FINAL RESTORATION PLAN
for
COMMON LOON (*Gavia immer*) and OTHER BIRDS
IMPACTED BY THE BOUCHARD BARGE 120 (B-120) OIL SPILL

BUZZARDS BAY
MASSACHUSETTS and RHODE ISLAND

June 2020

Prepared by:

United States Fish and Wildlife Service

Massachusetts Executive Office of Energy and Environmental Affairs

Rhode Island Department of Environmental Management

and

National Oceanic and Atmospheric Administration
(Lead Administrative Trustee)

Executive Summary

In April 2003, the Bouchard Barge-120 (B-120) oil spill (the Spill) affected more than 100 miles 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 loon (*Gavia immer*), common and roseate terns (*Sterna hirundo* and *Sterna dougallii*), and other birds such as common eider (*Somateria mollissima*), black scoter (*Melanitta americana*), and red-throated loon (*Gavia 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 Commonwealth of Massachusetts (acting through the Executive Office of Energy and Environmental Affairs [EEA]), and the State of Rhode Island serve as the natural resource Trustees (Trustees) responsible under the Oil Pollution Act of 1990 (OPA) (33 U.S.C. § 2701, *et seq*.) for ensuring the natural resources injured from the Spill are restored. As a designated Trustee, each agency is authorized to act on behalf of the public under State[1] and/or Federal law to assess and recover natural resource damages, and to plan and implement actions to restore, rehabilitate, replace, or acquire the equivalent of the natural resources or services injured or lost as a result of an unpermitted discharge of oil.

After more than 5 years spent assessing impacts to natural resources resulting from the Spill, in November 2010, the Trustees and the Bouchard Transportation Company, Inc., the Tug Evening Tide Corporation and the B. No. 120 Corporation, the Responsible Parties for the Spill, negotiated a mutually agreeable settlement for a portion of natural resource damages, including shoreline and aquatic resources, piping plovers, and lost natural resource uses. In January of 2018, the Trustees and Responsible Parties negotiated a second consent decree for the remaining natural resources injured as a result of the Spill, which included common loon, common and roseate terns, and all other affected bird species.

The purpose of restoration is to make the public "whole" for injuries resulting from the Spill by implementing one or more restoration actions that return injured natural resources and services to baseline conditions and compensate for interim losses. Through the development of Draft and Final Restoration Plans consistent with guidance in OPA and the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321- 4347), the Trustees identify and evaluate preferred restoration alternatives and provide the public with an opportunity for review and comment.

Restoration of shoreline and aquatic resources, lost recreational uses and piping plovers was addressed in prior restoration plans (NOAA et al. 2014; USFWS et al. 2012). This Final Restoration Plan (RP) is intended to provide compensatory restoration for injuries to common loon and all other remaining bird species affected by the Spill, with the exception of common and roseate

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

terns. A separate restoration plan for common and roseate terns and other shorebirds will be prepared following additional restoration project alternative analyses for those species.

Throughout the injury assessment and restoration planning process, the Trustees consulted with Federal and State wildlife agency experts, as well as organizations and individuals familiar with common loon and other injured bird species. These experts and organizations provided input on injury estimations and potential restoration alternatives. The Draft RP was provided to the public in August 2019 for a 60-day comment period to both fully explain the injury assessment process and gain additional input from the public on the proposed restoration alternatives. The Trustees also held an informational public meeting and webinar on September 12, 2019.

The Trustees received written comments from more than 20 individuals during the comment period, and a number of verbal questions and comments at the public meeting. The Trustees appreciate the time and effort that the public expended to review and comment on the document. The Trustees have reviewed and considered all of the comments. A summary of the comments and the Trustees' responses is provided in Section 5. A complete copy of each written comment is provided in Appendix A: Comment Letters and a transcript of the public meeting is provided in Appendix B: Public Meeting and Webinar Transcript.

The Final RP has been prepared by the USFWS, the Commonwealth of Massachusetts and the State of Rhode Island, with administrative assistance from NOAA, acting as the Lead Administrative Trustee. In the Final RP, taking into consideration the comments received, the Trustees have provided additional information, made corrections (where necessary), and adjusted the proposed funding amounts for selected alternatives. In summary, with respect to common loon restoration, the Trustees have added an additional management option for restoration (Reducing Individual Common Loon Mortality by Rescue and Rehabilitation of Stranded Birds), expanded the area of restoration implementation to include New York, and shifted $500,500 in funding from COLO-1 (Common Loon Restoration through Translocation and Captive Rearing) to COLO-2 (Common Loon Restoration through Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Individual Common Loon Mortality by Rescue and Rehabilitation of Stranded Birds and Reducing Exposure to Lead Tackle). The Trustees have also emphasized that the majority of funding for COLO-2 will be focused on northern New England and New York. To implement Other Birds restoration, the Trustees have allocated $274,000 from Habitat Protection in Rhode Island (OB1-RI) to Habitat Protection in Massachusetts (OB1-MA).

The preferred restoration alternatives include specific restoration projects in two categories of injured birds: (1) common loon; and (2) other birds injured during the Spill. A suite of projects (e.g., translocation, rafts, signs and wardening, breeding habitat protection, and reducing individual common loon mortality by rescue and rehabilitation of stranded birds, and through reducing lead exposure with lead tackle exchange programs and public outreach) was selected to restore the loss to common loon; and two alternatives (habitat protection and common eider nest site management) were chosen to restore the loss to other bird species. The USFWS, the

Commonwealth of Massachusetts and the State of Rhode Island selected the following restoration alternatives and funding levels:

Project ID Number	Preferred Restoration Activity	Trustee Funding/Contribution
Common Loon Restoration		
COLO-1	Common Loon Restoration through Translocation and Captive Rearing	$2,499,500
	Trustee Management and Oversight	$185,000
		$2,684,500
COLO-2	Common Loon Restoration through Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Common Loon Mortality through Rescue and Rehabilitation of Stranded Individuals and Decreasing Exposure to Lead Fishing Tackle	$3,685,500
Other Birds Restoration		
OB-1	Habitat Protection	
OB-1MA	Massachusetts Cuttyhunk Island, Gosnold, MA	$774,000
OB-1RI	Rhode Island OB-1RI-1 Lamoia Parcel, Warren, RI ($400,000) OB-1RI-2 Other RI property ($600,000)	$1,000,000
OB-2MA	Common Eider Nest Site Management	$100,000
Total[1]		$8,244,000

1. Total includes current interest earned on settlement funds; additional interest may be allocated to projects as well as trustee administrative and oversight costs.

Copies of the Final RP can be downloaded at http://fws.gov/newengland (Accessed April 30, 2020) or requested by mail at the address below:

USFWS
Attention: Molly Sperduto
70 Commercial Street, Suite 300
Concord, New Hampshire 03301
molly_sperduto@fws.gov

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1. Introduction

1.1. Project Purpose

The purpose of the preferred restoration action, as discussed in this document as a set of project alternatives, is to compensate for natural resource injuries to migratory birds 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., shoreline and aquatic resources, lost recreational uses and piping plovers) was addressed in prior restoration plans (NOAA et al. 2014; USFWS et al. 2012). The preferred alternatives herein are intended to provide compensatory restoration that addresses injuries to common loon (*Gavia immer*) and all other remaining bird species (hereafter referred to as "other birds") affected by the Spill with the exception of common tern (*Sterna hirundo*) and roseate tern (*Sterna dougallii*). A separate restoration plan for common and roseate terns and other shorebirds will be prepared following additional restoration project alternative analyses for those species.

1.2. Need for Action

Following the Spill, more than 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. Birds were exposed to and ingested oil, as they foraged, nested, and/or migrated through the area. Four hundred and ninety nine (499) oiled birds were collected; however, the overall mortality was estimated to be 1,174 adult birds (accounts for birds that were not collected due to scavenging, drifting out to sea, etc.). Birds estimated to have been killed in the greatest numbers included common loon (531), common (25) and roseate (9) terns, and other birds such as common eider (*Somateria mollissima*, 83), black scoter (*Melanitta americana*, 77), and red-throated loon (*Gavia stellata*, 83). More detailed information on the Spill incident and the natural resource injuries is provided in Section 1.6. below.

Federal Trustee agencies for this Spill include the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (USFWS). State Trustees include 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 (Trustees) use recovered damages to restore, rehabilitate, replace or acquire the equivalent of the injured natural resources and services that result from incidents involving a discharge or substantial threat of a discharge of oil to the environment.

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 did through the Draft Restoration Plan for Common Loon (*Gavia immer*) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill, dated August 29, 2019 (Draft RP). 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 and this Final RP.

This document serves as the Final RP for addressing injuries to common loon and other birds attributed to the Spill. The Final RP was prepared by USFWS, the Commonwealth of Massachusetts and the State of Rhode Island, with administrative assistance from NOAA, acting as the Lead Administrative Trustee.

In addition, this document has been developed in consideration of the National Environmental Policy Act (NEPA) (42 U.S.C. §4321 *et seq.*) and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts §1500-§1508). Under NEPA, Federal agencies must evaluate the potential environmental impacts of proposed Federal actions on the quality of the human environment. Since this Final RP exclusively focuses on migratory birds, and the USFWS is the designated Federal Trustee for migratory birds, the Trustees have authorized the USFWS to be the lead Federal agency for NEPA compliance for this Final RP. The Commonwealth of Massachusetts and the State of Rhode Island also have trustee responsibilities for birds and are designated cooperating agencies. As the Lead Administrative Trustee, NOAA has provided administrative support to the Co-Trustees developing this document. 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 hull of the barge, 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, including shoreline in the towns of Westport, Dartmouth, New Bedford, Fairhaven, Mattapoisett, Marion, Wareham, Gosnold, Bourne, and Falmouth, Massachusetts (Figure 2). Oil continued to be transported throughout Buzzards Bay and nearby coastal waters. Oiling was unevenly distributed and was particularly concentrated at exposed shoreline headlands and peninsulas in discrete, localized areas (e.g., Barneys Joy Point and Mishaum Point in South Dartmouth; West Island, Sconticut Neck, and Long Island in Fairhaven). Shoreline oiling was also reported on the Elizabeth Islands along the southern portion of Buzzards Bay and portions of the Rhode Island shoreline (e.g., Little Compton and Block Island).

The Buzzards Bay shoreline is comprised of 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 following the Spill. 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.

Response efforts also focused on Ram Island, a small, uninhabited island in Mattapoisett, Massachusetts that provides breeding habitat for the common tern and federally endangered roseate tern. Early in the spill response effort, booms and sorbent material were placed around Ram Island in an attempt to prevent oiling of this tern colony site.

1.4. Natural Resource Damage Assessment

Soon after the spill event, the Trustees commenced the Pre-assessment Phase of the Natural Resources Damage Assessment in accordance with OPA and NRDA regulations to determine if jurisdiction existed to pursue restoration and, if so, whether it was prudent 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), the Trustees determined that there was jurisdiction to pursue restoration under OPA, and that pursuing restoration under OPA was appropriate. Analyses are available in 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).

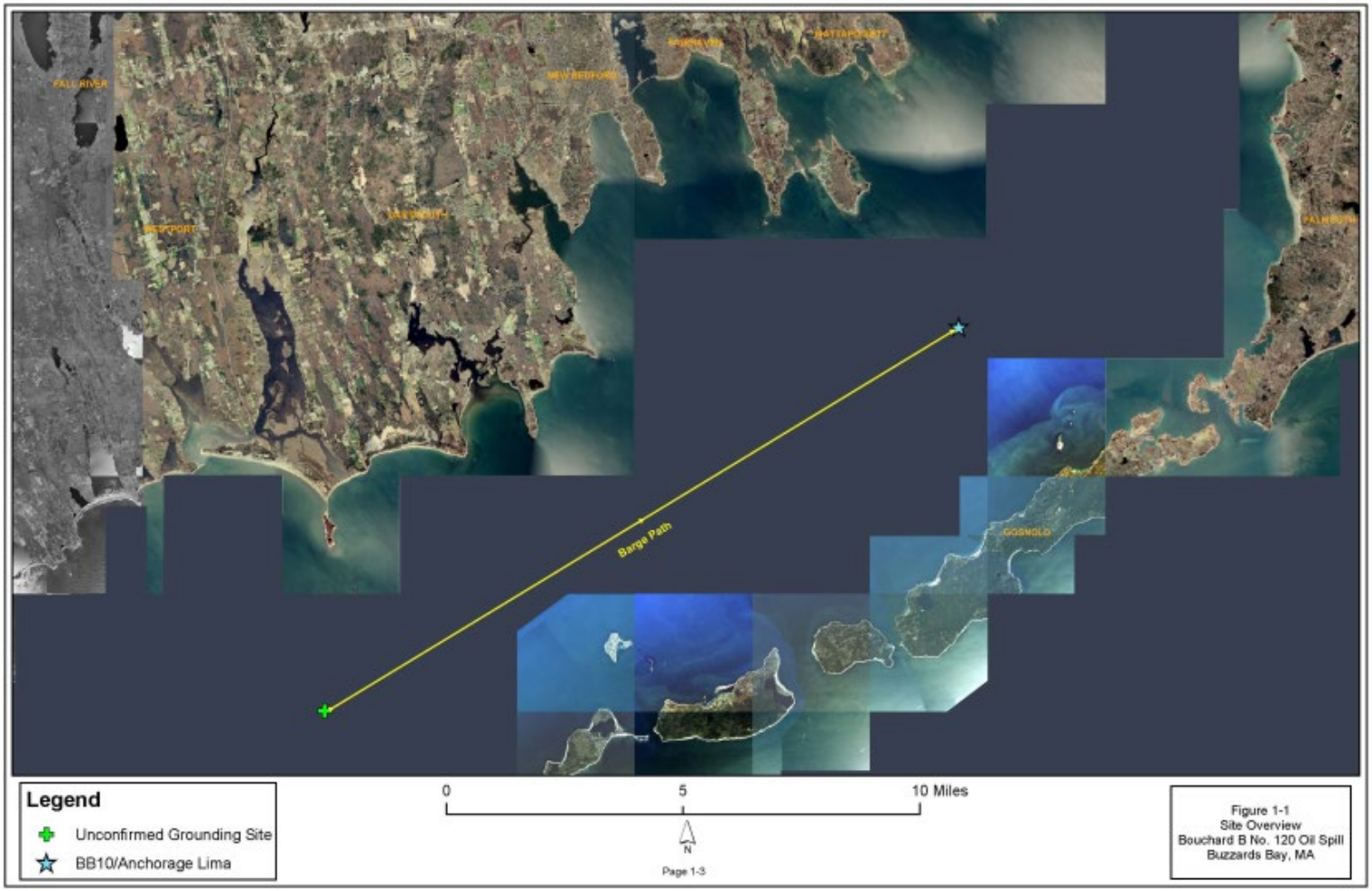

Figure 1. Grounding site and travel pathway of Bouchard Barge-120, resulting in Buzzards Bay oil spill.

(Source: Massachusetts Executive Office of Environmental Affairs [MA-EEA] et al. 2005)

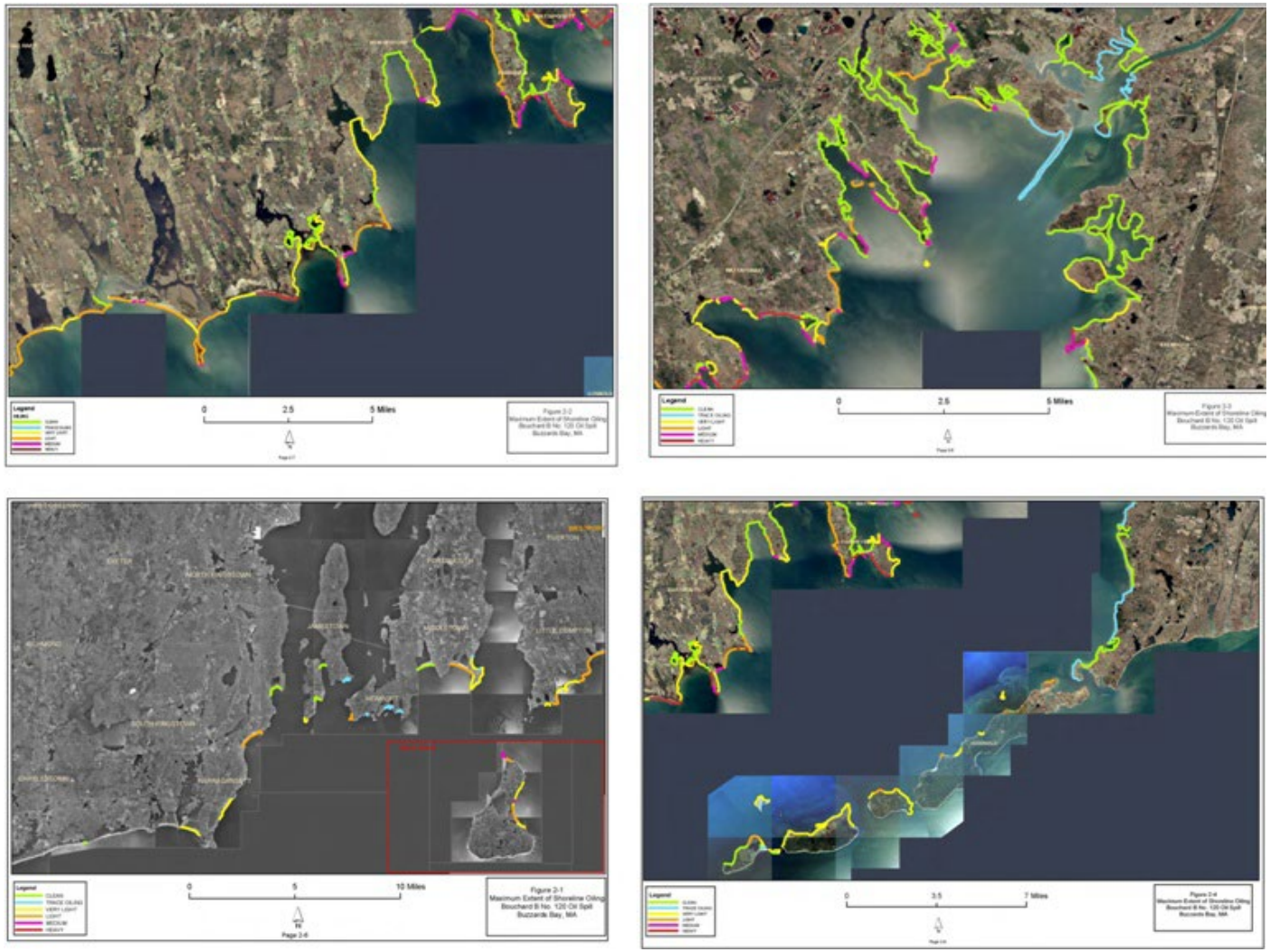

Figure 2. Extent of oiling resulting from the Bouchard B-120 grounding.

(Source: MA-EEA et al. 2005)

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 of America v. Bouchard Transportation Company, Inc., Case No. 04-cr-10087, March 29, 2004, U.S. District Court, District of Massachusetts). 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 where the Responsible Party is unknown.

1.5. Coordination

1.5.1. Trustee Council Organization and Activities

OPA, Executive Orders 12580 and 12777, and 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 Department of the Interior (DOI) is the designated Federal Trustee for certain natural resources including, but not limited to, migratory birds, certain marine mammals, anadromous fish, federally endangered and threatened species, 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 as the Authorized Official 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 is the designated Trustee for all natural resources within its boundaries. The governor of each state designates the state agency or agencies that will act as the natural resource trustee for each affected state. For the Spill, the Governor of Massachusetts designated the Secretary of the MA-EEA as the Trustee for the Commonwealth.[2] The MA-EEA is supported by the Massachusetts Department of Environmental Protection (MassDEP), which administers the State's NRDA Program. The Governor of Rhode Island designated the Rhode Island Department of Environmental Management (RIDEM) as the State's natural resource Trustee.

Lastly, federally recognized Indian Tribes are Trustees for natural resources belonging to, managed by, controlled by, or appertaining to the Tribes. Early in the injury assessment phase of the Spill, the Wampanoag Tribe of Gay Head (the Aquinnah) reached a separate settlement with 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

[2] The EEA Secretary is also a designated Trustee under M.G.L. Chapter 21A, Section 2A.

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 to serve as a logistical, administrative and fiscal agent for the Trustee Council and coordinate Trustee Council activities. NOAA's participation in the development of this Final RP was limited to administrative activities undertaken as the Lead Administrative Trustee.

The Trustees have worked collaboratively to assess the natural resource injuries to migratory birds and identify potential restoration alternatives. NOAA as the Lead Administrative Trustee, and the USFWS as the lead Federal agency for this Final RP, are the Federal agencies responsible for complying with NEPA. The state Trustee agencies are designated cooperating agencies under NEPA. The USFWS and the state Trustees have prepared this Final RP for the purpose of evaluating potential restoration projects and identifying preferred restoration alternatives to address injuries to the following bird categories: (1) common loon and (2) other birds.

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 named Cardno ENTRIX), 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 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 consent decree for the remaining natural resources injured as a result of the Spill, which included common loon, common and roseate terns, and all other affected bird species.

1.5.3. Public Involvement, Notification, and Review

Public review of the Draft RP 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 meeting and webinar held on September 12, 2019, the Trustees published a notice of the availability of the Draft RP in local newspapers and issued a press release to regional newspapers and other media outlets. The Draft RP was available online and as a hard copy for public review and comment for a period of 60 days. Copies of the Final RP can be downloaded at http://fws.gov/newengland or requested by mail at the address below:

USFWS
Attention: Molly Sperduto
70 Commercial Street, Suite 300
Concord, New Hampshire 03301
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1.5.4. Administrative Record

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

NOAA Restoration Center
28 Tarzwell Drive
Narragansett, RI 02882
Attention: Bouchard B-120 Administrative Records Management
and
NOAA Damage Assessment Remediation and Restoration Program: Bouchard Barge 120
(Accessed April 30, 2020)

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

1.6. Natural Resource Injuries to 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 531 common loon, 9 roseate tern, 25 common tern, 83 common eider, 83 red-throated loon, 77 black scoter, 38 dunlin, 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.

The Trustees conducted a Resource Equivalency Analysis (REA) to evaluate the total injury to birds and to calculate appropriate compensation for the calculated injury (Sperduto et al. 2003). 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) for some of the bird species, depending on species-specific life history data. Then, using basic economic techniques, the sum of the direct and indirect injuries was converted to a current value of the loss, known as discounted bird-years (DBYs). Based on this analysis, the Trustees determined the total direct and indirect loss for all impacted bird species as a result of the Spill (26,454 DBYs).

To evaluate and scale suitable restoration, three categories of injured bird species were developed, as follows:

- common loon (4,013 DBYs)
- common tern (17,904 DBYs), roseate tern (549 DBYs) and shorebirds (604 DBYs)
- all other birds (3,384 DBYs)

The Trustees evaluated various alternatives to restore each of the categories of injured birds to their baseline and generate additional bird-years to compensate for interim losses that occurred until recovery to baseline conditions. Restoration projects were scaled and costs were estimated to determine the total amount of natural resource damages.

The following sections summarize the injury assessment for common loon and other birds. Injuries to common and roseate terns (and shorebirds) will be described in a separate restoration plan that will be released following additional project alternatives analyses. This approach enables the Trustees to expedite restoration for common loon and other birds.

1.6.1. Common Loon Injury Assessment

The Trustees estimated the number of common loon killed by the Spill, either through acute or delayed effects, to be 531 birds. The total number of common loon killed was estimated based on the number of dead and oiled common loon collected throughout Buzzards Bay following the Spill. In addition, several oiled common loon were collected from New Hampshire and Maine and these were also determined to have been oiled from the Spill (MA-EEA et al. 2005). Had the Spill not occurred, these birds would have lived their natural lifespans, estimated to be 30 years (Evers 2007). This spill-related loss of bird-years associated with this species, in present-value terms, is the first component of the Trustees' total estimate of losses for common loon.

In addition, the Trustees estimated the lost DBYs associated with the first generation of fledglings that would have been produced by the common loon killed by the Spill. To evaluate the lost fledglings, the Trustees considered life history characteristics of the common loon (Table 1). Of note, common loon populations typically include a number of non-breeding adults, or floaters. Nest sites that become available due to the death or 'divorce' of the breeding adults are generally

occupied by floaters (Piper et al. 2000; Evers 2001; Grear et al. 2009). The Trustees assumed that nest sites that would have been otherwise occupied by the killed birds were instead occupied by floater adults. Recruitment attributed to these floaters was expected to replace, in part, the foregone production of the killed birds. Productivity was reduced to 0.371 to account for the fact that floater productivity was expected to be lower than the productivity associated with more experienced breeders. The lower productivity associated with floaters was calculated for only 1 year, after which time the Trustees assumed that the floater productivity would be equal to the pre-spill breeding adult productivity.

Consistent with previous common loon injury calculations (Sperduto et al. 2003), the Trustees used a REA to calculate the total lost DBYs.

Table 2 shows the total estimated losses of common loon bird years (4,013 DBYs), and the breakdown by category (direct loss and foregone production of the F1 generation).

To compensate for the injury to common loon, the Trustees identified three established restoration project types based on previous experience and input from common loon experts and scientific literature (NOAA 1999; Evers et al. 2009; DeSorbo et al. 2007; LPC 2011; Hammond 2009). These projects included: (1) creating artificial nest sites; (2) implementing a nest protection program with loon wardens, signage and public outreach; and (3) protecting land around existing nest sites to limit future reductions in productivity. Each project was scaled using the life history data and the total cost to restore the loss (4,013 DBYs) was estimated.

