

FINAL
RESTORATION PLAN and ENVIRONMENTAL ASSESSMENT for
ROSEATE TERN (*Sterna dougallii*), COMMON TERN (*Sterna hirundo*),
and SHORELINE and SALT MARSH RESOURCES ON RAM ISLAND
IMPACTED BY THE BOUCHARD BARGE 120 (B-120) OIL SPILL

BUZZARDS BAY
MASSACHUSETTS and RHODE ISLAND

and

FINDING OF NO SIGNIFICANT IMPACT



February 2024

Prepared by:

United States Fish and Wildlife Service
National Oceanic and Atmospheric Administration
Massachusetts Executive Office of Energy and Environmental Affairs

Executive Summary

In April 2003, the Bouchard Barge-120 (B-120) oil spill (the Spill) affected more than 100 miles (161 km) of Buzzards Bay and its shoreline and nearby coastal waters in both Massachusetts (MA) and Rhode Island (RI). Birds were exposed to and ingested oil as they foraged, nested, and/or migrated through the area. Species of birds estimated to have been killed in the greatest numbers included common loons (*Gavia immer*), roseate terns (*Sterna dougallii*), common terns (*S. hirundo*), and other birds including common eiders (*Somateria mollissima*), black scoters (*Melanitta americana*), and red-throated loons (*G. stellata*).

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 Secretary of Energy and Environmental Affairs of the Commonwealth of Massachusetts (EEA), and the State of Rhode Island serve as the Natural Resource Trustees (Trustees) responsible under the Oil Pollution Act of 1990 (OPA) (33 U.S.C. § 2701 *et seq.*). As a designated Trustee, each agency is authorized to act on behalf of the public under State¹ and/or Federal law to assess and recover natural resource damages, and to plan and implement actions to restore, rehabilitate, replace, and/or acquire the equivalent of the natural resources or services injured or lost as a result of an unpermitted discharge of oil.

In November 2010, after more than 5 years of assessing injuries to natural resources resulting from the Spill, the Trustees and the Responsible Parties for the Spill (Bouchard Transportation Company, Inc., the Tug Evening Tide Corporation, and the B. No. 120 Corporation) negotiated a settlement for a portion of natural resource damages, including shoreline and aquatic resources, piping plovers (*Charadrius melodus*), and lost recreational resource uses. The Trustees and Responsible Parties subsequently negotiated a second settlement and signed a consent decree, effective in January 2018, for the remaining wildlife resources injured by the Spill, which included common loons, roseate and common terns, and all other bird species affected by the Spill.

The purpose of restoration is to make the environment and public “whole” for injuries resulting from the Spill by implementing one or more restoration actions that return injured natural resources and services to pre-spill baseline conditions and compensate for interim losses during the period of recovery. Through preparation and release of Draft Restoration Plans (Draft RPs) and Final RPs, consistent with requirements under OPA and the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321-4347), the Trustees are responsible for identifying and evaluating a reasonable range of restoration alternatives and proposing a preferred restoration alternative(s) in the Draft RP and selecting the preferred alternative in the Final RP. The Trustees also sought public review and input with an opportunity to comment on the Draft RP, which are fully considered in this Final RP with the selected preferred restoration alternative(s).

This Final RP/Environmental Assessment (EA) has been prepared by the USFWS, NOAA, and the Commonwealth of Massachusetts, with NOAA acting as the Lead Administrative Trustee (LAT). The State of Rhode Island, acting through the Rhode Island Department of Environmental Management, is also a Trustee for this case, but has not been directly involved in preparing this document since the focus of the injuries being addressed in this Final RP/EA occurred within the

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

Commonwealth of Massachusetts. As a result, the State of Rhode Island will not be a signatory to this document.

The Final RP/EA was developed to provide compensatory restoration for interim injuries that occurred from the date of the Spill until the eventual full recovery of roseate and common terns, and shoreline resources on Ram Island, in Mattapoisett, MA. Restoration of other shoreline and aquatic resources, lost recreational uses, piping plovers, common loons, and all other remaining bird species affected by the Spill were addressed in prior RPs (USFWS et al. 2020; NOAA et al. 2014; USFWS et al. 2012).

Throughout the injury assessment and restoration planning process, the Trustees consulted with Federal and State agency experts, as well as organizations and individuals familiar with Ram Island and roseate and common terns. These experts and organizations provided input on injury estimations and potential restoration alternatives. The Draft RP/EA was provided to the public on October 19, 2023, for a 30-day comment period to both fully explain the injury assessment and restoration planning process and secure input from the public on the proposed restoration alternatives. The Trustees also held an informational public webinar on November 2, 2023.

The Trustees received and reviewed one written comment during the comment period and have provided additional clarification related to the Massachusetts Office of Coastal Zone Management Federal Consistency review and permitting processes in Section 5. A copy of the comment, along with the Trustees' response, is provided in Appendix C.

The Trustees selected the preferred restoration alternative, *Roseate and Common Tern Nesting Habitat Restoration and Salt Marsh Restoration and Shoreline Erosion Control on Ram Island*, to receive \$5,534,000 million (plus accrued interest) in funding to restore the loss of roseate and common terns and shoreline and salt marsh resources on Ram Island.

Outreach materials, including the public webinar presentation and transcript, and copies of the Final RP/EA can be downloaded at <https://darrp.noaa.gov/oil-spills/bouchard-barge-120>, or requested via email to Latice Fuentes at latice_fuentes@fws.gov or in writing to:

USFWS
Attention: Latice Fuentes
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

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1. Introduction

1.1. Purpose and Need for Restoration

The purpose of the proposed restoration action is to compensate for natural resource injuries to roseate terns (*Sterna dougallii*), common terns (*S. hirundo*), their supporting habitats, and shoreline and salt marsh resources on Ram Island in Mattapoisett, MA resulting from the April 2003 Bouchard Barge-120 (B-120) oil spill (the Spill) that released 98,000 gallons of No. 6 fuel oil to Buzzards Bay, and contiguous coastal waters and shoreline in Massachusetts and Rhode Island. Restoration of other injured natural resources (e.g., other shoreline and aquatic resources, lost recreational uses, piping plovers (*Charadrius melodus*), common loons (*Gavia immer*), and all other remaining bird species) was addressed in prior restoration plans (NOAA et al. 2014; NOAA et al. 2016; NOAA et al. 2020; USFWS et al. 2012; USFWS et al. 2020). The proposed restoration projects herein are to provide compensatory restoration that addresses injuries to roseate and common terns, and shoreline resources on Ram Island in Mattapoisett, MA affected by the Spill.

Following the Spill, nearly 100 miles (161 km) 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 were oiled. On Ram Island, 1.01 acres of shoreline and marsh habitat were degraded, which negatively impacted the birds, fish, shellfish, and benthic communities that inhabit or use habitats around Ram Island. Birds were exposed to and ingested oil, as they foraged, nested, and/or migrated through the area. In total, 499 oiled birds were collected; however, the overall mortality was estimated to be 1,174 adult birds (which takes into account birds that were not documented due to scavenging, drifting out to sea, etc.). Birds estimated to have been killed in the highest numbers included common loons, roseate and common terns, and other birds such as common eiders (*Somateria mollissima*), black scoters (*Melanitta americana*), and red-throated loons (*G. stellata*). More detailed information on the Spill incident and the natural resource injuries is provided in Section 1.7.2. below.

1.2. Natural Resource Trustees and Authorities

Federal Trustee agencies for this Spill are the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of the Interior (DOI), through the U.S. Fish and Wildlife Service (USFWS). State Trustees are the Secretary of Energy and Environmental Affairs of the Commonwealth of Massachusetts and the State of Rhode Island. Collectively, and in accordance with the Oil Pollution Act (OPA) of 1990, the Bouchard B-120 Trustees (hereafter, the “Trustees”) use recovered damage funds to restore, rehabilitate, replace, and/or acquire the equivalent of the injured natural resources and services that result from the Spill.

Prior to expending funds for restoration, OPA Natural Resource Damage Assessment (NRDA) regulations require trustees to develop a Restoration Plan (RP) for public review and comment (15 CFR § 990.55), which the Trustees accomplished through the *Draft Restoration Plan and Environmental Assessment for Roseate Tern, Common Tern, and Shoreline and Salt Marsh Resources on Ram Island* (Draft RP/EA), released October 19, 2023. The NRDA regulations also require the Trustees to consider a reasonable range of restoration alternatives that would make

the environment and public whole (15 CFR § 990.53), as reflected in the Draft RP/EA and this Final RP/EA.

In addition, this document has been developed in consideration of the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321-4347) and its implementing regulations (40 CFR §§ 1500-1508). Under NEPA, Federal agencies must fully consider the environmental impacts of their decisions and ensure that such information is made available to the public. Federal Trustees met this requirement by undertaking an environmental review through the development of an environmental assessment (EA). If the EA demonstrates that the preferred alternative will not significantly impact the quality of the human environment, the Federal Trustees issue a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA. NOAA is acting as the lead Federal agency for NEPA compliance for the Draft and Final RP/EAs, and the USFWS is participating as a cooperating Federal agency pursuant to NEPA (40 CFR § 1508.5). NEPA compliance is discussed further in Section 4.

1.3. Overview of Incident

On April 27, 2003, the Bouchard 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 resulted in a 12-foot rupture in the barge's hull, releasing approximately 98,000 gallons of No. 6 fuel oil into the Bay. More than 100 miles (161 km) of shoreline were affected, including shoreline and coastal waters in both Massachusetts and Rhode Island. The oil was spread and driven ashore by winds and currents, and primarily affected the north, northwest, and northeast portions of the Bay (Figure 2). Oil continued to be transported throughout Buzzards Bay and nearby coastal waters. Oiling was unevenly distributed and was particularly concentrated at exposed shoreline headlands and peninsulas in discrete, localized areas. Shoreline oiling was also reported on the Elizabeth Islands along the southern portion of Buzzards Bay and portions of the Rhode Island shoreline.

The Buzzards Bay shoreline is comprised of diverse shoreline types, including sand and cobble beaches, rocky shores, tidal wetlands, and sand/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).

Due to the timing of the Spill (during spring migration) and the oiling of extensive coastal waters and shoreline habitats, a large number and wide variety of birds, including terns and other shorebirds, loons, sea ducks, and waterfowl were exposed to oil. The Trustees worked with emergency responders, contractors, and volunteers to collect live and dead oiled birds in the spill area. In the weeks following the Spill, 499 birds were collected (315 dead and 184 live). Of the live birds, 20 were rehabilitated and returned to the wild. Coordinated wildlife reconnaissance and collection of oiled animals began on April 30, 2003, and continued daily through May 16, 2003. Less frequent efforts continued from May 17 through June 6, 2003. Search teams consisted of representatives from USFWS, the Massachusetts Division of Fisheries and Wildlife (MassWildlife), the Responsible Parties, and many volunteers.

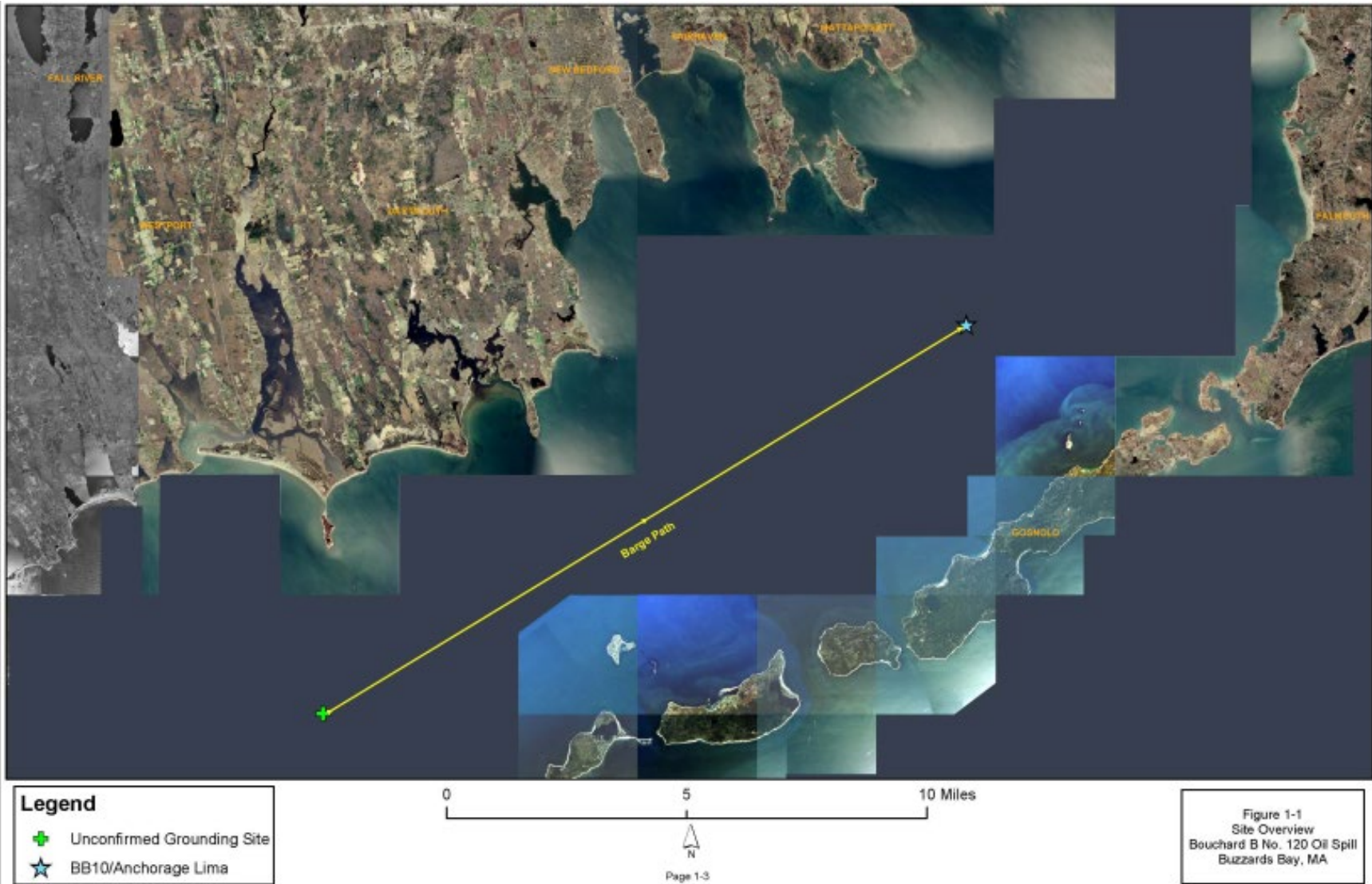


Figure 1. Grounding site and travel pathway of Bouchard Barge-120, resulting in Buzzards Bay oil spill. (Source: Massachusetts Executive Office of Environmental Affairs [MA EEA] et al. 2005).

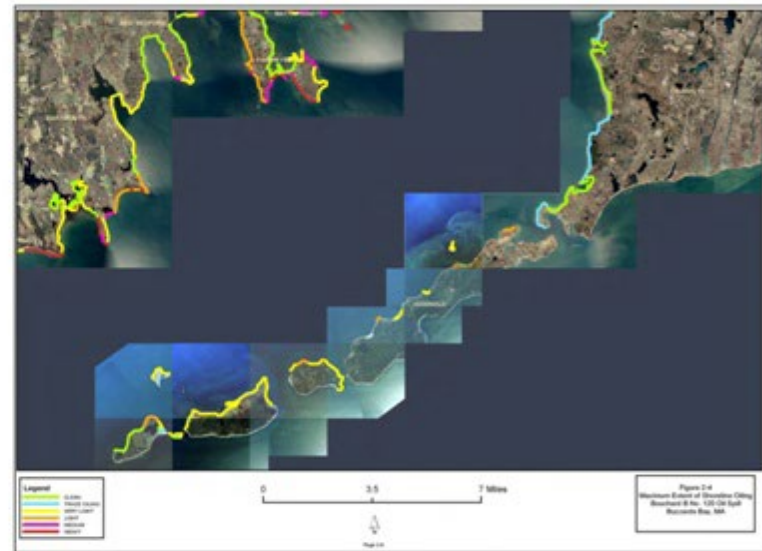
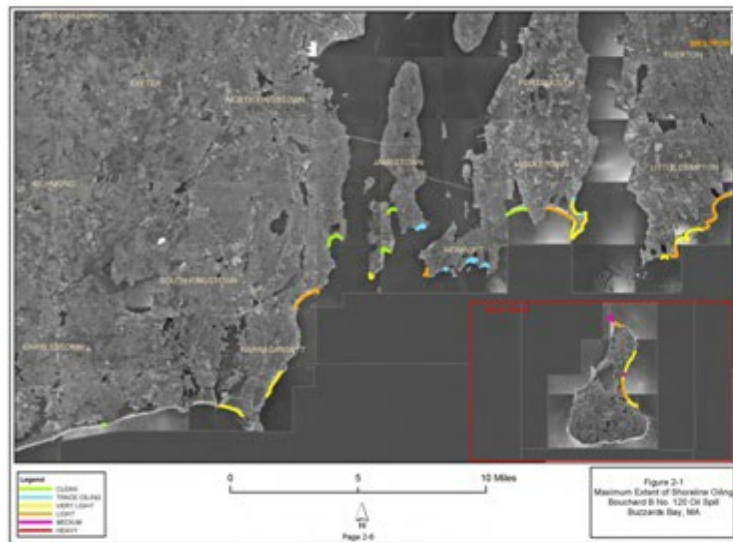
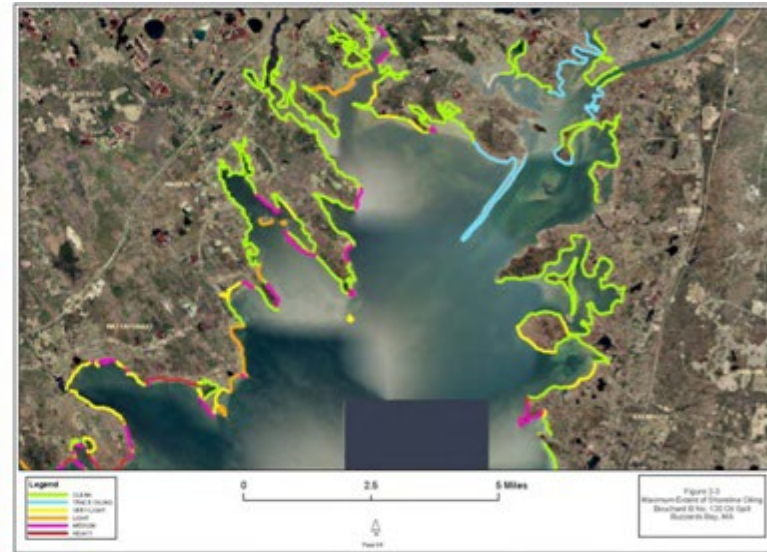
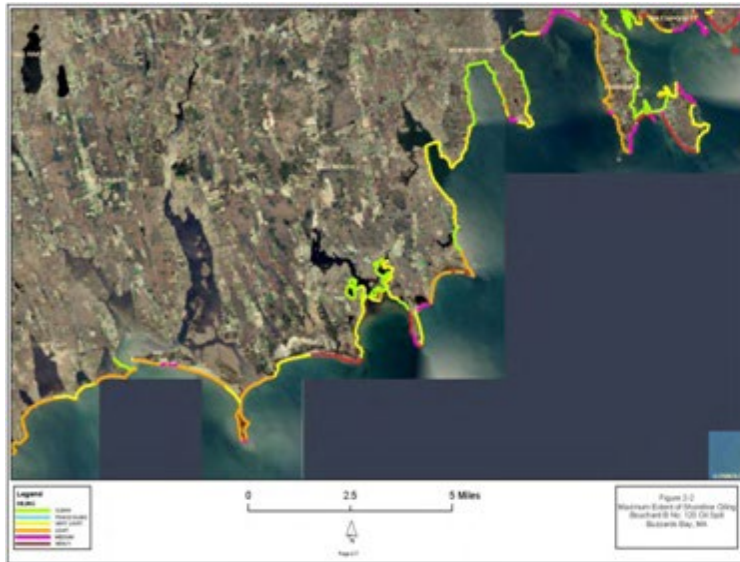


Figure 2. Extent of oiling resulting from the Bouchard B-120 grounding. (Source: MA EEA et al. 2005).

