | **Tier 1 Preferred** | **Tier 2 Preferred** | **Non-Preferred** | **Not Eligible** | **Submitter Withdrawn** |
| SH-5 | Dartmouth Quahog Relay | Dartmouth, Town of | X | | | | |
| SH-6 | Dartmouth Shellfish Master Management Plan | Dartmouth, Town of | | | X | | |
| SH-7 | Dartmouth Waterways Upweller | Dartmouth, Town of | | | X | | |
| SH-8 | Fairhaven Shellfish Restoration Program, Quahog Relay | Fairhaven, Town of | X | | | | |
| SH-9 | Fairhaven Shellfish UpwellerProject | Fairhaven, Town of | | | X | | |
| SH-10 | Contaminated Shellfish Relay | Marion, Town of | X | | | | |
| SH-11 | Buzzards Bay Cooperative Bay Scallop Restoration Project | Massachusetts Division of Marine Fisheries | X | | | | |
| SH-12 | Restoration of New Bedford Recreational Shellfishing | New Bedford, City of | X | | | | |
| SH-13 | Buzzards Bay Shellfish Spawner and Restoration Areas | The Nature Conservancy | X | | | | |
| SH-14 | Contaminated Shellfish Relay Program, Weweantic River, Onset Bay Quahog Relays | Wareham, Town of | X | | | | |
| SH-15 | Oyster Seed, Onset Harbor | Wareham, Town of | X | | | | |
| SH-16 | Oyster Seed, Upweller Program | Wareham, Town of | | | X | | |
| SH-17 | Predator Control, Scallop Restoration Sites, Wings Cove, Wareham | Wareham, Town of | | | X | | |
| SH-18 | Contaminated Shellfish Relay | Westport, Town of | X | | | | |
| SH-19 | Predator Control, Westport River | Westport, Town of | | | X | | |
| SH-20 | Shellfish Seed | Westport, Town of | X | | | | |
| SH-21 | Shellfish Upwellers | Westport, Town of | | | X | | |
| | | | | | | | |
| LU-1 | Nasketucket Bay State Reservation Expansion Project | Buzzards Bay Coalition | X | | | | |
| LU-2 | Wickets Island Conservation Project | Buzzards Bay Coalition | | | X | | |
| LU-3 | Clarks Cove Public Boat Ramp | Dartmouth, Town of | X | | | | |
| LU-4 | West Falmouth Harbor Boat Ramp Improvement and Stormwater Management | Falmouth, Town of | | | X | | |
| LU-5 | Stone Barn Farm Visitor Center and Trails at Allens Pond Wildlife Sanctuary | Massachusetts Audubon | X | | | | |
| LU-6 | Nasketucket Bay Coastal Access | Massachusetts Department of Conservation and Recreation | X | | | | |
| LU-7 | Universal Handicap Acess (3 park sites) | Massachusetts Department of Conservation and Recreation | X | | | | |
| LU-8 | Apponagansett Bay Public Access Facility | Massachusetts Division of Fish and Game | | X | | | |
| LU-9 | Buzzards Bay Public Access Facility (Hoppy's Landing) | Massachusetts Division of Fish and Game | X | | | | |
| LU-10 | Palmers Island Recreational Beach and Trail | New Bedford, City of | X | | | | |
| LU-11 | New Bedford Riverwalk | New Bedford, City of | X | | | | |
| LU-12 | Black Point Loop Trail | Rhode Island Department of Environmental Management, Division of Fish and Wildlife | X | | | | |
| LU-13 | South Scarborough Beach ADA Access Ramps | Rhode Island Department of Environmental Management, Division of Fish and Wildlife | X | | | | |

| Restoration Project Ideas Submitted, Assigned Project Categories and Numbers, and Trustee-Recommeded Funding Tier cont'd | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project ID Number** | **Project Submittal Name** | **Submitter of Project Idea** | **Tier 1 Preferred** | **Tier 2 Preferred** | **Non-Preferred** | **Not Eligible** | **Submitter Withdrawn** |
| LU-14 | Shoreline Acquisition at Quicksand Point for Public Access | The Nature Conservancy | | | | | X |
| LU-15 | Boat Ramp Replacement | Wareham, Town of | X | | | | |
| LU-16 | Town Dock Boat Ramp Repair | Westport, Town of | | | X | | |
| LU-17 | The Let (Lots 40 and 41) | Westport, Town of | | X | | | |
| LU-18 | The Let (Lot 39) | Westport, Town of | | X | | | |

**APPENDIX D:**

**Trustee Agency Approvals of Bouchard Barge-120 Oil Spill Draft Restoration Plan and Environmental Assessment for**

**Shoreline and Aquatic Resources and Lost Recreational Uses**

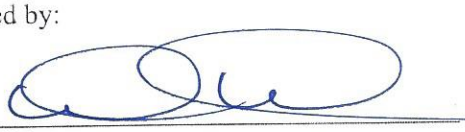
**U.S. Department of the Interior**
**U.S. Fish and Wildlife Service**
**Approval of the Draft Restoration Plan and Environmental Assessment for Shoreline and Aquatic Resources and Lost Recreational Uses Impacted by the Bouchard Barge-120 Oil Spill**
**Buzzards Bay, Massachusetts and Rhode Island**

In accordance with U.S. Department of the Interior policy regarding documentation for natural resource damage assessment and restoration projects (521 DM 3), the Authorized Official for the Department must demonstrate approval of draft and final restoration plans and their associated National Environmental Policy Act documentation, with concurrence from the Department's Office of the Solicitor.