1.6.2. Other Birds Injury Assessment

The Trustees calculated losses to the Other Birds species group (i.e., non-tern, non-shorebird, non-common loon) injured as a consequence of the Spill. These include rocky island colonial nesting species (double-crested cormorant, great cormorant, herring gull, great black-backed gull, and ring-billed gull), pelagic seabirds (northern gannet, razorbill, sooty shearwater), red-throated loon and grebes (horned grebe, red-necked grebe), diving ducks (common eider, black scoter, white-winged scoter, surf scoter, red-breasted merganser, hooded merganser, greater scaup, bufflehead, and long-tailed duck), and other waterfowl (American black duck, Canada goose) (Table 3).

The Trustees' loss calculations are measured in units of DBYs and include two components. The first of these consists of DBYs associated with birds killed by acute or delayed effects of the Spill. For example, the Trustees have estimated that 83.2 common eider were killed by the oiling. Had the Spill not occurred, these birds would have lived out their natural lifespans, generating ecological services quantified as 459 DBYs. For ease of reference, Table 4 summarizes eider key life history parameters used in this calculation.

Table 1. Common loon life history parameters used in injury and restoration scaling calculations.

Parameter	Value	Notes	References
Fledgling survival	0.7	Survival from fledgling to 1 y.o.	Mitro et al. 2008
Annual immature survival/Annual adult survival	0.8 0.92	Mitro et al. (2008) estimated immature survival rates: 0.80 for 1-2 y.o. and 2-3 y.o., 0.92 for 3+ y.o. Evers (2007) survival to 3 y.o. = 0.41, which amounts to about 0.74 annually in this age range.	Mitro et al. 2008; Evers 2007
Adult productivity (chicks fledged/territorial pair)	0.53	Evers 2007: Species-wide average of 0.53+/-0.19 (0.29-0.96 range for northern New England and New York). 0.37 (Mitro et al. 2008) for high-Hg lakes in northern NH and ME.	Evers 2007; Mitro et al. 2008
Age at first breeding (yrs)	6	--	Evers 2007
Percent adult female population that breeds each year	80%	Evers 2007. NH average = 54%. Increased this to 80% to more closely reflect the observed population trend.	Evers 2007
Percent females in population	50%	--	Trustee assumption
Maximum life span (yrs)	30	Evers 2007	Evers 2007
Population status	level to increasing	Christmas Bird Count (CBC) shows insignificant increase in Buzzards Bay (1987-2008). Evers (2007): ME, NY, level. NH, VT, MA increasing. Ontario, Quebec decreasing.	CBC multiple years; Evers 2007
Affected population size	2,100	Territorial pairs in New England	Evers and Taylor 2014
Total number dead	531.2	Includes ~20 birds estimated to have died through delayed mortality, with the remainder having died immediately in the wake of the spill.	Trustee assumption
Floater productivity	0.371	30% lower than that of more experienced adults.	Note
Floater productivity duration (yrs)	1	--	Trustee assumption

Note: Data sources considered include Weimerskirch (1992), Lee et al. (2008), Wooller et al. (1990), and Cooke et al. (1981). These authors found first-year breeders to have lower productivity than more experienced breeders, with effects on productivity ranging from 10 percent to 40 percent lower.

Table 2. Trustee calculated common loon losses (2003 DBYs).

Injury	Common Loons
Number of birds killed*	531.2
Direct and indirect mortality (DBYs)	3,899
F1 losses (DBYs)	114
Total losses (DBYs)	**4,013**

* The Trustee estimate of killed birds is a calculated value (rather than a whole number) resulting from a modelling approach that considers the number of dead birds collected, searcher efficiency rates, scavenging rates, and a number of other factors.

In addition, foregone productivity was calculated for some of the killed birds (e.g., diving ducks), depending on life history characteristics. For example, for bird species that do not have floaters that could fill the void of lost adults or for species where recovery was considered to be slower due to the relatively late age of first breeding and lower reproductive success, foregone productivity associated with the first generation was calculated. Losses associated with this foregone F1 generation were calculated in the REA as the present value of these fledglings (in DBYs), considered over the course of the fledglings' natural lifespans.

A total of 3,384 DBYs, or approximately 13 percent of the total DBYs, were estimated lost due to the death of other birds. In the judgment of the Trustees, development of separate, relatively small restoration projects for each of the impacted bird species would not be practical, beneficial or cost-effective. Therefore, as has been done in other cases (NOAA et al. 1999; CDFG et al. 2007; CDFG et al. 2012), the Trustees selected a single "umbrella" species approach to restore all of the other birds. Since more than 50 percent of the other birds lost were diving ducks, with common eider experiencing the highest rate of mortality, the Trustees focused restoration efforts on increasing common eider productivity and survival by protecting habitat that is utilized for both breeding and overwintering. The Trustees scaled the size of habitat needed to be protected based on life history data for common eider and estimated costs for land protection. Habitat protection for the common eider is expected to benefit many of the bird species that were impacted by the Spill.

Table 3. Trustee estimate of rocky island colonial bird, pelagic seabird, red-throated loon, grebe, diving duck, and waterfowl losses (2003 DBYs).

Common Name	Scientific Name	Trustee estimate of killed birds*	Carcass DBYs	F1 DBYs	Total DBYs**
ROCKY ISLAND COLONIALS					
Double-crested Cormorant	*Phalacrocorax auritus*	30	151	0	151
Great Cormorant	*Phalacrocorax carbo*	7.5	29	0	29
Herring Gull	*Larus argentatus*	50	248	0	248
Great Black-backed Gull	*Larus marinus*	24.4	96	0	96
Ring-billed Gull	*Larus delawarensis*	9.5	56	0	56
Total Rocky Island Colonials		121.4	580	0	580
PELAGIC SEABIRDS					
Northern Gannet	*Morus bassanus*	8.1	67	2	69
Razorbill	*Alca torda*	11.2	82	116	198
Sooty Shearwater	*Ardenna grisea*	2.4	20	0	20
Total Pelagic Seabirds		21.7	169	118	287
RED-THROATED LOONS AND GREBES					
Red-throated Loon	*Gavia stellata*	82.7	573	0	573
Horned Grebe	*Podiceps auritus*	6.3	11	0	11
Red-necked Grebe	*Podiceps grisegena*	22.4	60	0	60
Total Red-Throated Loons and Grebes		111.4	644	0	644
DIVING DUCKS					
Common Eider	*Somateria mollissima*	83.2	459	21	480
Black Scoter	*Melanitta americana*	76.6	289	336	626
White-winged Scoter	*Melanitta deglandi*	11.9	44	44	88
Surf Scoter	*Melanitta perspicillata*	21.4	79	80	159
Red-breasted Merganser	*Mergus serrator*	26.2	71	10	81
Hooded Merganser	*Lophodytes cucullatus*	2.4	6	0	6
Greater Scaup	*Aythya marila*	2.4	8	7	15
Bufflehead	*Bucephala albeola*	21.9	50	71	121
Long-tailed Duck	*Clangula hyemalis*	28.6	130	125	255
Total Diving Ducks		274.6	1136	694	1831
OTHER WATERFOWL					
American Black Duck	*Anas rubripes*	4.8	10	0	10
Canada Goose	*Branta canadensis*	11.4	32	0	32
Other Total Waterfowl		16.2	42	0	42
GRAND TOTAL		545.3	2571	812	3384

* The Trustee estimate of killed birds is a calculated value (rather than a whole number) resulting from a modelling approach that considers the number of dead birds collected, searcher efficiency rates, scavenging rates, and a number of other factors.

** Totals may not exactly match due to rounding.

Table 4. Common eider life history parameters used in injury and restoration scaling calculations.

Parameter	Value	Notes	References
Fledgling survival (survival from fledging to 1 y.o.)	0.88	Used adult survival rate from Birds of North America (BNA).	Goudie et al. 2000
Annual adult survival	0.88	BNA: 0.87-0.88	Goudie et al. 2000
Adult productivity (#fledglings/female)	0.42	0.3 from Milne and Reed 1974. Flag Island, ME: 0.354 ducklings/hen in 2006; 0.278 - 0.93 ducklings/hen in 2007 (Allen et al. 2008) 0.12 ducklings per pair (Mawhinney et al. 1999). Using all data, avg. =040. Used 0. 42 so that r is closer to zero.	Milne and Reed 1974; Mawhinney et al. 1999; Allen et al. 2008
Age at first breeding	3	--	Goudie et al. 2000
Adult female population that breeds each year (%)	0.78	--	Goudie et al. 2000
Percent females in population	50%	--	Goudie et al. 2000
Maximum life span (yrs)	21	--	Goudie et al. 2000
Total number dead	83.2	Trustees' Acute Mortality Report + delayed mortality	Trustees' Acute Mortality Report

1.7. Summary of Settlement for Natural Resource Damages

Under OPA rules, the 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. Throughout the assessment phase, the Responsible Parties reimbursed the Trustees for assessment costs. In January 2018, based on the injury assessment and restoration scaling efforts, the Trustees and Responsible Parties reached a mutually agreeable settlement to restore injuries to common and roseate terns, common loon, and other birds resulting from the Spill. Under the agreement, the Responsible Parties agreed to pay damages totaling $13,300,000.00. This settlement includes the costs of Trustee restoration planning, implementation, oversight, and monitoring. The settlement was memorialized in a consent decree on January 24, 2018 (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):

U.S. Department of the Interior Natural Resource Damage Assessment and Restoration Program: T/B Bouchard B-120 Grounding Fuel Oil Spill (Accessed April 30, 2020)

Funds were designated to achieve restoration goals for the following categories:

- Loon Restoration: The Trustees will use approximately $7.3 million of the funds to plan, implement, oversee, and monitor the restoration of common loon.

- Tern Restoration: The Trustees will use approximately $5 million of the funds to plan, implement, oversee, and monitor the restoration of common and roseate terns.

- Other Birds: The Trustees will use approximately $1 million of the funds to plan, implement, oversee, and monitor the restoration of other bird species impacted by the Spill.

The Trustees allocated specific funding amounts to each state, based on the level of injury to each category of birds in each state. The subdivision of the $13.3 million for use by the Trustees to restore, replace, or acquire the equivalent of birds injured by the Spill is as follows:

- Restoration in Rhode Island (Common Loon and Other Birds), the amount of $1,274,000 ($1,300,000, less 2 percent of the funds for restoration planning and oversight); the Trustees note that approximately 10 percent of all the dead birds recovered following the Spill were found in Rhode Island;

- Restoration in Massachusetts (Common Loon), the amount of $6,370,000 ($6,500,000 less 2 percent of the funds for restoration planning and oversight);

- Restoration in Massachusetts (Other Birds), the amount of $490,000 ($500,000, less 2 percent of the funds for restoration planning and oversight);

- Restoration in Massachusetts (Common and Roseate Terns), the amount of $4,900,000 ($5,000,000 less 2 percent of the funds for restoration planning and oversight) will be combined with funds from the Ram Island Shoreline and Related Resources Settlement ($534,000 that was previously secured through the first Consent Decree and has since gained interest). As mentioned above, injuries to common and roseate terns (and shorebirds) will be described in a separate Restoration Plan that will be released by the Trustees at a later date; and

- Restoration Planning and Oversight of Bird Restoration, the amount of $266,000, or 2 percent of the overall settlement, plus any anticipated interest earned following the date of initial deposit.

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 local 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.

Throughout the injury assessment and restoration planning phases, the Trustees consulted with Federal and State wildlife agency experts, as well as organizations and individuals familiar with common loon and other injured bird species (e.g., Loon Preservation Committee, BioDiversity Research Institute, Maine Audubon, Vermont Center for Ecostudies: Vermont Loon Conservation Project, Massachusetts Audubon). These experts and organizations provided input on life history data, restoration opportunities, costs, and restoration project feasibility. Of note, the Northeast Loon Study Working Group (NELSWG), which is comprised of non-profit, private and government organizations that conduct loon monitoring, research, management and outreach programs throughout the northeastern United States and Canadian provinces, provided *A Proposal to Restore Common Loon Losses Resulting from the Bouchard Barge 120 Oil Spill* (Evers et al. 2009). In preparing the Draft RP, the Trustees relied heavily on this document and assistance from the NELSWG member organizations.

The Draft RP was provided to the public to both fully explain the injury assessment process and gain input from the public on the proposed restoration alternatives. In addition, the Trustees held an informational public meeting and webinar on September 12, 2019 to present the Draft RP and answer questions. Public input was fully considered during the preparation of this Final RP. A summary of comments and the Trustees' responses is provided in Section 5. A summary of the preferred alternatives is available in Section 3.4.

2.2. Restoration Criteria

The purpose of restoration, as outlined in this Final RP, is to make the public whole for injuries to common loon and other birds resulting from the Spill, and to compensate for the associated interim natural resource losses. OPA and 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, although these regulations provide trustees with the flexibility to identify and implement projects that best address resource injuries and their lost uses. Natural resource

trustees must consider a reasonable range of alternatives and are provided discretion in identifying and selecting restoration projects.

OPA regulations (15 CFR §990.54) require Federal and state trustees to evaluate restoration alternatives based on a minimum of the following factors:

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

Prior to fully evaluating restoration alternatives, the Trustees identified a set of Eligibility Criteria to determine whether potential projects met minimum standards for applicability (refer to Section 2.2.1. below). Potential projects that met the Eligibility Criteria were then evaluated by the Trustees by applying the Evaluation Criteria (refer to Section 2.2.2.) 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 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;
- in terms of cost, does not overburden the ability of the Trustees to expend funds in a manner that accomplishes Trustee restoration goals for the injury restoration, and/or allows the Trustees to select project(s) that serve as broad a geographic area affected by the Spill as possible, and benefits the restoration of the injured natural resources;
- provides measurable results. A project must deliver tangible and specific natural resource restoration results that are identifiable and measurable, and will be capable of being

assessed and evaluated using quantitative methods, so that changes to the targeted resource and/or resource use can be documented and evaluated;

- ensures protection of human health and safety, and/or is not prohibited by Federal, state, or local laws, regulations, or policies addressing public health and safety;

- is not subject to an independent, prior obligation to perform the action or activity pursuant to statute, regulation, ordinance, consent decree, judgment, court order, permit condition, memorandum of agreement, or contract. The project must not otherwise be required by Federal, state, or local law, including but not limited to enforcement actions or regulatory compensatory mitigation requirements; 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. Restoration Evaluation Criteria

Based on the six evaluation criteria in OPA regulations and other factors important to meet the Trustees' restoration goals, the Trustees developed the following nine Evaluation Criteria to assess project strengths and weaknesses (Table 5). The six evaluation criteria in OPA regulations were considered as part of the evaluation process, but they were not all explicitly discussed in the Draft RP. In Section 5.2.2 of this Final RP, the Trustees have provided a more detailed explanation of how each of the six OPA criteria were considered.

Table 5. Restoration evaluation criteria.

High Importance	•Nexus to Injury - Spatial proximity within affected area •Nexus to Injury - Same or similar species
Medium Importance	•Project implementation readiness •Technical feasibility/likelihood of success of project •Sustainability of resource benefits •Cost/cost effectiveness
Low Importance	•Impact avoidance or minimization •Level of funding and resources needed for project implementation •Community involvement

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

3. Restoration Alternatives

The Trustees considered a range of potential restoration alternatives in the Draft RP. Several alternatives were considered for each category of birds impacted by the Spill: common loon and other birds. A suite of restoration projects was identified and selected to collectively compensate for the injuries to the injured bird categories.

The Trustees also evaluated a No Action alternative, as discussed in the following section.

3.1. No Action Alternative

With the No Action alternative, no restoration, rehabilitation, replacement or acquisition projects or actions would occur and no case settlement funds would be expended. While other Federal and State (e.g., Massachusetts Division of Ecological Restoration) restoration programs exist in the Buzzards Bay region, no programs are targeted specifically to address the injuries to birds that resulted from the Spill. A lack of directed funding for targeted bird restoration projects would prolong the loss to bird populations from the Spill. With this alternative, only natural recovery of the injured bird populations would occur. For purposes of the Final RP, 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. The No Action alternative is retained in the Final RP for comparative purposes.

3.2. Common Loon Restoration Alternatives

The remainder of the following section consists of descriptions and an evaluation of each of the preferred and non-preferred project alternatives for restoring common loon.

3.2.1. Common Loon Restoration – Preferred Alternatives

As described in Section 1.6.1., Trustee analysis indicated that approximately 531 common loon were killed by the Spill, resulting in a total loss of 4,013 DBYs (including direct mortality and associated losses of future fledglings).

Common loon restoration is of particular importance to the Trustees because of scientific concern about the status of common loon populations in the northeastern United States and strong public interest in and support for this species. In recognition of these issues, the State of New Hampshire has listed common loon as a threatened species, and in Massachusetts, Connecticut and New York, they are listed as a species of special concern. Common loon are also a species of management concern for the USFWS.

Public and scientific concerns about the stability of common loon populations in the Northeast reflect the large number of specific threats to breeding and wintering populations of loons. Many of these threats adversely affect common loon during the breeding season (e.g., shoreline development, mercury bioaccumulation, lead poisoning from and entanglement in fishing tackle, disturbances by recreational boaters, and variability in lake water levels due to hydropower operations) and thus result in reduced reproductive success.

Because the focus of common loon restoration is to increase production of loons to offset the loss, priority is given to restoration projects that enhance productivity of the species during (but not limited to) the nesting season. Relatedly, the Trustees have determined that this restoration must occur in the states directly impacted by the oil and in northern New England and New York. Data from band recoveries, satellite telemetry, and morphometric information indicate that common loon that winter in Buzzards Bay breed in northeastern states including Maine, New

Hampshire, Vermont, Massachusetts, and New York (Evers 2007; Savoy and Evers 2019; Kenow et al. 2009).

A total of $7.3 million is available to implement, oversee and monitor the restoration of common loon. As described in Section 1.7, approximately 10 percent of the loon settlement funds have been allocated specifically for restoration in Rhode Island. Funds targeted for restoration in Rhode Island will be discussed in Section 3.3.1. The remaining $6,370,000 will be directed to projects in the other affected states.

The Trustees selected two preferred loon restoration alternatives. The first is a translocation and captive rearing project designed to restore common loon to historic breeding habitat in Massachusetts. The second alternative is a suite of restoration actions that can be implemented throughout the Northeast and are designed to increase both the productivity of nesting common loon and the survival of adults. Funds will be distributed between the two restoration alternatives, with $2,684,500 provided for the translocation project and $3,685,500 provided for other restoration actions.

3.2.1.1. Common Loon Restoration through Translocation and Captive Rearing (COLO-1)

3.2.1.1.1. Restoration Objective

The goal of this alternative is to use translocation and captive rearing techniques to restore common loon to their former breeding range in Massachusetts and to strengthen existing populations within the Commonwealth. Translocation is accomplished by moving individual loon chicks from existing breeding lakes to potential breeding lakes. It is based on the observation that common loon chicks imprint on, and return as adults to breed on, the lakes that they fly from during the fledging process. As noted in comments from Vincent Spagnuolo (Appendix A: Comment Letters, Exhibit 13), the assumption is that "juvenile loons identify their fledging lake as well as surrounding landscape features from the air and use that information to return to the fledging lake or adjacent lakes as adults."

Historically, common loon bred throughout Massachusetts and southward into southern New York, New Jersey and Pennsylvania. Due to a variety of factors, including pollution, loss of habitat, sport shooting, and lack of regulatory protection, the common loon population substantially declined and loons were officially declared extirpated from Massachusetts in 1925 (Evers et al. 2018). Common loon recolonized the Commonwealth as a breeding bird in 1975 when a pair was documented nesting on Quabbin Reservoir, which was built in the 1930s and is the largest inland body of water in Massachusetts. Since 1975, the common loon population has steadily increased in Massachusetts and there are currently 45 territorial pairs that have repopulated water bodies in the central portion of the State, including Quabbin and Wachusett reservoirs (Savoy and Evers 2019). However, common loon have relatively short natal dispersal distances (average = 8 miles or 13 km; Evers et al. 2010) and low annual productivity (average productivity in Massachusetts is 0.48 chicks fledged/territorial pair; Evers et al. 2018), making them slow to disperse and recolonize new areas. For these reasons, the common loon population increase and range expansion in Massachusetts since their recolonization in 1975 has been modest, and the selected translocation efforts could greatly boost the breeding population and range of loons in the State.

For the loon translocation project, a total of 45 to 60 common loon chicks (reduced from 63 to 84 loon chicks as considered in the Draft RP) will be released at historic breeding sites in southeastern and western Massachusetts; as a result, 70 breeding loon territories are expected after 48 years. Due to considerable public comment regarding the translocation project and concern about climate change and its potential impact on the project, the Trustees have reduced the overall budget for the translocation project by $500,500 (Table 7) and have correspondingly reduced the number of years that birds will be translocated to each location, which in turn reduces the number of birds that will be translocated. As a result, it takes a longer time period (48 vs 30 years) to achieve the desired number of pairs. Despite a number of comments (see Section 5) recommending that the Trustees withdraw funds altogether from the translocation project, the Trustees maintain their view that the translocation project has the greatest potential to increase common loon productivity by establishing nesting common loon in areas with extensive habitat that currently have no or very few nesting pairs. Additionally, nesting loons in Massachusetts have slowly increased and expanded their range to the south (e.g., now a nesting pair in Connecticut just south of Berkshire County, Massachusetts); and direct evidence of climate limitations on loon populations in Massachusetts has not yet been documented.

3.2.1.1.2. Summary of Preferred Activity

This project uses recently established translocation techniques for common loon (BRI 2018), including captive rearing and direct release methods, to reintroduce the species to their former breeding range in Massachusetts. Similar translocation and captive rearing projects have been utilized to restore numerous species of birds globally. In New England, translocation efforts have successfully been conducted for bald eagle, peregrine falcon, and common eider. The translocation effort most similar to the common loon translocation project was when, in the early 1970s, common eider hens and eggs were collected from Maine and moved to southeastern Massachusetts where they were hatched in captivity and later released on Penikese Island in Buzzards Bay. Eider began nesting on Penikese Island in 1976 and since that time have increased to over 850 pairs extending from Cape Ann through Buzzards Bay (Heusmann and Trocki in press). Based on observations of eider in Boston Harbor that were banded at Penikese Island, and the distribution of eider in Massachusetts, Heusmann and Trocki (in press) believe that the expansion of eider along the Massachusetts coast is due to the initial translocation and subsequent expansion from Penikese Island.

The Trustees are proposing to work with the Biodiversity Research Institute (BRI) to implement the project, as they have led recent translocation efforts in Massachusetts and Minnesota, and they have in-depth knowledge and relevant experience in the techniques required for translocation. In collaboration with the New York State Department of Environmental Conservation, Maine Department of Inland Fisheries and Wildlife, and the Massachusetts Division of Fisheries and Wildlife, BRI began translocation efforts in southeastern Massachusetts in 2015. To date, 24 common loon chicks have been successfully moved from New York and Maine to southeastern Massachusetts. Initial results indicate that translocated common loon chicks (including those that were captive reared and direct released) have successfully imprinted on lakes in southeastern Massachusetts. Of the 16 loon chicks released in 2015 and 2016, six, or 37.5

percent have been re-observed near the translocation site; one of these was a direct release chick. These observations were made during limited survey efforts; it is likely that additional surveys may result in more loon sightings. An additional eight chicks were released in 2017; one of these was re-observed in 2019, though the return of a 2-year-old bird is unusual as juveniles typically do not return to their natal lakes until they are 3-4 years of age (Evers et al. 2010). In addition, in 2018 two of the six returning translocated loons established a territorial pair on North Pocksha Pond, and in 2019, one of the six returning translocated loons established a pair with an individual that was not part of the original translocation effort.

This project would continue translocation efforts that began in southeastern Massachusetts at the Assawompset Pond Complex (APC), the largest natural inland waterbody in the Commonwealth, and expand the effort to include a second site in Berkshire County in the vicinity of October Mountain Reservoir (Figure 3). These two sites are chosen because they both have numerous lakes which provide suitable breeding habitat and because they formerly had breeding common loon. Due to the effort and expense associated with translocation, the project targets two release areas that are estimated to have the greatest amount of potential breeding habitat in Massachusetts (Spagnuolo 2012). From these two areas, we expect that common loon will expand outward and subsequently colonize other available habitat in Massachusetts.

Under this preferred project, the APC would serve as the first rearing facility and release site. The APC is located on the Plymouth/Bristol County line and is composed of Assawompset, Pocksha, Great Quittacas, Little Quittacas and Long ponds. All of the ponds are public water supply reservoirs, and with the exception of Long Pond, they are largely protected from development through conservation restrictions. Recreational use is limited to trails on the property surrounding the ponds. Boating (including the use of canoes and kayaks) is prohibited, except to historic landowners. Swimming is prohibited and shoreline fishing is restricted to certain areas. The protected nature of the ponds and limited amount of recreational use and boating make them an ideal restoration site. In addition, it is an optimal location for rearing and releasing chicks, due to the number of large, natural lakes in the area and abundant prey fish species.

October Mountain Reservoir, located in Berkshire County in western Massachusetts, will serve as the second location for the rearing and release of common loon chicks. This lake was chosen because it is part of a larger complex of nearby lakes that have suitable nesting and rearing habitat for breeding common loon pairs. October Mountain Reservoir is surrounded by the 16,000+-acre October Mountain State Forest, the largest state forest in Massachusetts.