Response efforts also focused on Ram Island, a small uninhabited island and State Wildlife Sanctuary in Mattapoisett, Massachusetts that provides breeding habitat for the federally endangered roseate tern, common tern, and other species of shorebird, as well as shoreline and salt marsh habitat that support terns, fish, and benthic invertebrates. Oil thickly coated coarse shoreline substrates as wide bands in the intertidal zone, pooling in crevices and interstitial spaces. Early in the spill response effort, booms and sorbent material were placed around Ram Island, followed by more extensive oil cleanup activities conducted by crews ranging from 10 to 86 people. Activities included wrack removal, dead marsh grass raking and removal, scraping and removal of oiled substrate, and scrubbing and high-pressure and hot-water flushing and cleansing of rocks, in an attempt to prevent oiling of the terns and damage to the shoreline and aquatic habitat on the island.

Inadvertently, the cleanup exacerbated erosion and impacts to vegetation from trampling in several areas. In May 2003, the Trustee agencies worked collaboratively with the Responsible Parties' consultants to plant 3,500 bare root smooth cordgrass (*Spartina alterniflora*) seedlings at Ram Island to expeditiously address the impacts from marsh oiling and foot trampling associated with the spill clean-up activities. This technique had limited success.

The oiling of Ram Island was of major concern because large populations of roseate terns, a federally endangered species, and common terns nest on the Island. Their seasonal arrival unfortunately coincided with the time of the Spill and prompted hazing using three randomly firing propane cannons and two noise makers: a Phoenix Wailer, which randomly played odd noises and flashed a strobe light, and a Breco Buoy, which also randomly made noises, to deter the birds from coming onto the island until cleanup operations were completed on May 30, 2003.

1.4. Natural Resource Damage Assessment

Soon after the Spill, the Trustees commenced the Pre-assessment Phase of the Natural Resources Damage Assessment in accordance with OPA NRDA regulations to determine if jurisdiction existed to pursue restoration and, if so, whether it was appropriate to do so. A primary purpose of 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. Trustees must also consider compensatory restoration actions to compensate for the interim loss of natural resources and services pending recovery (15 CFR § 990.53(c)(1)).

Based on the Trustees' analyses of data collected during the initial spill response and Pre-assessment Phase (e.g., documentation of oiled and dead birds, which included federally listed threatened and endangered bird species, and heavily oiled and eroding marsh on Ram Island), the Trustees determined that there was jurisdiction to pursue restoration under OPA, and that pursuing restoration under OPA was appropriate (MA EEA et al. 2005). 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 feasible primary and/or compensatory 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 (15 CFR § 990.50).

Relatedly, but separate from the NRDA process, Bouchard Transportation Company, Inc. (Bouchard) also pled guilty to violating the Clean Water Act and the Migratory Bird Treaty Act on March 29, 2004 (United States v. Bouchard Transportation Company, Inc., Case No. 04-cr-10087 (D. Mass March 29, 2004)). As part of a settlement for those violations, Bouchard paid \$7 million to the North American Wetlands Conservation Fund for conservation efforts and \$2 million to the Oil Spill Liability Trust Fund to assist with cleanup costs of future oil spills if the Responsible Party cannot be determined.

1.5. Coordination

1.5.1. Trustee Council Organization and Activities

OPA, Executive Orders 12580 and 12777, and the National Contingency Plan (40 CFR § 300.600) provide for or designate the Federal, State, and Tribal Trustees for natural resources affected by oil spills. The Secretary of the Interior 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, their respective habitats, and Federal lands managed by DOI. The Secretary of Interior designated the Northeast Regional Director of the USFWS to act on behalf of the Secretary of Interior for the Spill. NOAA, pursuant to authority delegated by the Secretary of Commerce, 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 aforementioned Executive Orders and Federal regulations also provide that each state designates a Trustee for all natural resources within that state's boundaries. The Governor of Massachusetts designated the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs (MA EEA) as the Trustee for the Commonwealth for the purposes of claims under the Comprehensive Response, Compensation, and Liability Act of 1980, as amended, and under OPA.² The MA-EEA is supported by the Massachusetts Department of Environmental Protection (MassDEP), which administers the State's NRD 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 in the injury assessment phase of the Spill, the Wampanoag Tribe of Gay Head (the Aquinnah) reached a separate settlement with

² See letter from Governor Mitt Romney to President George W. Bush, dated August 25, 2005. The EEA Secretary is also a designated Trustee under M.G.L. Chapter 21A, Section 2A.

the Responsible Parties. Therefore, the Wampanoag Tribe is not a party to this restoration planning effort.

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 among the Trustees to accomplish the following: (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) to serve as a logistical, administrative, and fiscal agent for the Trustee Council and coordinate Trustee Council activities.

The Trustees have worked collaboratively to assess the natural resource injuries to migratory birds and shoreline and salt marsh resources on Ram Island to identify potential restoration alternatives. NOAA, as the LAT, and the USFWS are the Federal agencies responsible for complying with NEPA. The State Trustee agencies are designated cooperating agencies under NEPA. The Trustees have prepared this Final RP/EA for the purpose of evaluating potential restoration projects and identifying and selecting the preferred restoration alternative to address injuries to roseate and common terns and shoreline and salt marsh resources on Ram Island.

1.5.2. Responsible Party Involvement

Trustees generally must invite responsible parties to participate in the NRDA process and may enter into agreements to promote cost-effectiveness and cooperation (15 CFR § 990.14(c)). The Responsible Parties formally responded in June 2003, indicating acceptance to participate in a cooperative NRDA with the Trustees. In October 2006, the Responsible Parties entered into a cooperative NRDA agreement with the Trustees titled: "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" (Trustee-Responsible Party MOA), which included a reimbursement agreement supporting the Trustees' role in injury assessment and accompanying studies and restoration project oversight.

The Trustees prepared and provided the Responsible Parties with scopes of work for assessment studies, according to the procedures for cooperative studies outlined in the Trustee-Responsible Party MOA. The Responsible Parties' consultant, ENTRIX (now part of Stantec), participated in pre-settlement NRDA studies, injury determinations, restoration scaling calculations, and restoration planning discussions. In November 2010, the Trustees and Responsible Parties negotiated a mutually agreeable settlement and signed a consent decree for specified categories of natural resource damages, including shoreline and aquatic resources, piping plovers, and lost natural resource uses. In January 2018, the Trustees and Responsible Parties negotiated a second settlement and signed a consent decree for the remaining natural resources injured as a result of the Spill, which included roseate and common terns, common loons, and all other affected bird species.

1.5.3. Public Involvement, Notification, and Review

Public review of the Draft RP/EA was an integral and important component of the restoration planning process and was consistent with all applicable State and Federal laws and regulations, including NEPA and its implementing regulations, and the guidance for restoration planning found within OPA regulations (15 CFR § 990.55).

In addition to an informational public webinar, the Trustees published a notice of availability of the Draft RP/EA on multiple Trustee websites and in local newspapers, and issued a press release to regional newspapers and other media outlets. Additional information is available in Section 2.1.

In developing the Draft RP/EA, the Trustees conducted outreach by attending Roseate Tern Recovery Group annual meetings and consulting with USFWS endangered species biologists and wildlife experts from Mass Wildlife. Potential restoration project ideas were obtained by the Trustees through a public solicitation process, which garnered feedback from Federal, State, nongovernmental organization (NGO), and academic entities.

1.5.4. Administrative Record

The Trustees have established an Administrative Record in compliance with Federal regulatory requirements for NRDA's (15 CFR § 900.45). The Administrative Record includes information and documents prepared by and/or relied upon by the Trustees during injury assessment and determination, restoration scaling, and restoration planning. Interested persons can access or view the Administrative Record at the following locations:

[NOAA Natural Resource Damage Assessment and Restoration, Data and Visualization: Bouchard Barge 120 NRDA Administrative Record Page](#)

and

NOAA Restoration Center

28 Tarzwell Drive

Narragansett, RI 02882

Attention: Bouchard B-120 Administrative Records Management

Arrangements must be made with the NOAA Restoration Center in advance to review or obtain copies of these records at this location 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 copyrighted material.

1.6. Affected Environment

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 Buzzards Bay Comprehensive Conservation and Management Plan (Buzzards Bay National Estuarine Program et al. 2013), and Ecology of Buzzards Bay: An Estuarine Profile (Howes 1996). This section includes general descriptions of the shoreline and aquatic

resources injured by the Spill and areas that may be affected by the proposed restoration actions. A list of the species mentioned in this section can be found in Table 1.

1.6.1. 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 (mi²) (595 km²) of tidal waters. The entire watershed of Buzzards Bay covers 435 mi² (1,209 km²). 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. Most of the known eelgrass 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 feet (11 m) and a relatively uniform basin.

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.

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 296 mi² or 476 km²) and 27 principal embayments (an area of approximately 47 mi² or 75 km²).

Water temperatures in Buzzards Bay range from a summer maximum of 71.6°F (22°C) to 28°F (-3°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.

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. Overall, the Bay is a tidally dominated, well-mixed estuarine system.

Relative to the Bouchard B-120 oil spill, nearly 100 miles (161 km) 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., Barney's Joy Point, Mishaum Point, West Island, Sciticut Neck, Ram Island 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 coastlines (e.g., Little Compton and Block Island).

1.6.2. 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 (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 hard-shelled clam or quahog and soft-shelled clam. Buzzards Bay is also home to the epibenthic bay scallop, Eastern oyster, common razor clam, duck clam, and ocean quahog.

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 and shorebirds that feed on these organisms during low tide periods.

Many other species utilize the tidal flats, including crabs such as rock crab, green crab, and blue crab. These species migrate on and off the flats with the movements of tide, feeding on infaunal bivalves and worms. Hermit crabs and snails also coexist on the tidal flats. The horseshoe crab frequently uses tidal flats as feeding and spawning grounds and deposits its eggs in sands near the high tide line.

Buzzards Bay is a spawning ground for the American lobster 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 such as scup or porgy, butterfish, winter flounder, alewife, blueback

herring, Atlantic menhaden, black sea bass, tautog, bluefish, and striped bass (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, alewife, and blueback herring spend 3-5+ years in coastal and oceanic waters before returning to their natal rivers to spawn. American eel, a catadromous species, also migrates into streams and rivers in the Buzzards Bay watershed as juveniles to spend up to 10 years in freshwaters of Buzzards Bay watershed before out-migrating as adults to spawn in oceanic waters.

Salt marshes, comprising approximately 8.6% 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 and the high marsh, dominated by salt marsh hay and spike grass. Invasive, non-native plants, particularly common reed, are a threat to native salt marshes by displacing native vegetation cover. Salt marshes in Buzzards Bay and other Atlantic coastal locations are also threatened by accelerating sea level rise, where marsh biomass production and mineral sediment trapping cannot keep pace with rising sea levels. This condition results in prolonged flooding of salt marshes that ultimately results in salt marsh loss.

Marine life such as snails, crabs, ribbed mussels, 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 that also feed on marsh and submerged aquatic vascular plants. Mammals such as voles, field mice, raccoon, and skunk 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, 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 by other birds (e.g., federally endangered roseate terns, common terns, etc.), land mammals, and marine mammals (e.g., seals, dolphins).

Although greatly reduced in number and diversity from colonial times, Buzzards Bay is home to a variety of waterbird species. Three (3) species of tern breed and feed in significant numbers along Buzzards Bay shores: the roseate, common, and least. The roseate tern subspecies that breeds in North America is divided into two (2) discrete groups: the Northeast population and the Caribbean population. Bird Island and Ram Island in Buzzards Bay serve as the nesting areas for about 50% of the North American breeding population, and as of 2022, 3,091 roseate and 5,851 common tern breeding pairs were observed on the islands. Over the past several years, tern populations in Buzzards Bay have been increasing, and survey data strongly support that this is due to extensive habitat restoration completed in 2018 on Bird Island. Other species that nest in Buzzards Bay include piping plover, black-crowned night heron, snowy egret, double-crested

cormorant, osprey, herring gull, and black-backed gull, and 20 species of waterfowl such as ducks, swans, and geese.

1.6.3. Endangered Species

Species listed under the 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. The following species are federally listed and found in the Buzzards Bay waters and nearby coastal areas:

- Endangered—roseate tern, Northern long-eared bat, Atlantic sturgeon, shortnose sturgeon, and dwarf wedgemussel
- Threatened—piping plover and red knot

Table 1. Common and scientific names of species discussed in Section 1.6 Affected Environment of this document.

GROUP	COMMON NAME	SCIENTIFIC NAME
FISHES	Scup (or porgy)	<i>Stenotomus chrysops</i>
	Butterfish	<i>Peprilus triacanthus</i>
	Winter flounder	<i>Pleuronectes americanus</i>
	Alewife	<i>Alosa pseudoharengus</i>
	Blueback herring	<i>Alosa aestivalis</i>
	Atlantic menhaden	<i>Brevoortia tyrannus</i>
	Black sea bass	<i>Centropristis striata</i>
	Tautog	<i>Tautoga onitis</i>
	Bluefish	<i>Pomatomus saltatrix</i>
	Striped bass	<i>Morone saxatilis</i>
	American shad	<i>Alosa sapidissima</i>
	American eel	<i>Anguilla rostrata</i>
	Mummichog	<i>Fundulus heteroclitus</i>
	Striped killifish	<i>Fundulus majalis</i>
	Sheepshead minnow	<i>Cyprinodon variegatus</i>
	Four-spined stickleback	<i>Apeltes quadracus</i>
	Atlantic silverside	<i>Menidia menidia</i>
Atlantic sturgeon*	<i>Acipenser oxyrinchus oxyrinchus</i>	
Shortnose sturgeon*	<i>Acipenser brevirostrum</i>	
BIVALVES	Hard-shelled clam (or quahog)	<i>Mercenaria mercenaria</i>
	Soft-shelled clam	<i>Mya arenaria</i>
	Bay scallop	<i>Argopecten irradians</i>
	Eastern oyster	<i>Crassostrea virginica</i>
	Common razor clam	<i>Ensis directus</i>
	Duck clam	<i>Pitar morrhuanus</i>
	Ocean quahog	<i>Arctica islandica</i>
	Ribbed mussel	<i>Geukensia demissa</i>
Dwarf wedgemussel ¹	<i>Alasmidonta heterodon</i>	
CRUSTACEANS	Atlantic rock crab	<i>Cancer irroratus</i>
	European green crab	<i>Carcinus maenas</i>
	Blue crab	<i>Callinectes sapidus</i>
	Hermit crab	<i>Pagurus spp.</i>
GASTROPODS	Snail spp.	<i>Ilyanassa, Nassarius, and Littorina spp.</i>

GROUP	COMMON NAME	SCIENTIFIC NAME
PLANTS	Common eelgrass	<i>Zostera marina</i>
	Smooth cordgrass	<i>Spartina alterniflora</i>
	Salt marsh hay	<i>Spartina patens</i>
	Spike grass	<i>Distichlis spicata</i>
	Common reed	<i>Phragmites australis</i>
BIRDS	Canada goose	<i>Branta canadensis</i>
	Brandt	<i>Branta bernicla</i>
	Least tern	<i>Sternula antillarum</i>
	Black-crowned night heron	<i>Nycticorax nycticorax</i>
	Snowy egret	<i>Egretta thula</i>
	Double-crested cormorant	<i>Nannopterum auritum</i>
	Osprey	<i>Pandion haliaetus</i>
	Herring gull	<i>Larus smithsonianus</i>
	Black-backed gull	<i>Larus marinus</i>
	Red knot*	<i>Calidris canutus rufa</i>
MAMMALS	Vole	<i>Microtus spp.</i>
	Field mouse	<i>Mus spp.</i>
	Raccoon	<i>Procyon lotor</i>
	Striped skunk	<i>Mephitis mephitis</i>
	Northern long-eared bat*	<i>Myotis septentrionalis</i>

* Species is listed under the Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 *et seq.*) as Endangered or Threatened

1.6.4. 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.

The Buzzards Bay watershed has an average population density of 572 persons per mi² (221 persons per km²). Much of the watershed is rural and forested, and only a lesser amount of the watershed is classified as developed (14%); conversely, within one-half mile of the coast, more than 34% of the land use is characterized as residential, commercial, and industrial. 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. According to U.S. Census data, the population within the watershed was approximately 250,000 in 2010, and about 41% of that population lives within one-half mile of the Bay.

Shoreline ownership in the watershed is both public and private, and a variety of shoreline uses occur on both land ownership types. Approximately 25% 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, such as 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 the general public. The remainder of the 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 are open to the public. Refer to: <https://buzzardsbay.org/enjoy-buzzards-bay/beach-information/>.

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 approximately 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 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.

Shellfishing is a significant recreational and commercial activity in Buzzards Bay. Quahog (i.e., hard clam) is the principal species harvested in Buzzards Bay in terms of poundage, while bay

scallop, soft-shell clam, and eastern oyster remain highly valuable in terms of dollar value. 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.

1.6.5. 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. 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.

Under Massachusetts State law and policy, EJ principles are defined as principles that support protection from environmental pollution and the ability to live in and enjoy a clean and healthy environment, regardless of race, color, income, class, handicap, gender identity, sexual orientation, national origin, ethnicity or ancestry, religious belief, or English language proficiency. See § 56 of Ch. 8 of the Massachusetts Acts of 2021, Environmental Justice Policy of the Massachusetts Executive Office of Energy and Environmental Affairs (2021), and Executive Order #552 on Environmental Justice (2014).

According to the Council of Environmental Quality's Climate Economic Justice Screening Tool (CEJST, See: <https://screeningtool.geoplatform.gov/>), a community is highlighted as disadvantaged (overburdened and underserved) on the CEJST map if it is in a census tract that is (1) at or above the threshold for one or more environmental, climate, or other burdens, and (2) at or above the threshold for an associated socioeconomic burden. In Massachusetts, MA-EEA publishes an EJ Maps Viewer (See: <https://www.mass.gov/info-details/massgis-data-2020-environmental-justice-populations>) that provides information for areas in the Commonwealth of Massachusetts that are identified as EJ Populations based on income level, English language proficiency, self-identified race (i.e. "minority"), or race + municipal income level. Communities with Environmental Justice populations near or in the vicinity of Buzzards Bay include New Bedford, Wareham, and Falmouth, MA.