The Authorized Official for the Bouchard Barge-120 Oil Spill is the Regional Director for the U.S. Fish and Wildlife Service's Northeast Region.

By the signatures below, the Draft Restoration Plan/Environmental Assessment (RP/EA) is hereby approved. This approval does not extend to the Final RP/EA. The Draft RP/EA shall be released for public review and comment for a minimum of 45 days. After consideration of the public comments received, the RP/EA may be revised, with the Final RP/EA to address such comments.

Approved by:

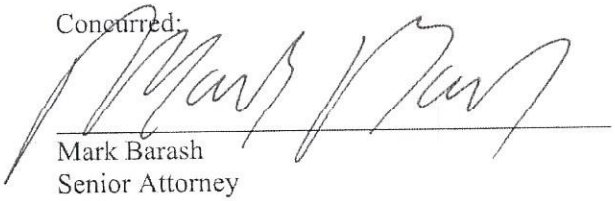


1/27/14

Wendi Weber
Regional Director
Northeast Region
U.S. Fish and Wildlife Service

Date:

Concurred:



1/21/2014

Mark Barash
Senior Attorney
Northeast Region
Office of the Solicitor

Date:

**U.S. Department of Commerce**
**National Oceanic and Atmospheric Administration**
**Approval of the Draft Restoration Plan and Environmental Assessment for Shoreline and Aquatic Resources and Lost Recreational Uses Impacted by the Bouchard Barge 120 Oil Spill**
**Buzzards Bay, Massachusetts and Rhode Island**

In accordance with interagency Trustee protocol regarding documentation for Natural Resource Damage Assessment and Restoration (NRDAR) projects, the National Oceanic and Atmospheric Administration is providing its approval of the Draft Restoration Plan/Environmental Assessment (Draft RP/EA) for Shoreline and Aquatic Resources and Natural Resource Uses Impacted by the Bouchard Barge 120 (B-120) Oil Spill. This approval does not extend to the Final RP/EA.

The Draft RP/EA shall be released for public review and comment for a minimum of 45 days. After consideration of the public comments received, the RP/EA may be revised, with the Final RP/EA to address such comments.

Approved:

James G. Turek
Natural Resource Trustee Representative for NOAA

Date: 1/13/14

**Commonwealth of Massachusetts**
**Executive Office of Energy and Environmental Affairs**
**Approval of the Draft Restoration Plan and Environmental Assessment for Shoreline and Aquatic Resources and Lost Recreational Uses Impacted by the Bouchard Barge 120 Oil Spill**
**Buzzards Bay, Massachusetts and Rhode Island**

In accordance with Trustee protocol regarding documentation for Natural Resource Damage Assessment and Restoration (NRDAR) projects, the Rhode Island Department of Environmental Management is providing its approval of the Draft Restoration Plan/Environmental Assessment (Draft RP/EA) for Shoreline and Aquatic Resources and Natural Resource Uses Impacted by the Bouchard Barge 120 (B-120) Oil Spill. This approval does not extend to the Final RP/EA.

The Draft RP/EA shall be released for public review and comment for a minimum of 45 days. After consideration of the public comments received, the RP/EA may be revised, with the Final RP/EA to address such comments.

Approved by:

Richard K. Sullivan, Jr. Date: 11/1/13
Secretary, EEA
Natural Resource Trustee for the Commonwealth of Massachusetts

Recommended by:

Benjamin Ericson Date: 12/12/13
Assistant Commissioner
Bureau of Waste Site Cleanup
Massachusetts Department of Environmental Protection

Millie Garcia-Serrano 12-9-13 Date:
Trustee Representative
Bouchard B-120 Trustee Council
Massachusetts Department of Environmental Protection

**State of Rhode Island**
**Rhode Island Department of Environmental Management**
**Approval of the Draft Restoration Plan and Environmental Assessment for Shoreline and Aquatic Resources and Lost Recreational Uses Impacted by the Bouchard Barge 120 Oil Spill**
**Buzzards Bay, Massachusetts and Rhode Island**

In accordance with Trustee protocol regarding documentation for Natural Resource Damage Assessment and Restoration (NRDAR) projects, the Rhode Island Department of Environmental Management is providing its approval of the Draft Restoration Plan/Environmental Assessment (Draft RP/EA) for Shoreline and Aquatic Resources and Natural Resource Uses Impacted by the Bouchard Barge 120 (B-120) Oil Spill. This approval does not extend to the Final RP/EA.

The Draft RP/EA shall be released for public review and comment for a minimum of 45 days. After consideration of the public comments received, the RP/EA may be revised, with the Final RP/EA to address such comments.

Approved:

Larry Mouradjian
Natural Resource Trustee Representative
for the State of Rhode Island

Date: 1/14/14