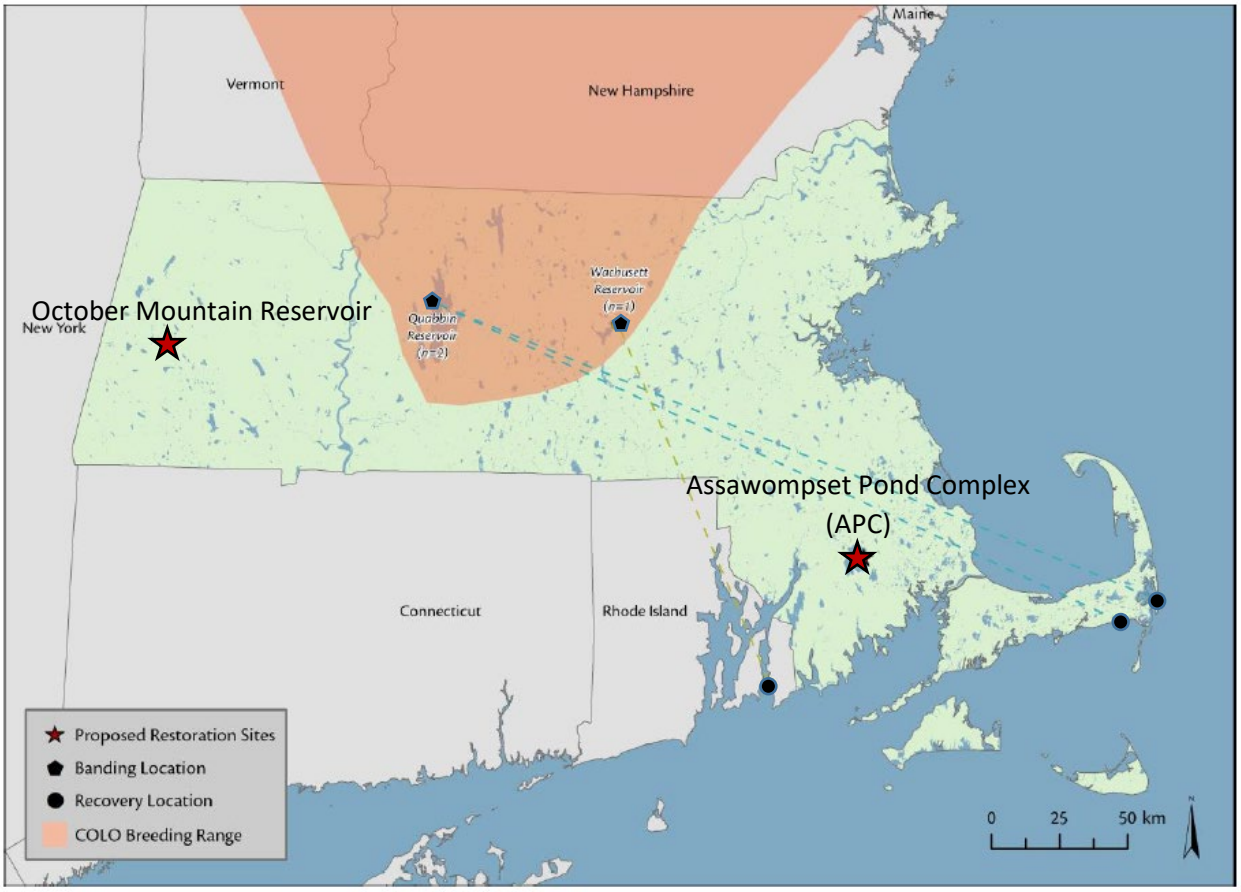

Figure 3. Breeding range of the common loon in Massachusetts, common loon banding and winter recovery locations with dashed lines showing migration routes, and the selected restoration sites in southeastern and western Massachusetts.

The translocation and captive rearing effort will follow protocols outlined by Kneeland et al. (2020). Chicks will be selected for translocation from common loon pairs on lakes in Maine and New York that are identified in collaboration with the Maine Department of Inland Fisheries and Wildlife and the New York State Department of Environmental Conservation based on long-term loon monitoring efforts. Chicks at least 5 weeks of age will be selected from loon pairs with existing two-chick families and translocated to Massachusetts. On-call veterinary services have been identified and budgeted for, and will be provided as needed. Rearing pens will be set up at Pocksha Pond for the APC site and October Mountain Reservoir for the Berkshire County site. Chicks will be reared in these specially designed aquatic caged pens until they are old enough to feed on their own (9-10 weeks). Prey fish will be purchased and introduced within the rearing areas, so that food is not limited and because common loon chicks are usually too young to forage on their own. BRI will monitor and feed the loon chicks without being seen to ensure that the young birds do not become habituated to humans during the rearing process. All chicks will be color-banded prior to release to provide a method for remote identification.

During the chick collection effort, chicks that are 8 weeks of age or older will be collected and translocated to Massachusetts where they will be directly released at project locations. These

older chicks are typically more challenging to capture, but they provide an additional translocation opportunity that avoids the captive rearing stage and allows researchers to directly release young birds in Massachusetts lakes. Both techniques will be utilized.

A total of 9-12 chicks will be translocated per year for 2 years to the APC, followed by a total of 9-12 chicks per year for 3 years to the October Mountain site (Table 6). A sixth year will focus on management and monitoring activities at both locations. The Trustees have reduced the total number of years of the translocation effort at each location, to optimize staff efficiency and reduce costs, while maintaining a high level of effort in each year of the project to maximize project success. In total, 18-24 (formerly 27-36) Maine-hatched common loon chicks would be released at the APC site and 27-36 (formerly 36-48) New York-hatched chicks would be released at the October Mountain site. Approximately six chicks per year will be captive reared and another six will be direct released at each location. An adaptive management strategy will be employed following each year, and the number of chicks that are captive reared or direct released may be modified to maximize success. Additional chicks may be directly released to southeastern Massachusetts in year 3 or to the Berkshires in year 6 to help meet project goals.

Based on habitat availability, productivity and survival estimates, as well as other life history data (Table 1), a projected 37 breeding common loon territories will be established in the APC site within 48 years. At the October Mountain site, 33 breeding common loon territories are expected in the area after 48 years. A total of 70 breeding common loon territories are expected to be created at both areas after 48 years. Analyses of habitat characteristics and loon population data indicate that enough suitable habitat exists to support about 55 pairs in southeastern Massachusetts, 35 pairs in Berkshire County and 295 pairs statewide (Spagnuolo 2012; Spagnuolo 2014).

Additional information about the translocation and captive rearing process can be found here:

Loon Translocation: A Summary of Methods and Strategies for the Translocation of Common Loons (BRI 2018) (Accessed April 30, 2020)

In conjunction with the translocation efforts, additional management techniques will be utilized to enhance productivity of newly established common loon pairs. Up to 30 artificial nests, or floating rafts, will be placed at suitable locations across the two restoration sites to further enhance nesting success over the 6-year time period. Biologists have successfully used rafts as a management tool on a number of lakes in northern New England (DeSorbo et al. 2007; LPC 2011). Although rafts can be a very useful tool to promote common loon conservation on waterbodies with fluctuating water levels, study sites will be carefully evaluated before deploying rafts. If there are high quality natural nesting locations within actual or proposed loon territories, rafts may not be used in order to encourage birds to use natural nesting locations. However, if good natural nest sites do not exist or productivity is poor, rafts may be used to facilitate successful nesting.

Table 6. Timeline of loon translocation project and major activities.

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
a. Assawompset Pond Complex (APC)						
Translocation to APC	X n = 9-12 chicks	X n = 9-12 chicks				
Maine Field Surveys/Capture	X	X	X			
Massachusetts Returning Loon Surveys and Evaluation	X	X	X	X	X	X
Raft Management	X	X	X	X	X	X
b. October Mountain Reservoir (OMR)						
Translocation to OMR			X n = 9-12 chicks	X n = 9-12 chicks	X n = 9-12 chicks	.
New York Field Surveys/Capture		X	X	X	X	
Massachusetts Field Surveys/Capture	X	X	X	X	X	X
Massachusetts Returning Loon Surveys and Evaluation			X	X	X	X
Raft Management		X	X	X	X	X
c. Communication with Agencies/Public	X	X	X	X	X	X

During the translocation project time frame, outreach and education efforts will be undertaken by BRI in coordination with MassWildlife and the USFWS. BRI will work to educate and engage the public to help protect translocated common loons. BRI will utilize multiple outreach approaches, including loon wardens and monitors, fact sheets, public presentations, and website updates and press releases.

Throughout the translocation project time frame, the Trustees anticipate that the Commonwealth's capacity for management and outreach and education efforts will increase. Currently, there is no established loon conservation organization in Massachusetts that works to limit human disturbance to common loons. This is in large part due to the fact that common loons do not currently breed throughout the Commonwealth and primarily nest on large reservoirs with protected shorelines and limited human disturbance. As the population grows and expands, MassWildlife will work with local conservation organizations and lake associations to develop partnerships to help manage and promote successful nesting of common loons. The Commonwealth has successfully developed similar conservation partnerships in the past (e.g., piping plover), and they have a vested interest and responsibility in ensuring success of the common loon restoration effort, especially as common loon are listed as a Species of Special Concern under the Massachusetts Endangered Species Act.

The total estimated project cost for 6 years of translocation and follow up monitoring is $2,499,500, including staff time, travel, equipment and supplies (Table 7). Salary accounts for the bulk of the project cost (more than 2/3^{rds}) due to the effort required to identify and capture chicks, intensive labor associated with chick-rearing, and post-release monitoring. A principal project coordinator will work with stakeholders and interested parties to communicate about the project. The project coordinator will assist with the preparation and delivery of communications materials, including reports and fact sheets. The project coordinator will also evaluate the yearly project operations and results and assess the project's success and/or need for additional or adaptive management efforts. A field operations manager will oversee the chick collection and rearing efforts for both locations and supervise three field assistants who will monitor and care for the chicks at each of the rearing facilities. Additional field assistants will monitor returning chicks that were previously released.

The Trustees have reserved $185,000 for MassWildlife's efforts to manage the growing loon population, work with local non-profit organizations, and engage and inform the public in loon conservation. These funds are expected to support MassWildlife's efforts for at least 5 years following the conclusion of the translocation project. During that time, MassWildlife will focus on monitoring and managing the common loon population while establishing conservation partnerships with local organizations and conservation commissions to assist their efforts in managing the growing loon population. Additional interest earned on the initial settlement funding may also be allocated towards management and education, if needed.

Long-term management and education and outreach efforts are anticipated to be undertaken by MassWildlife in conjunction with local lake associations and conservation organizations.

3.2.1.1.3. Monitoring and Measurable Results

Monitoring will entail tracking the 24 common loon chicks previously released at the APC site, and thereafter, all other loon chicks released (up to 24 at APC and 36 at October Mountain Reservoir) for a total of 6 years (Table 6). Once the juveniles fledge, they will spend up to 3 years on or near the ocean, likely in wintering grounds off the southern coast of New England. BRI will document return rates, dispersal, and breeding status of translocated chicks in southeastern and western Massachusetts, and continue to monitor banded breeding common loon in Massachusetts to determine productivity and other demographic parameters required to assess the success of the project.

As with all restoration projects, the Trustees will review project implementation and monitoring reports on an annual basis. The Trustees will review yearly goals and objectives and work closely with project proponents should any modifications or changes in approach be necessary. The Commonwealth will be overseeing the translocation project contract and will provide additional project oversight, ensuring that permits are acquired, conducting site visits, and assisting the contractor with outreach efforts. As mentioned previously, MassWildlife will utilize $185,000, plus future interest earned (if needed) for future management and education following the initial translocation effort. The Trustees intend to be actively engaged and involved in the translocation project to help ensure its success.

3.2.1.1.4. Evaluation of the Alternative

High Importance: *Nexus – Spatial Proximity within Affected Area, Same or Similar Species*: Common loon within the coastal waters and shorelines of Massachusetts and Rhode Island were injured by the Spill. This restoration alternative directly compensates for those injuries to common loon and to the public of Massachusetts by restoring common loon in Massachusetts, where they were impacted. The selected translocation site in southeastern Massachusetts is approximately 10 miles (16 km) from Buzzards Bay, allowing for loon restoration in close proximity to the spill location.

By restoring common loon nesting pairs to locations where they do not currently exist in Massachusetts, this project directly creates common loon, and has the potential to increase the overall common loon population size and distribution in New England. Once established, each new nesting common loon pair is expected to generate approximately 31.3 DBYs over a period of 30 years. After 100 years, each pair would be expected to generate 50.4 DBYs. Successful translocation efforts are projected to restore 70 breeding pairs after 48 years, and these pairs would be expected to generate 2,190 DBYs (or 55 percent of the injury) in 30 years following establishment and 3,531 DBYs (or 88 percent of the injury) in 100 years after establishment.

Medium Importance: *Project Implementation Readiness, Technical Feasibility/Likelihood of Success of Project; Sustainability of Resource Benefits, and Cost/Cost Effectiveness*:
Preliminary common loon translocation has already begun in southeastern Massachusetts; however, additional funds are needed to continue this effort and fully restore common loon to its historic breeding habitat in the Commonwealth. Project techniques have been established,

materials and supplies have been tested, and permits have been obtained. Staff are poised to implement this restoration alternative if funding is available

Table 7. Overall budget for each of 6 years, following the fiscal year (May 1 to April 30).

CATEGORY	Budget Year 1	Budget Year 2	Budget Year 3	Budget Year 4	Budget Year 5	Budget Year 6	Total Costs
a. Personnel							
Assawompset Pond Complex	$227,400	$205,100	$83,000	$84,750	$86,500	$63,250	$750,000
October Mountain Reservoir	$45,000	$46,000	$209,700	$213,800	$218,400	$63,250	$796,150
Coordination, Communication, and Data Management	$84,000	$86,560	$92,160	$97,800	$103,480	$76,800	$540,800
Personnel Totals	$356,400	$337,660	$384,860	$396,350	$408,380	$203,300	$2,086,950
b. Travel							
Assawompset Pond Complex	$40,350	$39,650	$17,100	$17,400	$17,700	.	$132,200
October Mountain Reservoir	$14,500	$13,500	$38,850	$39,350	$36,800	$29,750	$172,750
Travel Totals	$54,850	$53,150	$55,950	$56,750	$54,500	$29,750	$304,950
c. Equipment	$9,200	$5,200	$4,000	$4,000	$4,000	$4,000	$30,400
d. Supplies	$14,500	$14,000	$14,500	$15,000	$16,200	$3,000	$77,200
Total Project Costs	$434,950	$410,010	$459,310	$472,100	$483,080	$240,050	$2,499,500

While translocation has only recently been attempted in common loon, it is an accepted conservation practice for other bird species such as bald eagle, osprey, common eider, canvasback, and Atlantic puffin (MA-EEA et al. 2016; Martell et al. 2002; Stanton 1989; Doty 1983; Gummer 2003). Although these species differ from the common loon in life history and breeding traits, studies support the use of translocation as a method to establish, reestablish, and augment bird populations (Griffith et al. 1989). Furthermore, preliminary results of the common loon translocation at APC are encouraging. Of the 16 loon chicks released in 2015 and 2016, six, or 37.5 percent have been re-observed near the translocation site (data provided in Section 5, Topic 2a). These observations were made during limited survey efforts; it is likely that additional surveys may result in more loon sightings. An additional eight chicks were released in 2017; one

of these was re-observed in 2019, though the return of a 2-year-old bird is unusual as juveniles typically do not return to their natal lakes until they are 3-4 years of age (Evers et al. 2010). In addition, in 2018 two of the six returning translocated loons established a territorial pair on North Pocksha Pond, and in 2019, one of the six returning translocated loons established a pair with an individual that was not part of the original translocation effort.

Once loon breeding pairs are established, the project is expected to be naturally self-sustaining. In southeastern Massachusetts, there are at least nine lakes that are suitable for breeding loons, and historically this was a documented breeding area (Bent 1919). These lakes and ponds provide high quality habitat with clear, clean water, abundant prey fish species, and shoreline habitat with coves and islands that provide for multiple nesting territories. The second translocation site in western Massachusetts is also expected to be self-sustaining. It is located in an area with a number of lakes and ponds that are suitable for nesting. It is also relatively near established breeding loons in the Adirondack Mountains to the west, Vermont to the north, Connecticut to the south and Quabbin Reservoir to the east.

The translocation effort focuses on restoring loons to former breeding locations in Massachusetts, located at the southern extent of the common loon's current breeding range. Potential risks that may be associated with a changing climate (temperature, severe weather events, decreased survival due to infectious diseases and parasites) could adversely affect the potential success and sustainability of the project. LPC (2018) has suggested increased precipitation and temperature during the breeding season as significant predictors of reduced common loon hatching success in New Hampshire over the past 40 years. As noted in the Draft RP, the Trustees maintain that the impacts that climate change will have on loons remain uncertain; however, as described in several comment letters, the Trustees agree that the risks are likely to be greatest in the southernmost portion of the common loon range. Due to the increased likelihood of higher temperatures, particularly in the southeastern portion of Massachusetts, the Trustees have reduced the overall number of years of the translocation effort (and the overall funding) to mitigate some of the potential risks associated with climate change.

Studies suggest species that inhabit the southern margins of their range are critically important to long-term population viability, and managing this portion of the population should be a high priority for resource managers (Hampe and Petit 2005; Rehm et al. 2015). Translocated common loon that can tolerate warmer regions could exhibit adaptation that may be necessary for the species' fitness and persistence under future climates (Petit et al. 2003; Hewitt 2004). As an example, the common eider translocation to Massachusetts in the 1970s has expanded the species' southern range, and currently more than 850 eider nest along the Massachusetts coast (Heusmann and Trocki, in press). These birds may be utilizing shellfish food sources that are less abundant in northern climates. The Trustees suggest that translocation efforts to restore common loon to their former breeding range in Massachusetts may help the species be more resilient in the future, but also note that several commenters believe that this will not be the case since loons translocated from New York and Maine are unlikely to provide increased genetic diversity or have the ability to contribute genetic resilience due to the expected rapid nature of climate change.

Based on a total project cost of $2,684,500, and an estimated gain of 70 breeding pairs after 48 years, the cost per pair is estimated to be $38,350 ($2,684,500/70 pairs). Following establishment, 70 pairs would be expected to produce an estimated 3,531 DBYs over a 100-year project life span, which equates to a cost of $760/DBY. Although the total project cost is high, there is great potential to create many DBYs, and the overall cost/DBY is relatively low compared with other alternatives (Section 3.2.1.2.4).

Low Importance: *Impact Avoidance or Minimization, Level of funding needed, Community Involvement*:
No significant adverse impacts are expected from this project. Loss of juvenile loons during translocation is possible; however, during the previous 3-year effort in Massachusetts, there were no losses of chicks associated with the project during translocation or captive rearing. One bird died several days after release when it flew into power lines. In Minnesota, one of the translocated chicks died several days after being directly released (it was found beaching itself and was transferred to a wildlife rehabilitation center, but did not survive.) The cause of death is not known. No other adverse impacts have been documented.

This project is labor intensive and requires a significant level of effort to be effective; however, it has the potential to directly generate significant numbers of common loon in western and southeastern Massachusetts. The Trustees will provide up to $2,684,500 for this project (including BRI project costs and MassWildlife management and oversight costs).

Some local community involvement is anticipated; volunteers may assist with monitoring activities. BRI and MassWildlife will also seek to engage local conservation organizations and lake associations, as well as create a website and produce fact sheets and other materials on common loon to help inform and engage the local citizenry in the project.

3.2.1.2. Common Loon Restoration through Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Individual Common Loon Mortality through Rescue and Rehabilitation of Stranded Birds and Decreasing Exposure to Lead Fishing Tackle (COLO-2)

3.2.1.2.1. Restoration Objective

The goal of this restoration alternative is to enhance common loon productivity and survival during the nesting season, with emphasis on breeding sites throughout New England and New York, with the majority of funding being allocated to northern New England and New York. This restoration relies on a variety of management techniques that have been utilized successfully throughout the Northeast for more than 40 years (Evers et al. 2009; LPC 2011).

3.2.1.2.2. Summary of Preferred Activity

This project takes a comprehensive approach to increase the survival and productivity of nesting common loon, through a variety of management actions that have been successfully implemented in the Northeast (Evers et al. 2009; LPC 2011), including artificial nests (using moored, floating rafts), nest site protection through signage and wardening, protection of

breeding habitat, and decreasing individual common loon mortality through rescue and rehabilitation of stranded individuals, and decreasing exposure to lead fishing tackle through public education and a lead tackle exchange program. Several of the techniques have also been used to successfully restore common loon following other oil spills in New England (protection of breeding habitat – North Cape oil spill [Evers et al. 2019] and reducing exposure to lead tackle and installing nesting rafts – Sanborn Pond oil spill). In addition, a similar suite of project activities was chosen to restore common loon injuries associated with the Deepwater Horizon Spill (Open Ocean Trustee Implementation Group 2018). A summary of each of the selected activities under this restoration project follows.

- *Artificial Nest Sites (Rafts)*
  Rafts have been used to minimize the negative effects of fluctuating water levels, shoreline development, predation and other human uses on nesting common loon (Merrie 1996; Hancock 2000; DeSorbo et al. 2007; Kenow et al. 2013). Rafts, that float up and down, can withstand the effects of fluctuating waters that can flood or strand natural common loon nests. They also act as small islands, and can help protect nesting common loon from mammalian predators and reduce effects of habitat alteration and disturbance associated with shoreline development.

  Rafts have been in use as a management tool for more than 40 years (LPC 2011), so their limitations and benefits are well known. Not all rafts end up being utilized by common loon; in New Hampshire, the average occupancy rate was 43 percent (Evers et al. 2009). However, common loon that utilized rafts on lakes with fluctuating water levels had higher nesting success (approximately 33 percent) than common loon utilizing natural nests on similar lakes (DeSorbo et al. 2007). Even greater nesting success (53 percent) is expected to be achieved at sites that are subject to high levels of human disturbance and have the greatest potential to increase loon productivity (Evers et al 2009). Avian predator guards typically constructed of wire mesh are frequently fitted over the rafts to reduce avian predation and increase productivity further. To achieve the greatest benefits to productivity, proper placement is critical and suitable locations removed from shoreline development and high recreational use are preferred.

- *Signage and Wardening*
  Signage and nest wardening can increase productivity by encouraging people to avoid nesting common loon. When common loon are disturbed, they frequently flush (or leave) the nest, causing their eggs to be at increased risk of predation and compromised incubation (Kelly 1992; Steinkamp and ACV 2008; Hammond 2009). In Montana, Kelly (1992) found that voluntary closures around nests (established by floating signs) increased the percent of successful nests from 65 percent to 73 percent, and in Vermont, Hanson and Klem (undated) found that signage increased the percent of successful nests at high human exposure sites from 55 percent to 81 percent. To achieve these increases in productivity, site selection is key and limited to specific locations.

Active wardening through "loon rangers" who educate the public about loons may also create a more informed citizenry, resulting in additional protection of nesting common loon. New England regional common loon recovery programs have been using wardens and outreach efforts in combination with nest signage at selected nests for years, in some cases since the late 1980s (Hanson and Klem undated; LPC 2011; Maine Audubon undated).

- *Protection of Breeding Habitat*

  Nest site protection through land preservation is expected to prevent future losses to common loon by preventing expected decreases in productivity associated with shoreline development. Shoreline development can adversely affect habitat quality by (1) modifying and/or removing vegetation and substrate; (2) enhancing predator densities; (3) increasing human activity; and (4) decreasing water quality and forage species availability. All of these effects can reduce productivity both indirectly and directly.

  Protecting shoreline surrounding common loon nests has been utilized to prevent declines in nesting, productivity and adult survival (LPC 2011; Evers et al. 2019). To achieve the greatest benefits, conservation projects should be carefully selected and focus on lakes with the highest quality habitat and highest productivity rates (Evers et al. 2019). The length of protected shoreline should be maximized to protect entire loon territories (or areas that pairs regularly frequent and defend), if possible. Lakes with a greater overall proportion of protected shoreline are preferred over lakes with less protected shoreline and more development. Vegetated buffers of no less than 150 meters should be maintained between nesting sites and developed land (Hammond 2009).

- *Reducing Individual Common Loon Mortality through Rescue and Rehabilitation of Stranded Birds and Decreasing Exposure to Lead Fishing Tackle*

  In response to public comment (Section 5, Topic 5), the Trustees have included loon rescue and rehabilitation as one of the supported management tools under COLO-2. Decreasing common loon mortality due to strandings and exposure to lead tackle is expected to reduce deaths of juveniles and breeding adults.

  Rescue and rehabilitation of common loons that are stranded due to being iced-in during the winter or entangled in fishing tackle is conducted opportunistically throughout New England; and in New Hampshire, rescues have averaged 10.4 adults and 4.9 juveniles per year from 2009 to 2018. Of those rescued, about one-third are rehabilitated and released (Section 5, Loon Preservation Committee [LPC]). According to comments provided by the LPC an estimated one-third of the released loons survive and return to breed successfully.

  According to Grade et al. (2018), toxicosis from ingestion of lead sinkers and jigs (lures) caused 48.6 percent of collected adult common loon mortality in New Hampshire, with jigs accounting for the greatest proportion of objects removed from deceased individuals (52.6 percent). Gallo et al. (2017) also showed that lead poisoning accounted for 28 percent of collected deceased adult common loon in Maine, with fishing jigs accounting

for 58 percent of the objects removed from dead loons. Regulations prohibiting the use and sale of lead sinkers and jigs vary across New England and New York. Several states prohibit the freshwater use of lead sinkers and jigs with a total weight of 1 ounce or less (New Hampshire, Maine [unpainted] and Massachusetts), while Vermont and New York prohibit the use of lead sinkers weighing ½ ounce or less. While the northern New England states prohibit the sale of lead sinkers and jigs, Massachusetts, Connecticut and Rhode Island allow the sale of lead fishing tackle. Additionally, no states prohibit the possession of lead fishing tackle, resulting in greater risk of inadvertent use throughout New England.