1.7. Natural Resource Injuries

1.7.1. Shoreline Resources

A Shoreline Technical Working Group (TWG) was created to assess impacts to shoreline resources. Shorelines affected by the Spill were characterized into three broad habitat categories: coarse substrates; sand beaches; and tidal salt marshes. Four major oiling categories were created for the three shoreline types based on percent cover and oil band width: very light, light, moderate, and heavy. 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.

Ram Island was described as a heavily oiled and eroding marsh. The Shoreline Assessment Team (SAT) conducted surveys to document the level of injury to the marsh from the heavy oiling. The shoreline was inspected in September 2003, June 2004, and June 2005 to assess the recovery of the marsh vegetation after emergency restoration replanting had occurred. The impacts from the oil and the subsequent cleanup activities required 3,500 bare root seedlings of salt marsh cordgrass (*Spartina. alterniflora*) to be planted on the island in June 2003. In September 2003, two areas had not yet successfully revegetated, and increased erosion was observed as trampled areas lacked plant roots to stabilize the soil. As a result, an additional 600 seedlings were planted on the Island in June 2004. Ram Island was also monitored in June 2005, and although there had been some regeneration of salt marsh in the oiled habitats, the trampled areas were still clearly defined and covered with an algal and diatom mat.

1.7.1.1. Shoreline Injury Assessment

To determine the effect of the oil spill and associated cleanup activities on the rate of erosion on Ram Island's shoreline, the SAT conducted a field study between October 2005 and 2006. The study indicated that the trampled, unvegetated areas were eroding faster than other shoreline areas on Ram Island.

For additional information, see the Appendix H: Ram Island Marsh Erosion Study and Appendix I: Methods for Determining Injury from Oiling and Enhanced Erosion of Marshes on Ram Island, Long Island, and Leisure Shores of the [Draft Final Bouchard B-120 Oil Spill Shoreline Injury Assessment: Injury Quantification, Buzzards Bay, Massachusetts and Rhode Island](#) (NOAA et al. 2008).

The Shoreline TWG performed a Habitat Equivalency Analysis (HEA) to quantify shoreline injuries to Ram Island, with habitat injury quantified in terms of Discounted Service-Acre-Years (DSAYs). Present and future lost services associated with injured acres of habitat were quantified, "discounted" to the present-day, and summed to calculate the total DSAYs lost. Using this method, the Trustees concluded that 5.2 DSAYs of shoreline habitat were injured on Ram Island. The Trustees calculated the amount and cost of restoration required to replace 5.2 DSAYs of shoreline habitat. Monetary damages were based on the quantity of DSAYs multiplied by the unit restoration cost per acre for shoreline habitat and salt marsh restoration established by NOAA. The Trustees secured \$534,000 through settlement from the Responsible Party to compensate for injuries to shoreline resources on Ram Island (Section 1.8).

1.7.2. Migratory Birds

To evaluate potential injury to migratory birds, the Trustees worked cooperatively with the Responsible Parties. The Trustees compiled and analyzed carcass collection data and estimated the number of adult birds that died as a result of the Spill (total = 1,174 birds, including 9 roseate terns, 25 common terns, 531 common loons, 83 common eiders, 83 red-throated loons, 77 black scoters, 38 dunlins (*Calidris alpina*), and 328 individuals of a variety of other species). Potential effects on the production of fledglings (also known as the F1 generation) were determined by utilizing published life history data (whenever possible) for each species, or in the case of terns, based on site-specific monitoring data collected following the Spill.

1.7.2.1. Roseate and Common Tern Injury Assessment

The Trustees determined the numbers of terns killed by the Spill through acute or delayed effects to be 9 adult roseate terns and 25 adult common terns. Injuries to shorebirds, including 38 dunlins, 13 greater yellowlegs (*Tringa melanoleuca*), 7 American oystercatchers (*Haematopus palliatus*), and 6 willets (*T. semipalmata*), were combined with the tern injury assessment. Had the Spill not occurred, these birds would have lived out their natural lifespans. This spill-related loss of bird-years associated with these animals, in present-value terms, was the first component of the Trustees' total estimate of losses for these species.

The Spill impacted the 2003 productivity of surviving terns. Spill-related response activities such as the hazing and cleanup actions on Ram Island disrupted nesting and caused some birds to nest later, which reduces productivity, or to be displaced to other islands. Some adults exposed to oil during feeding and preening may have also experienced reduced productivity. Overall, the Spill caused lower productivity and fewer fledglings than would otherwise have been expected from the surviving tern adults, and these losses were documented at Ram Island, Bird Island, and Penikese Island (Nisbet 2011a; Nisbet 2011b). The estimated 2003 foregone fledglings included 165 roseate tern fledglings and 2,713 common tern fledglings (Nisbet 2011a; Nisbet 2011b). Had the Spill not occurred, these fledglings would have lived out their natural lifespans. The spill-related loss of bird-years associated with these non-produced fledglings, in present-value terms, is the second component of the Trustees' total estimate of losses for these species.

The third component of losses is the foregone F1 productivity of both the killed birds and the foregone fledglings. Had these birds survived (or been generated), they would have been expected to reproduce at a certain rate throughout the remainder of their natural lifespans. Because the birds were killed (or were not produced), the expected F1 fledglings were similarly not produced.

The Trustees completed a Resource Equivalency Analysis (REA; Sperduto et al. 2003) to evaluate the total injury to birds and to calculate appropriate compensation for the calculated injury. Utilizing the REA methodology, the Trustees first calculated the loss of birds (adult and fledges) for each year of their expected life spans (direct injuries). The Trustees also calculated the loss of the first generation of fledges for each year of their expected life spans (indirect injuries) (Table 2 and Table 3). Then, using basic economic techniques, the sum of the direct and indirect injuries was converted to a present-value of the loss, known as discounted bird-years (DBYs). Based on this analysis, the Trustees determined the following losses to terns for a total of 18,453 DBYs (Table 4):

- roseate tern – 549 DBYs
- common tern – 17,904 DBYs

To estimate the cost of restoration for case settlement, the Trustees evaluated various alternatives to restore injured birds to their baseline condition and generate additional bird-years to compensate for interim losses that occurred until population recovery to baseline conditions. The Trustees focused on projects that would benefit roseate terns, since they always nest in colonies with common terns and many projects would be beneficial to both species. The Trustees also focused on restoration projects within Buzzards Bay, both to restore the tern colonies that

were directly impacted during the Spill, and because these breeding sites in Buzzards Bay are of critical importance to both tern species, especially roseate terns. Restoration projects were scaled, and costs were estimated to determine the total amount of natural resource damages. The Responsible Party agreed to award \$5,000,000 to restore the loss of roseate terns, common terns, and shorebirds as part of a larger \$13,300,000 settlement for injury to wildlife resources (Section 1.8).

Table 2. Roseate tern life history parameters used in injury and restoration scaling calculations.

PARAMETER	VALUE	NOTES	REFERENCES
Fledgling survival (survival from fledging to 1 y.o.)	0.505	Back-calculated using the other life history parameters in this table to yield the 15.6% survival from fledging to first breeding (3 y.o.), as provided in the cited reference.	Nichols et al. (1990)
Annual immature survival (survival from 1 to 2 y.o. and from 2 to 3 y.o.)	0.556	Average of values reported in Table 3 of Spendelov et al. 2002 for immature birds.	Spendelov et al. (2002)
Annual adult survival	0.835	Modeling effort using mark-recapture data from 19 years (1988-2006) for roseate terns at five colony sites including Ram Island, Bird Island, Penikese Island, Falkner Island, and Great Gull Island. The presented value is the overall mean rate across all colonies and falls within the range of estimated values for the Buzzards Bay islands between 1988 and 2004 (i.e., 0.739 - 0.869).	Spendelov et al. (2008)
Adult productivity (# fledglings/female)	1.25	The calculation of nest-weighted productivity for Bird, Ram, and Penikese Islands for 1998-2004, excluding 2002 and 2003, and including the effects of predation.	Nisbet (2011a)
Age at first breeding	3		Gochfeld et al. (1998)
Maximum life span (yrs.)	25		Gochfeld et al. (1998)

Table 3. Common tern life history parameters used in injury and restoration scaling calculations.

PARAMETER	VALUE	NOTES	REFERENCES
Fledgling survival (survival from fledging to 1 y.o.)	0.67	Calculated to produce the observed population growth rate, given other parameters.	
Annual immature survival (survival from 1 to 2 y.o. and from 2 to 3 y.o.)	0.67	See above.	
Annual adult survival	0.895	Nisbet (2002) found survival to be 0.88 for Bird Island and 0.91 for Ram Island. Breton et al. (2014) found adult survival to vary from 0.80 to 0.88 depending on bird age.	Nisbet (2002); Breton et al. (2014)
Adult productivity (# fledglings/female)	0.98	The calculation of nest-weighted productivity for Bird, Ram, and Penikese Islands for 1998-2004, excluding 2002 and 2003, and including the effects of predation.	Nisbet (2011b)
Age at first breeding	3		Nisbet (2002)
Maximum life span (yrs.)	26		Nisbet (2002)

Table 4. Trustee calculated roseate and common tern losses (2003 DBYs).

SPECIES	KILLED BIRDS (TRUSTEE ¹ /ENTRIX ²)	FLEDGLINGS NOT PRODUCED DUE TO REPSONSE ³	CARCASSES COLLECTED AND 2003 FLEDGLINGS NOT PRODUCED DBYs	F1 DBYs	TOTAL DBYs ⁴
Roseate terns	9.4/9.4	165	396	154	549
Common terns	25.1/25.0	2,713	10,059	7,845	17,904
All	34.5/34.4	2,878	10,455	7,999	18,453

¹ The presented figures include both onsite and offsite mortality (the latter of which the Trustees have estimated to be zero).

² The presented figures are from Entrix's 16 November 2007 correspondence and reflect onsite mortality.

³ Nisbet 2011a; Nisbet 2011b

⁴ Totals may not exactly match due to rounding.

1.8. Summary of Settlement for Natural Resource Damages

Under OPA, Responsible Parties are liable for the costs of conducting a natural resource damage assessment, as well as the costs of implementing restoration projects to restore the injured resources. In May 2011, The Bouchard B-120 Trustees and the Bouchard Transportation Company, Inc., the Tug Evening Tide Corporation, and the B. No. 120 Corporation, as the Responsible Parties for the Spill, reached agreement on the injury assessment and restoration for a portion of the injuries resulting from the Spill, including Ram Island. In January 2018, the Trustees and Responsible Parties reached a second mutually agreeable settlement to restore injuries to wildlife resources (i.e., migratory birds), including roseate and common terns. Under these agreements, the Responsible Parties agreed to pay natural resource damages and costs of Trustee restoration planning, implementation, oversight, and monitoring totaling \$19,376,393. Of the total, \$5,000,000 was designated to compensate for the loss to roseate and common terns and \$534,000 was designated to compensate for the injury to shoreline and salt marsh resources on Ram Island. These case documents can be accessed through the Bouchard Barge 120 NRDA Administrative Record website:

- <https://www.diver.orr.noaa.gov/web/guest/diver-admin-record/6406>

or via the following hyperlinks:

- [United States of America v. Bouchard Transportation Company, Inc., Tug Evening Tide Corporation, and B. No. 120 Corporation, Case No. 10-cv-11958, May 17, 2011, U.S. District Court, District of Massachusetts](#)
- [United States of America v. Bouchard Transportation Company, Inc., Tug Evening Tide Corporation, and B. No. 120 Corporation, Case No. 17-cv-12046, January 24, 2018, U.S. District Court, District of Massachusetts](#)

See Section 1.5.4. for additional accessibility and viewing options.

2. Restoration Planning

The goal of natural resource restoration planning through OPA regulations is to identify actions appropriate to restore, rehabilitate, 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. Trustees are required to identify and consider a reasonable range of alternatives that would address the injuries associated with the Spill, as well as consider a No Action alternative for comparison and contrast with selected actions.

2.1. Public Involvement in Restoration Planning

Following the 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. Beginning in 2003, multiple 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. The public meetings provided an opportunity to explain to residents and other interested citizens that thorough documentation and assessment of the

impacts from the Spill were 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, 2008, 2011 and 2012 to explain and update the status of the case injury assessment and restoration planning effort. Prior to this Final RP/EA, the Trustees released six (6) final restoration planning documents that selected preferred alternatives to restore certain natural resources and services injured as a result of the Spill. The following hyperlinks provide access to these documents:

- [Final Restoration Plan and Environmental Assessment for Piping Plover, December 2012](#)
- [Final Programmatic Restoration Plan and Environmental Assessment for the B-120 Buzzards Bay Oil Spill, September 2014](#)
- [Final Supplemental Environmental Assessment for Recreational Shellfishing and Shellfish Restoration, June 2016](#)
- [Final Supplemental Environmental Assessment for Salt Marsh, Fish Passage, and Eelgrass Restoration Addressing the Bouchard Barge 120 Buzzards Bay Oil Spill Shoreline, Aquatic, and Natural Resource Use Injuries Massachusetts and Rhode Island, May 2017](#)
- [Final Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge 120 \(B-120\) Oil Spill, June 2020](#)
- [Final Amendment to the 2014 Final Programmatic Restoration Plan and Environmental Assessment for the Buzzards Bay Bouchard Barge-120 \(B-120\) Oil Spill and Finding of No Significant Impact \(FONSI\), October 2020](#)

See Section 1.5.4. for additional accessibility and viewing options.

Throughout the injury assessment and restoration planning phases, the Trustees consulted with Federal and State wildlife agency experts, contractors, organizations, and individuals familiar with roseate and common terns, shoreline natural resources, and Ram Island. These experts and organizations provided input on life history data, restoration opportunities, costs, and restoration project feasibility.

The Trustees consulted with agency experts and contractors to analyze potential in-kind and in-place restoration scenarios to address the direct impacts from oil and cleanup activities on Ram Island. The resulting documents are publicly available at the Administrative Record website (ACRE 2009; MassWildlife and WHG 2021).

Specifically for tern restoration, the Trustees conducted outreach by attending Roseate Tern Recovery Group annual meetings and consulting with USFWS endangered species biologists, experts from MassWildlife, and scientists from academia and non-profit organizations. Potential restoration project ideas were obtained through a public solicitation process from September 26, 2022, through November 30, 2022. The Trustees requested project ideas via a two-page submittal form (Appendix A) that provided basic background information on a proposed project including a short description, location of the project, expected cost and timeline, and project partners. The Trustees received five (5) project submissions through this process (Appendix B).

The Draft RP/EA was provided to the public to both fully explain the injury assessment and restoration planning process and gain input from the public on the proposed restoration alternatives for roseate and common terns and shoreline and salt marsh resources on Ram Island. On October 19, 2023, the Trustees published a notice of the availability of the Draft RP/EA on multiple Trustee websites and in the New Bedford Standard-Times, and issued a press release to regional newspapers and other media outlets. The story was then published by Greenwire, a leading publication in energy and environmental news. The Draft RP/EA was available for public review and comment for a period of 30 days, and an informational webinar was held on November 2, 2023, to present the Draft RP/EA and answer questions from the public.

The Trustees received and reviewed one written comment, from the Commonwealth of Massachusetts Office of Coastal Zone Management during the comment period. The comment was taken into consideration, and the Trustees have provided additional clarification throughout the document. A copy of the comment, along with the Trustees' response, is provided in Appendix C. A summary of the preferred alternative is available in Section 3.3.

2.2. Restoration Criteria

The purpose of proposed restoration alternatives, as outlined in this Final RP/EA, is to make the public whole for injuries to roseate and common terns and shoreline and salt marsh resources on Ram Island resulting from the Spill, and to compensate for the associated interim natural resource losses. OPA and the NRDA regulations provide that recovered damages be used to restore, rehabilitate, replace, or acquire the equivalent of the resources and services that were injured or lost, and the 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, subject to the regulatory provisions for evaluating alternatives (discussed below).

Prior to fully evaluating restoration alternatives, the Trustees identified a set of minimum eligibility criteria, as further described below (Eligibility Criteria), to determine whether potential projects met minimum standards for applicability. Potential projects that met the Eligibility Criteria were then evaluated by the Trustees by applying required evaluation criteria specified in OPA, as described below (OPA Evaluation Criteria) 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.

2.2.1. Eligibility Criteria

Potential restoration projects must meet the following Trustee-defined Eligibility Criteria to be considered and evaluated by the Trustees:

- demonstrates a significant resource or spatial nexus to the restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the injured natural resources;
- provides measurable results. A project must deliver tangible and specific natural resource restoration results that are identifiable and measurable, and 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; and
- 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.

2.2.2. OPA Evaluation Criteria

OPA regulations (15 CFR § 990.54) require Federal and State Trustees to evaluate proposed restoration alternatives based on 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.

Representatives from the Trustee agencies evaluated each eligible restoration alternative through a qualitative assessment of the OPA Evaluation Criteria.

3. Restoration Alternatives

The Trustees considered a range of potential restoration alternatives, including a No Action alternative, which are described and evaluated using the Eligibility and OPA Evaluation Criteria detailed in Sections 2.2.1 and 2.2.2. The Trustees selected *Alternative 1 – Roseate and Common Tern Nesting Habitat Restoration, Salt Marsh Restoration, and Shoreline Erosion Control on state-owned Ram Island* as the preferred alternative. In compliance with OPA and NEPA, the selection of the preferred alternative was finalized after public review and comment on the Draft RP/EA and is documented in this Final RP/EA.

3.1. Evaluation of Restoration Alternatives

The following section consists of descriptions and an evaluation of each preferred and non-preferred restoration project alternative for restoring roseate and common terns, and shoreline and salt marsh habitat on Ram Island.

3.1.1. Alternative 1 – Preferred

Restoration Project Title: Roseate and Common Tern Nesting Habitat Restoration, Salt Marsh Restoration, and Shoreline Erosion Control on state-owned Ram Island.³

Project Proponent: Trustee-Led Project Alternative in collaboration with MassWildlife – The Trustee Council will use settlement funds to design and construct the restoration project.

Project Cost Estimate: Initial cost is approximately \$8,664,000.⁴

Project Goal: Protect and restore Ram Island’s vulnerable roseate and common tern nesting habitat, reduce ongoing shoreline erosion and scour, and restore salt marsh habitat to the maximum extent practicable through the following inland, shoreline, intertidal, and offshore approaches:

- Inland: Build elevational capital on the island and minimize sediment losses due to ongoing soil erosion and storm overwash
- Shoreline: Expand available tern nesting habitat and minimize shoreline retreat
- Intertidal: Enhance and expand salt marsh habitat, minimize erosion, and dampen wave energy approaching Ram Island that causes shoreline erosion
- Offshore: Facilitate wave attenuation and energy management

Summary of Selected Restoration Activity: This alternative was developed with the assistance of Woods Hole Group, Inc. (WHG) and is a layered approach that supports widespread dune enhancement and targeted new beach construction to build and maintain elevation capital and expand tern nesting habitat; a cobble berm and stone sill to reduce wave energy, control erosion, and maintain elevation capital (nourishment and restoration media); low and high marsh restoration areas to restore habitat oiled or lost to natural coastal processes and anthropogenic impacts; and inter- and sub-tidal boulder field to attenuate wave energy along high energy shorelines (MassWildlife and WHG 2021).

Additional sampling and data analysis will be conducted during the design phase to calibrate and validate the model used to develop and refine the conceptual design options. Specific construction approaches, adaptive management techniques, elevations, boulder locations, and fill areas and volumes will be determined during the design phase. All construction activities will take place outside of the roseate and common tern breeding and nesting season. Major components of the preferred restoration project include⁵:

³ Ram Island is owned and maintained by MassWildlife.