Because common loon are a long-lived species, do not breed until their sixth year, and have low annual productivity (0.53 chicks fledged/territorial pair [Evers et al. 2010]), adult survivorship is critical to population viability. The Trustees anticipate increasing adult survival rates by funding: 1) rescue and rehabilitation of stranded common loons; 2) outreach efforts that educate anglers about lead toxicity in common loon; and 3) tackle exchange programs to help reduce the use of lead jigs and sinkers weighing 1 ounce or less. Rescue and rehabilitation efforts are currently implemented by non-governmental organizations and state wildlife agencies throughout the Northeast on a limited basis (depending on staff availability). Pilot education and lead fishing tackle collection programs have also been implemented (https://fishleadfree.org/). In New Hampshire in 2018, 4,786 pieces of tackle, or 29 pounds of lead, were collected through exchange programs. Additional funding would allow these types of programs to expand their reach and effectiveness.

The Trustees will identify and select specific sites for the four project activities (Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Individual Common Loon Mortality through Rescue and Rehabilitation of Stranded Birds and Decreasing Exposure to Lead Fishing Tackle) through a competitive grant process. The USFWS will post an announcement of the availability of funding (up to $3,685,500) for the Restoration of Common Loons in New England and New York on www.grants.gov. Interested agencies, organizations, and individuals will have 60 days to apply for the competitive funding. Organizations can submit project ideas that include multiple management activities or only one activity. Projects throughout New England and New York will be eligible. The Trustees will use the evaluation criteria in Section 2.2, along with the following additional information to evaluate and select project proposals:

a. number of common loon (or pairs) likely to benefit;
b. expected effects of project proposal on common loon productivity and adult survival;
c. site location (must be located within New England or New York; the majority of funds will be targeted to northern New England and New York);
d. habitat area and quality;
e. cost effectiveness; and
f. performance monitoring protocols, including availability of existing baseline information.

3.2.1.2.3. Monitoring and Measurable Results

A common loon monitoring program will be required by each project proponent to determine if the restoration project is meeting established objectives and to gauge project success. Nesting data associated with raft use, locations with signage and wardening, and protected shorelines will be required on an annual basis for the period of time in which project funding allows (typically 3-5 years). Recorded data are expected to include, but are not limited to, the following: numbers of territorial and nesting pairs; numbers of eggs, chicks, and fledges; presence of signage/wardens; and any other pertinent details relating to interactions with the public. When possible, these data should be compared to historical data, or data from nest locations without rafts, nest signage and wardening, and protected shorelines. These results will help inform the potential success of these restoration actions.

In addition, for land acquisition projects, the properties will be required to be protected in perpetuity (via fee acquisition or conservation easement), managed for conservation, and monitored annually by the project proponent(s) to ensure the terms of the deed restriction or conservation easement are being met (e.g., no human encroachments, illegal timber harvesting, or other unsupported activities).

For projects aimed at reducing individual common loon mortality, annual evaluation reports will be required summarizing the respective project's development and results, (e.g., number of loons rescued and released, number of outreach activities and tackle exchange efforts, weight of lead tackle collected, etc.). Reports highlighting outreach activities should include the number and type of activities, number of participants, targeted audience (boaters, swimmers, and anglers), location, and number of participation hours.

3.2.1.2.4. Evaluation of the Alternative

High Importance: *Nexus – Spatial Proximity within Affected Area, Same or Similar Species*: This restoration alternative directly and indirectly compensates for injuries to common loon in areas affected by the Spill. Restoration of common loon in northern New England and New York is expected to help compensate for losses that occurred to the population in those states. In addition, restoration of breeding common loon in Massachusetts and northern New England should increase the overall loon population wintering in Buzzards Bay. Restoration efforts in northern New England and New York will also benefit people across the Northeast that enjoy and appreciate loons.

Restoration projects aimed at increasing productivity through rafts or via signage and wardening are expected to directly generate additional common loon DBYs. Specifically, utilizing life history inputs from Table 1 and average estimates for increased productivity for rafts (0.53 chicks fledged/territorial pair increase compared to natural nests at high risk sites, adjusted downward based on occupancy rates) and signage and wardening (0.17 chicks fledged/territorial pair increase), the Trustees anticipate that each raft will generate approximately 13.5 DBYs over a 20-year deployment period, while signage is expected to generate approximately 8.2 DBYs/nest over a 20-year period. It should be noted that deployment periods less than 20 years would result in

reduced DBYs/nest. The Trustees estimate that a 20-year deployment of 100 rafts would likely generate a total of 1,350 DBYs, or approximately 34 percent of the injury, while a 20-year signage program at 100 nests would generate a total of 820 DBYs, or approximately 20 percent of the injury.

Land protection projects are expected to prevent future losses of common loon nests and reductions in productivity. Since shoreline development reduces but does not entirely eliminate loon nesting, the productivity benefit from land protection was estimated to be 0.40 chicks fledged/territorial pair, rather than the average range-wide productivity (0.53 chicks fledged/territorial pair) (Evers et al. 2010). To maximize potential project benefits, land protection projects will prioritize sites with high quality habitat and high productivity that are under threat from development.

Rescue and rehabilitation, outreach activities, and tackle exchange programs are expected to prevent future losses of common loons. Decreasing the number of adult common loon deaths due to strandings and lead poisoning will prevent the loss of future common loon DBYs. Benefits resulting from education and outreach activities are more uncertain and difficult to measure in the context of compensated DBYs. However, the Trustees acknowledge the value of involving and educating the public about important issues relating to common loon conservation (e.g., lead poisoning).

Medium Importance: *Project Implementation Readiness, Technical Feasibility/Likelihood of Success of Project; Sustainability of Resource Benefits, and Cost/Cost Effectiveness*:
Artificial nests, signage and wardening, and breeding habitat protection are well understood and commonly utilized throughout New England. Regional common loon recovery programs have been using outreach efforts in combination with management efforts at selected nests for years, in some cases since the late 1980s (Hanson and Klem undated; LPC 2011; Maine Audubon undated). Increased outreach combined with other restoration efforts have proven successful in other regions as well (Hammond 2009). For raft and signage management projects, benefits are limited to the duration of the project (this is expected to vary, but likely will range from 5-20 years); however, for land protection projects, benefits are expected to last in perpetuity. Benefits from rescue and rehabilitation efforts will last for a rescued loon's lifetime. Benefits from outreach and tackle exchange programs should be greatest during the period of active project implementation; however, benefits will extend as public awareness about the dangers of lead toxicity increases.

Raft and signage and wardening programs are labor intensive, requiring construction (for rafts), installation, and removal efforts often in remote areas. Annual monitoring to identify nest usage and productivity requires multiple trips. In developing a settlement with the Responsible Parties, the Trustees estimated the cost of implementing a 20-year raft program to be $24,520/raft, or $1,811/DBY. The estimated cost for a signage and wardening program was $19,784/nest, or $2,423/DBY. Land protection costs are considerably greater and vary widely. Based on the Trustees analysis of a number of previously protected nest sites, the cost associated with land protection ranged from $534,000 to $1,317,000/nest, or $10,500/DBY - $43,000/DBY. Land

protection costs depend on a number of factors, including whether additional funds can be leveraged, whether the price of the parcel is at or reduced from the appraised value, and the size and location of the parcel. For raft and signage projects, cost effectiveness increases when the potential to increase productivity is high (i.e., nesting sites are limited or human disturbance concerns are significant). For land protection projects, effectiveness increases when productivity is high and land protection costs are low due to the availability of owners willing to sell, low-cost property, and matching funds for securing properties. Cost effectiveness of rescue and rehabilitation projects is expected to be relatively high since the level of staffing required is generally low and typically restoration funds are anticipated to augment existing staff time and therefore will be leveraged with existing funding. Actual cost effectiveness will be evaluated for each of the specific project proposals during the grant review process.

Low Importance: *Impact Avoidance or Minimization, Level of funding needed, Community Involvement*:
The Trustees do not anticipate that any of the project actions included in this restoration alternative will have adverse impacts to common loon or the areas of implementation.

The Trustees are proposing to utilize up to $3,685,500 of the settlement funds to restore common loon throughout New England and New York (with the majority of funding focused on northern New England and New York) using a combination of the different project actions described under this alternative. The Trustees believe that funding a variety of project actions at multiple sites in New England and New York is the best approach to ensure a successful restoration.

Community involvement is expected to be greatest in the signage and wardening and the outreach and tackle exchange projects.

3.2.2. Common Loon Restoration – Non-Preferred Alternatives

3.2.2.1. Gill Net Permit Buyout and Outreach

3.2.2.1.1. Restoration Objective

The objective of this alternative is to reduce mortality of wintering adult common loon resulting from entanglement and drowning due to gill net and other fisheries operations.

3.2.2.1.2. Summary of Proposed Activity

Each year, a significant number of diving birds are killed by gill nets anchored off the Atlantic coast. Estimates are likely to be low because offshore winds reduce the number of birds that wash ashore, scavenging by gulls reduces the residence time of birds on the beaches, and some fishers keep dead birds. A study conducted from February through April of 1998 found over 65 percent of the birds recovered on beaches were red-throated loon and about 18 percent of the birds found dead on beaches were common loon (Forsell 1999). In New England, the majority of gill net operations are small-scale fishing operations confined to coastal waters (Žydelis et al. 2009).

The goal of the gill net permit buyout project is to purchase and retire non-Tribal gill net licenses off the coast of New England. The project proponent would use funds to purchase gill net licenses from willing participants. As part of the buyout process, permit holders will be given information pertaining to sustainable fish management and methods, and ways to modify gear to achieve goals that are mutually beneficial to seabirds and permit holders (SB 2019).

3.2.2.1.3. Monitoring and Measurable Results

The proposed project would require ongoing monitoring to be conducted by the project proponent.

3.2.2.1.4. Evaluation of the Alternative

While a gill net permit buyout program may reduce deaths of adult common loon, this type of action would be difficult to monitor and may not be feasible. Coastal fisheries are often operated by local fishermen involving a large number of small vessels; therefore, buyout programs are logistically difficult to implement, inherently difficult to monitor, and can be costly (Bentzen and Robards 2014). It is unclear whether enough permits could be purchased to make a significant difference to common loon. According to Bentzen and Robards (2014), successful mitigation of the gill net fishery problem will require support from government agencies and fishers, who have been documented as unwilling to participate (Senko et al. 2014). Other implemented buyout programs have experienced decreased observer coverage of gill net fisheries, resulting in decreased monitoring and data to determine the actual success of the program (STRP 2011). History has also shown that when buyout programs are implemented, regulations are sometimes changed to allow the sale of more licenses, or fishing effort of existing permit holders increases substantially. After buyouts, existing vessels increased their effort levels and older vessels were replaced by larger, more efficient ones, reducing the effectiveness of the program (Holland et al. 1999). Due to the overall difficulties, limited feasibility and uncertainties associated with implementing a gill net permit buyout program, this alternative is non-preferred.

3.2.2.2. Rehabilitation and Rescue of Adult Common Loon Exposed to Oil

3.2.2.2.1. Restoration Objective

The purpose of this restoration alternative is to enhance and expand the capabilities of organizations that rescue, rehabilitate, and release recovered birds impacted by oil spill events to reduce future mortality of adult common loon.

3.2.2.2.2. Summary of Proposed Activity

Previous studies of common loon mortality have documented oil spill contamination as one of several leading causes of death (Forrester et al. 1997; Augspurger et al. 1998; Daoust et al. 1998). The presence of oil on feathers disrupts waterproofing and thermoregulation (Sidor et al. 2003). There are only a handful of professional organizations with the training and expertise required to respond to a major spill event in the United States. Rescue and rehabilitation efforts following oil spills are complex, expensive, time-consuming, and have variable success rates (Anderson et al. 1996; Mazet et al. 2002; Fiorello et al. 2017). This project would increase funding to bird rescue organizations tasked with responding to oil spills to increase trained staff, and enhance supplies and equipment necessary to improve the efficacy of rescue and rehabilitation.

3.2.2.2.3. Monitoring and Measurable Results

The proposed project would require ongoing monitoring and maintenance to be conducted by the project proponent.

3.2.2.2.4. Evaluation of the Alternative

The potentially responsible party (PRP) is ultimately responsible for the costs of bird rescue and rehabilitation, so this alternative would not meet the Trustees' eligibility requirements except from "mystery" spills where a PRP has not been identified. In those circumstances, this alternative may help prevent the death of adult common loon due to oiling; however, it would not actively create or generate additional DBYs. Furthermore, because impacts to overall bird fitness from a spill and resulting rescue and rehabilitation efforts can vary, it is difficult to determine the potential success of this type of project. Studies have compared the survival of rehabilitated birds impacted by oil to unoiled birds. Those birds that were oiled and subsequently rehabilitated either did not survive or breed as successfully when compared to unoiled individuals, or there was no statistical difference between the two groups. Differences in survival and the ability for birds to thrive appeared to be dependent upon whether rehabilitation facilities were appropriately designed and equipped, training of staff and volunteers, and medical management. In addition, the re-sighting rates of rehabilitated birds are low, making it difficult to compare success rates of oiled versus unoiled birds. Because this alternative does not directly generate additional DBYs, and because the potential success may be limited and is difficult to measure, this alternative is non-preferred.

3.3. Other Birds Restoration Alternatives

3.3.1. Other Birds Restoration – Preferred Alternatives

As described in Section 1.6.2., Trustee analysis indicates that approximately 545 birds of various species (e.g., rocky island colonial-nesting birds, pelagic sea birds, red-throated loon and grebe, diving ducks, and other waterfowl; Table 3) were killed as a result of the Spill and 3,384 DBYs were lost. In the judgment of the Trustees, implementing separate, relatively small restoration projects for each of the impacted bird species would not be as beneficial or cost-effective as a single, combined restoration project that benefits multiple species. Therefore, to restore losses to these birds, the Trustees focused on projects that directly and indirectly benefit a broad number of impacted species, as well as projects that specifically restore common eider. The Trustees focused on restoration projects for the common eider because more than 50 percent of the other birds killed by the Spill are diving ducks (e.g., scoters, mergansers, and common eider), with the common eider representing the highest number of estimated mortalities (Table 3).

A total of $490,000 is available to implement, oversee and monitor the restoration of other bird species in Massachusetts. In Rhode Island, a total of $1,274,000 is available for restoration of other birds and common loon (as described in Section 1.7., approximately 10 percent of the loon settlement funds have been combined with the Other Birds funds allocated for restoration in Rhode Island). Because common loon do not breed in Rhode Island, loon restoration will focus on efforts to improve wintering habitat along the Rhode Island coast.

The Trustees will fund two restoration projects to restore impacts to other birds (and common loon in Rhode Island). The first is Habitat Protection and the second is Common Eider Nest Site Management. Under Habitat Protection, the Trustees are proposing to fund two projects: one in Massachusetts and one in Rhode Island. In addition, a Common Eider Nest Site Management project will be implemented in Massachusetts to improve eider nesting success through various management actions.

3.3.1.1. Habitat Protection (OB-1)

3.3.1.1.1. Restoration Objective

The goal of this restoration project is to acquire and permanently protect habitat for injured bird species in the Other Birds category that breed, migrate through, and overwinter off the coast of New England, with emphasis on areas injured by the Spill.

3.3.1.1.2. Summary of Preferred Activity

Other birds killed by the Spill include rocky island colonials, pelagic seabirds, red-throated loons and grebes, diving ducks, and other waterfowl. The focus of this restoration alternative is on efforts to protect habitat that is utilized for both breeding and overwintering. Habitat protection offers a practical, effective means of preventing future losses of productivity for nesting species that would be directly impacted by habitat loss and degradation associated with future development. Protection also indirectly benefits migrating and wintering birds by preventing habitat loss due to development and by preventing ecological impacts of future land development, which can negatively affect water quality in wetlands and ponds that provide food to these birds. The Trustees identified a Massachusetts parcel for protection in the Draft RP and, since the preparation of the Draft RP, have also identified a parcel for protection in Rhode Island. In addition, as proposed in the Draft RP, some funds will be reserved to allow the Trustees to identify another habitat protection project in Rhode Island, either through a competitive grant process or from projects already known to the Trustees.

- *Cuttyhunk Island, Gosnold, Massachusetts (OB-1MA)*
  Cuttyhunk Island is a 581-acre island located off the coast of Massachusetts in Buzzards Bay (Figure 4). The Island is comprised of a variety of coastal habitats in near pristine condition, including ponds, freshwater wetlands, salt marshes, marine cliffs, barrier beaches, shrublands, forests and grasslands. The shallow water coastline is characterized by substantial eelgrass beds, tidal flats, and rocky reefs. Because of its offshore location and limited development, water and sediment quality are high and numerous species of birds, shellfish and finfish are found. The Island has been identified as a "Key Site," or highest priority for conservation, in the Massachusetts State Wildlife Action Plan.

  More than 250 bird species have been sighted and reported from Cuttyhunk (eBird 2019), including all of the species impacted by the Spill (except razorbill). The Island provides important nesting, foraging and resting habitats and it is particularly important to a variety of migratory birds that use the diverse landscapes during migration. Several of the bird species impacted by the Spill nest on Cuttyhunk, including common eider, Canada goose, American black duck, herring gull, great black-backed gull, American oystercatcher, and federally threatened piping plover. Although nesting surveys have not

been conducted for common eider, duckling crèches have been observed in the surrounding waters (Paton et al. 2005; Heusmann and Trocki, in press; eBird 2019; Heusmann 2019, unpublished).

The Island is largely undeveloped and privately owned. Residential development has begun to expand and spread from the town center. The bulk of the land is controlled by three separate ownership groups and it is vulnerable to development. The BBC is currently leading an effort to protect part of the Island in combination with the Town of Gosnold Conservation Commission and the Massachusetts Department of Conservation and Recreation (collectively, the project partners). The BBC has negotiated a contract to purchase significant land holdings from two landowner groups and have received a letter of intent to donate a conservation restriction from a third landowner. With combined funding support from private, State, and Federal stakeholders, the project partners' efforts would permanently protect over 300 acres of high priority habitat (MassWildlife 2015), including over 5 miles (8 km) of undeveloped shoreline. The total acquisition project cost is $7,050,000. A summary of current funding sources is provided below (Table 8). Based on the total amount of funds raised to date, the BBC currently needs $1,394,958 to complete the project.

Table 8. Summary of current funding sources and awards for the Cuttyhunk Island project.

Funding Source	Funds Provided
Private Gifts	$2,034,623
Town of Gosnold	$400,000
Mass Municipal Vulnerability Preparedness Grant	$1,400,000
Mass Local Lands & Natural Diversity (LAND) Grant	$400,000
Mass Drinking Water Supply Protection Grant	$300,000
U.S. Fish and Wildlife Service Coastal Wetlands Grant	$1,000,000
Buzzards Bay National Estuary Program Mini-Grant	$20,419
NAWCA Small Grant	$100,000
Total Funds Raised	$5,655,042

The Trustees will contribute all of the settlement money allocated for Other Birds Restoration in Massachusetts, or $500,000 ($490,000, plus interest earned), to the Cuttyhunk Land Protection Project to protect other bird species in Massachusetts. In addition, in response to overwhelming public support for the Cuttyhunk Land Protection Project and the natural resource benefits to multiple bird species affected by the Spill, including birds that utilize habitats in both Rhode Island and Massachusetts, the Trustees will provide $274,000 from the Other Birds allocation originally intended for Rhode Island

to help ensure that the project will be implemented. In total, the Trustees will contribute $774,000 towards the Cuttyhunk Land Protection Project.

Figure 4. Cuttyhunk Island fee acquisition (red) areas and conservation restriction (orange), Gosnold, Massachusetts.

- *Lamoia Parcel, Warren, Rhode Island (OB-1RI-1)*
  The 20-acre Lamoia parcel is located in Warren, Rhode Island on the Palmer River in upper Narragansett Bay (Figure 5). The property represents one of a series of abutting undeveloped tracts on the upper bay, and contains a combination of salt marsh and fields that provide habitat for numerous bird species impacted by the Spill. Species observed on the property or in the adjacent River include American black duck, common loon, red-throated loon, Canada goose, bufflehead, common merganser, red-breasted merganser, ring-billed gull, great black-backed gull, herring gull, double-crested cormorant, great cormorant, and greater scaup (RIDEM, personal communication; eBird 2020). Other species that likely utilize the property and adjacent aquatic habitat include salt marsh sparrow, osprey, and bald eagle. In addition to preserving nesting and overwintering habitat for several species of birds listed in the Other Birds category, the project would protect an area of open, lowland frontage on the Palmer River in upper Narragansett Bay. This lowland marsh and fields would provide an ideal opportunity for salt marsh migration as sea level rises. Salt marshes are also critical habitat for wintering waterfowl in Rhode Island. Waterfowl rely on the abundant food resources in salt marshes to build energy reserves prior to the breeding season. Salt marsh vegetation also provides ample cover

for wintering waterfowl. RIDEM is prepared to purchase the property for the appraised value (approximately $400,000).The Trustees will contribute up to $400,000 of the settlement money allocated for Other Birds Restoration in Rhode Island to the Lamoia land protection project.

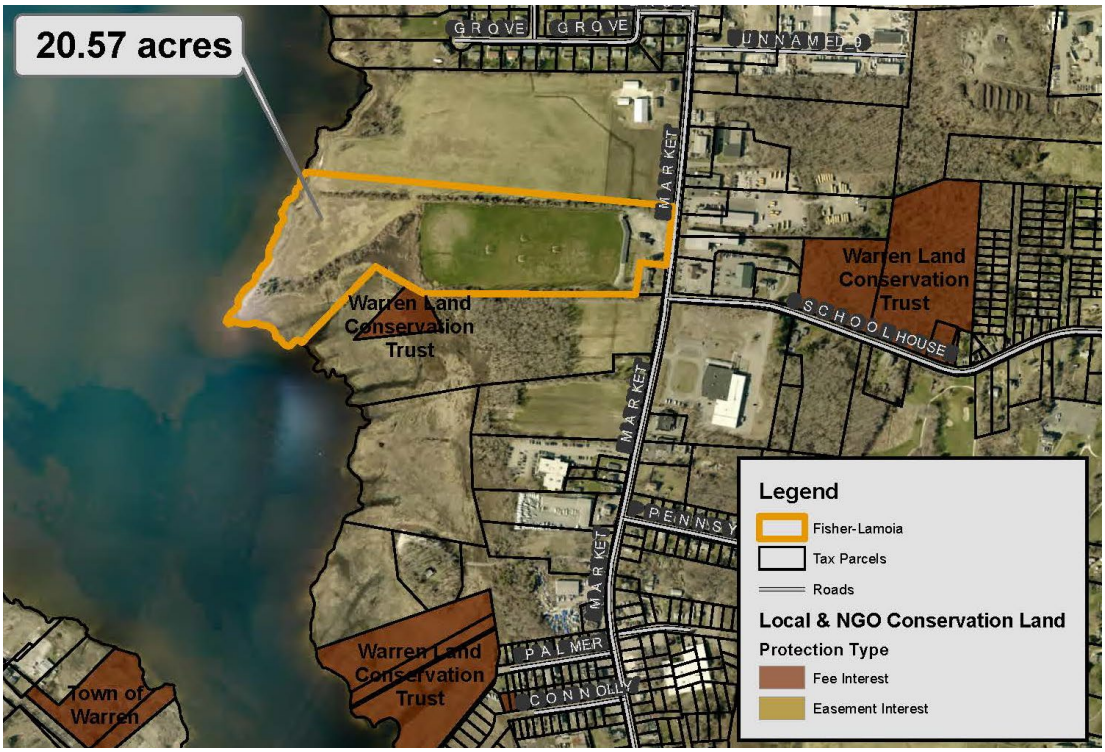

Figure 5. Lamoia parcel boundary (orange) in Warren, Rhode Island.

- *Additional Coastal Land Protection Project in Rhode Island (OB-1RI-2)*
  As previously proposed in the Draft RP, to maximize land conservation benefits in both of the states directly impacted from the oil spill and to benefit multiple locations and bird species impacted from the Spill, the Trustees will provide the remaining $600,000 from the Other Birds and Common Loon allocation for Rhode Island towards another habitat protection project in Rhode Island (OB-1RI2). This project will be identified and selected from land protection projects already known to the Trustees or through a competitive grant process. If a competitive grant process is undertaken, the USFWS will post an announcement of the availability of funding (up to $600,000) for the Restoration of Other Birds and Common Loon in Rhode Island on www.grants.gov. Interested agencies, organizations, or individuals will have 60 days to apply for the competitive funding. The Trustees will use the evaluation criteria in Section 2.2, along with the following additional information to evaluate and select project proposals:

  - type and number of species likely to benefit (emphasis on projects that benefit species most impacted by the Spill: common eider, black scoter, common and red-throated loon);

- site location and degree of oiling (must be located in Rhode Island);
- habitat area and quality;
- whether additional funds can be leveraged; and
- expected effects of habitat protection on other birds and common loon productivity and adult survival.

3.3.1.1.3. Monitoring and Measurable Results

The properties will be required to be protected in perpetuity (via fee acquisition or conservation easement), managed for conservation, and monitored yearly by the project proponent to ensure the conservation goals are being met (e.g., no encroachment, unauthorized trespassing).

3.3.1.1.4. Evaluation of the Alternative

High Importance: Nexus – *Spatial Proximity within Affected Area, Same or Similar Species*:
Cuttyhunk Island is located in Buzzards Bay and was exposed to oil during the Spill. Twenty-five dead birds (or 5 percent of the total number of collected birds) were recovered from the Island. Protecting land on Cuttyhunk would directly benefit habitat and species affected by the Spill. While the Lamoia parcel is located in Narragansett Bay, west of Buzzards Bay, and was not directly oiled during the Spill, the Trustees recognize the importance of compensating the public of Rhode Island for its loss to natural resources and services caused by the Spill. There are limited known cost-effective land protection options within Rhode Island, and the Lamoia parcel poses a unique opportunity to protect an area of coastal habitat that will benefit a variety of bird species. The Trustees will focus the remaining Habitat Protection funding ($600,000) on other coastal habitat protection projects in Rhode Island, with a preference for areas impacted directly by the Spill. The areas selected for protection by this restoration alternative will directly and indirectly compensate for injuries to species in the Other Birds category and to the public of Massachusetts and Rhode Island.

Medium Importance: *Project Implementation Readiness, Technical Feasibility/Likelihood of Success of Project, Sustainability of Resource Benefits, and Cost/Cost Effectiveness*:
Land protection projects can be implemented relatively quickly. The BBC has negotiated a purchase and sale agreement for the Cuttyhunk Island land acquisition and conservation restriction. Permanent protection of the property on Cuttyhunk Island is likely to be secured by mid-2020. RIDEM has completed an appraisal of the Lamoia parcel and is negotiating a purchase and sale agreement. Protection of the Lamoia parcel is expected by the end of 2020. Without settlement funds from the Spill, it is unlikely that these properties could be acquired. Additional land protection in Rhode Island is anticipated to be facilitated through a competitive grant and should be accomplished within about a year.

The Trustees believe that both the Cuttyhunk Island project and Lamoia parcel acquisition are feasible, likely to be successful, and will provide benefits to other bird species in perpetuity. The Trustees will use remaining funds (OB-1RI-2) to identify another parcel(s) that will meet these criteria. The Cuttyhunk Island project will leverage significant additional funding from outside sources, increasing its cost-effectiveness. In the event that either project is not successful, the

Trustees will make the funds available through a grant solicitation to purchase one or more other properties that will benefit the injured bird species.

Low Importance: *Impact Avoidance or Minimization, Level of funding needed, Community Involvement*:
The Trustees do not anticipate that land protection efforts will have any significant adverse impacts to the areas of implementation. The level of funding is commensurate with the level of impact to these species groups in Massachusetts and Rhode Island. There is tremendous community support for the Cuttyhunk Island project. In Rhode Island, the Trustees will also seek to find coastal habitat protection projects with community support.

3.3.1.2. Common Eider Nest Site Management (OB-2)

3.3.1.2.1. Restoration Objective

The objective of this restoration project is to protect breeding common eider nest sites in Massachusetts (Boston Harbor Islands and Cuttyhunk Island) from disturbance, such as human presence with on- and offshore signage and active nest monitoring and wardening during potential peak disturbance events.

3.3.1.2.2. Summary of Preferred Activity

The southern extent of the common eider breeding range is located in Massachusetts, and the population has expanded in recent years. Common eider is a semi-colonial ground-nesting species that has been documented to nest in large numbers and high densities on four islands in the Boston Harbor Islands National Park Area: Calf Island, Outer Brewster Island, Middle Brewster Island, and Gallops Island (Parsons and Jedrey 2013). The birds are sensitive to recreational activities during the breeding season that cause nesting hens to flush from nests, leaving hens, eggs, and chicks vulnerable to predators. In addition, offshore disturbances negatively impact duckling survival when in close proximity to large, multi-family groups of fledgling ducklings, or crèches. Off- and onshore signage would increase productivity by encouraging people to avoid the nest vicinity. Active nest wardening during peak boating activity would limit and/or prohibit access to breeding bird islands and would promote increased nesting productivity for these eider populations. Active nest wardening requires additional coordination and enforcement. On Cuttyhunk Island, nest monitoring will be undertaken to determine the extent of the nesting eider population and to identify management actions that may be implemented to increase nesting success.

The Trustees will allocate up to $100,000 to Common Eider Nest Site Management in Massachusetts. These funds will be distributed to the landowners in Boston Harbor and Cuttyhunk Island (National Park Service and Buzzards Bay Coalition) to implement monitoring and management activities.

3.3.1.2.3. Monitoring and Measurable Results

The selected project includes a common eider monitoring program to determine if the restoration project is meeting established objectives. Nesting data associated with the use of signage and island closures will be required on an annual basis and for a period of time in which project funding allows. Recorded data should include, but are not limited to, the following:

number and location of active common eider nests, ducklings, and duckling crèches, and any other pertinent details relating to interactions with the public and observations of ground predators. If possible, this same information should be collected at nest locations without signs and closures for comparison purposes.

3.3.1.2.4. Evaluation of the Alternative

High Importance: *Nexus – Spatial Proximity within Affected Area, Same or Similar Species*:
Diving ducks make up a significant proportion of the other bird loss, and common eider experienced the greatest injury among the diving ducks. Common eider nesting has been documented on several islands of the Boston Harbor Island area and at Cuttyhunk Island. This restoration alternative directly benefits common eider, which represent a large proportion of the birds injured in the Other Birds category.

Medium Importance: *Project Implementation Readiness, Technical Feasibility/Likelihood of Success of Project, Sustainability of Resource Benefits, and Cost/Cost Effectiveness*:
Signage and wardening are well understood and already being successfully implemented in areas throughout New England for a variety of species. There is also a significant amount of technical expertise and experience specific to common eider that makes these activities all the more feasible and likely to succeed. Monitoring and nest site protection activities at Cuttyhunk Island will further ensure the long-term success of the Trustees' selected land conservation efforts designed to benefit common eider. Monitoring and management efforts are relatively low-cost and help to ensure that restoration goals are met.

Low Importance: *Impact Avoidance or Minimization, Level of funding needed, Community Involvement*:
The Trustees do not anticipate that this restoration alternative will have any significant adverse impacts to the common eider or to the areas of implementation. This project can be accomplished for a relatively small proportion of the funding allocated for other birds and it helps support and ensure benefits to common eider resulting from the other preferred alternative (land protection) in Massachusetts. Community involvement may be possible through the use of volunteers who participate in monitoring.

3.3.2. Other Birds Restoration – Non-Preferred Alternatives

3.3.2.1. Prey Enhancement

3.3.2.1.1. Restoration Objective

The goal of this restoration project is to enhance the fitness, survival and reproductive potential of common eider by augmenting the common eider's prey base through construction of artificial food resources off the coast of southern New England.

3.3.2.1.2. Summary of Proposed Activity

Common eider prey on aquatic invertebrates, especially mollusks, crustaceans, and sea urchins. Surveys suggest the southern extent of the common eider population has been increasing (Heusmann and Trocki in press), while numbers in the Gulf of Maine (GOM) have been decreasing. A possible explanation for this shift is that birds are following their food source. According to Sorte et al. (2017), wild blue mussels, a preferred food source of the common eider,

are disappearing in the GOM, and have declined by more than 60 percent in the past 40 years. Experts suspect that those birds breeding and overwintering off the coast of southern New England are finding more abundant alternative food sources (Maine Department of Inland Fisheries and Wildlife, personal communication). This proposed activity would further enhance common eider prey in the southern portion of its range by implementing mussel propagation through aquaculture techniques.

3.3.2.1.3. Monitoring and Measurable Results

The proposed project includes provisions for ongoing monitoring and maintenance to be conducted by the project proponent.

3.3.2.1.4. Evaluation of the Alternative

Shellfish restoration projects have already been implemented as part of the Final Programmatic Restoration Plan and Environmental Assessment for the Buzzards Bay Bouchard Barge-120 (B-120) Oil Spill Shoreline, Aquatic, and Natural Resource Use Injuries (NOAA et al. 2014). In the context of this RP, the compensation for DBYs is indirect and uncertain, as it is not known if food sources are limiting in overwintering areas in Massachusetts. Additionally, the cost and level of effort needed to create a significant, sustainable food source are likely high compared to the uncertain benefits. As an example, a small flock of ducks can decimate a shellfish farm in a short period of time (Richman 2013). Because utilizing aquaculture as a prey source is a learned behavior in common eider (Richman 2013), this restoration option may also conflict with previous efforts to restore shellfish impacted by the Spill.

3.4. Summary of Preferred Restoration Alternatives

The preferred restoration alternatives include specific restoration projects in two categories of injured birds: (1) common loon and (2) other birds injured during the Spill. A summary of the projects that have been included as the preferred restoration alternatives is provided in Table 9. In preparing the Final RP, the Trustees have carefully considered a significant amount of public input on the Draft RP (Section 5), and have made several changes to the preferred alternatives (as noted previously in Section 3) and adjusted funding levels originally proposed for both common loon and other birds restoration.

Specifically, with respect to common loon restoration, to mitigate some of the potential risk associated with the translocation project, the Trustees have reduced the total funds provided to the translocation project (COLO-1) and increased the total funding provided to COLO-2. The Trustees are not supportive of altogether discontinuing the translocation project. While climate change poses potential risks, there is uncertainty regarding the extent and timing of changes. In fact, the breeding population in Massachusetts continues to slowly increase and expand its range to the south, and there is now a nesting pair in Connecticut. Furthermore, the potential for the translocation effort to directly generate “new” bird years as a result of establishing new loon territories is greatest of any project. In addition, there is uncertainty associated with each of the other management techniques that are included in COLO-2. For example, education, outreach and lead fishing tackle buy-back programs are expected to reduce future inputs of lead tackle into the environment. Data suggest that this will be the case, but to estimate the number of loons that will benefit and the number of fledges that will be produced from these future “saved” adults

contains significant uncertainty. Due to the uncertainties and risks associated with all of the common loon restoration projects, the Trustees believe that an approach which supports multiple different restoration techniques across New England and New York is the best approach. The Trustees have balanced the risks and uncertainties associated with each project in consideration of the potential restoration gains.

In summary, for common loons, a suite of project types (e.g., translocation, rafts, signs and wardening, breeding habitat protection and rescue and rehabilitation of stranded birds and decreasing exposure to lead fishing tackle) is selected to restore the loss, and for other birds, two types of projects (habitat protection and common eider nest site management) are chosen.

Common loon restoration is directed at addressing primary threats to species productivity during the breeding season (habitat loss and alteration due to shoreline development, human disturbance and toxicosis from ingesting lead fishing equipment). The suite of project actions—translocation, rafts, signs and wardening, breeding habitat protection and rescue, rehabilitation and outreach and lead tackle exchange programs—directly addresses these critical threats to common loon that winter in Buzzards Bay. In addition, a relatively small proportion of funds (about 10 percent) are targeted to indirectly benefit common loon that winter in Rhode Island. Together, the projects are expected to return the injured common loon population to baseline by creating new nesting pairs, increasing reproductive success, and decreasing adult mortality. The Trustees approach also generates restoration benefits to common loon throughout the Northeast (New England and New York). This will provide benefits to people both in the area of the Spill and in areas of the Northeast that were affected when nesting common loon were killed as a result of the Spill.

A variety of actions are selected to take advantage of available opportunities and to maximize the likelihood of success; locations for translocation, rafts, signage and breeding habitat protection programs may be limited and should be carefully selected to achieve the best results. In response to public comments, the Trustees have expanded the area in which common loon restoration can be implemented to include New England and New York. The Trustees' approach allows for the best management techniques to be utilized in any given area and protects against risks associated with only choosing one or two strategies that may have limited success in some situations.

The Trustees will utilize about 60 percent of the common loon-designated settlement funds to implement commonly used restoration techniques that have a high likelihood of success (COLO-2). The majority of these efforts will be targeted to northern New England and New York. The Trustees will use the other 40 percent of the funds for loon translocation (COLO-1), a promising, relatively new strategy for common loon, which if successful, would most efficiently restore injured common loon and has the greatest potential to generate benefits over the long term. Furthermore, this strategy, which has been successfully implemented for numerous other species, could have broad-reaching applications for future common loon restoration efforts.

The preferred alternatives will focus on selecting specific restoration projects that demonstrate cost effectiveness and maximize benefits. Translocation, rafts, and signage and wardening programs are labor intensive and can be costly; however, raft and signage and wardening programs can be scaled to reduce costs, and can be situated to maximize benefits. Rescue and rehabilitation and outreach and lead tackle exchange programs are relatively low-cost methods for reducing mortality of adult common loon, though the direct benefits are more difficult to quantify. Protecting breeding habitat through land acquisition is generally the most expensive approach, but the Trustees expect to maximize benefits obtained while minimizing settlement fund use by supporting projects that leverage other funding sources. Land protection is also more certain to generate benefits over the long term (by preventing the loss of existing common loon nests) and is often the only option available in areas where rafts or signage may not be suitable or beneficial to common loon.

To restore other birds, the Trustees will focus on projects that directly and indirectly benefit a broad number of impacted species, as well as projects that specifically restore common eider. Habitat protection projects in Massachusetts and Rhode Island will target impacted resources in the vicinity of the Spill. They are technically feasible, have a high likelihood of success, are relatively cost-effective due to expected leveraged funds, and are sustainable in perpetuity. These preferred alternatives can be implemented within a relatively short period of time, providing restoration benefits quickly, and they have broad community support.

None of the preferred alternatives are expected to have adverse effects on public health and safety.

3.5. Other Alternatives Considered But Not Fully Evaluated

Several alternatives were considered prior to the release of the Draft RP. These projects were believed to provide minimal benefits, were already being implemented, or were logistically difficult to implement (Table 10). A summary of those projects is included but not evaluated further.

Table 9. Preferred Restoration Alternatives.

Project ID Number	Preferred Restoration Activity	Trustee Funding/Contribution
Common Loon Restoration		
COLO-1	Common Loon Restoration through Translocation and Captive Rearing	$2,499,500
	Trustee Management and Oversight	$185,000
		$2,684,500
COLO-2	Common Loon Restoration through Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Common Loon Mortality through Rescue and Rehabilitation of Stranded Individuals and Decreasing Exposure to Lead Fishing Tackle	$3,685,500
Other Birds Restoration		
OB-1	Habitat Protection	
OB-1MA	Massachusetts Cuttyhunk Island, Gosnold, MA	$774,000
OB-1RI	Rhode Island OB-1RI-1 Lamoia Parcel, Warren, RI ($400,000) OB-1RI-2 Other RI property ($600,000)	$1,000,000
OB-2MA	Common Eider Nest Site Management	$100,000
Total[1]		$8,244,000

1. Total includes current interest earned on settlement funds; additional interest may be allocated to projects as well as trustee administrative and oversight costs.

Table 10. Projects considered but not fully evaluated.

Proposed Activity	Justification
Common Loon Restoration	
Population monitoring and research	No direct compensation for loss Already being implemented
Create marine sanctuary to protect wintering habitat	No direct compensation for loss Cost prohibitive Logistically difficult: remote locations, political feasibility Spatially limited Difficult to measure success
Other Birds Restoration	
Protect breeding habitat in northern extent of range (Canada)	No direct compensation for loss Cost prohibitive Logistically difficult: remote, international locations Spatially limited
Predator control to increase productivity	Conflicts with other species management objectives: gulls Short-term benefit Variable success
Population monitoring and research	No direct compensation for loss Already being implemented

4. NEPA Compliance

NEPA (42 U.S.C. §4321 *et seq.*) and CEQ regulations implementing NEPA (40 CFR Parts §1500-§1508) apply to NRDA restoration actions by Federal trustees, except where a categorical exclusion (CE) or other exceptions to NEPA apply (15 CFR §990.23). Federal agencies may identify categories of actions which do not individually or cumulatively have a significant effect on the human environment (40 CFR §1508.4) (e.g., actions with limited degree, geographic extent, and duration). Actions falling into those categories may result in the exercise of a CE and are exempt from the requirement to prepare an environmental assessment or environmental impact statement.

DOI has established regulations for the implementation of NEPA, including actions that are categorically excluded (43 CFR §46.210). The USFWS has established additional CEs, as described in DOI Department Manual 6, Section 516, Chapter 8.5 (516 DM 8.5). The USFWS CEs include the following "Resource Management" actions:

- (B.6.) the reintroduction or supplementation (e.g., stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated; and

- (B.11.) natural resource damage assessment restoration plans, prepared under sections 107, 111, and 122(j) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA); section 311(f)(4) of the Clean Water Act; and the Oil Pollution Act, when only minor or negligible change in the use of the affected areas is planned.

After careful consideration of the preferred alternatives identified in the Final RP, DOI has determined that the projects will result in negligible environmental disturbances or only minor or negligible changes in the use of the affected areas and therefore, DOI has applied Categorical Exclusions B6 and B11 to satisfy NEPA compliance for this Final RP.

NOAA has its own guidelines for exercising CEs, as provided in its Companion Manual to NOAA Administrative Order 216-6A, Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities (Companion Manual). NOAA Categorical Exclusion "G1" is for "routine administrative actions," including those under OPA and is found in the Companion Manual's "List of NOAA's Categorical Exclusions." As NOAA's activities related to this Final RP have been administrative in nature (i.e., activities performed as the Lead Administrative Trustee), NOAA has applied Categorical Exclusion G1 to satisfy NEPA compliance for this Final RP.

The Federal Trustee agencies have determined that the preferred activities associated with this Final RP qualify for one or more of their respective agency CEs and would not have individual or cumulative significant effects on the human environment.

In reviewing the comments received, it was evident that the comments addressed common topics. Rather than repeatedly provide the same response to individual comments, a comprehensive response has been developed for each common topic. The topics (in italics) and associated responses are provided in Section 5.2.

The Trustees note that for some comments, a response was not necessary. These comments are remarks not directly about the Draft RP, but rather may be general statements about the commenter's intent, provide background information, or represent transitional paragraphs in the author's overall document.

5. Summary of Comments and Trustee Responses

5.1. Overview

Twenty-three comment letters were received in response to the Draft RP (Table 11). The original versions of all comments are provided in Appendix A: Comment Letters. In addition, a number of comments and questions were raised at the public information meeting. A transcript of these comments, and the Trustees' responses, is provided in Appendix B: Public Meeting and Webinar Transcript. Several of the questions raised during the public information meeting were also submitted in writing, and these are addressed in greater detail in this Section.

Table 11. List of Comment Letters (CL) received in response to the Draft Restoration Plan (RP).

	Entity	Author	Date	Document ID
1	Adirondack Center for Loon Conservation (ADK)	Dr. Nina Schoch Executive Director	October 31, 2019	CL1 – ADK
2	Cummings School of Veterinary Medicine, Tufts University (TUFTS)	Mark A. Pokras, B.S., D.V.M. Associate Professor Emeritus	October 31, 2019	CL2 – TUFTS
3	Biodiversity Research Institute (BRI)	David Evers, Ph.D. Executive Director/Chief Scientist	October 25, 2019	CL3 – BRI
4	Assawompset Pond Complex Management Team (APC)	Glenn McAvoy APC Staff Ranger	October 22, 2019	CL4 – APC
5		Trevor Lloyd-Evans (TLE) Biologist	October 31, 2019	CL5 – TLE
6	Loon Preservation Committee (LPC)	Harry Vogel Sr. Biologist/Executive Director John Cooley Sr. Biologist Tiffany Grade Squam Lakes Biologist Caroline Hughes Staff Biologist	October 31, 2019	CL6 – LPC
7	Maine Audubon (MEA)	Tracy Hart Maine Loon Project Director Sally Stockwell Director of Conservation	October 31, 2019	CL7 – MEA
8	Law Office of Sheridan T. Brown, PLLC	Sheridan T. Brown (STB) Attorney at Law	October 31, 2019	CL8 – STB
9	Vermont Center for Ecostudies (VCE)	Eric Hanson Conservation Biologist Chris Rimmer Executive Director	October 31, 2019	CL9 – VCE
10	Assawompset Pond Complex	Nancy Yeatts Environmental Manager	October 28, 2019	CL10 – APC
11	New Hampshire Audubon (NHA)	Pamela Hunt, Ph.D. Sr. Biologist for Avian Conservation	October 31, 2019	CL11 – NHA
12	New Hampshire Audubon	Carol R. Foss, Ph.D. Sr. Advisor for Science & Policy	October 31, 2019	CL12 – NHA

	Entity	Author	Date	Document ID
13		Vincent Spagnuolo (VS) Wildlife Biologist	October 31, 2019	CL13 – VS
14	Sakonnet Preservation (SP)	Abigail Brooks President	October 22, 2019	CL14 – SP
15	Buzzards Bay Coalition (BBC)	Mark Rasmussen President	October 31, 2019	CL15 – BBC
16	Commonwealth of Massachusetts, The General Court (MAGC)	Julian Cyr State Senator, Cape & Islands District Dylan Fernandes State Representative Barnstable, Dukes, & Nantucket District	October 23, 2019	CL16 – MAGC
17	Town of Gosnold (GOS)	Sarah Berry, Gail Blout, & Stewart Young Board of Selectmen	October 28, 2019	CL17 – GOS
18	Congress of the United States (USC)	Elizabeth Warren United States Senator Edward J. Markey United States Senator William R. Keating Member of Congress	October 31, 2019	CL18 – USC
19	Rhode Island Natural History Survey (RINHS)	David Gregg, Ph.D. Executive Director	October 9, 2019	CL19 – RINHS
20	Save the Bay, (STB) Narragansett Bay	Jonathan Stone Executive Director	October 31, 2019	CL20 – STB
21	Commonwealth of Massachusetts, Massachusetts Senate	Mark Montigny (MASM) State Senator, Second Bristol & Plymouth	October 30, 2019	CL21 – MASM
22	Commonwealth of Massachusetts, Massachusetts Senate	Michael J. Rodrigues (MASR) State Senator/Chair, Senate Committee on Ways & Means	October 31, 2019	CL22 – MASR
23	The Nature Conservancy (TNC)	John Torgan RI State Director Wayne Klockner VP and MA State Director	October 11, 2019	CL23 – TNC

5.2. Trustees Response to Comments

The following paragraphs list the general topics and specific questions identified during the course of comment review that merited a response and provide responses to each.

5.2.1. Comments Regarding Common Loon Restoration

Topic 1: Comments reflected concerns that the Trustees are not restoring to baseline and are not restoring the lost discounted loon years by not considering full spatial extent of loss. These comments further stated a concern that impacted birds could not have been breeding pairs from Massachusetts and Rhode Island since there were only 24 territorial pairs in Massachusetts in 2003 and 21 territorial pairs in Massachusetts in 2002 (Spagnuolo 2012). They took the position that common loon impacted by the Spill must have been from more northern states, and noted that ice was still present on northern breeding lakes which is why the northern birds were still on their wintering territories. They recommended that the Trustees allocate funds equally (or proportionally) to jurisdictions where the affected common loon breed, including Canada.

Response: The Trustees' selected approach is designed to restore common loons to baseline and compensate for interim losses across New England by increasing productivity of nesting pairs and preventing the future deaths of adult loons. The Trustees' approach is consistent with the goal of OPA, which "is to make the environment and public whole for injuries to natural resources and services" "through the return of injured natural resources and services to baseline and compensation for interim losses until recovery is complete." (15 C.F.R. §990.10). Trustees are authorized to utilize settlement funds to undertake restoration in an expeditious and cost-effective manner to meet these goals. At a minimum, Trustees must evaluate restoration alternatives based on the criteria identified in OPA regulations (15 C.F.R. §990.54; Section 2.2. of the Final RP). Additional criteria may also be evaluated to help the Trustees meet their goals and objectives.

Under OPA, the Trustees have broad discretion in determining where and how restoration will be implemented; the focus in this case is not on restoring each specific loon that was killed by the Spill to its place of origin, but rather to restore common loon in the northeastern United States as effectively and expeditiously as possible by primarily selecting projects based on their potential restoration benefit. Relatedly, the Trustees are not required to restore injured natural resources to every potential jurisdiction affected or in a proportionate basis among the potentially affected jurisdictions, but rather to restore the loss of the injured natural resource as a whole. By restoring the common loon in areas across the Northeast, citizens throughout these same areas will benefit, both in the breeding locations and coastal areas where the birds overwinter.

The Trustees recognize that only a small percentage of the common loon injured by the Spill could have nested in Massachusetts (as pointed out in several comments, only 21 pairs nested in Massachusetts in 2002 and 24 pairs nested in 2003; Spagnuolo 2012); and the Trustees agree that the majority of individuals impacted from the Spill were likely from northern New England, and possibly Canada, as well as New York (based on additional data provided in comments and Kenow et al. 2009). After evaluating each of the potential restoration options, the Trustees have selected a broad restoration approach which includes restoration from across all of New England and New York (updated Final RP). The Trustees will utilize more than half the settlement money for restoration proposals focused on management activities (COLO-2) located across the

Northeast, with the majority of funds allocated to COLO-2 targeted to northern New England and New York. In addition, the Trustees support translocation efforts in Massachusetts (COLO-1) because translocation has the greatest potential to compensate for a significant portion of the loss. Due to the availability of numerous potential restoration opportunities in New England and New York, as well as logistical challenges associated with foreign restoration projects, the Trustees will not pursue restoration efforts in Canada.

Relatedly, several commenters suggested that the Trustees should follow the restoration approach set forth following the North Cape Oil Spill that occurred in Rhode Island. In that case, the entire restoration effort for common loon was implemented in Maine through the protection of shoreline habitat where common loon nest. The Trustees are following a similar approach to the North Cape Oil Spill, in that we have evaluated and selected projects which we believe will have the greatest likelihood of restoring the loss. Additionally, we are targeting more than one-half of the restoration funds to restoration efforts in breeding locations in northern New England and New York. A focus on translocation efforts in Massachusetts is possible with the Bouchard B-120 settlement, as translocation techniques have recently been developed. At the time of the North Cape Oil Spill, translocation was not known to be a potential restoration alternative. Had translocation been proposed at that time, it is likely that the Trustees would have considered, and possibly undertaken translocation efforts following the North Cape Oil Spill.

Topic 2: Concerns Regarding Translocation of Common Loon

a. *Comments noted that translocation is an experimental technique.*

Response: The Trustees agree that translocation of common loon has yet to result in the establishment of a nesting pair or any chicks produced. However, translocation of other bird species is a well-established conservation practice, and early results from translocation of common loon support the Trustees' belief that the translocation project will succeed in restoring common loon.