⁴ This initial cost is a high estimate and would be adjusted and scaled based on available funds.

⁵ May be modified during design phase.

- *Cobble Berm/Stone Sill*

Erosion control and wave energy attenuation around the perimeter of Ram Island will be achieved by constructing a cobble berm around the seaward edge of the newly restored dune (see below), occupying an existing cobble and gravel-strewn coastal beach. The cobble berm will enhance the volume of the coastal beach and provide a stabilizing landform that will protect and help to retain dune nourishment sand and reduce the volume lost during storm events. The cobble berm material will fit within the existing grain size distribution of the Island's shoreline, which contains mixed grain sizes from silts to cobbles and scattered boulders. A low-level stone sill will be placed at the mouth of the existing lagoon at the southeastern end of Ram Island to maintain the stability of the inlet, reduce erosion, and help retain the target elevation of the salt marsh restoration area located landward of the sill (see below).

- *Salt Marsh Restoration*

Salt marsh restoration and revegetation is proposed in degraded areas landward of the stone sill. Two tiers of salt marsh are proposed to improve biodiversity and provide a range of marsh elevations throughout the restoration area: low marsh (immediately landward of the stone sill) and high marsh (landward of a subsequent, biodegradable sill). The low marsh restoration area will be constructed within existing rocky intertidal shore and coastal beach. Revegetation will be performed through planting of nursery-grown, regional-genotype *Spartina alterniflora* plugs. Erosion control will be provided by the proposed stone sill, constructed seaward of the low marsh restoration area.

At the landward edge of the low marsh, soils will be used to create a sloping platform and facilitate the transition from low marsh to high marsh restoration areas. The high marsh restoration area will closely approximate the upper extreme of existing remnant high marsh. High marsh will be revegetated with a combination of nursery-grown, regional-genotype salt hay (*Spartina patens*), salt grass (*Distichlis spicata*), and black grass (*Juncus gerardii*) plant plugs. High marsh restoration areas will be blanketed and stabilized in a similar manner as the proposed low marsh.

- *New Coastal Dune Construction*

Additional elevation capacity and nesting habitat restoration is proposed within the existing mudflat lagoon with nourishment material. The new coastal dune will be located between the proposed salt marsh restoration area and the proposed dune enhancement area. In the present day, the beach will ideally serve as additional dry, coastal dune nesting habitat for roseate and common terns. Under future sea level rise conditions, the beach will serve as a transitional pathway for salt marsh to migrate inland and upland.

- *Coastal Dune Enhancement*

The project will include dune enhancement resulting in the expansion and improved resilience of tern nesting habitat. Dune enhancement is proposed across the existing coastal dune resource area to raise the elevation of the Island, provide a coarse and well-drained

substrate for tern nesting, increase the carrying capacity of the Island for nesting terns, and support assemblages of native plants that provide habitat and shelter to nesting seabirds. Preferred nourishment material will be composed of clean coarse sand with lesser amounts of gravel and small cobble, designed to provide preferred nesting habitat for roseate and common terns, drain effectively, and support assemblages of native plants.

- *Intertidal/Subtidal Boulder Field*

An intertidal and subtidal boulder field is proposed to mitigate against the highest wave energy impact areas under normal wave conditions and reduce impacts from storm events by reducing the wave energy reaching the Island.

3.1.1.1. *Evaluation of the Alternative*

Eligibility Criteria

The Trustees determined that Alternative 1 met the Eligibility Criteria (Table 5).

Table 5. Alternative 1 evaluation of eligibility.

<i>ELIGIBILITY Criteria</i>	YES	NO
<i>Demonstrates a significant resource or spatial nexus</i>	X	
<i>Provides measurable results</i>	X	
<i>Ensures protection of human health and safety and/or is not prohibited</i>	X	
<i>Is not subject to an independent, prior obligation to perform the action or activity</i>	X	
<i>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</i>	X	

OPA Evaluation Criteria

The Trustees’ evaluation of Alternative 1 based on the OPA Evaluation Criteria is summarized below.

The cost to carry out the alternative: The cost to implement the preferred project is \$8,664,000. This initial cost is a high estimate and will be adjusted and scaled based on available funds. Trustees will use case settlement funds as match in applications to forthcoming funding grants to accomplish the project goals. The Trustees consider a single, combined project that restores shoreline and wildlife resources addressed in this RP/EA, and has collateral benefits to other resources and species, to be a cost-effective and efficient use of funds.

The extent to which the 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 preferred project has concurrent benefits to habitat and wildlife injured during the Spill. The preferred project will restore the lost salt marsh habitat and mitigate for the increased

rate of erosion caused by the oiling and subsequent cleanup activities using methods described in Section 3.1.1. Additional actions to enhance and expand the inland and shoreline habitats will have combined effects that support the salt marsh restoration and compensate for the loss of roseate and common terns. The preferred project plans to expand tern nesting habitat and build elevational capital on the Island, which will reduce the rate at which nesting habitat erodes, and help prevent storm overwash of nests, thus increasing tern abundance and productivity. The project will also increase the resilience of Ram Island to storm-induced erosion and future sea level rise, increasing its longevity as a viable tern nesting island.

The likelihood of success of the alternative: The Trustees worked with MassWildlife to hire consultants to determine the best approaches to restore Ram Island and analyze the likelihood of the project sustainability. Each component of the Ram Island restoration has been modeled using existing resource area delineation, sediment sampling, and erosion and wave studies to estimate performance, longevity, potential resource impacts, construction and permitting feasibility, and costs. This information will be refined during the design phase once additional sampling and modeling is completed. The Trustees also established a technical working group to provide expertise and feedback during the consultant's analysis with representatives from NOAA National Marine Fisheries Service (NMFS), MassDEP, MassWildlife, MA Office of Coastal Zone Management (CZM), MA Division of Marine Fisheries (DMF), U.S. Army Corps of Engineers (USCOE), and USFWS' Endangered Species Program, Natural Resource Damage Assessment and Restoration (NRDAR) Program, and Restoration Division. The Trustees also have experience working collaboratively on a project on Bird Island, MA that resulted in the design and implementation of island restoration with similar goals to the one outlined herein. The Trustees have determined that the preferred project has a high likelihood of sustainability and success.

The extent to which the alternative will prevent future injury as a result of the incident and avoid collateral injury as a result of implementing the alternative: The Trustees do not anticipate that any of the project actions included in the preferred project will have adverse impacts to roseate and common terns or shoreline habitat on Ram Island. Impacts to Essential Fish Habitat (EFH) for juvenile Atlantic cod (*Gadus morhua*) and eelgrass (*Zostera marina*) beds in proximity to the Island are possible during the project's implementation. The Trustees anticipate mitigating for potential adverse EFH impacts during the salt marsh restoration and in the selection and placement of offshore structures.

The extent to which each alternative benefits more than one natural resource and/or service: The preferred project will benefit additional natural resources and services associated with salt marsh, inland, shoreline, and offshore habitats. Willet, American oystercatcher, and miscellaneous waterfowl known to have been killed during the Spill, including common eider, also nest on the Island and will benefit from habitat improvement and expansion. Offshore boulders utilized to attenuate wave energy will contribute to a more structurally complex habitat that will benefit aquatic species such as juvenile Atlantic cod.

The effect of the alternative on public health and safety: There is no anticipated adverse effect on public health and safety.

3.1.1.2. *Monitoring and Measurable Results*

The project team will conduct pre- and post-construction ecological monitoring. Minimum monitoring data will be obtained by monitoring island elevations, tidal hydrology in the restored salt marsh, and native marsh vegetation species presence and percent cover. The Trustees may be required to conduct additional site-specific monitoring as part of the permitting process.

Results from MassWildlife's annual tern monitoring will be required to determine if the restoration project is meeting established objectives and to gauge project success. Recorded data are expected to include, but are not limited to, the following:

- Overall abundance of nesting roseate and common tern pairs
- Estimates of roseate and common tern productivity

When possible, these data will be compared to historical data. Results from monitoring efforts will help inform the potential success of the restoration actions.

3.1.2. *Alternative 2 – Non-Preferred*

Restoration Project Title: Comprehensive Roseate and Common Tern Colony Monitoring and Management and Habitat Restoration in Massachusetts

Project Proponent: Partnering Project Alternative – Project was based on ideas submitted by Massachusetts Audubon and MassWildlife.

Project Cost Estimate: \$2,150,000

Project Goal: The goals of this restoration alternative were 1) to enhance roseate and common tern productivity and survival during nesting season and migratory staging at existing tern colonies in Massachusetts; and 2) to restore, establish, and maintain plant communities and associated habitats to benefit nesting terns on Penikese Island.

Summary of Proposed Restoration Activity: This alternative included a series of linked actions to support roseate and common tern nesting colonies in MA. Specific needs and proposed actions are outlined by location below:

- Bird and Ram Islands and Cape Cod National Seashore:

Current operations on Bird and Ram Islands and Cape Cod National Seashore are understaffed and underfunded. The following activities were proposed to ensure the evolving needs of the increasing tern population are met:

- Annual installation, maintenance, and removal of roseate tern nest boxes
- Monitoring of tern abundance, productivity, and survival through population censuses and fledgling banding
- Wardening, signage, and education by individuals stationed at nesting and staging sites
- Planting native species and invasive plant removal
- Managing avian and terrestrial predators through boat and gear checks, training, and rapid response

- Penikese Island:

Funding is needed to manage vegetation on Penikese Island in an effort to create a mosaic of maritime grassland and shrubland communities that would maintain or increase nesting pairs of roseate and common tern, other bird species that utilize these habitats, and rare and declining native plant species. Specific plant management techniques include the following:

- Maintain grassland primarily by prescribed fire utilizing established protocols
- *Ad hoc* herbicide treatment using integrated pest management principles
- Mechanical control and planting of vegetation

3.1.2.1. Evaluation of Alternative

Eligibility Criteria

The Trustees determined that Alternative 2 met the Eligibility Criteria (Table 6).

Table 6. Alternative 2 evaluation of eligibility.

<i>ELIGIBILITY Criteria</i>	YES	NO
<i>Demonstrates a significant resource or spatial nexus</i>	X	
<i>Provides measurable results</i>	X	
<i>Ensures protection of human health and safety and/or is not prohibited</i>	X	
<i>Is not subject to an independent, prior obligation to perform the action or activity</i>	X	
<i>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</i>	X	

OPA Evaluation Criteria

The Trustees' evaluation of Alternative 2 based on the OPA Evaluation Criteria is summarized below.

The cost to carry out the alternative: The costs associated with comprehensive tern colony monitoring and management are well understood in MA. These activities are currently implemented by MassWildlife on Ram, Bird, and Penikese Islands. The Trustees determined that a holistic approach would be cost-effective.

The extent to which the 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 activities listed in Alternative 2 partially meet the Trustees' goals and objectives to compensate for roseate and common terns injured as a result of the Spill. Due to the relatively small increases in tern productivity expected to result from these management actions, these

actions would not fully restore the injuries to terns. Trustee agencies and partners are already implementing projects to monitor and manage nesting terns, and restore nesting habitat; therefore, such projects would neither significantly increase productivity nor restore lost DBYs. Additionally, these actions would not compensate for the loss of shoreline or salt marsh habitat on Ram Island.

The likelihood of success of the alternative: Artificial nest boxes, monitoring, signage and wardening, plant management, and predator control are well understood and are currently carried out at most roseate and common tern colonies in MA. As such, the degree of additional benefit that would be gained by implementing more of these actions is unknown, and would result in relatively small increases in productivity and nesting. Lastly, the direct benefits of nest boxes, monitoring, plant management, and predator control would be limited to the duration of the project (if no other funding is available). Benefits from signage and wardening would be greatest during the period of active project implementation, but are predicted to increase with increasing public awareness.

The extent to which the alternative will prevent future injury as a result of the incident and avoid collateral injury as a result of implementing the alternative: Project actions included in Alternative 2 would not have adverse impacts to roseate and common terns or shoreline habitat on Ram Island. Lethal predator control methods that target individual herring gulls and black-backed gulls negatively impact these species that were also impacted by the Spill. Justification of overall project benefits would be required for this alternative.

The extent to which the alternative benefits more than one natural resource and/or service: Numerous shorebird and waterfowl species were killed during the Spill and are known to nest at locations proposed in Alternative 2. The majority of these species (except for herring gulls and black-backed gulls) would benefit from wardening, signage, and predator control activities, which all reduce disturbance and have the potential to increase productivity. Proposed plant management activities would improve overall habitat quality and benefit other native wildlife (e.g., insects, passerine birds).

The effect of the alternative on public health and safety: There would be no anticipated adverse effect on public health and safety.

3.1.2.2. Monitoring and Measurable Results

Annual reporting requirements from each project proponent would be required and include, but are not limited to, the following:

Bird and Ram Islands and Cape Cod National Seashore:

- Overall abundance of roseate and common terns at each location
- Number of nest boxes deployed, and number of nest boxes used
- Subsample count of nesting pairs with associated numbers of eggs, chicks, and fledges
- Presence of signage/wardens and any other pertinent details relating to interactions with the public
- Location of invasive species removal and native plantings, if applicable
- Whether predators were present and if removal was necessary

Penikese Island:

- Overall abundance and distribution of roseate and common terns
- Schedule, technique, and location of invasive plant removal
- Schedule and location of native plantings
- Presence and percent cover of native plantings
- Presence and percent cover of invasive plant species in managed areas

When possible, data generated during the proposed project's period of performance would be compared to historical or reference site data. These comparisons help inform the potential success of restoration actions, and whether any adaptive management measures may be required to improve project success.

3.1.3. No Action – Non-Preferred

With the No Action Alternative, no settlement funds would be expended, and no restoration, rehabilitation, replacement, or acquisition projects or actions would occur to compensate for injured roseate and common terns or shoreline and salt marsh resources on Ram Island. With this alternative, only natural recovery of the injured bird populations would occur and would result in continued shoreline erosion and flooding on Ram Island. For purposes of the Final RP/EA, the No Action Alternative cannot be the preferred alternative since compensatory restoration (for the interim loss of natural resources and services pending recovery) is required by Federal statute (i.e., OPA) and regulations, and technically feasible restoration approaches are available. The No Action Alternative is retained in the Final RP/EA for comparative purposes pursuant to NEPA.

3.2. Projects Considered but Not Fully Evaluated

In addition to the projects evaluated above, three projects were originally considered by the Trustees but were ultimately determined to not adequately meet the required Eligibility Criteria for Trustee funding (Table 7). Trustees initially conducted project scoping throughout New England and New York. However, sufficient projects were submitted within proximity to the area directly impacted by the Spill that those outside of Buzzards Bay were considered by the Trustees, but not carried forward for further OPA evaluation.

Table 7. Alternatives considered but eliminated from further evaluation.

Project	Project Proponent	Description	Cost	Location	Reason
Permanent Protection of Roseate and Common Terns on Great Gull Island	University of Connecticut	Negotiate and secure a conservation easement for Great Gull Island to ensure that the Great Gull Island tern colony continues to contribute to the maintenance and growth of the NW Atlantic Roseate Tern population. Includes active monitoring, management and wardening of the island.	\$1,700,000	New York	Does not demonstrate a significant resource or spatial nexus
Enhancing Roseate and Common Tern Habitat on Great Gull Island	University of Rhode Island	The goal of this project is to restore and enhance nesting habitat for Roseate and Common terns on Great Gull Island through invasive plant control, nest box installation, replacement and repair, and removal of marine debris.	\$500,000	New York	Does not demonstrate a significant resource or spatial nexus
Roseate and Common Tern Habitat Restoration on Falkner Island's North Spit	Stewart B. McKinney National Wildlife Refuge	Restoration of Roseate and Common tern habitat through placement of subsurface erosion control material and topsoil, and planting groundcover vegetation.	\$700,000	Connecticut	Does not demonstrate a significant resource or spatial nexus

3.3. Summary of Preferred Restoration Alternative

Based on the evaluation of the proposed alternatives using the Trustees' Eligibility Criteria and the OPA Evaluation Criteria described above, the Trustees select Alternative 1 - *Roseate and Common Tern Nesting Habitat Restoration and Salt Marsh Restoration and Erosion Control on Ram Island* as the Preferred Alternative to compensate the public for injured roseate and common terns and shoreline and salt marsh resources on Ram Island. The Trustees choose Alternative 1 because shoreline and salt marsh habitat impacted by heavy oiling and subsequent cleanup activities on Ram Island will be restored in-kind and in-place. This single, multi-layered restoration project on Ram Island will have concurrent benefits to roseate and common terns. A single Trustee-led project will be cost-effective and an efficient use of funds. The ongoing collaboration with MassWildlife and the combined experience with similar projects will ensure the preferred project's success in restoring Ram Island and roseate and common terns.

One in five of the federally endangered roseate terns in North America nests on Ram Island, and it is designated as an Important Bird Area by the National Audubon Society. New beach construction and dune enhancement described in Alternative 1 will enhance and expand upon

existing nesting habitat, resulting in increased tern abundance and productivity beyond the status quo. In addition, the cobble berm, stone sill, and offshore boulder field would stabilize the Island and improve its longevity as a viable tern nesting site as the climate changes and sea levels rise. Benefits to habitat and wildlife from implementing Alternative 1 will persist after the project is completed.

The preferred project will have additional benefits to natural resources and services, including inland and offshore habitats, native plants, and wildlife species including willet, American oyster catcher, and waterfowl species. Impacts to EFH for juvenile Atlantic cod and eelgrass beds in proximity to the Island are possible during the project's implementation. The Trustees anticipate mitigating for potential adverse EFH impacts during the salt marsh restoration and in the selection and placement of offshore structures. There is no anticipated adverse effects on public health and safety.

Additional sampling and data analysis will be conducted during the design phase to calibrate and validate the model used to develop and refine conceptual design options. Specific construction approaches, adaptive management techniques, elevations, boulder locations, and fill areas and volumes will be determined during the design phase. Prior to implementation, the preferred restoration project will be evaluated for consistency with applicable Federal, State, and local laws, regulations, and programs. All project sponsors that receive NRDAR funding will be responsible for obtaining necessary permits and complying with relevant Federal, State, and local laws, policies, and ordinances.

The Trustees have designated Alternative 2 as a non-preferred alternative because it fails to sufficiently compensate for injured roseate and common terns and shoreline and salt marsh resources on Ram Island. While activities outlined in Alternative 2 are essential to protecting the population and optimizing productivity, it does not replace habitat in-kind and in-place and would not fully restore the DBYs lost due to the Spill and cleanup. Activities outlined in Alternative 2 address monitoring and management of roseate and common terns and are already being implemented in some capacity on Bird, Ram, Penikese, and Cape Cod. Funding work that is already being implemented would not provide significant ecological uplift (e.g., increased tern abundance and productivity) beyond existing conditions, which is needed to replace the terns lost because of the Spill. For example, the benefits of annual monitoring, wardening, plant management, and predator control are limited to the duration of the project, and would not address the effects that sea level rise and other climate change conditions will have on nesting tern colonies (e.g., nest overwash and eroding habitat). Vegetation management on Penikese would enhance and expand tern habitat; however, maritime grassland and shrubland communities do not have significant in-kind nexus with shoreline and saltmarsh habitats impacted by the Spill.

4. Environmental Assessment

As noted in Section 1.2, this document constitutes the Environmental Assessment (EA) for the proposed restoration of natural resources, to address the potential impact of proposed restoration alternatives on the quality of the physical, biological, and cultural environment. The Trustees integrated the OPA NRDA and NEPA processes in this Final RP/EA, pursuant to 15 CFR §

990.23(a). This approach is also recommended under 40 CFR § 1501.2, which provides that federal agencies should “[i]ntegrate the NEPA process with other planning and authorization processes at the earliest reasonable time to ensure that agencies consider environmental impacts in their planning and decisions, to avoid delays later in the process, and to head off potential conflicts.” Thus, this document serves, in part, as the Federal agencies’ compliance with NEPA.

4.1. Scope of NEPA Analysis and Trustee Approach

Restoration actions taken by the Trustees under OPA and other Federal laws are subject to NEPA, 42 U.S.C. §§ 4321 *et seq.*, and the NEPA regulations at 40 CFR §§ 1500-1508. In general, agencies contemplating implementation of a major Federal action must produce an EIS if the action is expected to have significant impacts on the quality of the human environment. When it is uncertain whether the proposed action is likely to have significant impacts, agencies prepare an EA to evaluate the need for an EIS. If the EA demonstrates that the proposed action will not significantly impact the quality of the human environment, the agencies issue a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA, and no EIS is required (Appendix E).

This Final RP/EA complies with NEPA by: 1) describing the purpose and need for restoration (Section 1.1); 2) addressing public participation for this process (Sections 1.5.3 and 2.1); 3) identifying and describing the proposed action and alternatives (Section 3); 4) summarizing the affected environment (Section 1.6); and 5) analyzing environmental consequences (Section 4).

In 2015, the NOAA Restoration Center developed the “Programmatic Environmental Impact Statement for Habitat Restoration Activities Implemented throughout the Coastal United States” (PEIS; NOAA 2015). NOAA developed the PEIS to evaluate coastal habitat restoration and related technical assistance activities routinely funded or implemented through its existing programs. USFWS documented their adoption of the PEIS with a Record of Decision, dated August 20, 2019 (84 Federal Register 45515).

The PEIS is available at: <https://www.fisheries.noaa.gov/resource/document/restoration-center-programmatic-environmental-impact-statement>.

The PEIS includes a description and evaluation of typical impacts for a suite of coastal restoration activities that the Trustees have determined are inclusive of the restoration alternatives and associated activities, as identified in this Final RP/EA. Table 8 shows the relevant restoration activities described and analyzed in the PEIS for which the Trustees’ proposed alternatives fall within the scope of the PEIS analysis.

Table 8. Trustees’ proposed restoration alternatives and comparable activities in the NOAA PEIS.

Proposed Alternatives in this Final RP/EA	PEIS-Equivalent Restoration Activities (includes relevant sections of PEIS)
<p>Preferred Alternative – Alternative 1: Roseate and Common Tern Nesting Habitat Restoration and Salt Marsh Restoration and Erosion Control on Ram Island:</p> <ul style="list-style-type: none"> • Cobble berm/stone sill • Salt marsh restoration • Coastal dune construction and enhancement • Intertidal/subtidal boulder field 	<p>Preferred Alternative – Coastal Habitat Restoration (2.2.2)</p> <ul style="list-style-type: none"> • Shoreline Stabilization (2.2.2.11.2) • Sediment Removal (2.2.2.11.3) • Sediment Placement (2.2.2.11.4) • Wetland Plantings (2.2.2.11.5) • Beach and Dune Restoration (2.2.2.1)
<p>Non-Preferred Alternative – Alternative 2: Habitat Restoration, Management, Monitoring, and Wardening at Tern Colonies in Massachusetts:</p> <ul style="list-style-type: none"> • Supporting management of Bird and Ram Islands including sustained wardening, invasive plant and predator management, and monitoring for up to 10 years. • Supporting management of vegetation on Penikese Island. • Supporting wardening of staging and roosting areas throughout Cape Cod, including public outreach and management recommendations, to protect vulnerable fledgling terns. 	<p>Preferred Alternative – Technical Assistance (2.2.1); Coastal Habitat Restoration (2.2.2)</p> <ul style="list-style-type: none"> • Fish and Wildlife Monitoring (2.2.1.3) • Environmental Education and Outreach, Programs, Centers, Partnerships, and Materials (2,2,1,4) • Fish, Wildlife, and Vegetation Management (2.2.2.4) <ul style="list-style-type: none"> ○ Invasive Species Control (2.2.2.4.1) ○ Prescribed Burns (2.2.2.4.2) ○ Species Enhancement (2.2.2.4.3) • Signage and Access Management (2.2.2.8) • Wetland Plantings (2.2.2.11.5)

To avoid duplication of effort and streamline the NEPA analysis in this Final RP/EA, the Trustees are using the NOAA PEIS to satisfy NEPA compliance. Impacts are summarized below in Section 4.3. However, the full analysis covered by the PEIS is incorporated by reference (40 CFR § 1501.12).

4.2. NEPA Affected Environment

Section 1 of this Final RP/EA describes the general environmental setting that may be affected by the proposed restoration alternatives presented above. The section includes information on the physical, biological, and cultural and human environments of Buzzards Bay, as well as specific resources that may be affected by the restoration alternatives described in Section 3.

4.3. Impacts of Proposed Alternatives

The vast majority of the environmental impacts for the activities associated with the proposed restoration alternatives are fully described in the NOAA PEIS (Chapter 5 NEPA Environmental Consequences), and that discussion is incorporated here by reference. These impacts are summarized below in Tables 8 – 17. Any additional impacts not addressed in the PEIS are described in Section 4.3.4 below.

It is important to note that the impacts determinations summarized in Tables 8 – 17 and detailed in the PEIS represent “worse-case” scenarios predicted for the general restoration activity types described in the PEIS. It is anticipated that project-specific impacts associated with the proposed restoration activities for the preferred and non-preferred alternatives may be less severe for some resources. For example, the Trustees expect adverse impacts to threatened and endangered species will be negligible at most.

4.3.1. Alternative 1 – Preferred

The Trustees evaluated the preferred alternative on geology and soils, water, air, living coastal and marine resources and Essential Fish Habitat, threatened and endangered species, cultural and historic resources, land use and recreation, and socioeconomics. As noted in Section 3.1.1, Alternative 1 would restore losses caused by the Spill and associated cleanup and prevent future losses to Ram Island and roseate and common terns by protecting and stabilizing shoreline and salt marsh habitat and enhancing existing tern nest sites on the Island. This alternative would improve Ram Island’s longevity as a key nesting habitat for terns as the climate changes and sea level rises, and provide additional benefits to other shorebird and fish species.

Restoration activities associated with Alternative 1 are described in Sections 2.2.2.1; 2.2.2.11.2; 2.2.2.11.3; 2.2.2.11.4; and 2.2.2.11.5 of the PEIS. The relevant environmental impacts are summarized below.

Restoration activities associated with the cobble berm/stone sill and the intertidal/subtidal boulder field components of Alternative 1 are analyzed in Sections 4.5.2.11.2 of the PEIS, and those impacts are summarized in Table 9.

Table 9. Summary of impacts from Shoreline Stabilization Techniques activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Water</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Air</i>	Direct	Short-term	Beyond Project Site	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Indirect	Short-term	Beyond Project Site	Minor & Moderate	Adverse
	Direct	Short-term & Long-term	Beyond Project Site	Moderate	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Cultural and Historic Resources</i>	Indirect	Long-term	Localized	Minor	Adverse
<i>Land Use and Recreation</i>	Indirect	Permanent	Beyond Project Site	Minor	Beneficial
	Indirect	Long-term	Localized	Minor	Adverse
<i>Socioeconomics</i>	Indirect	Short-term	Beyond Project Site	Minor	Beneficial

Restoration activities associated with the salt marsh restoration component of Alternative 1 are analyzed in Sections 4.5.2.11.1 and 4.5.2.11.2 of the PEIS, and those impacts are summarized in Table 10 and Table 11.

Table 10. Summary of impacts from Wetland Restoration and Shoreline Stabilization Techniques activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Water</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Air</i>	Direct	Short-term	Beyond Project Site	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Indirect	Short-term	Beyond Project Site	Minor & Moderate	Adverse
	Direct	Short-term & Long-term	Beyond Project Site	Moderate	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Cultural and Historic Resources</i>	Indirect	Long-term	Localized	Minor	Adverse
<i>Land Use and Recreation</i>	Indirect	Permanent	Beyond Project Site	Minor	Beneficial
	Indirect	Long-term	Localized	Minor	Adverse
<i>Socioeconomics</i>	Indirect	Short-term	Beyond Project Site	Minor	Beneficial

Table 11. Summary of impacts from Wetland Planting activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Water</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Air</i>	No Effect				
<i>Living Coastal and Marine Resources and EFH</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Threatened and Endangered Species</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Cultural and Historic Resources</i>	Indirect	Long-term	Localized	Minor	Adverse
<i>Land Use and Recreation</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Permanent	Beyond Project Site	Minor	Beneficial
<i>Socioeconomics</i>	Indirect	Short-term	Beyond Project Site	Minor	Beneficial

Restoration activities associated with the beach construction and dune enhancement components of Alternative 1 are analyzed in Section 4.5.2.1 of the PEIS, and those impacts are summarized in Table 12.

Table 12. Summary of impacts from Beach and Dune Restoration activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct	Long-term	Localized	Moderate	Beneficial
<i>Water</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct	Short-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Major	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Major	Beneficial
<i>Cultural and Historic Resources</i>	Direct & Indirect	Long-term	Localized	Minor	Adverse & Beneficial
<i>Land Use and Recreation</i>	Indirect	Short-term	Localized	Minor	Beneficial
<i>Socioeconomics</i>	Direct & Indirect	Long-term	Localized	Moderate	Beneficial

4.3.2. Alternative 2 – Non-Preferred

The Trustees evaluated the impacts of Alternative 2 on geology and soils, water, air, living coastal and marine resources and Essential Fish Habitat, threatened and endangered species, cultural and historic resources, land use and recreation, and socioeconomics. As noted in Section 3.1.2 above, Alternative 2 is a non-preferred alternative because it fails to sufficiently compensate for injured roseate and common terns and shoreline and salt marsh resources on Ram Island. Activities outlined in Alternative 2 are already being implemented in some capacity and are limited to the duration of the project. Funding work that is already being implemented would not significantly increase tern abundance and productivity beyond the status quo. In addition, Alternative 2 does not replace shoreline and salt marsh habitat.

Restoration activities associated with Alternative 2, including technical assistance activities, are described in Sections 2.2.1.3; 2.2.1.4; 2.2.2.4; 2.2.2.8; and 2.2.2.11.5 of the PEIS. The relevant environmental impacts are summarized below.

Restoration activities associated with the wardening, plant and predator management, outreach and education, and monitoring components of Alternative 2 are analyzed in Sections 4.5.1.3; 4.5.1.4; 4.5.2.4.1; 4.5.2.4.3; and 4.5.2.8 of the PEIS and those impacts are summarized in Tables 12 - 17.⁶ Impacts associated with wetland plantings for vegetation management are summarized in Table 11 above.

Table 13. Summary of impacts from Fish and Wildlife Monitoring activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Indirect	Long-term	Beyond Project Site	Major	Beneficial
	Direct	Short-term	Localized	Minor	Adverse
<i>Water</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Beyond Project Site	Major	Beneficial
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Beyond Project Site	Major	Beneficial
<i>Living Coastal and Marine Resources and EFH</i>	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Beyond Project Site	Major	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Localized	Moderate	Adverse
	Indirect	Long-term	Beyond Project Site	Major	Beneficial
<i>Cultural and Historic Resources</i>	Indirect	Short-term	Localized	Minor	Adverse
<i>Land Use and Recreation</i>	Direct & Indirect	Long-term	Beyond Project Site	Minor	Beneficial
	Direct	Short-term	Localized	Minor	Adverse
<i>Socioeconomics</i>	Direct & Indirect	Long-term	Beyond Project Site	Minor	Beneficial

⁶ Some impacts from the proposed predator management activities are not fully analyzed in the PEIS; however, the Trustees have determined that comparable impacts have been analyzed in Section 5.5 *Environmental Consequences* of the Final RP/EA for Piping Plover. That discussion is incorporated herein by reference, and a summary of the impacts is provided in Section 4.3.4 below.

Table 14. Summary of impacts from Environmental Education Classes and Outreach, Programs, Centers, Partnerships, and Materials; Training Programs activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Long-term	Beyond Project Site	Minor	Beneficial
<i>Water</i>	Direct & Indirect	Long-term	Beyond Project Site	Minor	Beneficial
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct & Indirect	Long-term	Beyond Project Site	Minor	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Long-term	Beyond Project Site	Minor	Beneficial
<i>Cultural and Historic Resources</i>	Indirect	Long-term	Beyond Project Site	Minor	Beneficial
<i>Land Use and Recreation</i>	Indirect	Long-term	Beyond Project Site	Minor	Beneficial
<i>Socioeconomics</i>	Direct	Long-term	Beyond Project Site	Minor	Beneficial

Table 15. Summary of impacts from Invasive Species Control activities. Includes mechanical and physical removal of vegetation, prescribed burns, and herbicide use, and the physical removal of terrestrial animals by manual or other means.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Moderate	Adverse
	Direct	Long-term	Localized	Moderate	Beneficial
<i>Water</i>	Direct	Short-term	Beyond Project Site	Moderate	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Air</i>	Direct	Short-term	Localized	Moderate	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct	Short-term	Beyond Project Site	Moderate	Adverse
	Direct	Long-term	Beyond Project Site	Major	Beneficial
<i>Threatened and Endangered Species</i>	Direct	Short-term	Beyond Project Site	Moderate	Adverse
	Direct	Long-term	Beyond Project Site	Major	Beneficial
<i>Cultural and Historic Resources</i>	No Effect				
<i>Land Use and Recreation</i>	Direct	Short-term	Localized	Moderate	Adverse
<i>Socioeconomics</i>	No Effect				

Table 16. Summary of impacts from Prescribed Burn and Forest Management activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Moderate	Adverse
	Direct	Long-term	Localized	Moderate	Beneficial
<i>Water</i>	Direct & Indirect	Short-term	Localized	Moderate	Adverse
<i>Air</i>	Direct	Short-term	Beyond Project Site	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct & Indirect	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Threatened and Endangered Species</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct & Indirect	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Cultural and Historic Resources</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Land Use and Recreation</i>	Direct	Short-term	Beyond Project Site	Moderate	Adverse
<i>Socioeconomics</i>	Direct	Short-term	Localized	Minor	Adverse

Table 17. Summary of impacts from Species Enhancement activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Water</i>	No Effect				
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct & Indirect	Short-term & Long-term	Beyond Project Site	Moderate & Major	Adverse
	Direct & Indirect	Short-term & Long-term	Beyond Project Site	Moderate	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term & Long-term	Beyond Project Site	Moderate & Major	Adverse
	Direct & Indirect	Short-term & Long-term	Beyond Project Site	Moderate	Beneficial
<i>Cultural and Historic Resources</i>	No Effect				
<i>Land Use and Recreation</i>	Indirect	Long-term	Localized	Minor	Beneficial
<i>Socioeconomics</i>	Indirect	Short-term & Long-term	Localized	Minor	Beneficial

Table 18. Summary of impacts from Signage and Access Management activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct	Long-term	Localized	Moderate	Beneficial
<i>Water</i>	Direct	Short-term	Localized	Minor	Adverse
	Direct	Long-term	Localized	Moderate	Beneficial
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Localized	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Cultural and Historic Resources</i>	No Effect				
<i>Land Use and Recreation</i>	Direct	Long-term	Localized	Minor	Adverse
<i>Socioeconomics</i>	No Effect				

4.3.3. No Action – Non-Preferred

The Trustees also evaluated the impacts of the No Action (natural recovery) alternative on geology and soils, water, air, living coastal and marine resources and Essential Fish Habitat, threatened and endangered species, cultural and historic resources, land use and recreation, and socioeconomics. As noted in Section 3.1.3 above, the No Action alternative is a non-preferred alternative because it fails to compensate for injured roseate and common terns and shoreline and salt marsh resources on Ram Island. However, NEPA mandates that Federal agencies evaluate the environmental impacts of no action.

By definition, the No Action alternative lacks physical interaction with the environment. Accordingly, the No Action alternative would cause no direct impacts to any of the elements of the environment listed above. However, if the Trustees undertook no action, the environment would not benefit from the ecological uplift created by active restoration. In addition, existing habitat conditions may decline under climate change and population growth, or as habitat conditions continue to degrade under conditions of degraded natural processes.

Conversely, the type of active restoration with the proposed preferred alternative would compensate for natural resource injuries to roseate and common tern and their supporting habitats, as well as shoreline and salt marsh resources on Ram Island resulting from the B-120 oil spill.

Based on this evaluation, the Trustees concluded that the No Action alternative would have either no effect or minor to moderate short or long-term indirect adverse effects on the human environment.

4.3.4. Impacts Not Addressed in the PEIS

Predator Management

Some impacts from the predator management activities under Alternative 2 are not fully analyzed in the PEIS; however, the Trustees have determined that comparable impacts have been

analyzed in Section 5.5 Environmental Consequences of the 2012 Final RP/EA for Piping Plover.⁷ That discussion is incorporated herein by reference, and summarized in the following paragraphs, below.

Site-specific predator control and management will target predators that are known to be adversely affecting tern survival and productivity. Predator control has been shown to be an effective tool to increase tern survival and productivity. Removal of individual predators to protect terns would result in short-term, localized, adverse impacts due to reductions in numbers of these predators. There is also potential for both short- and long-term public health or safety benefits via the reduction of nuisance individuals (predators such as coyote, skunks, crows, or gulls).

Removal of predatory animals to increase tern survival may be adverse to some members of the public, depending on personal values. However, predator control would be carefully planned and implemented to target a limited number of individuals of known predatory species. Risks inherent with removal activities would be minimized by carefully selecting removal times and locations and by employing experienced and trained personnel.

Environmental Justice

Environmental Justice impacts from coastal habitat restoration projects and related technical assistance activities are not directly addressed in Section 4.0 (Environmental Consequences) of the PEIS.⁸ Therefore, the Trustees have provided additional NEPA analysis for restoration activities that include these potential impacts.

Restoration activities supported by the Trustees help to ensure the enhancement of coastal habitat and wildlife species in MA. The Trustees have determined that the proposed restoration activities for Alternatives 1 and 2 would provide long-term or permanent benefits to the Environmental Justice communities described in Section 1.6.4 by improving the quality of the natural environment, enhancing local wildlife populations, and providing potential educational opportunities to local communities. None of the Trustees' proposed alternatives are expected to adversely impact minority or low-income populations.

Climate Change

The habitat restoration activities analyzed in the PEIS are particularly relevant to the discussion of carbon emissions and climate change science and its practical application in environmental restoration and conservation. The release of carbon and other greenhouse gasses into the atmosphere is due to a number of causes, most notably the combustion of fossil fuels and the destruction of ecological "carbon sinks"—ecosystems that absorb or contain more carbon than they emit. In the context of habitat restoration, a carbon sink could be coastal and freshwater wetlands, salt marshes, mangroves and submerged aquatic vegetation (SAV) beds, the associated biomass for these habitats, or even the ocean itself—all environments that NRDA trustees work to restore, enhance, rehabilitate, reestablish, or protect. Sequestered carbon is an important concept in assessing the impacts of habitat restoration because many of the habitats described

⁷ Refer to Section 5.5 *Environmental Consequences* of the Final RP/EA for Piping Plover.