Initial results from common loon chicks released in southeastern Massachusetts are promising. Of the 16 loon chicks released in 2015 and 2016, six, or 37.5 percent have been re-observed near the translocation site (data provided in CL3-BRI). These observations were made during limited survey efforts, and it is likely that additional surveys may result in more loon sightings. An additional eight chicks were released in 2017. One of these was re-observed in 2019, though the return of a 2-year-old bird is unusual as juveniles typically do not return to their natal lakes until they are 3-4 years of age (Evers et al. 2010). In addition, in 2018 two of the six returning translocated loons established a territorial pair on North Pocksha Pond, and in 2019, one of the six returning translocated loons established a pair with an individual that was not part of the original translocation effort. The Final RP has been updated with this most recent data.

In Minnesota, 18 common loon chicks were translocated over three years: 2014-2016. Funding was limited to this 3-year period and no formal follow up monitoring was conducted. Three different translocated birds have been observed by volunteers in the area. In 2020, BRI is planning

to conduct monitoring at the Minnesota location. While return data have not been collected at this time, the project helped to establish translocation techniques which were adapted and utilized in Massachusetts.

While common loon nesting pairs have not yet been confirmed and chicks have not yet been produced as a result of the initial translocation effort in Massachusetts (or Minnesota), project techniques have been established and tested, and an initial translocation effort has been undertaken. The Trustees also believe that translocation should not be considered as "experimental" because translocation techniques have been utilized for many species and the tool is an accepted conservation practice (discussed in Section 3.2.1.1.4. of the Final RP).

Regardless of whether or not the common loon translocation effort is considered to be "experimental," implementation of the common loon translocation project (COLO-1) offers an opportunity to continue the restoration work that has already begun in Massachusetts to restore the common loon to areas of their historic range, and to continue to test and refine translocation methods. If successful, translocation provides the greatest potential to increase the region's common loon population by creating nest sites that would not otherwise exist. Additionally, with management and involvement from MassWildlife, translocation is expected to result in a self-sustaining population of breeding loons which will provide long-term restoration benefits.

b. *Comments noted that projections regarding the success of translocated loons and their survival and spread make numerous assumptions, and appear to be based on ideal or average survival rates, return rates, and high rates of colonization and breeding. Because translocation is experimental the rates are unknown and should err on the conservative side. High human population densities in southeastern Massachusetts will also likely reduce survival and productivity in the translocated population.*

Response: The Trustees agree that survival, productivity and return rates associated with translocated common loon chicks are not known; however, lacking site-specific data, we have utilized average values that incorporate both high and low estimates from across the common loon range. While human population densities may reduce survival and productivity, due to potential benefits associated with management activities and the lack of intra-specific competition and density-dependent pressures, we believe that the use of average rates is reasonable and appropriate.

As noted in the Final RP (Table 1), we have utilized fledgling and immature survival (0.45 to year 3) and adult survival (0.92) from Mitro et al. (2008). While high human population densities may affect survival (especially in southeastern Massachusetts), with management and involvement from the project proponent and MassWildlife, we believe this area can support survival rates that are similar to those in other parts of the common loon range. Management activities (including rafts, wardening and education) will be emphasized during the 6 years of project implementation and will continue beyond that time. Based on comments received (see response to Topic 2d, below), an additional 5 years of management will be implemented to help ensure that sustainable average survival rates can be attained.

We also anticipate that management actions will help support productivity rates similar to the range-wide average (0.53 chicks fledged/territorial pair). Deployment of up to 30 floating rafts and active public education and wardening is expected to enhance productivity. Additionally, these new nesting pairs would be expected to have abundant habitat and little competition from other loons. Without these density-dependent constraints, we expect the translocated populations to experience high productivity and to grow rapidly, similar to that observed in other areas of New England. For example, during the late 1980s, 1990s and 2000s, the common loon population in Vermont experienced a rapid increase, with overall productivity of 0.72 chicks fledged/territorial pair over a 26-year period (Evers et al. 2010). The population in New Hampshire had a mean productivity of 0.52 chicks fledged/territorial pair over a 33-year period (Evers el al 2010). To estimate the spread and establishment of nesting pairs, we assumed an annual productivity of 0.53 chicks fledged/territorial pair (Evers et al. 2010).

As the project progresses, we expect to monitor productivity, survival and return rates to measure project success, and to determine if additional management should be implemented.

c. *Commenters questioned if potential loon nesting sites were thoroughly evaluated and noted that productivity at new sites will be lower if quality nesting habitat is limited or if management activities are needed.*

Response: Experts familiar with common loon nesting habitat requirements evaluated lake size, configuration, shoreline, water fluctuations, and other features to assess the number and quality of potential loon nesting sites in Massachusetts. As noted in the Final RP, habitat quality at both areas is expected to be high and we do not anticipate habitat quality to limit productivity. As noted in the previous response, management activities will be implemented to help maintain estimated productivity levels.

d. *Several comments note that translocation efforts, as proposed, will result in impacts to source populations in Maine and New York due to the removal of viable chicks from those populations. According to data from the ADK and LPC, the productivity of Maine and New York breeding loon populations has been decreasing in recent years, and is not above the 0.48 chicks fledged/territorial pair threshold required to maintain a stable breeding loon population. These commenters asked whether or not the loss of the removed chicks and their future productivity at the source locations has been considered.*

   In contrast, another commenter (CL3-BRI) notes that carrying capacity for loons in Maine, New Hampshire and Vermont is much closer to being filled when compared to Massachusetts. CL7-MEA notes in their comments that the loon population in the southern half of the state grew from approximately 1,800 birds in 1983 to an estimate of 3,629 birds in 2018.

Response: Although the translocation effort would result in a small number of loon chicks being translocated from Maine and New York to Massachusetts, we do not think this will have a

measurable negative impact on the source population. In Maine Audubon's 2019 survey effort, there were an estimated 3,129 adult loons that produced 372 loon chicks in the southern half of the State, and translocating up to 12 loon chicks annually for 2 years accounts for approximately 3 percent of the annual production of chicks in southern Maine. If the northern Maine loons were included in the population total, the percentage of Maine loon chicks devoted to the translocation effort would drop substantially. In 1990, the statewide estimate was 3,946 adult loons, with 54 percent of these located in the southern half of Maine (Maine Audubon, unpublished data).

Furthermore, the number of loons documented during Maine Audubon's loon survey has been stable since 2010 (gradually increasing before that), and the nesting loon population in both Maine and the Adirondacks is thought to be healthy and at or near carrying capacity. With most if not all of the available territories currently occupied by these populations, it is difficult for young loons to acquire a breeding territory and many likely enter the non-breeding floater population. A higher floater population can increase intra-specific competition for nesting territories and can disrupt and reduce successful nesting.

Conversely, chicks that are translocated to Massachusetts will be hacked-out, or released, into areas with a substantial amount of suitable nesting habitat and little intra-specific competition with no or few nesting loons in the region. With available nesting habitat and little competition with other loons, we expect that once they reach breeding maturity, the translocated birds will quickly establish nesting territories and begin producing young. To further reduce any potential impacts to Maine and New York, a few chicks per year may be translocated from existing nest sites in Massachusetts (e.g., Quabbin Reservoir).

Lastly, to minimize any potential impacts to the source populations, translocated chicks will only be selected from broods with two chicks; common loon typically have one or two chick broods (Evers et al. 2010). Selecting one chick from a two-chick brood may improve survival rates of chicks that would otherwise face sibling rivalry, potentially decreasing survival. Two-chick broods typically have one chick that exhibits dominance. Dulin (1988) found that subordinate chicks received less food, had poorer diet quality and reduced parental attentiveness. Five out of seven subordinate chicks perished between 3-6 weeks of age. Data and comments provided by CL9-VCE, show that survival of second chicks greater than 4 weeks of age is much higher (95 percent of 1158 chicks survived through August). While data from Vermont show high survival rates for second chicks, it is possible that the fitness of these "subordinate" chicks is reduced. Once they reach breeding age, their ability to occupy and defend territories in areas where the population is at or near carrying capacity is unknown. The Trustees expect that translocated chicks from these two-chick broods would have greater productivity at new nesting sites with little to no intra-specific competition, compared to natal nesting sites that are at or near carrying capacity.

e. *Several commenters suggest that the translocation project fails to include costs for long-term management, especially in an area that has a high human population density (higher than breeding areas in northern New England according to the comments). The comments recommend that the Trustees re-evaluate the cost effectiveness of translocation, including*

management costs. Comments note that Massachusetts currently lacks an established organization to work with the public and limit human disturbance.

The comments request that, if translocation is undertaken, the Trustees implement a long-term (minimum of 20 years) monitoring, educational outreach, and management program to ensure the survival and perpetuation of the translocated population by mitigating human-related impacts. Commenters also request that the cost of the management program be included in the projected costs of this restoration alternative.

Response: The Trustees' translocation project, as described in the Final RP, includes management costs during the 6-year implementation period. Costs for rafts at 30 nesting sites and education and outreach to the local communities were estimated and included in the translocation (COLO-1) budget (these costs are reflected in staff salary and supplies). Additional detail has been provided in the Final RP. Based on the high level of staff involvement and management activities during project implementation, the Trustees' expectation is that management and outreach will support productivity at levels similar to the range-wide average.

As noted in several comments, costs for management and outreach activities beyond the 6-year project were not identified or included in the COLO-1 budget in the Draft RP. This was based on Trustees' anticipation that the Commonwealth's capacity for management and outreach and education efforts will increase as common loon repopulate the translocation areas. Currently, there is no established loon conservation organization in Massachusetts that works to limit human disturbance to common loons. This is in large part due to the fact that common loons do not currently breed throughout the Commonwealth and primarily nest on large reservoirs with protected shorelines and limited disturbance. As the common loon population grows and expands in Massachusetts, MassWildlife will work with local conservation organizations and lake associations to develop partnerships to manage and promote successful nesting of common loons. MassWildlife has successfully developed similar conservation partnerships in the past (e.g., piping plover), and they have a vested interest and responsibility in ensuring success of the common loon restoration effort, especially as common loon are listed as a Species of Special Concern under the Massachusetts Endangered Species Act.

That said, based on the comments received, the Trustees have now reserved $185,000 for MassWildlife's efforts to manage the growing loon population, work with local non-profit organizations, and engage and inform the public in loon conservation (Section 3.2.1.1.2. of the Final RP). These funds are expected to support MassWildlife's efforts for at least 5 years following the conclusion of the translocation project. During that time, MassWildlife will focus on establishing conservation partnerships with local organizations and conservation commissions to help manage the growing loon population for the long-term. Additional interest earned on the initial settlement funding may also be allocated towards future management and education, if needed.

The Trustees agree with the commenters that future management and educational costs (beyond those committed through year 11 of the project) have not been fully included in the cost of the

translocation proposal. However, due to the support and commitment of MassWildlife, the Trustees do not anticipate spending additional settlement funds on costs beyond year 11 of the project. Finally, the Trustees believe that the need for management efforts may be reduced at several of the lakes in the Assawompsett Pond Complex due to their status as protected public water supply reservoirs. Four of the five waterbodies are protected from development and have restrictions on recreational activities, including a prohibition on boating except to historic landowners.

f. *Several comments note that loons were not abundant in Massachusetts historically.*

Response: These comments reference Veit and Petersen (1993) who state that "there appear to be only three confirmed 19-th century records" of common loon in Massachusetts. They also reference Bent (1919) in Spagnuolo (2012), which confirms a historic nest location in southeastern Massachusetts. While the data regarding distribution and abundance appear to be limited, it does confirm that common loon historically nested in Massachusetts. The Trustees also note that Peterson and Meservey (2003) report that "historically, common loons probably nested in suitable locations throughout Massachusetts." Although Massachusetts may not have historically supported an abundance of nesting loons, current habitat throughout the Commonwealth is much better for the species due to the increase in potential nesting locations from the creation of numerous reservoirs over the last 50 years. As a result, the Trustees think Massachusetts has the potential to support a substantially higher number of nesting loons than it did historically.

g. *A number of commenters are concerned that the Draft RP does not fully evaluate potential impacts of climate change (e.g., potential increases in temperature, precipitation, infectious diseases and parasites, and migration timing issues) on the translocation project which would occur at the southern extent of the common loon's range. Commenters reference climate models and analyses that indicate that common loon are highly vulnerable to changing climate (Walsh and Servison 2017) and predict that their range is likely to shift northward (Rodenhouse et al. 2008). Commenters are concerned that the current Draft RP centers on plans to try to increase the numbers of loons breeding at the southern margins of their New England range via translocation of chicks. Commenters note that the technique may result in short-term, local population gains, but it is extremely unlikely in their opinion to achieve the desired, sustained benefits, largely due to the anticipated effects of climate change.*

Response: As noted in the Draft and Final RPs, the Trustees agree that factors associated with a changing climate such as increased temperatures could adversely affect the potential success and sustainability of the translocation project. As pointed out in comments provided by CL6-LPC and others, warming temperatures may reduce productivity. In New Hampshire, CL6-LPC notes that the average hatching success at the warmest 10 percent of nest attempts equated to 0.43 chicks fledged/territorial pair, compared to the statewide average of 0.52 chicks fledged/territorial pair (Evers et al. 2010). As noted in comments from CL2-TUFTS, warming temperatures may negatively impact developing eggs which are sensitive to heat, and cause

nests to be left unattended and vulnerable to predation when incubating adult birds seek relief from the heat.

Loons may employ some strategies to reduce effects of rising temperatures. As noted in comments provided by CL3-BRI, loons may select nest sites that are fully protected from sun (under alder thickets) which provide cooler temperature conditions. Notably, breeding loons would experience less intra-specific competition for these types of protected sites in areas of translocation. Also, since ice-out occurs early in southeastern Massachusetts due to more mild winter temperatures, loons may nest earlier and take advantage of cooler temperatures. Additionally, late spring and early summer temperatures in southeastern Massachusetts are moderated by their proximity to the ocean, which should benefit nesting loons. According to CL3-BRI, loons historically nested as far south as northeastern Iowa and Pennsylvania, where average June temperatures exceeded projected average June temperatures in southeastern Massachusetts in 2050.

The Trustees also note that climate zones and temperatures across the region do not simply follow a north-south latitudinal gradient; rather, they are influenced by topography (elevation and other geographic factors), ocean currents, and variations in day length and solar radiation (Zielinski and Keim 2003). Ecological unit maps prepared by Keys et al. (1995) show that the climate of Berkshire County Massachusetts is similar to central and southern Vermont. Both regions have average annual temperatures of 45 degrees and an average growing season (number of days with air temperature above freezing) of 135 – 143 days. The Lakes Region of New Hampshire has the same average temperature (45 degrees) and a shorter average growing season (128 days). Southeastern Massachusetts has a warmer average temperature (50 degrees) and a longer average growing season (179 days). Based on data from these broad climatic zones, translocated loons in the Berkshires are expected to face similar temperatures as loons in central and southern Vermont and New Hampshire, while loons in southeastern Massachusetts are likely to face warmer temperatures.

Other potential effects of climate change that could impact common loon include water level fluctuations at nesting sites due to increased rainfall, increased exposure to infectious disease and parasites, and migration timing issues. The Trustees note that these issues could impact productivity and survival of translocated common loon; however, the degree to which these factors will impact the translocation project is unclear. The Trustees note that these potential impacts from climate change are expected to occur throughout the Northeast and would also be expected to affect the productivity and survival estimates for other restoration alternatives (COLO-2). As noted in comments provided by CL1-ADK and others, the incidence of parasites and diseases has recently increased in northeastern loons; CL1-ADK provides examples from New York, Maine, and New Hampshire.

Several comments note that recent climate models and analyses indicate that common loon are highly vulnerable to changing climate (Walsh and Servison 2017), and predict that their range is likely to shift northward (Rodenhouse et al. 2008). Rodenhouse et al. (2008) model species distribution and abundance, or habitat envelopes, based on climate, elevation and tree species.

Changes are predicted to occur as habitat (primarily vegetation) changes. According to CL3-BRI, these scientists have admitted that these models may not be relevant for obligate fish-eating birds like common loon that depend primarily on aquatic habitats rather than vegetated habitats. This is supported by current data in Massachusetts where nesting loons continue to slowly increase in number and expand their range to the south (e.g., now a nesting pair in Connecticut just south of Berkshire County, Massachusetts), and direct evidence of climate limitations on loon populations in Massachusetts has not been documented (MassWildlife unpublished data). CL3-BRI also notes that even with changing climate projections for New England, the habitat quality in Massachusetts will remain high because: (1) many of the restoration lakes have protected shorelines (which will limit nitrogen and phosphorous inputs and reduce potential eutrophication that might be expected from rising temperatures), and (2) forage fish biomass will remain high on mesotrophic lakes such as those selected as part of this restoration alternative (vs. oligotrophic lakes in northern New England that have lower fish biomass, creating conditions for lowered loon productivity).

The Trustees note that warming temperatures, as well as other effects of climate change could reduce survival and productivity below the estimates used in the Final RP, and this would reduce expected benefits from the translocation project (as well as other restoration alternatives). While climate change is likely to affect productivity and survival throughout the Northeast, the Trustees agree that risks are likely to be highest in the southernmost portion of the loon's range. Due to the increased likelihood of higher temperatures, particularly in the southeastern portion of Massachusetts, the Trustees have reduced the overall number of years of the translocation effort (and the overall funding) to mitigate some of the potential risks associated with climate change. The Trustees' preferred alternative in the Final RP consists of 2 years of translocation effort in southeastern Massachusetts and 3 years in the Berkshires. As a result, the total translocation budget has been reduced by $500,500, from $3 million to $2,499,500.

h. *One commenter noted that intra-specific interactions would be expected to increase as the introduced Massachusetts loon population grows.*

Response: Intra-specific interactions would be expected to increase as the introduced common loon population grows. However, due to the current size and extent of potential available nesting territory in Massachusetts (Spagnuolo [2012] estimated the habitat could support approximately 295 pairs), this is not likely to occur for many years. Intra-specific interactions are more likely to occur in existing nesting areas in Maine and New York where populations are nearing or closer to carrying capacity (as pointed out in comments, New York has seen an increase in the incidence of intra-specific interactions which has led to adult and chick deaths). Overall, translocating young birds from Maine and New York to Massachusetts is expected to increase their likelihood of survival rather than resulting in increased fatalities.

i. *One commenter noted that it is counterintuitive to move northern birds to the southern part of their range.*

Response: All of the nesting loons in New England and New York are located in the southern portion of the species' range, considering the overall range of common loon (Figure 1 in Evers et al. 2010). While common loon from the Adirondacks and southern Maine currently nest about 120 – 150 miles north of the proposed translocation sites in the Berkshires and southeastern Massachusetts, they are some of the closest nesting pairs to the translocation sites and were selected, in part, due to this proximity. More importantly, common loon in New England and New York are part of the overall northeast regional loon population; as such, they share similar genetics, are comparably sized (with larger birds in the east), and winter off the coast of New England. Based on all of these factors, the Trustees believe that these birds from Maine and New York are an appropriate choice for translocation.

Also, as noted in response to 2c. above, chicks that are translocated from New York and Maine to Massachusetts will be released into areas with a substantial amount of suitable nesting habitat and little intra-specific competition from few nesting loons in the region. With available nesting habitat and little competition with other loons, we expect that once they reach breeding maturity, the translocated birds will quickly establish nesting territories and begin producing young. The Trustees' rationale for translocation focused on moving chicks from density-dependent areas in the same regional population to areas without these constraints.

j. Commenters believe that the Trustees overestimated the number of loon pairs that can be supported in southeastern Massachusetts. From CL6-LPC, "we request that the Trustees recalculate the potential carrying capacity of southeastern Massachusetts using realistic occupancy density data from nearby well studied populations and re-evaluate the true restoration potential of the translocation alternative as compared to other alternatives."

Response: To predict the potential carrying capacity of lakes in southeastern Massachusetts, the Trustees relied on data and analyses conducted by Spagnuolo (2014), as well as field evaluations from experts (Evers 2020). Based on lake size, depth and total phosphorus levels, Spagnuolo (2014) estimated that the southeastern portion of Massachusetts could support 56 pairs of common loon. According to Spagnuolo (2014), other significant habitat variables may somewhat reduce the total carrying capacity; however, these factors are less likely to restrict overall capacity and more likely to influence productivity. To refine the estimate provided by Spagnuolo (2014), Evers et al. 2018 and Evers 2020 conducted field visits to potential nesting lakes in southeastern Massachusetts and identified 20 potential territorial pairs within 6.5 km of the translocation site and an additional 14 potential territorial pairs within 19.5 km of the translocation site. The Trustees' estimate of carrying capacity was based on a predictive model that was refined by field evaluations of specific nesting waterbodies.

CL6-LPC suggests a smaller carrying capacity than that estimated by the Trustees. Specifically, LPC estimates that only 13 territorial pairs could be supported in the area surrounding the translocation site in southeastern Massachusetts. Their estimation is based on an aggregation of total lake size in three categories, divided by average loon territory sizes for those lake size categories from New Hampshire. Aggregating loon acreage and dividing by loon density data from New Hampshire likely oversimplifies and underestimates the available territories. Territory

size for single territory lakes is largely determined by lake size rather than by density; therefore, if a lake is at least 24 hectares it can support a pair (Evers et al. 2010). Ten 24-hectare lakes could be expected to support 10 pairs; however, in aggregation and divided by New Hampshire density estimates, CL6-LPC suggests that 240 hectares would only support three nesting pairs. The Trustees believe that the approach suggested by CL6-LPC significantly underestimates the potential carrying capacity.

k. *CL6-LPC recommends that the Trustees should develop a formal demographic model to justify the translocation alternative. CL6-LPC modeled expected population growth under several different productivity scenarios and estimated the total number of loon pairs generated after 30 years to be between 9 and 19, depending on productivity. They point out that their estimates are significantly lower than the Trustees' estimate of 70 pairs after 30 years. Furthermore, they note that demographic constraints in common loon, including low dispersal rates, high territory fidelity and low fecundity are likely to limit establishment and maintenance of a new translocated population.*

Response: The Trustees utilized a simplified demographic model to predict the number of territorial pairs that would be generated as a result of the translocation effort. The Trustees estimated that 70 breeding loon territories would be expected after 30 years. As noted by CL6-LPC, the Trustees' estimate includes 59 territories more than the highest estimate generated by CL6-LPC. The Trustees believe that the discrepancy is due to several factors, including the estimated number of chicks translocated, the breeding propensity (percent of adults in the population that breed), and the productivity. In our calculations, the Trustees included the 24 chicks that were originally translocated to southeastern Massachusetts in 2015-2017, as well as existing chicks (4) produced by pairs already nesting in the Berkshires. Inclusion of these additional 28 chicks (above the 84 originally proposed for translocation) greatly increases the total number of estimated new pairs. The Trustees also assumed that all adults would form breeding pairs, whereas the commenters applied a 16 percent reduction based on data from New Hampshire. Lastly, the Trustees utilized the range-wide productivity of 0.53 chicks fledged/territorial pair (we have described the rationale for selecting the range-wide average productivity in our response to Topic 2b), rather than the Massachusetts average productivity (0.48 chicks fledged/territorial pair) or even lower estimates, as provided in the comments. The model is highly sensitive to the productivity input, as noted in the comments.

The Trustees have considered the territorial pair predictions by the commenters and agree that our original estimate may have somewhat overestimated the number of pairs likely to be formed within 30 years due to the fact that our estimate did not consider breeding propensity. However, the actual breeding propensity in Massachusetts is not known, and due to the lack of intra-specific competition that the translocated loons will face and the extent of available, high-quality nesting habitat, it is unclear to what extent breeding propensity will be a factor; it may not reduce the overall estimate. The Trustees note that colonization estimates adjusted due to lower breeding propensity will still provide the full number of breeding pairs, but they will have slower rates of establishment, and the time frame before similar restoration benefits accrue will be extended.

The Trustees have re-evaluated the number of expected breeding pairs in light of the reductions to the original scope of work (fewer chicks being translocated) and estimate that it will now take 48 years to establish 70 breeding pairs. Longer time frames will result in the event that fewer adults breed than expected or if productivity is reduced; however, the Trustees maintain that the translocation effort will still have the greatest potential to restore lost loon years through the creation of new nesting territories and new loons.

The Trustees agree that other demographic considerations, in particular limited dispersal distances and high territory fidelity, may also slow the speed and establishment of new nesting pairs. However, both regions selected for translocation have numerous suitable nesting lakes within 13 km of the translocation sites, allowing new pairs to become established near their natal lake.

Small population viability issues should also be lessened due to the presence of existing breeding loons in Massachusetts. Three existing common loon nesting pairs are located within 38 km of the Berkshire translocation site (2 in Massachusetts; 1 in Connecticut). These existing pairs, as well as pairs in nearby Vermont and New York (from which the existing three pairs are likely to have come) are anticipated to recruit additional breeding adults into the area. The existence of these additional nesting pairs increases the overall potential for project success in the Berkshires. In southeastern Massachusetts, the 24 chicks that were previously translocated to the area between 2015 and 2017 will already be of breeding age when the newly translocated birds reach breeding age. As noted above, their existence increases the overall number of adult loons in the area and helps decrease the time it takes to establish new nesting pairs.

l. Translocation should be a pilot project (as defined under OPA).

Response: OPA regulations allow (but do not require) the Trustees to implement pilot restoration projects "where additional information is needed to identify and evaluate the feasibility and likelihood of success of restoration alternatives" and "when, in the judgment of the trustees, these projects are likely to provide" certain information "at a reasonable cost and in a reasonable time frame." The Trustees do not consider the translocation project to be an appropriate pilot project. As discussed in our response to Topic 2b (whether translocation is an experimental technique), we believe that the translocation technique has already been established and that enough information exists to evaluate its feasibility and likelihood of success. Additionally, we do not believe that a feasible pilot project could be implemented at a scale that would be beneficial or completed in a quick enough time frame to allow us to move forward with restoration in a timely manner.