⁸ Environmental Justice impacts are generally discussed in the PEIS in relation to the requirements of Executive Order 12898 (refer to Section 4.12 of the PEIS),

in the PEIS as part of the affected environment do serve as carbon sinks and therefore their restoration or protection from damage, degradation, or outright conversion/ development either prevents greenhouse gas emissions, or conversely increases the capacity of the habitat to further sequester carbon. One goal of these activities is to improve the functionality of ecosystems to where their carbon sequestration potential is enhanced or protected (e.g., salt marsh restoration). In addition to carbon sequestration, the restoration activities described in the PEIS also enhance the physical resiliency of coastal ecosystems to better withstand the effects of climate change and sea level rise.

Minor, localized, short-term, and adverse direct effects on greenhouse gas (GHG) emissions are expected as a result of the proposed restoration alternatives (Alternatives 1 and 2). Actions resulting in GHG emissions may include the use of heavy equipment for construction, transport of materials needed for construction, and other activities associated with pre- and post-implementation such as monitoring. These activities have the potential to generate GHG emissions through the use of oil-based fuels and consumption of both renewable and nonrenewable resources. However, the amount of GHG emissions generated through the proposed activities is not anticipated to be significant due to the limited number of restoration projects, duration construction time, and the use of best management practices for air quality.

Long-term, minor, beneficial impacts to factors affecting climate change may result from restoration activities that include placement of natural materials and vegetation and revegetation of disturbed sites with native species, as these actions would thus increase carbon storage capacity of soils and plant communities, contributing to carbon sequestration. The proposed restoration alternatives are expected to improve local resiliency to increased frequency of extreme weather events, flooding, and changes in annual patterns of precipitation by building elevation capital, increasing flood storage capacity and filtration of runoff, restoring high and low marsh, controlling erosion, and attenuating wave energy along high energy shorelines.

4.4 Cumulative Effects

4.4.1 Alternative 1 – Preferred

The preferred alternative would have no major adverse impacts on physical, biological, or socioeconomic resources in Buzzards Bay. The preferred alternative may result in minor, short-term, adverse impacts and both short- and long-term beneficial impacts to habitats and the natural resources they support. When considered in tandem with other past, present, and reasonably foreseeable future actions within the Buzzards Bay watershed, including those completed between 2017 and 2018 on Bird Island, MA, for which funds from the New Bedford Harbor NRD settlement were used to rebuild a revetment to reduce erosion of tern nesting substrate and restore lost nesting substrate and vegetation; vegetation management conducted by MassWildlife using prescribed fire, herbicide treatments, mechanical control, and native plantings to improve and expand tern nesting habitat on Penikese Island since 2011; and restoration activities covered by the Restoration Plans listed in Section 2.1, the preferred alternative is not anticipated to have more than minor adverse cumulative impacts. Direct and indirect adverse impacts are likely to be short-term and will occur primarily during and immediately after periods of active construction. The preferred alternative is expected to result

in long-term, beneficial cumulative impacts on the human environment since they may positively impact coastal and marine habitats and related natural resources and services.

4.4.2 Alternative 2 – Non-Preferred

As with the preferred alternative, the non-preferred alternative would have no major adverse impacts on physical, biological, or socioeconomic resources in Buzzards Bay. In general, impacts from the non-preferred alternative would overall be less than for the preferred alternative due to less manipulation of the environment. The non-preferred alternative may result in negligible or minor, short-term adverse impacts and both short- and long-term beneficial impacts to habitats and the natural resources they support. When considered in tandem with other past, present, and reasonably foreseeable future actions within the Buzzards Bay watershed, including those restoration activities covered by the Restoration Plans listed in Section 2.1, the non-preferred alternative is not anticipated to have more than minor adverse cumulative impacts. Direct and indirect adverse impacts are likely to be highly localized, and short-term. The non-preferred alternative is expected to result in long-term, beneficial cumulative impacts on the human environment since they may positively impact coastal and marine habitats and related natural resources (especially terns) and services.

4.4.3 No Action – Non-Preferred

The No Action alternative would have long-term, minor, adverse effects to physical and biological resources in Buzzards Bay since no active restoration would occur. Natural resources would not return to baseline conditions, and interim losses would not be compensated. However, relative to the magnitude of adverse ecological impacts that currently exist in the Buzzards Bay watershed, the adverse cumulative effects of the No Action alternative are not expected to be significant as defined under NEPA.

4.5 Conclusion Regarding Environmental Consequences of the Proposed Alternatives

Based on the analysis in this Final RP/EA, the Federal Trustees have made the determination that Alternative 1 (preferred) and Alternative 2 (non-preferred) are within the range of alternatives and scope of environmental consequences described in the PEIS, or in Section 4.3.4, and do not have significant adverse impacts. Moreover, the Federal Trustees have fully considered and determined that there are no geographic, project- or site-specific conditions, sensitivities, unique habitats, or resources (with the exception of EJ and Climate Change, which are discussed separately in Section 4.3.4) that warrant additional NEPA analyses beyond what is provided in the PEIS and Section 4.3.4. While the adverse impacts of Alternative 1 and Alternative 2 would be generally similar, Alternative 2 would provide fewer overall environmental and natural resource benefits.

Based on the analysis of environmental consequences in this Final RP/EA, the Federal Trustees' findings indicate that the evaluated alternatives would not result in any significant impacts on the human environment, in accordance with the guidelines for determining the significance of proposed Federal actions (40 CFR § 1501.3). As such, the Federal Trustee agencies have issued a FONSI, which is appended to this Final RP/EA (40 CFR § 1501.6)(Appendix E).

5. Compliance with Other Federal, State, and Local Laws and Policies

The preferred restoration project will be evaluated for consistency with applicable Federal, State, and local laws, regulations, and programs. All project sponsors that receive NRDAR funding will be responsible for obtaining necessary permits and complying with relevant local, State, and Federal laws, policies, and ordinances.

5.1. Federal Statutes, Regulations, and Policies

Authority	Compliance
Clean Water Act (CWA, 33 U.S.C. § 1251 <i>et seq.</i>)	Any necessary applications for 404 General Permits to the U.S. Army Corps of Engineers will be filed in compliance with this Act.
National Historic Preservation Act (54 U.S.C. § 300101 <i>et seq.</i>)	The USFWS will consult with the State Historic Preservation Office and the Advisory Council for Historic Preservation on any projects that could involve historic and/or cultural resources. Project designs may be modified based upon these consultations, if necessary.
Rivers and Harbors Act (RHA, 33 U.S.C. § 401 <i>et seq.</i>)	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. If needed, individual restoration activities will be addressed under the joint Federal/State permit.
Coastal Zone Management Act (CZMA, 16 U.S.C. § 1451 <i>et seq.</i> , 15 CFR § 923)	Regulatory authorization for the implementation of restoration projects would be required from the Massachusetts Office of Coastal Zone Management (MACZM), which serves as the lead agency for implementing the State’s coastal management program, or the Rhode Island Coastal Resources Management Council (CRMC). Where a MACZM or CRMC approval is required, it will be obtained before proceeding with implementation of the preferred restoration alternative, and general concurrence from the State will be secured that the preferred restoration alternative is 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 <i>et seq.</i> , 50 CFR Parts 17, 222, 224)	Coordination with the 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 preferred restoration projects would 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.

Authority	Compliance
Fish and Wildlife Conservation Act (16 U.S.C. § 2901 <i>et seq.</i>)	The preferred restoration projects would 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.
Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. § 661 <i>et seq.</i>)	The preferred restoration projects would have either a positive effect on fish and wildlife resources or no effect.
Watershed Protection and Flood Prevention Act as amended (16 U.S.C. § 1001 <i>et seq.</i>)	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 <i>et seq.</i>)	Projects are expected to have a beneficial effect on essential fish habitat (EFH) resources, including species such as Atlantic cod.
Marine Mammal Protection Act (16 U.S.C. § 1361 <i>et seq.</i>)	Negligible interaction with marine mammals in the vicinity of the preferred restoration projects is expected. Any potential impacts would be evaluated by NMFS before project implementation would commence.
Migratory Bird Conservation Act (126 U.S.C. § 715 <i>et seq.</i>)	During the project planning phase and prior to implementation, consultation with the USFWS would occur to comply with this Act.
Archeological Resources Protection Act (16 U.S.C. § 470 <i>et seq.</i>)	No impacts to archeological resources are anticipated for the preferred projects.
Information Quality Guidelines issued pursuant to Public Law 106-554	This Final RP/EA is an information product covered by information quality guidelines established by NOAA and DOI for this purpose. The quality of the information contained herein is consistent with applicable agency policy and guidelines.
Rehabilitation Act, Section 508	USFWS has complied with the agency's web policies, based on the World Wide Web Consortium Web Accessibility Initiative.

Authority	Compliance
Executive Order 11990 (42 FR 26961) – Protection of Wetlands	USFWS and its cooperating agencies have concluded that the preferred restoration projects would fulfill the goals of this executive order.
Executive Order 12898 (59 FR 7629) – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 12948 Amendment to Executive Order 12898	USFWS and its cooperating agencies have identified portions of the Town of Dartmouth, City of New Bedford, and towns of Fairhaven, Wareham, Bourne and Gosnold, MA and Narragansett, RI as being within the resource use injury area and having Environmental Justice Populations.
Executive Order 11514 (35 FR 4247) – Protection and Enhancement of Environmental Quality	USFWS and its cooperating agencies have concluded that the preferred restoration projects would fulfill the goals of this executive order.
Executive Order 13112 (64 FR 6183) – Invasive Species	The preferred restoration projects are not expected to cause or promote the introduction or spread of invasive species.
Executive Order 14096 (88 FR 25251) – Revitalizing Our Nation’s Commitment to Environmental Justice for All	USFWS and its cooperating agencies have concluded that the preferred restoration projects would fulfill the goals of this executive order.

5.2. State Statutes, Regulations, and Policies – Massachusetts

Authority

Article 97 of the Commonwealth of Massachusetts Constitution (1972)
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)
Massachusetts Antiquities Act (M.G.L. Chapter 9, Section 27) and its implementing regulations (950 CMR 70 and 71)
Area of Critical Environmental Concern (M.G.L. Chapter 21A, Section 2(7); 301 CMR 12.00)
Massachusetts Clean Waters Act (M.G.L. 21, Sections 26-53)
Massachusetts Contingency Plan (310 CMR 40.0000)
Massachusetts Oil and Hazardous Material Release Prevention and Response Act (M.G.L. Chapter 21E)
Massachusetts Endangered Species Act, M.G.L. Ch. 131A and its implementing regulations (321 CMR 10.00)
Massachusetts Environmental Policy Act (M.G.L. Chapter 30 §61 et seq.)
Massachusetts Surface Water Quality Standards (314 CMR 4.00)
Public Waterfront Act (“Chapter 91 regulations”, M.G.L. Chapter 91)
Massachusetts Wetlands Protection Act (M.G.L. Ch. 131 §40 and Rivers Protection Act, St. 1996, Chapter 258)
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)
Massachusetts EEA Land Acquisition Policies in accordance with 301 CMR 51.05
Chapter 8 of the Acts of 2021 (Environmental Justice provisions of the Climate Roadmap Act); Commonwealth of Massachusetts Executive Order 552 on Environmental Justice (2014); Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs (2021)

5.3. Local Laws

As appropriate, restoration actions will take into account and comply with local ordinances and bylaws, 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 would not be limited to zoning, construction, noise limits, and wetlands protection. For example, in MA, municipal conservation commissions are empowered to administer the Massachusetts Wetlands Protection Act (MWWPA, 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 selected by the 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 secure requisite municipal approvals, and to the extent practicable, be in conformance with any relevant local or regional plans.

6. List of Preparers and Reviewers

- Latice Fuentes, USFWS
- Molly Sperduto, USFWS
- James Turek, NOAA
- John Fiorentino, NOAA
- Michelle Craddock, MassDEP

7. Agencies and Persons Consulted

The following persons were consulted:

- Carolyn Mostello, MassWildlife
- Bart Wilson, USFWS
- Caleb Spiegel, USFWS
- Sabrina Pereira, NOAA NMFS

The following agencies were consulted:

- USFWS Ecological Services – NRDAR Program
- USFWS Ecological Services – Restoration Division
- USFWS Southern New England Coastal Program
- USFWS Migratory Birds
- USFWS Wildlife and Sport Fish Restoration Program
- DOI Office of the Solicitor
- NOAA Restoration Center
- NOAA NMFS – Habitat Ecosystem Services Division
- NOAA Office of General Counsel
- MassDEP
- MassWildlife
- USACOE

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9. Appendices

Appendix A. NRDA Restoration Project Information Sheet: Guidance and Blank Form

To view and download a blank Natural Resource Damage Assessment (NRDA) Restoration Project Information Sheet: OMB 0648-0497 visit: <https://omb.report/omb/0648-0497>.

Appendix B. NRDA Restoration Project Information Sheet: Submissions

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet

A General Information

<i>Organization</i> Mass Audubon			
<i>Contact Name (First Last)</i> Joan Walsh		<i>Title</i> Bertrand Chair of Ornithology	
<i>Address</i> 208 South Great Road		<i>City</i> Lincoln	<i>State</i> MA
		<i>ZIP</i> 01773	
<i>Phone Number</i> 781-290-6071	<i>ext.</i>	<i>Email</i> jwalsh@massaudubon.org	
<i>Organization Website</i> massaudubon.org			

B Project Information

<i>Type of Project</i> New Project		<i>If this is a Change to an Existing Project, enter the Project ID Number</i>	
<i>Project Name</i> Restoration and Wardening at the Core of the Roseate Tern Breeding Range			
<i>Location (e.g. John Smith National Wildlife Refuge)</i> Penikese, Bird, Ram, Great Gull Island, and Cape Cod			
<i>State(s) (Use 2-letter abbreviations separated by commas)</i> MA, NY		<i>County/Parish</i>	<i>Watershed/Basin</i>
<i>Latitude (decimal degrees)</i> 41 40 9.89N	<i>Longitude (decimal degrees)</i> 70 43 1.24W	<i>Project Size (Choose one)</i>	
		<i>miles</i> 500+	<i>acres</i> <i>tons</i> 500+ <i>acres</i>

C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)

Restoration, management, monitoring, and protection of colonies is critical to maintenance and growth of Roseate and Common Tern populations. For restoration to be considered successful, key species should be monitored, and the sites protected and managed to protect the investment. Currently, there is no standing funding to staff and protect the three major Roseate Tern colonies, with the exception of one staff member at MassWildlife's Natural Heritage.

MA and Long Island Sound are globally important as a reservoir and nursery for Roseate Terns. About 90% of the federally endangered Northwest Atlantic population of Roseate Terns nests on Bird (MA), Ram (MA), and Great Gull Island (GGI)(NY). Additionally, MA host a high percentage of adult and newly fledged young at staging areas on Cape Cod and the islands. Managing Roseate Terns in the Northwest Atlantic requires sustained staffing, management, and monitoring across the three major colonies. We propose that future Natural Resource Damage investments should support:

1. Sustained wardening, invasive plant and predator management, and monitoring for up to 10 years at Bird Island. Continuing to invest in this colony, and supporting the protection it desperately needs, is the highest priority for protecting Roseate Terns in MA.
2. Management of Ram Island pre- and post-restoration, including sustained wardening, invasive plant and predator management, and monitoring for up to 10 years. Similar to Bird Island, Ram needs a sustained budget to ensure protection of the nesting birds from disturbance and predation.
3. Management of GGI, including sustained wardening, invasive plant and predator management, and monitoring for up to 10 years.
4. Wardening of staging and roosting areas, including public outreach and management recommendations, to protect vulnerable fledgling terns on Cape Cod and the Islands.

The partners work together regularly, and with USFWS, maintain colony management for over 90% of the breeding population of Roseate Terns.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet *(continued)*

D Project Activity(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Restoration	<input type="checkbox"/> Debris Removal	<input checked="" type="checkbox"/> Maintenance/Management
	<input checked="" type="checkbox"/> Protection	<input type="checkbox"/> Land Acquisition	<input checked="" type="checkbox"/> Education

E Project Habitat(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Upland	<input checked="" type="checkbox"/> Marine/Estuarine Wetlands	<input checked="" type="checkbox"/> Beach/Dune
	<input type="checkbox"/> Riverine	<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Subtidal (Nearshore/Offshore)

F Resource Benefit(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Marine Mammals	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Water Column
	<input checked="" type="checkbox"/> Birds	<input type="checkbox"/> Terrestrial Wildlife	<input type="checkbox"/> Sediment/Benthos
	<input type="checkbox"/> Reptiles/Amphibians	<input type="checkbox"/> Corals	<input type="checkbox"/> Shoreline
	<input type="checkbox"/> Fish	<input type="checkbox"/> Vegetation	<input type="checkbox"/> 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.			
Roseate Tern, Common Tern			

G Project Status	Property/Resource Acquisition	N/A	Time to Implementation	7-12 months
	Project Planning/Design	In Progress	Time to Project Completion	6-10 years
	Project Permitting.	In Progress		
Is this project included under a regional or statewide plan? If so, please list:				

H Project Costs	Estimated Cost	Funding Available
	2,500,000 (5 years)	5,000,000

I Project Partners	Partner 1 Organization	
	Mass Audubon	
	Partner 1 Contact	Partner 1 Involvement
	Joan Walsh	Co-PI
	Partner 2 Organization	
	UConn	
Partner 2 Contact	Partner 2 Involvement	
Margaret Rubega	Co-PI	
Partner 3 Organization		
URI		
Partner 3 Contact	Partner 3 Involvement	
Peter Paton	Co-PI	

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.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet

A General Information

<i>Organization</i> Massachusetts Division of Fisheries and Wildlife			
<i>Contact Name (First Last)</i> Carolyn Mostello		<i>Title</i>	
<i>Address</i> 1 Rabbit Hill Rd.		<i>City</i> Westborough	<i>State</i> MA
		<i>ZIP</i> 01581	
<i>Phone Number</i> 508-728-3082 ext.	<i>Email</i>		
<i>Organization Website</i> https://www.mass.gov/orgs/division-of-fisheries-and-wildlife			

B Project Information

<i>Type of Project</i> New Project		<i>If this is a Change to an Existing Project, enter the Project ID Number</i>	
<i>Project Name</i> Vegetation management at Penikese Island			
<i>Location (e.g. John Smith National Wildlife Refuge)</i> Penikese Island Wildlife Sanctuary			
<i>State(s) (Use 2-letter abbreviations separated by commas)</i> MA		<i>County/Parish</i> Dukes	<i>Watershed/Basin</i> Islands
<i>Latitude (decimal degrees)</i> 41.450744	<i>Longitude (decimal degrees)</i> -70.922752	<i>Project Size (Choose one)</i> miles 75 acres tons	
		<i>Affected Area</i> 75 acres	

C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)

Goal: Restore, establish, and maintain plant communities and associated habitats for the benefit of rare and vulnerable seabirds, waterfowl, and grassland birds.