With regard to feasibility, project techniques have been established and tested and an initial common loon translocation effort has been undertaken. During an initial translocation effort from 2015 to 2017, 24 loon chicks were successfully moved from Maine and New York to southeastern Massachusetts. Furthermore, translocation techniques have been utilized for many

species and the tool is an accepted conservation practice (discussed in Section 3.2.1.1.4. of the Final RP).

To measure the likelihood of success of the project, the Trustees have evaluated results from the existing effort in Massachusetts, as well as reviewed translocation efforts for other species. In 2019, six of the 16 translocated chicks that would be old enough to potentially return to the area, or 37.5 percent, were re-observed near the translocation site. The return of these birds to the translocation area is one measure of success and represents a significant positive step in restoring common loon to former breeding areas in Massachusetts. While breeding has not yet been observed, in part due to the ages of the translocated chicks, a territorial pair has been observed and we expect breeding to occur as has been observed with other translocated species.

The Trustees do not believe that it is possible to implement an effective translocation project at a small-scale or in a short time period (2-3 years). The success of the project depends in large part on translocating a critical threshold number of individuals which requires significant investment and effort. Furthermore, due primarily to the delayed age of breeding for common loon (6 years) and the time required to begin to gauge project success, it is not possible to do a pilot study in a short time frame.

m. *Can additional details be provided on the translocation project proposal? Specifically, how many chicks would be captively reared vs. directly released; have the Trustees considered the need for a veterinarian? What is meant by trustee oversight and involvement with the project?*

Response: The Trustees have added additional detail to the Final RP to address these questions (see Table 6, Section 3.2.1.1.2.). In summary, the Trustees' approach is to translocate 9-12 chicks/year for 2 years at the APC followed by translocating 9-12 chicks/year for 3 years in the Berkshires, resulting in the transfer of a total of 45-60 chicks. As noted in the response to Topic 2f (above), the Trustees have scaled back the initial translocation proposal in response to the comments that expressed concerns. These changes are also reflected in the Final RP.

The goal is to captively rear six chicks/year and to direct release six chicks/year. Ideally, of the six captive reared chicks, the first three will be translocated early in the season from first nest attempts. The second three will be translocated later in the season from second nest attempts. Loons typically replace their initial clutch with a second nesting attempt if it is lost early in the breeding season and before chicks hatch (Evers et al. 2010). An adaptive management strategy will be employed following each year, and the number of chicks that are captive reared or direct released may be modified to maximize success. Additional chicks may be directly released to southeastern Massachusetts in year 3 or to the Berkshires in year 6 to help meet project goals.

As noted by several comments, the cost of captively rearing chicks is greater than the cost of directly releasing birds. The Trustees recognize the high cost of captively rearing chicks; however, due to the difficulty in capturing older chicks, which can then be direct released, the Trustees have chosen to utilize both methods for the project. Results from the translocation effort in

southeastern Massachusetts suggest that both methods are viable since juvenile captive reared and direct released chicks have returned to the translocation site. The Trustees note that reliance on direct release alone could result in years with very few birds being translocated, and this could negatively impact project success. To help address the high project costs associated with captive rearing, the Trustees have adjusted the project timeline and approach and will captive rear chicks in only one location/year. Limiting the yearly captive rearing efforts to one location helps to reduce overall project costs.

The original translocation project was reviewed and approved by the University of Southern Maine's Institutional Animal Care and Use Committee (IACUC). The original permit expired after 3 years, but a new permit will be obtained prior to commencing the project. As noted on the University's web page, "The IACUC reviews and oversees all animal use related to research, teaching, or testing activities to ensure the activities are conducted in compliance with all state and federal regulations and that the treatment of animals is ethical." While the original IACUC did not specifically require a veterinarian's assistance, the Trustees believe that veterinary services should be considered a best practice (Kneeland et al. 2020) and have budgeted for limited veterinary services for each year of the project.

The Trustees mentioned at the public information meeting that there would be significant Trustee oversight and involvement with the translocation alternative. The Trustees have clarified our oversight and involvement role in the Final RP. As with all restoration projects, the Trustees will review project implementation and monitoring reports on an annual basis. The Trustees will review yearly goals and objectives and work closely with project proponents should any modifications or changes in approach be necessary. The Commonwealth will be overseeing the translocation project contract and will provide additional project oversight, ensuring that permits are acquired, conducting site visits, and assisting the contractor with outreach efforts. Additionally, as mentioned in the response for Topic 2d, the Trustees will provide $185,000, plus future interest earned (if needed) to MassWildlife for future management and education following the initial translocation effort. The Trustees intend to be actively engaged and involved in the translocation project to help ensure its success.

n. *Several commenters recommend that if translocation is funded, the Trustees should limit their approach and only use the direct release of older chicks (>8 weeks of age) to decrease costs and the extensive management associated with captive rearing*.

Response: See response to the previous comment.

o. If translocation is funded, several commenters recommend that it only be implemented in the Berkshires. They note that the coastal plain at the southern edge of the species range is a poor area for long-term conservation investment given predictions for sea level rise and increases in summer temperatures.

Response: The Trustees have considered the potential effects of climate change (see response to comment 2f), and agree that the risks are likely to be highest in the southernmost portion of the

common loon's range. Due to the increased likelihood of higher temperatures, particularly in the southeastern portion of Massachusetts, the Trustees have reduced the overall number of years of the translocation effort (and the overall funding) to mitigate some of the potential risks associated with climate change.

The Trustees' preferred alternative in the Final RP supports 2 years of translocating chicks to southeastern Massachusetts (as opposed to 3). The Trustees are not supportive of altogether discontinuing the translocation to southeastern Massachusetts. While climate change poses potential risks, there is uncertainty regarding the extent and timing of changes. Furthermore, the Trustees propose to build upon the previous translocation work which had successfully moved 24 chicks to the area. Even at a reduced level of effort, by transferring an additional 24 chicks to the area, the Trustees estimate that 38 nesting pairs could be restored in 50 years (with ongoing management efforts) despite the climate change risks.

p. *One commenter noted that translocation is a useful management tool for critically endangered species whose populations are in severe decline. They noted that common loons are not endangered throughout the Northeast, and have expanded their range and populations since the 1970s (likely due to the banning of DDT). They recommend that the population in Massachusetts will continue to grow in conjunction with management activities such as artificial nest platforms.*

Response: While translocation is often used for critically endangered species, it is also an established conservation strategy to enhance restoration of locally extinct populations (Lincoln Park Zoo. Avian Reintroduction and Translocation Database. Available at: http://www.lpzoo.org/ARTD (Accessed April 24, 2020). According to the Lincoln Park Zoo Database, translocation efforts have been utilized for more than 100 avian species at more than 400 sites. Many of these species are not critically endangered.

While the existing population in Massachusetts is expected to grow with management activities such as artificial nest platforms, the translocation project was selected due to its potential to more quickly increase the current population in Massachusetts. The project is also expected to re-establish nesting common loon in areas of its historic range with extensive habitat that currently have no or very few nesting pairs. These efforts will increase the speed of re-colonization and help to restore the loss resulting from the Spill.

q. *Three comment letters were received in support of translocation efforts. One of the commenters suggests that the restoration of common loon in Massachusetts will accelerate recovery of loons statewide and notes that currently only 15 percent of estimated carrying capacity for Massachusetts is realized. This commenter notes that translocation creates the greatest potential for growing New England's common loon population since carrying capacity in Maine, New Hampshire and Vermont is much closer to being filled.*

Response: The Trustees note support for the translocation effort from organizations that have already been involved in the project, namely Biodiversity Research Institute and the Assawompset Pond Complex Management Team.

Topic 3: Concerns with the Trustees' Calculations of Restoration Project Benefits and Costs.

a. *Commenters suggest that the time frame for calculating benefits should be consistent for different restoration alternatives. They point out that many alternatives (rafts, signs, and wardening) will not cease after 20 years and therefore benefits will continue*.

Response: The Trustees believe that the time frame over which benefits accrue varies depending on the restoration project and the Trustees' analysis should account for that variability. For management efforts, such as signage and floating rafts, benefits are expected to accrue for every year that rafts and signs are utilized. Once the management effort is ended, and signs and rafts are not in use, the increased productivity due to the management action is no longer derived and there are no further benefits from the project. If signs and rafts are deployed through other funding sources, there will be benefits to common loon; however, the Trustees cannot claim credit for benefits that accrue due to restoration efforts implemented by others using other funding. The Trustees can only receive credit for restoration benefits that are realized due to Trustee support and funding. Furthermore, restoration actions must increase productivity and survival above the status quo in order for meaningful restoration to be achieved. If Trustee support simply results in providing funding for activities that would otherwise be provided by other organizations, the restoration will not result in measurable benefits beyond maintaining the status quo.

Additionally, to expedite restoration and to limit administrative costs, trustee councils typically strive to implement restoration projects as quickly as possible (generally within 10 years, and frequently within 5 years). In this case, the Trustees do not expect to allocate any project funds after 20 years; thus, it would be inappropriate to consider longer time frames for projects that involve management efforts such as signage and floating rafts.

For land protection efforts, the Trustees expect to target properties that are threatened by imminent development. As such, benefits derived from land protection are expected to begin immediately and to last in perpetuity since the protection will be secured in perpetuity.

For the translocation project, benefits are not expected to begin until after 4-5 years, i.e., when translocated chicks return to breed. From that point, benefits are expected to accrue as birds begin to nest. Benefits from each established nest are expected to last for at least 100 years as the translocated birds create a self-sustainable population without additional management efforts.

Benefits from rescued loons can be estimated for the loon's entire lifetime, according to average survival rates. Benefits resulting from loons that are "saved" by reducing lead tackle in the environment are difficult to predict and involve significant uncertainty. These benefits are

expected to be greatest during the period of project implementation, but may occur for a longer period depending on the success of educational efforts to change human behavior and reduce lead tackle in the environment.

The Trustees note that for each of the restoration projects, benefits are only calculated for the adults or nesting pairs affected by the restoration. In the case of rescue or educational efforts, benefits are calculated over a surviving bird's lifetime. In the case of artificial nests, signage, land protection and translocation, benefits are calculated for each of the nests benefitting from management actions. Gains in productivity and the time period for calculating benefits for each management action were as follows:

Artificial nests – 0.53 chicks fledged/territorial pair productivity gain (adjusted downward based on occupancy rates), 20 years credit

Signage – 0.17 chicks fledged/territorial pair productivity gain, 20 years credit

Land protection – 0.40 chicks fledged/territorial pair productivity gain, 100 years credit

Translocation – 0.53 chicks fledged/territorial pair productivity gain, 100 years credit

Benefits resulting from productivity of future generations, or offspring, were not calculated for any restoration projects, as productivity associated with future generations is less certain. Additionally, project benefits in the future diminish substantially due to discounting.

b. *Commenters recommend that the Trustees consider volunteer hours that are leveraged for raft and signage projects (costs).*

Response: Several commenters note that the cost-effectiveness and overall cost of nesting platforms and other projects within COLO-2 should be re-assessed due to cost-leveraging that is possible through the use of volunteers. The Trustees did not consider volunteer labor when estimating costs in the Draft RP. We agree that leveraging volunteer hours will decrease overall costs and increase project cost-effectiveness. During the grant round for COLO-2, the Trustees will evaluate the amount of leveraged funds and overall cost-effectiveness of each proposal. Rather than re-assess costs at this time, the Trustees will consider leveraged funds provided with specific restoration proposals during the grant process. We expect that volunteer efforts will vary among projects.

c. *Several comments expressed concern that the Trustees are assigning too much credit for land protection projects. Comments note that "shoreline development is a critical problem for nesting loons, but does not completely eliminate nesting or productivity on a lake-wide basis." Commenters question the cost-effectiveness of habitat protection and suggest that effective efforts will require long-term management, wardening, education/outreach and cost-leveraging.*

Response: The Trustees agree that shoreline development does not entirely limit loon nesting or productivity, since loons frequently nest in developed areas. In the Draft RP and the Final RP, the productivity benefit from land protection was estimated to be 0.40 chicks fledged/territorial pair. This estimate accounts for the fact that some productivity would still be expected to occur if lakeshores were developed. To achieve the average range-wide productivity (0.53 chicks fledged/territorial pair), additional management actions (such as rafts and signage) would be needed.

With regard to the length of time benefits accrue, the Trustees believe that habitat protection results in long-term benefits to loons since nesting habitats are protected in perpetuity. The Trustees plan to consider the number of pairs likely to benefit, the historic site–specific productivity, likelihood of management actions and other factors identified in Section 3.2.1.2.2. of the Final RP, when selecting potential land protection projects. Additionally, the Trustees will prioritize land protection projects that are threatened by development, to realize project benefits as soon as possible. As noted by several comments, some land parcels are less at risk from development and these would be expected to provide delayed benefits compared to those that are at greater risk.

The Trustees note that the total cost of land protection efforts should include costs associated with long-term management, wardening, education and outreach. As a result, the cost-effectiveness of land protection projects will depend greatly on leveraged funds.

d. *Several comments recommended that benefits from a lead tackle exchange program should last for the lifetime of saved loons, as well as for the lifetime of their offspring.*

Response: The Trustees note and agree that the benefits of preventing losses of loons resulting from ingestion of lead would be expected to last for the loon's entire lifetime, not just during the period of project implementation. However, benefits to future generations are significantly less certain and therefore, not credited for the lead tackle exchange projects or any of the restoration alternatives. (As stated in response to Topic 3a, benefits resulting from productivity of future generations, or offspring, were not calculated for *any* restoration projects given the degree of uncertainty.)

The Trustees also note that several commenters provided additional support and data regarding the benefits of lead tackle reduction programs and the critical need to ensure adult survival to maintain loon population growth rates. For these reasons, and as outlined in the Final RP, the Trustees plan to consider lead tackle buyback and education programs along with other restoration options in COLO-2.

Topic 4: Several comments recommend that the Trustees not allocate any funds to the translocation project alternative (COLO-1) and instead redirect those funds to proven management techniques identified in COLO-2 (e.g., wardening, avian guards for nests, artificial nest rafts…). They recommend increasing loon productivity in the affected breeding loon populations using the approach suggested in the NELSWG 2009 proposal (Evers et al. 2009).

Several commenters note the success that has been observed with artificial nest sites, particularly on lakes with high water level fluctuations.

Response: The Trustees have considered a number of restoration alternatives and have decided to utilize approximately 60 percent of the settlement funds to implement "proven management techniques" as suggested in the NELSWG proposal (Evers et al. 2009). The remaining funds will be used for loon translocation. The Trustees believe that this technique has the greatest potential to restore lost loon years through the creation of new nesting territories and new loons above and beyond ongoing efforts throughout New England. The translocation project is expected to generate self-sustainable, long-term benefits to loons. Due to some uncertainties and risks, especially with regard to climate change (Topic 2g), the Trustees have decided to allocate less funds to translocation than to the other management techniques (COLO-2). The Trustees note, however, that the other management techniques are also subject to risks and uncertainties (for example, the average raft occupancy rate in New Hampshire was 43 percent [Evers et al. 2009] and outreach and education provides indirect, uncertain benefits). The Trustees have attempted to balance the risks and potential benefits of the alternatives by funding multiple restoration alternatives across the Northeast. In addition, the Trustees have emphasized a strategy that includes projects with potential long-term, self-sustainable benefits (such as translocation and breeding habitat protection), as well as projects with more immediate, short-term benefits (e.g., artificial nests, signage and wardening, rehabilitation and rescue of adults).

The Trustees also note that to effectively restore the loss from the Spill, restoration actions must increase the productivity and survival levels above the current baseline. If Trustee funds are solely directed towards management activities that currently are implemented by other organizations, and do not substantially increase the current level of effort, the restoration will not result in measurable benefits. Moreover, in locations that have robust loon populations with extensive volunteer networks that are already doing an excellent job in increasing and managing those populations, the potential benefits expected to be derived from Trustee funds are more limited than in areas such as Massachusetts where the potential to increase the population and the management effort is greater.

Topic 5: Several commenters recommended that the Trustees include loon rescue and rehabilitation at breeding locations as a management tool under the Preferred Alternative (COLO-2). Rescuing and restoring loons to their breeding areas is a proven method for contributing to the survival of adult birds and maintenance of the reproductive population. These commenters suggested that rescue and release efforts provide the same restoration benefit as those currently assigned to translocation, while costing less and occurring at sites more favorable to loons.

Response: As noted in several comments, the incidence of year-round common loon rescues has increased steadily in the last decade. In light of the increased need for rescue efforts and the benefits to preventing the loss of juvenile and adult common loons, the Trustees have adjusted the Final RP to include loon rescue and rehabilitation as a supported management tool under the Preferred Alternative (COLO-2). The Trustees envision that organizations will submit restoration proposals that include multiple management activities (potentially including rescue and

rehabilitation efforts) or only one activity. Projects will be evaluated based on the criteria identified in Section 3.2.1.2.2. of the Final RP.

The Trustees consider restoration benefits afforded from preventing the future loss of adult and juvenile common loon (such as with rescue programs) to be less than restoration benefits associated with projects that directly increase common loon productivity above current levels (artificial nest sites, signage and wardening, translocation, etc.). Benefits from projects that prevent future losses of individuals are limited to maintaining the population status quo and do not effectively increase (or restore) an impacted population. While translocation benefits are not likely to accrue for 4-5 years following re-introduction efforts, this type of restoration project has the potential to create "new" nesting locations and therefore increase loon productivity in the affected loon population.

Topic 6: Several comments recommended that the Trustees reconsider gill net permit buyout activities as a Preferred Alternative.

Response: As noted in the Final RP and through several comments, common loon are regularly caught in gill nets (Forsell 1999). While a gill net permit buyout program may reduce deaths from bycatch, due to difficulties and uncertainties associated with implementation (Section 3.2.2.1.4.), this alternative is not preferred. Compared to the preferred alternatives, this option is less feasible and would likely be less effective in restoring common loon.

Topic 7: Several comments recommended that the Trustees conduct health assessments of captured loons and necropsies of loon mortalities to evaluate infectious diseases and parasites in the loon population.

Response: Several comments note that there has been a recent increase in the prevalence of infectious disease and parasites that have led to increased mortality in common loon in the Northeast. These commenters also recommend conducting health assessments and necropsies to evaluate the deaths. While the Trustees agree that it is important to document and understand threats to the common loon population, implementing these activities will not directly restore loons. The Trustees have selected restoration alternatives that will directly increase productivity or prevent losses of adult common loon. The Trustees believe that the selected restoration alternatives will be more effective means to restore the impact from the Spill than efforts to diagnose diseases and parasites. The Trustees suggest that other sources of funds would be more appropriate for gathering this data.

Topic 8: One comment recommended that the Trustees consider bycatch mitigation technology (i.e., bird panels) as a Preferred Alternative

Response: It was recommended that the Trustees consider implementing a program to reduce common loon bycatch through mitigation technologies such as bird panels. Mitigation techniques, such as bird panels, typically employ a visual deterrent to fishing lines and nets to increase their visibility. The Trustees agree that in some cases, if properly deployed, mitigation

technologies benefit bird species, especially those considered to be visual pursuit predators such as common loon. However, in this case the benefits to common loon would likely be difficult to measure. Like the gill-net permit buyout program evaluated in the Final RP (Section 3.2.2.1.4.), mitigation technologies would also be logistically difficult to implement and would require significant support from the government and the fishing community, affecting the project's cost-effectiveness and feasibility. The Trustees' goal is to select a suite of activities that most efficiently and effectively restores common loons impacted by the Spill, and still maintains reasonable administrative costs (which is dependent on the number of individual projects funded). Therefore, the Trustees have determined that the selected preferred projects will provide adequate opportunities for restoration of common loon and are preferable to a bycatch mitigation technology project.

Topic 9: Several comments recommended that the Trustees support educational outreach as part of the Preferred Alternative (including the use of lead fishing tackle buy-back and fishing line recycling programs) and management tools such as rescues to decrease loss of breeding adults.

Response: As identified in the Draft RP, and reiterated in the Final RP, the Trustees' Preferred Alternative (COLO-2) includes support for educational outreach activities focused on increasing adult common loon survival rates. The Trustees anticipate funding outreach efforts that educate anglers about lead toxicity and promote exchange of lead fishing tackle for non-lead alternatives. The Trustees envision that outreach materials would also educate the public more broadly about other factors that affect common loon survival and productivity (e.g., fishing line entanglement, boat strikes, disturbance, predation, etc.).

Topic 10: Several comments recommended that the Trustees re-publish the Draft RP before publishing the Final RP.

Response: The Trustees decline to re-publish the RP in draft form. While the Trustees have made some modifications to the RP, many of which are based on comments on the Draft RP, those modifications do not significantly alter the types or scale of planned restoration. As a result, the Trustees are confident that the previously received comments, which were substantive and detailed, are sufficient and expect that any further comments would be substantively duplicative. Moreover, republishing the RP in draft form would delay implementation of the planned restoration projects, to the detriment of the environment and the public.

Topic 11: Several commenters asked the Trustees to clarify the benefits of land protection in Massachusetts and Rhode Island to common loons. Commenters noted that common loon do not breed in Rhode Island.

Response: Coastal land protection projects in Massachusetts and Rhode Island will indirectly benefit common loon that overwinter off-shore. Common loon have been observed in coastal waters adjacent to Cuttyhunk Island (OB-1 MA) and in the Palmer River adjacent to the Lamoia parcel (OB-1 RI-1). These projects will prevent impacts to coastal habitats that are frequently associated with development (e.g., land conversion, erosion, increased run-off of pollutants,

etc.). These impacts negatively affect water quality in estuaries and coastal waters, which in turn can negatively affect aquatic organisms and fish, ultimately reducing the abundance of prey for wintering common loon and other birds.

The Trustees recognize that coastal land protection efforts will only *indirectly* benefit common loon. Allocating approximately 10 percent of the restoration funds towards this effort benefits wintering common loon and diversifies the restoration strategies throughout New England. The Trustees consider this to be an appropriate and reasonable allocation considering that approximately 10 percent of the dead birds were recovered from Rhode Island.

Topic 12: Several commenters recommended that the Trustees include loon management activities in New York as a preferred restoration location. One commenter provided data that support that New York common loons winter in Massachusetts and Rhode Island.

Response: Based on comments and data submitted by CL1-ADK, including Kenow et al. 2009, the Trustees acknowledge that some common loon from New York likely overwinter in Buzzards Bay. The Trustees have updated the language in the Final RP to reflect this information. The Trustees have also included New York as one of the potential (and preferred) restoration locations under COLO-2.

Topic 13: One commenter expressed a concern that states do not have authority over common loons impacted by the Spill, based on an assertion that the Spill injured common loons on the United States' territorial seas.

Response: OPA defines broadly the scope of natural resources subject to Federal and state trusteeship. OPA authorizes both the designated United States trustee(s) and the designated state trustee(s) to recover damages for injury to "natural resources belonging to, managed by, controlled by, or appertaining to" the respective trustee(s). 33 U.S.C. §2706(a)(1)-(2), (b)(1)-(3). In many cases, as in this one, the Federal and state trustees have joint trusteeship for the injured natural resources and act jointly to assess and recover the natural resource damages. 15 C.F.R. §990.14(a). And following the joint recovery of such natural resource damages, the trustees continue to work jointly to develop and then implement a restoration plan to restore or replace the injured resources.