Objectives: 1) Establish a mosaic of maritime grassland and maritime shrubland communities 2) Substantially reduce the occurrence of invasive shrubs and vines 3) Highest priority for wildlife is to increase nesting pairs of terns. 4) Additional wildlife objectives are to maintain or increase nesting pairs of gulls, waterfowl, wading birds, and grassland birds 5) Maintain habitat for rare and declining plant species

Penikese (PK) is a historically important nesting site for rare terns. It currently supports nesting Roseate Terns, federally Endangered; Common Terns, MA Special Concern; and Arctic Terns, MA Special Concern; as well as breeding gulls, long-legged wading birds, passerines, and waterfowl. PK has sandy soils that support a vegetative community consistent with abandoned agricultural land; invasive shrubs and vines are prevalent. Because the island is large (75 ac) and secure from mammalian predators compared to other nesting sites in Buzzards Bay, MassWildlife began restoring terns to PK in 1998 with the goal of reestablishing the site as the primary colony in the bay; PK now supports one of the largest tern colonies in MA. MassWildlife has managed vegetation at PK since 2011 in an effort to create a Maritime Grassland community that would support more terns and grassland birds. Work included prescribed fire, herbicide treatment of target species, mechanical control of target species, and planting/seeding of native vegetation. Additional management is needed to control the spread of remaining invasive plants, reduce woody cover, and continue to expand and improve habitat for terns and grassland birds. Long term management at the site will focus upon providing conditions that will enable the coastal grassland to persist indefinitely. Ideally, the grassland will be maintained primarily by prescribed fire every 1-4 years. Herbicide treatment intervals will depend on response of vegetation to herbicide and fire and availability of funding. Mechanical control of vegetation will facilitate restoration, both as a primary and secondary tool. Establishment of native vegetation will also facilitate restoration.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet *(continued)*

D Project Activity(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Restoration	<input type="checkbox"/> Debris Removal	<input checked="" type="checkbox"/> Maintenance/Management
	<input type="checkbox"/> Protection	<input type="checkbox"/> Land Acquisition	<input type="checkbox"/> Education

E Project Habitat(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Upland	<input type="checkbox"/> Marine/Estuarine Wetlands	<input checked="" type="checkbox"/> Beach/Dune
	<input type="checkbox"/> Riverine	<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Subtidal (Nearshore/Offshore)

F Resource Benefit(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Marine Mammals	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Water Column
	<input checked="" type="checkbox"/> Birds	<input type="checkbox"/> Terrestrial Wildlife	<input type="checkbox"/> Sediment/Benthos
	<input type="checkbox"/> Reptiles/Amphibians	<input type="checkbox"/> Corals	<input checked="" type="checkbox"/> Shoreline
	<input type="checkbox"/> Fish	<input checked="" type="checkbox"/> Vegetation	<input type="checkbox"/> 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.			
Yes. Roseate Tern.			

G Project Status	Property/Resource Acquisition	Completed	Time to Implementation	4-6 months
	Project Planning/Design	Completed	Time to Project Completion	1-5 years
	Project Permitting.	Completed		
Is this project included under a regional or statewide plan? No				
If so, please list:				

H Project Costs	Estimated Cost	Funding Available
	\$150,000	TBD. In-kind.

I Project Partners	Partner 1 Organization	
	Massachusetts Division of Fisheries and Wildlife	
	Partner 1 Contact	Partner 1 Involvement
	Carolyn Mostello	herbicide and prescribed fire treatments, tern and vegetation monitoring
	Partner 2 Organization	
	Partner 2 Contact	Partner 2 Involvement
Partner 3 Organization		
Partner 3 Contact	Partner 3 Involvement	

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.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet

A General Information

<i>Organization</i>			
University of Connecticut			
<i>Contact Name (First Last)</i>		<i>Title</i>	
Margaret Rubega		Professor; CT State Ornithologist	
<i>Address</i>		<i>City</i>	<i>State</i> <i>ZIP</i>
75 North Eagleville Rd., U-3043		Storrs	CT 06269
<i>Phone Number</i>	<i>Email</i>		
860-486-4502 ext.	margaret.rubega@uconn.edu		
<i>Organization Website</i>			
www.uconn.edu			

B Project Information

<i>Type of Project</i>		<i>If this is a Change to an Existing Project, enter the Project ID Number</i>	
New Project			
<i>Project Name</i>			
Permanent protection of Roseate and Common terns on Great Gull Island, NY			
<i>Location (e.g. John Smith National Wildlife Refuge)</i>			
Great Gull Island			
<i>State(s) (Use 2-letter abbreviations separated by commas)</i>		<i>County/Parish</i>	<i>Watershed/Basin</i>
NY		Suffolk	Long Island Sound
<i>Latitude (decimal degrees)</i>	<i>Longitude (decimal degrees)</i>	<i>Project Size (Choose one)</i>	
41.202	-72.119	miles 18 acres tons 18 acres	

C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)

Ninety percent of the NW Atlantic population of federally endangered Roseate Terns (*Sterna dougalli*) nest on only three islands; among those, Great Gull Island harbors more than one third of the entire breeding population. The island also holds one of the largest Common Tern (*Sterna hirundo*) colonies on the U.S. Atlantic coast. Banding, resighting, and gene flow studies have demonstrated that Great Gull Island is a source population for nesting Roseate terns elsewhere in the NW Atlantic. Yet, despite its vital importance as a stronghold of Roseate terns, and engine for their production, Great Gull Island has no formal conservation protection. The island is privately owned rather than contained within a conservation-restricted boundary such as a state reserve, or national wildlife refuge. The island is owned by the American Museum of Natural History, which has held the island for the last 50 years as a research station for tern life-history research, conducted entirely by volunteers. The museum has never established a dedicated budget line for Great Gull Island. With the retirement of the long-term, unpaid director of the research program, the museum must reevaluate the future of the island and the terns. This goal of this project is to negotiate and secure a conservation overlay (estimated at a cost of \$700K) for Great Gull Island. This would ensure that the critically important Great Gull Island tern colony continues to contribute to the maintenance and growth of the NW Atlantic Roseate Tern population and would reinforce the museum's commitment to stewardship of the birds. Simply holding the island is not enough; active monitoring, management and wardening of the island is also critical for protection of the birds from predators, unauthorized landings of boaters, and other threats. Thus, this project also aims to employ wardens (in coordination with MassAudubon, estimated at a cost of \$100k/year), trained in regionally-aligned methods for monitoring and management, for the breeding seasons over the next 10 years. This work is vital to ensure that there is no break in monitoring and protection of the terns over a period of transition to a more modern and sustainable model of operation for Great Gull Island.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet *(continued)*

D Project Activity(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Restoration	<input type="checkbox"/> Debris Removal	<input checked="" type="checkbox"/> Maintenance/Management
	<input checked="" type="checkbox"/> Protection	<input checked="" type="checkbox"/> Land Acquisition	<input checked="" type="checkbox"/> Education

E Project Habitat(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Upland	<input type="checkbox"/> Marine/Estuarine Wetlands	<input checked="" type="checkbox"/> Beach/Dune
	<input type="checkbox"/> Riverine	<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Subtidal (Nearshore/Offshore)

F Resource Benefit(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Marine Mammals	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Water Column
	<input checked="" type="checkbox"/> Birds	<input type="checkbox"/> Terrestrial Wildlife	<input type="checkbox"/> Sediment/Benthos
	<input type="checkbox"/> Reptiles/Amphibians	<input type="checkbox"/> Corals	<input type="checkbox"/> Shoreline
	<input type="checkbox"/> Fish	<input type="checkbox"/> Vegetation	<input type="checkbox"/> 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.

Roseate Tern (*Sterna dougalli*); federally endangered. Common Tern (*Sterna hirundo*); NY State Threatened

G Project Status	Property/Resource Acquisition	Not Started	Time to Implementation	4-6 months
	Project Planning/Design	Not Started	Time to Project Completion	6-10 years
	Project Permitting.	Not Started		
	Is this project included under a regional or statewide plan? No			
	If so, please list:			

H Project Costs	Estimated Cost	Funding Available
	\$1,700,000	\$0

I Project Partners	Partner 1 Organization	
	American Museum of Natural History	
	Partner 1 Contact	Partner 1 Involvement
	Yasir Latifi	AMNH Associate Counsel
	Partner 2 Organization	
	United States Fish & Wildlife Service	
Partner 2 Contact	Partner 2 Involvement	
Suzanne Paton	Collaborator, USFWS Point of Contact, Supervisory Fish and Wildlife Biologist	
Partner 3 Organization		
Massachusetts Audubon / University of Rhode Island		
Partner 3 Contact	Partner 3 Involvement	
Joan Walsh / Peter Paton	Collaborators, Bertrand Chair of Natural History and Field Ornithology/Professor	

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.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet

A General Information

<i>Organization</i>			
Univ of Rhode Island			
<i>Contact Name (First Last)</i>		<i>Title</i>	
Peter Paton		Prfessor and Chair	
<i>Address</i>		<i>City</i>	<i>State</i> <i>ZIP</i>
1 Greenhouse Rd		Kingston	RI 02881
<i>Phone Number</i>	<i>Email</i>		
4018742986 ext.	ppaton@uri.edu		
<i>Organization Website</i>			
www.uri.edu			

B Project Information

<i>Type of Project</i>		<i>If this is a Change to an Existing Project, enter the Project ID Number</i>	
New Project			
<i>Project Name</i>			
Enhancing Roseate and Common tern habitat on Great Gull Island			
<i>Location (e.g. John Smith National Wildlife Refuge)</i>			
Great Gull Island			
<i>State(s) (Use 2-letter abbreviations separated by commas)</i>		<i>County/Parish</i>	<i>Watershed/Basin</i>
NY		Suffolk	
<i>Latitude (decimal degrees)</i>	<i>Longitude (decimal degrees)</i>	<i>Project Size (Choose one)</i>	
41.202	-72.119	miles 18 acres tons 18 acres	

C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)

The goal of this project is to restore and enhance nesting habitat for federally-endangered Roseate Terns (*Sterna dougallii*) and Common Terns (*Sterna hirundo*) on Great Gull Island (hereafter GGI), New York. GGI is an 18-acre island, owned by the American Museum of Natural History, that supports ~33% of the US NW Atlantic population of Roseate Terns (about 1,800 pairs) and one of the largest Common Tern nesting colonies (~8,000 pairs) along the US Atlantic Coast. Habitat restoration and enhancement efforts on GGI we propose will be focused on invasive plant control to allow native plants to become re-established, enhancing tern nesting opportunities by nest box installation, replacement and repair, and removal of marine debris to improve the quality and quantity of nesting habitat for both species. The spread of invasive plants is a constant battle for colony managers at seabird colonies located on offshore islands. On GGI, several invasive plants, including Common Reed (*Phragmites australis*), Black Swallowwort (*Cynanchum louiseae*), and Asiatic Bittersweet (*Celastrus orbiculatus*) are spreading on the island. Recent herbicide treatments (Garion, Imazapyr), by contractors have reduced a monoculture of wild radish (*Raphanus raphanistrum*) over the past few years. Terns cannot successfully fledge chicks in areas dominated by these invasive species, as the nests become overgrown with vegetation limiting access for provisioning adults, and annually trapping adults in the vegetation. Continued invasive plant removal will restore Common Tern habitat on the interior of the island and Roseate Tern habitat on the island perimeter overtaken by invasive species in recent years. Additionally, constructed terraces and nest boxes have been added since mid-1980s and a recent assessment documented that ~32% of the Roseate Terns on GGI were nesting in boxes in 2022 (Jessica Espinosa, UConn, unpubl. data). With rising sea level encroaching on perimeter nesting areas, there is a need to expand placement of these artificial nesting structures to increase suitable nesting opportunities for this species. Finally, marine debris accumulates on the island every winter that needs to be removed annually to continue the enhancement of tern nesting habitat.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet *(continued)*

D Project Activity(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Restoration	<input checked="" type="checkbox"/> Debris Removal	<input checked="" type="checkbox"/> Maintenance/Management
	<input checked="" type="checkbox"/> Protection	<input type="checkbox"/> Land Acquisition	<input checked="" type="checkbox"/> Education
E Project Habitat(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Upland	<input type="checkbox"/> Marine/Estuarine Wetlands	<input checked="" type="checkbox"/> Beach/Dune
	<input type="checkbox"/> Riverine	<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Subtidal (Nearshore/Offshore)
F Resource Benefit(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Marine Mammals	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Water Column
	<input checked="" type="checkbox"/> Birds	<input type="checkbox"/> Terrestrial Wildlife	<input type="checkbox"/> Sediment/Benthos
	<input type="checkbox"/> Reptiles/Amphibians	<input type="checkbox"/> Corals	<input type="checkbox"/> Shoreline
	<input type="checkbox"/> Fish	<input type="checkbox"/> Vegetation	<input type="checkbox"/> 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.		
	Roseate Tern (<i>Sterna dougalli</i>) federally endangered, Common Tern - state		
G Project Status	Property/Resource Acquisition	Completed	Time to Implementation
	Project Planning/Design	In Progress	0-3 months
	Project Permitting.	Completed	Time to Project Completion
			6-10 years
	Is this project included under a regional or statewide plan? No		
	If so, please list:		
H Project Costs	Estimated Cost	Funding Available	
	\$500,000	\$50,000 NAWCA Grant	
I Project Partners	Partner 1 Organization		
	American Museum of Natural History		
	Partner 1 Contact	Partner 1 Involvement	
	Yasir Latifi ylatifi@amnh.org	owner of island, logistical support	
	Partner 2 Organization		
	Univ of Connecticut		
	Partner 2 Contact	Partner 2 Involvement	
	Margaret Rubega margaret.rubega@uconn.edu	design and implementation, logistics	
	Partner 3 Organization		
	Mass Audubon		
	Partner 3 Contact	Partner 3 Involvement	
	Joan Walsh jwalsh@massaudubon.org	design and implementation, logistics	

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.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet

A General Information

<i>Organization</i>			
Stewart B. McKinney National Wildlife Refuge			
<i>Contact Name (First Last)</i>		<i>Title</i>	
Rick Potvin		Refuge Manager	
<i>Address</i>		<i>City</i>	<i>State</i> <i>ZIP</i>
733 Old Clinton Rd		Westbrook	CT 06498
<i>Phone Number</i>	<i>Email</i>		
860-961-4247 ext.	Richard_Potvin@fws.gov		
<i>Organization Website</i>			
https://www.fws.gov/refuge/stewart-b-mckinney			

B Project Information

<i>Type of Project</i>		<i>If this is a Change to an Existing Project, enter the Project ID Number</i>	
New Project			
<i>Project Name</i>			
North spit Restoration Falkner Island			
<i>Location (e.g. John Smith National Wildlife Refuge)</i>			
Stewart B. McKinney National Wildlife Refuge (Falkner Island Unit)			
<i>State(s) (Use 2-letter abbreviations separated by commas)</i>		<i>County/Parish</i>	<i>Watershed/Basin</i>
CT		New Haven	Long Island Sound
<i>Latitude (decimal degrees)</i>	<i>Longitude (decimal degrees)</i>	<i>Project Size (Choose one)</i>	
41.212	-72.652	miles 3 acres tons .10 acres	

C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)

Historically, the largest concentration of roseate terns was found on the north spit of the island. The north spit land formation was developed and maintained by the movement and deposition of eroded material from the island. The erosion which created and maintained the north spit was threatening the historic lighthouse. In order to protect the historic light an erosion control structure was put in place. The erosion control project worked as intended and the rate of erosion has dramatical decreased. The material needed to maintain the north spit was no longer available causing a reduction in the size of suitable roseate tern nesting habitat. Sea level rise and coastal storms have also contributed to loss of nesting habitat.

We are proposing a restoration project which would restore the area available for roseate tern nesting to the area comparable to that which was available in 2011. This restoration project would use engineering controls to counteract sea level and erosion events. Similar restoration projects throughout New England have shown habitat restoration projects improve Tern recruitment and nesting success.

Proposal

The work to be accomplished under this proposal consists of site restoration of the north spit of Falkner Island. At the north end of the Island, habitat restoration shall consist of placing subsurface erosion control material and 4" thick topsoil and planting ground cover (grasses and forbs) to restore 4,000 square feet.

Scope of Work and engineering estimates have been developed by USFWS Regional engineer. These documents describe the materials being used and cost estimates to complete the project. (these documents can be provided)

The following is a short description of how the project would be completed.

- 1) Prepare sub-soil to eliminate uneven areas and low spots. Maintain lines, level, l and contours. Make changes in grade gradual. Blend slopes into level areas.
- 2) Place geotextile fabric to stabilize subsurface of restoration site. The fabric will be keyed into surrounding rip rap. Rip rap materials shall be installed around the project site at the embankment areas. The area surrounded by the rip rap will be back filled with crushed stone and covered with geotextile fabric keyed in the riprap.
- 3) To produce the required nesting habitat 4 inches of suitable surface material will be placed over the geotextile fabric. Additional material will be added to mimic a cobbled beach.

T

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet *(continued)*

D Project Activity(s)	<i>(Check all that apply)</i>		
	<input checked="" type="checkbox"/> Restoration	<input type="checkbox"/> Debris Removal	<input type="checkbox"/> Maintenance/Management
	<input type="checkbox"/> Protection	<input type="checkbox"/> Land Acquisition	<input type="checkbox"/> Education

E Project Habitat(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Upland	<input type="checkbox"/> Marine/Estuarine Wetlands	<input checked="" type="checkbox"/> Beach/Dune
	<input type="checkbox"/> Riverine	<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Subtidal (Nearshore/Offshore)

F Resource Benefit(s)	<i>(Check all that apply)</i>		
	<input type="checkbox"/> Marine Mammals	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Water Column
	<input checked="" type="checkbox"/> Birds	<input type="checkbox"/> Terrestrial Wildlife	<input type="checkbox"/> Sediment/Benthos
	<input type="checkbox"/> Reptiles/Amphibians	<input type="checkbox"/> Corals	<input checked="" type="checkbox"/> Shoreline
	<input type="checkbox"/> Fish	<input type="checkbox"/> Vegetation	<input type="checkbox"/> 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.			
Federally Roseate Tern			

G Project Status	Property/Resource Acquisition	N/A	Time to Implementation
	Project Planning/Design	In Progress	1 year +
	Project Permitting.	Not Started	Time to Project Completion
			1-5 years
Is this project included under a regional or statewide plan? Yes			
If so, please list:			
Roseate Tern Recover Plan			

H Project Costs	Estimated Cost	Funding Available
	\$700,000	

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

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.

Appendix C. Summary of Public Comments and Trustee Responses

The Draft RP/EA was released for a 30-day public comment period that began on October 19, 2023, and ended November 18, 2023. The USFWS and NOAA posted a link to the Draft RP/EA on their websites, sent an email to 110 recipients, published a legal notice in the New Bedford Standard-Times, issued a press release to regional newspapers and other media outlets, and held a public informational webinar. The story was also published by Greenwire, a leading publication in energy and environmental news. The Trustees received one comment from the Massachusetts Office of Coastal Zone Management (CZM), below. The Trustees value stakeholder input and consider all written and verbal comments received.



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 • (617) 626-1200

November 17, 2023

Latice Fuentes, PhD
Biologist – Natural Resource Damage Assessment and Restoration
New England Field Office, Ecological Services
70 Commercial Street, Suite 300
Concord, NH 03301

RE: Draft Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougalli*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resource Areas on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill.

Dear Dr. Fuentes,

The Massachusetts Office of Coastal Zone Management (CZM) is taking this opportunity to comment on the Draft Restoration Plan and Environmental Assessment (RP/EA) referenced above which was provided to CZM on October 19, 2023. CZM has a long history of supporting coastal habitat restoration projects and appreciates the opportunity to work with the U.S. Fish and Wildlife Service and the inter-agency working group toward the goal of restoring this critical nesting habitat and developing best management practices to avoid or minimize impacts to the surrounding coastal environment.

Project Description

The purpose of the proposed restoration action is to compensate for natural resource injuries to roseate terns (*Sterna dougalli*), common terns (*S. hirundo*), their supporting habitats, and shoreline and saltmarsh resources on Ram Island in Mattapoisett, MA resulting from the April 2003 Bouchard Barge-120 (B-120) oil spill (the Spill) that released 98,000 gallons of No. 6 fuel oil into Buzzards Bay and contiguous coastal waters and shoreline in Massachusetts and Rhode Island. The proposed projects herein are to provide compensatory restoration that addresses injuries to roseate terns, common terns, and shoreline resources on Ram Island affected by the Spill.

On Ram Island, 1.01 acres of shoreline and marsh habitat were degraded, which negatively impacted the birds, fish, shellfish, and benthic communities that inhabit or use habitats around Ram Island. The goal of natural resource restoration planning is to identify actions appropriate to restore, rehabilitate, 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. Trustees are required to identify and consider a reasonable range of alternatives that would address the injuries associated with the Spill, as well as consider a No Action alternative to compare and contrast with selected actions.

The Trustees evaluated three potential restoration alternatives in the Draft RP/EA to restore roseate and common terns and shoreline habitat and saltmarsh resources on Ram Island. These alternatives include 1) Roseate and Common Tern Nesting Habitat Restoration and Salt Marsh Restoration and Shoreline Erosion Control on Ram Island, 2) Habitat Restoration, Management, Monitoring, and Wardening of Tern Colonies in Massachusetts, and 3) No Action. The Draft RP/EA identifies Alternative 1 as the “Preferred Alternative” for restoration.





Project Comments

CZM is supportive of Alternative 1 (Preferred Alternative) as described in the Draft RP/EA, subject to the following comments.

The study conducted by Woods Hole Group in 2022 only included three sediment samples on the island. Woods Hole Group stated that the sediment data was not adequate to fully characterize the grain size of the beach and dune resources around the island, which is required to calibrate and validate the model used to develop the conceptual design options. To understand the potential impacts as well as the longevity of the proposed work, the design phase should include sufficient sediment sampling to calibrate and validate the models used for future design phases.

The proposed project includes the construction of a stone sill at the mouth of the lagoon and a potential additional stone sill between the low and high marsh restoration areas. A stone sill is a fixed coastal engineering feature that would be difficult to modify as sea levels rise and it could cause scour of the adjacent beach and dunes. During the design phase, the proponent should evaluate the alternative of mixed sediment nourishment on the barrier spits at the mouth of the lagoon to provide protection to the salt marsh restoration area in the lagoon. Other alternatives to the stone sill which may allow for more adaptive management in the future should also be considered.

A gently sloping salt marsh to transition from low to high marsh would adapt to sea level rise better than a two-tier approach as proposed in the Draft RP/EA. The salt marsh restoration section also discusses utilizing “biodegradable sills” and areas of marsh to be “blanketed” for stabilization, however, the use of these materials should be reviewed by wildlife experts to confirm that they will not cause shorebird mortality before being incorporated into the design. In addition, creating a higher marsh terrace with biodegradable materials means that there would need to be some ongoing maintenance of the coir roll to keep the terrace at the design elevation.

Federal Consistency Review

As described, Alternative 1 (Preferred Alternative) will be subject to CZM federal consistency review. As stated in the Draft RP/EA, resource area delineations, specific elevations, boulder locations, fill amounts, areas, and volumes will be determined during the design phase, if this alternative is selected for implementation. CZM will not be able to determine whether the project is consistent with its enforceable program policies until the alternative has been chosen and the design phase has been completed.

For further information on the Federal Consistency process, please contact Sean Duffey, Project Review Coordinator, at Sean.Duffey@mass.gov or visit the CZM website at <https://www.mass.gov/federal-consistency-review-program>.

Sincerely,

Lisa Berry Engler
Director

cc: Carolyn Mostello, NHESP



Public Comment(s)

The following paragraphs are the Trustees combined response to comments in the document submitted by MACZM.

Trustee Response

At the time of the release of the Draft and Final RP/EAs, the conceptual components of Alternative 1, described in Section 3.1.1, are based on information that was developed during an alternatives analysis conducted by the Trustees in collaboration with Woods Hole Group, Inc. (MassWildlife and WHG 2021). The goals of the alternatives analysis were to evaluate shoreline protection alternatives to maintain and enhance the existing coastal habitats on Ram Island and its near-shore environment, and to increase the resilience of the island habitats to storms, sea level rise, and other climate change effects. To achieve these goals, the deliverables for the contractual work included conceptual designs and budget estimates for the design, permitting, and implementation of one or more project alternatives. This effort allowed the Trustees to identify and select a preferred design alternative, determine next steps, and provide the information necessary to advance the project to the next phase of review and design.

Once the project is selected through this Final RP/EA and a FONSI is issued, it will proceed to the design and permitting phases. The Trustees, in coordination with the established technical working group (a list of members is provided in Section 3.1.1.1), will refine the engineering design plan and develop specific parameters during this time. Project wave and wind models will be calibrated and validated, all project components will be refined, and alternative approaches will be considered based on their ability to accomplish restoration goals with emphasis on the health and safety of the wildlife using the island habitats, and also considering adaptive management techniques. This and all pertinent information will be made available to MACZM for review and comment. Prior to any implementation/construction, the selected preferred restoration project will be evaluated for consistency with applicable Federal, State, and local laws, regulations, and programs, including that of MACZM.

Appendix D. Trustee Agency Approvals of the Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay, Massachusetts and Rhode Island

U.S. Department of the Interior

U.S. Fish and Wildlife Service Approval of the Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-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.

The Authorized Official and designated Trustee representative for the Bouchard B-120 Oil Spill is the Regional Director for the U.S. Fish and Wildlife Service’s Northeast Region.

Approved by:

WENDI WEBER Digitally signed by WENDI WEBER
Date: 2024.02.06 12:19:14 -05'00'

Wendi Weber
Regional Director, Northeast Region
U.S. Fish and Wildlife Service

Date: _____

Concurred by:

KATHARINE BLEAU Digitally signed by KATHARINE BLEAU
Date: 2024.01.08 08:48:37 -05'00'

Katharine Bleau
Attorney-Advisor, Office of the Solicitor
U.S. Department of the Interior

Date: 1/8/24

U.S. Department of Commerce

National Oceanic and Atmospheric Administration Approval of the Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay, Massachusetts and Rhode Island

Consistent with the Trustee Memorandum of Agreement regarding Natural Resource Damage Assessment, Restoration, and Other Natural Resource Trustee Activities arising from the Bouchard B-120 Oil Spill, the National Oceanic and Atmospheric Administration is providing its approval of the Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay, Massachusetts and Rhode Island (Final RP/EA).

The Authorized Official for the Bouchard B-120 Oil Spill is the designated Trustee representative.

Approved by:

TUREK.JAMES.G.1
365820151

Digitally signed by
TUREK.JAMES.G.1365820151
Date: 2024.01.25 13:49:28 -05'00'

James G. Turek
National Resource Trustee Representative for NOAA

1/25/24


Date:

Commonwealth of Massachusetts

Approval of the Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay, Massachusetts and Rhode Island

Consistent with the Trustee Memorandum of Agreement regarding Natural Resource Damage Assessment, Restoration, and Other Natural Resource Trustee Activities arising from the Bouchard B-120 Oil Spill, the Secretary of Energy and Environmental Affairs is providing her approval of the Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay, Massachusetts and Rhode Island (Final RP/EA).

Approved by:



Rebecca L. Tepper
Secretary of Energy and Environmental Affairs
Commonwealth of Massachusetts

1/11/24
Date: _____

Appendix E. FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT

Final Restoration Plan and Environmental Assessment for Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill

I. Purpose of Finding of No Significant Impact: The Council on Environmental Quality (CEQ) regulations direct Federal agencies to prepare a Finding of No Significant Impact (FONSI) when an action not otherwise excluded will not have a significant impact on the human environment (40 C.F.R. §§ 1500.4(b) & 1500.5(b)). To evaluate whether a significant impact on the human environment is likely, the CEQ regulations direct agencies to analyze the potentially affected environment and the degree of the effects of the proposed action (40 C.F.R. § 1501.3(b)). In doing so, agencies should consider the geographic extent of the affected area (i.e., national, regional or local), the resources located in the affected area (40 C.F.R. § 1501.3(b)(1)), and whether the project is considered minor or small-scale (NAO 216-6A Companion Manual, Appendix A-2). In considering the degree of effect on these resources, agencies should examine both short- and long-term effects (40 C.F.R. § 1501.3(b)(2)(i); NAO 216-6A Companion Manual Appendix A-2 - A-3), and the magnitude of the effect (e.g., negligible, minor, moderate, major). CEQ identifies specific criteria for consideration (40 C.F.R. § 1501.3(b)(ii)-(iv)). Each criterion is discussed below with respect to the proposed action and considered individually as well as in combination with the others.

In preparing this FONSI, the Federal Trustees reviewed the *Final Restoration Plan and Environmental Assessment for Roseate Tern (Sterna dougallii), Common Tern (Sterna hirundo), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill* (Final RP/EA), which evaluates the affected area, the scale and geographic extent of the proposed action, and the degree of effects on those resources (including the duration of impact, and whether the impacts were adverse and/or beneficial and their magnitude). The Final RP/EA was prepared by the National Oceanic and Atmospheric Administration (NOAA); the U.S. Department of the Interior, acting through the U.S. Fish and Wildlife Service (USFWS); and the Commonwealth of Massachusetts, acting through the Executive Office of Energy and Environmental Affairs (collectively referred to as the “Trustees”). The State of Rhode Island, acting through the Rhode Island Department of Environmental Management, is also a Trustee but has not been directly involved in preparing the Final RP/EA since the focus of the injuries being addressed occurred within the Commonwealth of Massachusetts. As a result, the State of Rhode Island will not be a signatory to this document.

The Trustees’ proposed action (preferred alternative) will compensate the public for natural resource injuries to roseate terns, common terns, their supporting habitats, and Ram Island shoreline and salt marsh resources resulting from the 2003 Bouchard B-120 Oil Spill (the Spill). The Spill affected more than 100 miles (161 km) of Buzzards Bay and its shoreline and nearby coastal waters in both Massachusetts and Rhode Island. The Trustees propose to use Bouchard B-120 settlement funds for roseate and common tern nesting habitat restoration, shoreline and salt marsh restoration, and shoreline erosion control on State-owned Ram Island in Mattapoissett, Massachusetts. The proposed project would involve a single, multi-layered restoration approach that supports widespread dune enhancement and targeted new beach construction to build and

maintain elevation capital and expand tern nesting habitat; a cobble berm and stone sill to reduce wave energy, control erosion, and maintain elevation capital (nourishment and restoration media); low and high salt marsh restoration areas to restore habitat oiled or lost to natural coastal processes and anthropogenic impacts (i.e., foot trampling during the oiling clean-up); and inter- and sub-tidal boulder fields to attenuate wave energy along high energy shorelines:

II. Approach to Analysis: The proposed action consists of habitat restoration that would, if implemented, provide benefits to natural resources injured by the Spill and natural resource services similar to those that would have been provided had the Spill not occurred. Collectively, the proposed action includes a suite of habitat restoration activities and supporting pre- and post-construction monitoring. The Final RP/EA is an integrated document to efficiently address the Trustees' dual requirements to comply with both the National Environmental Policy Act (NEPA) and Oil Pollution Act (OPA; 15 C.F.R. § 990.23(a)).

- A. The scale of the proposed action will be locally substantial but would not contribute to a significant impact at a regional or greater level.
- B. The proposed action will not cause a significant effect to any specific resource. If an impact is determined to be negligible, minor or moderate, it is not considered to meaningfully contribute to a significant impact.
- C. The proposed action and the potential impacts from it are consistent with the Final RP/EA. If the collective effects of the proposed action were added to possible effects of other related actions, their cumulative impacts would still only be local and the magnitude would not be significant at a regional or greater scale.

III. Geographic Extent and Scale of the Proposed Action: The proposed action consists of in-kind and in-place habitat restoration activities on Ram Island in Mattapoisett, Massachusetts, that would, if implemented, provide benefits to natural resources injured by the Spill and natural resource services similar to those that would have been provided had the Spill not occurred. The proposed action is expected to protect and restore Ram Island's vulnerable Roseate and Common Tern nesting habitat, reduce ongoing shoreline erosion and scour, and restore salt marsh habitat to the maximum extent practicable using inland, shoreline, intertidal, and offshore approaches. The proposed action would also improve Ram Island's longevity as a key nesting habitat for terns as the climate changes and sea level rises, and provide benefits to other natural resources such as shorebird, fish, and macrobenthic species.

IV. Degree of Effect: The Final RP/EA analyzes potential environmental impacts associated with the proposed action for restoration in Buzzards Bay. The analysis is summarized in Section 4.0 of the Final RP/EA. The proposed action is unlikely to have significant adverse impacts on the environment. This alternative would meet the mandates under Natural Resource Damage Assessment (NRDA) statutes and regulations to restore natural resources and services injured by releases of oil and hazardous substances, and is consistent with the goals and objectives outlined in the Final RP/EA. The proposed action would have direct beneficial effects and only minor, short-term adverse impacts. The No-Action Alternative would not have direct beneficial effects or adverse impacts but would allow the degraded conditions of habitats on Ram Island to continue, which would not be consistent with purpose of the Final RP/EA.

- A. The proposed action cannot reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The proposed action either has or will be evaluated for consistency with applicable Federal, State, and local laws, regulations, and programs. All relevant permits and compliance with relevant Federal, State, and local laws, policies, and ordinances will be obtained prior to initiating any construction activities, and the contractor conducting the activities will be expected to follow all regulatory requirements.
- B. There are no substantial adverse public health or safety impacts expected from the proposed action.
- C. The degree to which the proposed action is expected to affect a sensitive biological resource include:
 - a. The proposed action is not expected to adversely affect Federal endangered or threatened species or their designated critical habitat. Overall, the proposed action is expected to benefit species, including ESA-listed Roseate Tern, through improved habitat quality, availability and function.
 - b. The proposed action is not expected to adversely affect marine mammals, their critical habitat, or other non-target species.
 - c. The Trustees do not expect the proposed action to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act. As documented in the Final RP/EA, the Trustees expect the selected project to result in long-term, beneficial impacts to coastal habitats and associated species by increasing the area and ecological function of beach, dune, salt marsh, and intertidal/subtidal habitats.
 - d. The proposed action is not expected to adversely affect bird species protected under the Migratory Bird Treaty Act.
 - e. There are no national marine sanctuaries or monuments in the project area.
 - f. The proposed action is not expected to adversely affect vulnerable coastal ecosystems, including, but not limited to, deep coral ecosystems.
 - g. The proposed action is not expected to have any substantial impacts beyond a local level; the beneficial impacts on ecosystem function and species biodiversity would not be substantial at a regional or larger scale. As documented in the Final RP/EA, the proposed project is expected to result in long-term beneficial impacts to wildlife, providing additional habitat to support recovery of these sensitive communities and resulting in greater habitat complexity, diversity, and productivity. Any potential adverse impacts are expected to be minimal, short-term, and localized, and are not expected to decrease habitat function or species biodiversity.
- D. The proposed action is not expected to adversely affect any historic or cultural resources listed in or eligible for listing in the National Register of Historic Places, and will not cause loss or destruction of significant scientific, cultural, or historical resources. Consultation with the Massachusetts State Historic Preservation Office pursuant to Section 106 of the National Historic Preservation Act will be undertaken as part of the project permitting process prior to project implementation.

- E. The proposed action will not have a disproportionately high and adverse effect on the health or the environment of minority or low-income communities, compared to the impacts on other communities (E.O. 12898). The Trustees have determined that the proposed restoration activities would provide long-term or permanent beneficial impacts to the communities with Environmental Justice concerns described in the Final RP/EA by improving the quality of the natural environment; enhancing local wildlife populations; providing potential educational opportunities to local communities; and improving local resiliency to increased frequency of extreme weather events, flooding, and changes in annual patterns of precipitation due to climate change and sea-level rise. None of the activities associated with the proposed action are expected to adversely impact minority or low-income populations, Tribes, or other underserved communities (E.O. 14096).
- F. The proposed action is not reasonably expected to result in the introduction, continued existence, or spread of noxious weeds or nonnative invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of the species.
- G. The proposed action is not expected to have a substantial impact to any other physical or biological resources within the project area or over which there is substantial uncertainty or scientific disagreement.

V. Other Actions Including Connected Actions: The proposed action is not known to be related to other actions within the Buzzards Bay estuary that, when considered together, could result in synergistically significant impacts. Any future Federal actions in the area may have to undergo a similar NEPA environmental review process, and would be expected to consider the Trustees' restoration activities when addressing cumulative effects. While overall a net beneficial cumulative impact may result from the implementation of the proposed action in synergy with future restoration activities, cumulative impacts would not occur at a regional scale and are not expected to be significant.

VI. Mitigation and Monitoring: Potential impacts to soil, water, and biological resources will be minimized or mitigated through best management practices (BMPs), permit conditions, and consultation requirements if/as required by other statutes. The Trustees expect to conduct pre- and post-construction ecological monitoring. Minimum monitoring data would be obtained by monitoring island topographic elevations, shoreline transects, tidal hydrology, and substrate stability in the restored saltmarsh, and native versus non-native, invasive marsh vegetation species presence and percent cover. The Trustees may be required to conduct additional site-specific monitoring as part of the permitting process. Results from MassWildlife annual tern monitoring will be required to determine if the restoration project is meeting established objectives and to gauge project success. Recorded data are expected to include, but are not limited to, the following:

- Overall abundance of nesting Roseate and Common Tern pairs
- Estimates of Roseate and Common Tern productivity

When possible, these data should be compared to historical data. Results from monitoring efforts will help inform the potential success of the restoration actions and potential adaptive management requirements.

DETERMINATION

The CEQ NEPA regulations, 40 C.F.R. § 1501.6, direct an agency to prepare a FONSI when the agency, based on the EA for the proposed action, determines not to prepare an EIS because the action will not have significant effects. In view of the information presented in this document and the analysis contained in the supporting Final RP/EA prepared by the Trustees, it is hereby determined that the restoration activities identified by the Trustees as the proposed action in the Final RP/EA will not significantly impact the quality of the human environment. The *Final Restoration Plan and Environmental Assessment for Roseate Tern (Sterna dougallii), Common Tern (Sterna hirundo), and Shoreline and Salt Marsh Resources on Ram Island Impacted by the Bouchard Barge 120 (B-120) Oil Spill* is hereby incorporated by reference. In addition, all beneficial and adverse impacts of the proposed action as well as mitigation and monitoring measures have been evaluated to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

Christopher Doley

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Christopher Doley
Chief, Restoration Center
National Marine Fisheries Service

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Tony Penn
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