The B-120 oil spill occurred in Buzzards Bay, Massachusetts, and affected more than 100 miles of Buzzards Bay and its shoreline and nearby coastal waters in both Massachusetts and Rhode Island. The Spill killed an estimated five hundred and thirty-one (531) common loons, and those loons were discovered along both Massachusetts' and Rhode Island's shorelines and in their state waters. Contrary to the commenter's claim (Mr. Brown), the Spill and related common loon deaths occurred in waters that are subject to the jurisdiction of both the United States and either Massachusetts or Rhode Island. In particular, with regard to Massachusetts, in 1981, the U.S. Supreme Court declared that the waters of Buzzards Bay constitute internal waters of

Massachusetts, *United States v. Maine*, 452 U.S. 429, 429-30 (1981),[3] and thus Massachusetts' territorial boundary extends 3 geographical miles seaward from the baseline (known as the "territorial sea baseline") established by those internal waters and 3 geographical miles seaward from its coastline (mean low water line) in other areas (*see* Mass. Gen. Laws ch. 1, §3; *see also* 43 U.S.C. §1301(b) & (c); 33 C.F.R. §§2.1 Fig. 2.1, 2.20-2.22). With regard to Rhode Island, Rhode Island's territorial boundary extends 3 geographical miles seaward of its coastline (again, seaward of the mean low water line). R.I. Gen. Laws 42-1-1(c); 43 U.S.C. §1301(b) & (c). Massachusetts' and Rhode Island's jurisdiction covers the full extent of the open waters and submerged lands within those geographic areas. A visual aid displaying how to determine these jurisdictional areas can be found at 33 C.F.R. §2.1 Fig. 2.1 (Jurisdictional Areas), and the following Figure 6 illustrates their location in and adjoining Massachusetts and Rhode Island:

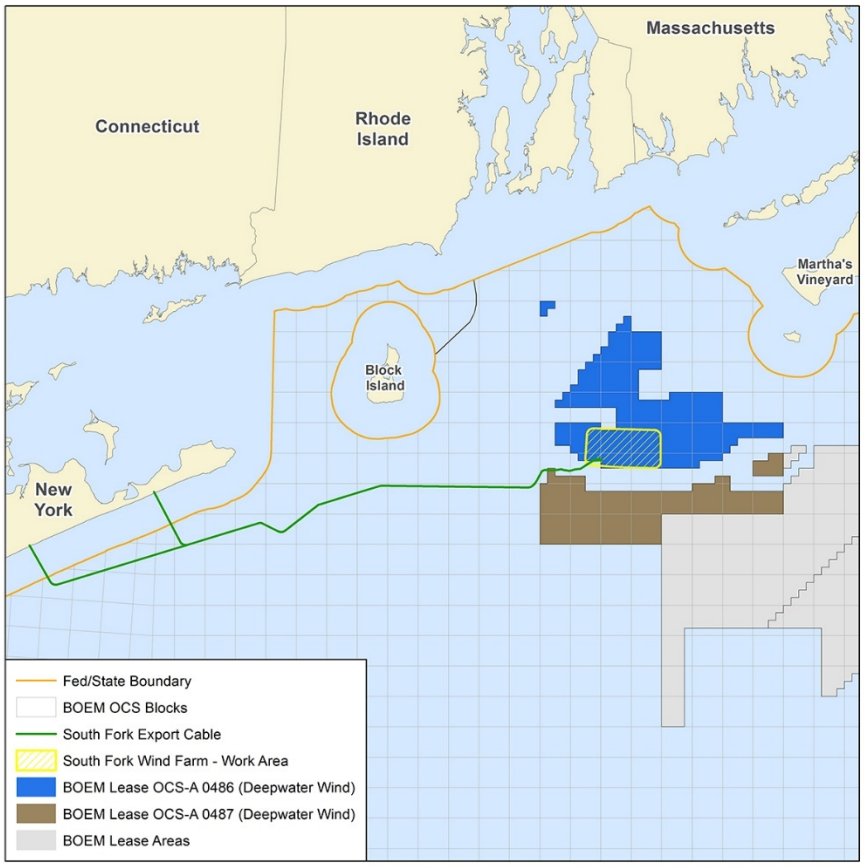

Figure 6. Massachusetts and Rhode Island jurisdictional areas and boundaries

[3] While it does not affect the joint trusteeship of the Federal and State trustees over injuries to migratory birds in Buzzards Bay, Buzzards Bay is not, for the reason noted in the text, a part of the "territorial sea," as the commenter claims. 33 C.F.R. §2.1 Fig. 2.1 (Jurisdictional Areas).

Source:
https://www.boem.gov/sites/default/files/uploadedImages/BOEM/Renewable_Energy_Program/State_Activities/NY/DW_South_Fork_Area_Map_10_16_2018.jpg

See also Executive Office of Energy and Environmental Affairs, 2015 Massachusetts Ocean Management Plan Figure 1 (pdf p. 131, 2015) available at:
https://www.mass.gov/files/documents/2016/08/qh/2015-ocean-plan-v1-complete.pdf

The common loons killed by the B-120 spill are not within the exclusive trusteeship of the United States because the waters in which they were injured were subject to the jurisdiction of both of the states and because common loons are subject to both state and Federal protection when they are located in, or migrate through, Massachusetts' and Rhode Island's territorial limits. Common loons breed throughout much of central Massachusetts, and use the coastal waters and associated coastline in both Massachusetts and Rhode Island as important wintering habitat. And when the loons are in those areas, they provide valuable services, as that term is defined in 15 C.F.R. §990.30, in Massachusetts and Rhode Island. MassWildlife, a Division within the Massachusetts Department of Fish and Game (DFG), which is a Department within the Executive Office of Energy and Environmental Affairs (Massachusetts' designated natural resource trustee), for example, administers Massachusetts' hunting and trapping programs, which includes issuing licenses to hunt migratory waterfowl, 321 C.M.R. §3.02(2) (Migratory Game Bird Regulations), and protects endangered, threatened, and special concern species, including migratory species, under the Massachusetts Endangered Species Act (MESA), Mass. Gen. Laws ch. 131A, §§1-7. Under MESA, MassWildlife has listed common loons as a species of Special Concern, 321 C.M.R. §10.90(4), and MESA makes it unlawful to "take" any "species listed as endangered, threatened or of special concern," Mass. Gen. Laws ch. 131A, §2. Massachusetts and Rhode Island also hold the common loon in trust for the common benefit of the public when they are located in, or migrate through, their respective territorial boundaries. *See, e.g.*, *Dapson v. Daly*, 257 Mass. 195, 196, 153 N.E. 454, 454 (1926). In short, common loons "[belong] to" and are "managed by, controlled by, or appertaining to" Massachusetts or Rhode Island when they are within Massachusetts' or Rhode Island's geographic boundaries, 33 U.S.C. §2706(a)(2), as was the case for common loon injured by the Spill – and the states have authority under OPA to (among other things) participate in the development of this RP.

Whether Massachusetts or Rhode Island have "title" to common loons when the loons are within their boundaries is beside the point (comments of Mr. Brown), because, even if the States do not, (1) title to the injured wildlife is not required by OPA; and (2) the U.S. Supreme Court has made clear that states, even after the enactment of the Migratory Bird Treaty Act, retain authority to regulate migratory species, including migratory birds, when they are within their territorial boundaries. *Missouri v. Holland*, 252 U.S. 416, 434 (1920); *see also Hughes v. Oklahoma*, 441 U.S. 322, 338 (1979) ("The overruling of *Geer* {*v. Connecticut*, 161 U.S. 815 (1896), which concerned the state ownership-theory of wildlife] does not leave the States powerless to protect and conserve wild animal life within their borders.").

Finally, as the commenter recognizes (Mr. Brown), the second Consent Decree "requires the Trustees to 'prepare a Restoration Plan(s) for Wildlife Resources, and jointly, as provided in the Trustee Memorandum of Agreement, approve expenditures from the Bouchard B.120 Oil Spill Restoration Account consistent with the Restoration Plan(s) for the [injured Wildlife Resources] and pursuant to the terms of the Trustee Memorandum of Agreement.'" Consent Decree 2 ¶ 10, at 17. The Draft RP constitutes such a plan and, accordingly, it has been prepared *jointly* by the Trustees (both Federal and State). That Consent Decree was entered as an order of the United States District Court for the District of Massachusetts on January 24, 2018. Order, *United States v. Bouchard Transportation Co.*, Civ. A. No. 17-12046-NMG (consolidated with 17-12048 & 17-12509) (D. Mass. Jan. 24, 2018) (ECF No. 13). Consistent with the explanation above and the allegations in their respective complaints, the Consent Decree recited the fact that both Massachusetts and Rhode Island alleged that the defendants were liable to each state for "damages for injury to, destruction of, or loss of use of, certain Natural Resources," which were defined as Wildlife Resources in Consent Decree 2. Consent Decree 2 ¶¶ I.B-C, at 1-2. The second Consent Decree was subject to a 30-day public notice and comment period, 82 Fed. Reg. 49,680 (Oct. 26, 2017), and no comments were received, Mem. in Supp. of the Assented-To Mot. of the Plaintiffs to Enter Consent Decree at 2, *United States v. Bouchard Transportation Co.* (filed Jan. 11, 2018) (ECF No. 10-1). Having failed to submit any comments disputing the fact that Massachusetts, Rhode Island, and the USFWS (acting on behalf of DOI), have joint trusteeship over Wildlife Resources, which include common loons, the commenter (Mr. Brown) waived his argument that the USFWS has exclusive trusteeship over common loons. The belated attempt to collaterally attack Consent Decree 2 on that basis through comments on the Draft RP is thus misplaced.

5.2.2. Comments Regarding Both Common Loon and Other Birds Restoration

Topic 1: Trustees fail to properly evaluate restoration alternatives, as set forth in 15 CFR §990.54 (a). Trustees have emphasized their own criteria and ignored minimum required criteria to bolster selection of OB-1RI and COLO-1.

Response: In the Draft RP (Section 2.2.), the Trustees identified the six factors that must be utilized to evaluate proposed projects, as set forth in OPA regulations (15 CFR §990.54(a)). Based on these factors and other criteria that the Trustees believe are necessary to ensure that restoration goals are met, the Trustees developed six eligibility criteria and nine evaluation criteria to assess each project (Section 2.2.1. and 2.2.2. of the Final RP). As the commenter recognizes, OPA regulations do not preclude the Trustees from using additional evaluation criteria, and the Trustees contend that the additional criteria help the Trustees to more fully evaluate each alternative and ensure that restoration goals are achieved.

Furthermore, the Trustees affirm that the six "minimum" criteria outlined in OPA regulations were incorporated in the Trustees' six eligibility criteria (Section 2.2.1. of the Final RP) and nine evaluation criteria (Section 2.2.1.), and therefore, were considered in the evaluation of each alternative. This procedure (and eligibility and evaluation criteria) were also utilized in the Final Programmatic Restoration Plan and Environmental Assessment for the Buzzards Bay Bouchard

Barge-120 (B-120) Oil Spill Shoreline, Aquatic, and Natural Resource Use Injuries (NOAA et al. 2014).

OPA minimum restoration alternative evaluation criteria were incorporated in the Trustee Evaluation and Eligibility Criteria, as follows:

1) "The cost to carry out the alternative" (15 C.F.R. §990.54(a)(1))

This is one of the Trustees' evaluation criteria.

2) "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" (15 C.F.R. §990.54(a)(2))

The Trustees evaluated a suite of criteria to assess the overall extent to which each alternative is expected to return injured resources to baseline and compensate for interim losses. Of primary importance to the Trustees were nexus to the injured resource, nexus to the spill location, measurable results, and sustainability – all of which are expressly included in the Trustees' eligibility criteria and evaluation criteria.

3) "The likelihood of success of each alternative" (15 C.F.R. §990.54(a)(3))

This is one of the Trustees' evaluation criteria.

4) "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" (15 C.F.R. §990.54(a)(4))

Since the Spill occurred more than 15 years ago, there is little, if anything, that can be done to prevent future injury due to the incident other than to restore the injured resources as quickly and efficiently as possible. To that end, the Trustees identified alternatives that had the greatest potential to restore the specific injured resources (nexus) and considered project implementation readiness, likelihood of success and sustainability of resource benefits.

The Trustees assessed potential collateral injury associated with each alternative. The Trustees considered potential collateral impacts through the evaluation criteria: "impact avoidance or minimization."

5) "The extent to which each alternative benefits more than one natural resource and/or service" (15 C.F.R. §990.54(a)(5))

This criteria was not explicitly described in the plan; however, it was considered in the Trustees' evaluation. For the Other Birds restoration projects, it was integral to project selection. As noted in the Final RP, "to restore losses to these birds, the Trustees focused on projects that directly and indirectly benefit a broad number of impacted species, as well as projects that specifically

restore common eider." The preferred restoration alternative, Habitat Restoration (OB-1), for both Massachusetts and Rhode Island, has been selected in large part due to the project's benefit to multiple species.

With regard to common loon restoration, the Trustees' primary focus was on projects that restore common loon, rather than the benefits to other species. Several restoration alternatives would be expected to benefit multiple species. These include Protection of Breeding Habitat, and Reducing Exposure to Lead Tackle (COLO-2). While this criteria could have been more explicitly described in the Draft RP, additional text to describe the Trustees' evaluation would not change the Trustees' selection.

6) "The effect of each alternative on public health and safety" (15 C.F.R. §990.54(a)(6))

To be eligible for consideration as a restoration alternative, the Trustees required that each alternative meet the following eligibility criteria: ensure 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. As noted in Section 3.4 of the Draft and Final RP, none of the proposed and selected alternatives are expected to have adverse effects on public health and safety.

Topic 2: Several commenters suggest revisions to the evaluation criteria. One commenter believed that community involvement should be given greater weight and believed that nexus to injury is less important than a project's potential to address critical threats to common loon productivity and adult survival.

Response: Based on the Trustees' prior experience with numerous restoration projects, the Trustees agree that community involvement is an important evaluation criteria and it was considered in both the Draft and Final RPs (Section 2.2.2.). High community involvement generally increases project visibility and public support for projects. As noted in several comments, when community members are actively engaged in and supportive of restoration projects, the projects tend to be more sustainable, cost-effective and have a greater likelihood of success.

While the Trustees consider community involvement to be an important evaluation factor, it is considered to be of lower importance when compared to other factors such as nexus to injury (high) or project implementation readiness, technical feasibility, likelihood of success, sustainability, or cost (medium). Community involvement can increase project success and cost effectiveness; however, it is typically not required for project success.

With regard to nexus, the comment states that "the nexus to injury criteria is less important in evaluating restoration projects than a project's potential to address critical threats to productivity and adult survival…" The Trustee focus on nexus is derived directly from OPA regulations (15 CFR §990.10), which state that the goal is to make the environment and public whole for injuries to natural resources and services that result from an incident. The goal is achieved through the return of the injured natural resources and services to baseline. To fulfill

this objective, the Trustees must ensure that the injured natural resources, in this case the common loon and other birds, are restored. By evaluating a restoration project's nexus to the injury (both the spatial proximity and the species affected), the Trustees are determining if a restoration project will meet the goals of OPA.

In the Draft and Final RPs, the Trustees focused on projects that will most effectively and efficiently restore the lost common loon and other bird species. Projects which address critical threats to common loon productivity and adult survival are some of the highest priorities for restoration. In Section 3.2.1. of the Final RP, the Trustees note "Because the focus of common loon restoration is to increase production of loons to offset the loss, priority is given to restoration projects that enhance productivity of the species during (but not limited to) the nesting season."

Topic 3: One commenter stated that proposed restoration projects should be treated equally. For example, projects in COLO-2 should not be held to a higher standard of review than projects in COLO-1 or OB-1RI.

Response: The Trustees treated each of the proposed alternatives (COLO-1, COLO-2, OB-1, OB-2, and the non-preferred alternatives) equally. The same evaluation criteria (previous response and Section 2.2.1. and 2.2.2. of the Final RP) were used to evaluate each alternative.

Specific projects have already been selected to implement COLO-1, OB-2, and part of OB-1. The additional information that will be utilized to select specific projects to implement COLO-2 and the remainder of OB-1 were described in Section 3.2.1.2.2. and Section 3.3.1.2.2. of the Final RP, respectively.

For COLO-2, the additional information to be considered includes:

a. number of common loon (or pairs) likely to benefit;
b. expected effects of project proposal on common loon productivity and adult survival;
c. site location (must be located within New England);
d. habitat area and quality;
e. cost effectiveness; and
f. performance monitoring protocols, including availability of existing baseline information.

This information has already been described and considered for COLO-1; however, for COLO-2 it will vary depending on project location and specific project details. Therefore, the information will be solicited in a grant round which will allow the Trustees to fully evaluate specific projects in COLO-2. COLO-2 is thus not being held to a higher (or otherwise different) standard than COLO-1.

A similar approach will be used for a portion of the land protection project selection in Rhode Island (OB-1RI-2). The additional information to be used to evaluate proposals for an additional coastal land protection project in Rhode Island was already obtained and considered for selecting

the particular "other birds" projects that have been already selected (OB-1MA, OB-1RI-1, and OB-2).

Similar project evaluation approaches have been used in other restoration plans, including the Final Programmatic Restoration Plan and Environmental Assessment for the Buzzards Bay Bouchard Barge-120 (B-120) Oil Spill Shoreline, Aquatic, and Natural Resource Use Injuries (NOAA et al. 2014). The approach allows Trustees to select specific alternatives when enough information is known and to move forward expeditiously with those alternatives, and to select more general alternatives followed by grant rounds when project-specific information is still needed to fully evaluate if the projects will meet restoration goals.

5.2.3. Comments Regarding Other Birds Restoration

Topic 1: Eleven comments were received in support of the Other Birds Habitat Protection Restoration Alternative, specifically the selection of the Cuttyhunk Project in Massachusetts. Commenters noted that the Cuttyhunk Project provides an extraordinary opportunity to protect over 300 acres of high quality, diverse coastal habitat and shoreline that will benefit numerous bird species that utilize the coastal environment. Moreover, ten of the comment letters supported the allocation of all the Other Birds funds ($1.8 million) to the Cuttyhunk Project, noting that Cuttyhunk Island is less than 5 miles from the Rhode Island state line and its protection will benefit birds in both Massachusetts and Rhode Island. Several comments also question whether the Trustees will be able to identify a similar habitat protection project in Rhode Island, as was suggested in the Draft RP.

Response: The Trustees note the overwhelming public support for the Cuttyhunk Project and agree that protecting land on Cuttyhunk Island would directly benefit several habitat types and numerous species affected by the Spill. The Trustees agree that due to Cuttyhunk Island's proximity to Rhode Island, wintering waterfowl and seabirds, as well as local populations of birds from both states will benefit. As a result, the Trustees have decided to allocate some of the funds ($274,000) previously targeted to land protection in Rhode Island to the Cuttyhunk Project.

However, in an effort to maximize habitat protection and species benefits in *both* of the states impacted by the Spill, the Trustees intend to utilize the remaining Other Birds funds ($1 million) to support land protection efforts in Rhode Island. As described in the Final RP, the Trustees will provide up to $400,000 to protect the 20-acre Lamoia parcel, which is located in the upper part of Narragansett Bay. This parcel contains salt marshes and fields that provide habitat for a variety of species impacted by the Spill. The Trustees will provide the remaining $600,000 towards another habitat protection project in Rhode Island. This project will be identified and selected from land protection projects already known to the Trustees or through a competitive grant process, as described in Section 3.3.1.1.2 of the Final RP.

The Trustees acknowledge that it may be difficult to find a land protection project in Rhode Island that is as large as, or as comprehensive as the Cuttyhunk Project. However, the Trustees note that even at a smaller scale, protection of coastal habitat resources in Rhode Island can benefit

numerous bird species that were impacted from the Spill. If funding can be leveraged, the cost-effectiveness of these efforts will increase.

Topic 2: The Buzzards Bay Coalition (CL – BBC) noted that the Cuttyhunk Project will likely fail without additional funding support from the B120 Trustee Council. The BBC believes that they have nearly exhausted all potential funding sources and "do not see a clear path to close the Cuttyhunk deal without additional B120 Trustee Council support."

Response: Since the public comment period closed on October 31, 2019, the BBC has received additional funding to support the Cuttyhunk Project. As a result of this additional funding (see Final RP, Section 3.3.1.1.2., Table 8), the BBC currently needs $1,394,958 to complete the acquisition of Cuttyhunk Island. The Trustees are committed to helping the BBC ensure that the Cuttyhunk Project is successful, and intend to provide $774,000 to the project. In addition, the Trustees are evaluating whether remaining funds from the Aquatic and Shoreline settlement (approximately $300,000 - $400,000) could be allocated to the project. The Trustees intend to prepare an amendment to the Final Programmatic Restoration Plan and Environmental Assessment for the Buzzards Bay Bouchard Barge-120 (B-120) Oil Spill Shoreline, Aquatic, and Natural Resource Use Injuries (NOAA et al. 2014) to seek public comment on a proposal to utilize the remaining aquatic and shoreline funds for protection of Cuttyhunk Island. Should the Trustees provide all of the remaining aquatic and shoreline funds to the Cuttyhunk Island project, only $220,000 - $320,000 will be needed to complete the purchase. The BBC has indicated that they can secure the remaining funds necessary to implement the project.

Topic 3: Comments from NH Audubon (CL11-NHA and CL12-NHA) were generally supportive of the Other Birds Habitat Protection Restoration Alternative, especially considering that it is not clear what a better option might be and that there are likely no feasible means of restoring degraded marine benthos at a reasonable scale. CL12-NHA recommends that the Trustees target coastal protection projects that benefit wintering black scoters; several references were provided for the Trustees' benefit. CL11-NHA requested to see more discussion about restoration opportunities for shorebirds.

Response: The Trustees have noted NH Audubon's support for habitat protection as a restoration alternative for other bird species impacted by the Spill.

The Trustees appreciate the additional information regarding black scoters. The references have been consulted and the information will be used to help identify land protection projects in Rhode Island that will benefit black scoters.

With regard to the request to include more discussion in the Final RP regarding shorebird restoration, the Trustees note that, as explained in the Draft RP (and Final RP), injuries to, and restoration for common and roseate terns and shorebirds will be described in a separate restoration plan. The current RP focuses on common loon and other birds to expedite restoration for these species. The public will be provided with an opportunity to comment on shorebird restoration when that restoration plan is prepared.

6. Compliance with Statutes, Regulations, and Policies

6.1. Federal Statutes, Regulations, and Policies

Federal Statutes, Regulations, and Policies	Compliance
Oil Pollution Act of 1990 (OPA, 33 U.S.C. §§2701, et seq., 15 CFR Part §990)	The Trustees released the Draft RP for public review and comment, and took into consideration public comments received during the comment period and incorporated revisions into this Final RP, as needed. The Trustees have selected the restoration projects that best address natural resource and resource use injuries resulting from the Spill.
National Environmental Policy Act (NEPA, 42 U.S.C. §§4321, et seq., 40 CFR Parts §1500- §1508)	This document has been developed in compliance with NEPA. As the Trustees' actions are not anticipated to have any significant effects on the environment, and as existing USFWS CEs under NEPA cover these actions, no additional analysis under NEPA is required at this time.
Clean Water Act (CWA, 33 U.S.C. §1251, et seq.)	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 (16 U.S.C. §470 et seq.)	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 et seq.)	Restoration actions that require Section 404 Clean Water Act permits are likely also to require authorization under Section 10 of the RHA. A single joint Federal/state permit usually serves for both in MA and RI. Individual restoration activities will be addressed under the joint Federal/state permit.
Coastal Zone Management Act (CZMA, 16 U.S.C. §1451 et seq., 15 CFR §923)	For some of the preferred restoration alternatives and depending on the state in which a project is being implemented, regulatory authorization for the implementation of restoration projects will be required from the Massachusetts Office of Coastal Zone Management (MACZM), which serves as the lead agency for implementing the State's coastal program, or the Rhode Island Coastal Resources Management Council (CRMC). Where a MACZM or CRMC approval is required, it will be obtained before proceeding with 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 et seq., 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

Federal Statutes, Regulations, and Policies	Compliance
	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 proposed restoration projects will enhance benefits to estuarine resources such as estuarine, marine and diadromous fish species, bivalves and other macro-invertebrates, wading and shore birds, waterfowl, and mammals.
Fish and Wildlife Conservation Act (16 U.S.C. §§2901 et seq.)	The proposed restoration projects will enhance benefits to estuarine resources such as estuarine, marine and diadromous fish species, bivalves and other macro-invertebrates, wading and shore birds, waterfowl and mammals.
Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. §661 et seq.)	The preferred restoration projects will 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 et seq.)	No significant adverse floodplain impacts are anticipated with any of the preferred projects.
Stevens Fishery Conservation and Management Act, as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297) (Magnuson-Stevens Act) (16 U.S.C. §§1801 et seq.)	Projects are only expected to have a beneficial effect on essential fish habitat resources.
Marine Mammal Protection Act (16 U.S.C. §§1361 et seq.)	Negligible interaction with marine mammals in the vicinity of the proposed 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 et seq.)	During the project planning phase and prior to implementation, consultation with the USFWS will occur to comply with this Act.
Archeological Resources Protection Act (16 U.S.C. §470 et seq.)	No impacts to archeological resources are anticipated for the proposed projects.

Federal Statutes, Regulations, and Policies	Compliance
Information Quality Guidelines issued pursuant to Public Law 106-554	This Final RP 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 the 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.
Executive Order 11990 (42 FR 26,961) – Protection of Wetlands	USFWS and its cooperating agencies have concluded that the preferred restoration projects will fulfill the goals of this executive order.
Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 12948 Amendment to Executive Order 12898	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, Massachusetts and Narragansett, Rhode Island as being within the resource use injury area, and having Environmental Justice Populations. Preferred projects have been located within these municipalities and are expected to benefit Environmental Justice communities.
Executive Order 11514 (35 FR 4247) – Protection and Enhancement of Environmental Quality	USFWS and its cooperating agencies have concluded that the preferred restoration projects will fulfill the goals of this executive order.
Executive Order 13112 (64 FR 6,183) – Invasive Species	The proposed restoration projects are not expected to cause or promote the introduction or spread of invasive species.

6.2. State Statutes, Regulations, and Policies, Massachusetts

State Statutes, Regulations, and Policies
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)
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
Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs

6.3. State Statutes, Regulations, and Policies, Rhode Island

State Statutes, Regulations, and Policies
Rhode Island Coastal Resource Management Program, as amended (replacing Chapters 1 through 5 of the program adopted by the Coastal Resources Management Council, 1977)
Rhode Island Water Quality Regulations (R.I. Gen. Laws Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the Rhode Island General Laws of 1956, as amended)
Rhode Island Freshwater Wetland Act (R.I. Gen. Laws Chapters 2-1-20.1, 42-17.1, and 42-17.6, as amended)
Rhode Island Endangered Species Act. (R.I. Gen. Laws Section 20-37-1)
Rules and Regulations Governing Nuisance Wildlife Control Specialists
State of Rhode Island and Providence Plantations Constitution, Article 1, Section 17
Rhode Island Oil Spill Pollution Prevention and Control Act (R.I. Gen. Laws Section 46-12.5.1-1 et seq.)

6.4. Local Laws

As appropriate, restoration actions will take into account and comply with local ordinances, and to the extent practicable, local and/or regional plans. Relevant local and regional plans may include shoreline and growth management plans. Relevant local ordinances could include but not be limited to zoning, construction, noise limits, and wetlands protection. For example, in Massachusetts, municipal conservation commissions are empowered to administer the Massachusetts Wetlands Protection Act (MWPA, M.G.L. Chapter 131 §40) and may also adopt local bylaws and undertake other activities such as natural resource planning and land acquisition. Projects that are selected by the Trustees through the restoration planning process for implementation will need to have the project lead agency or organization coordinate with local municipalities to address local requirements, and to the extent practicable, be in conformance with any relevant local or regional plans.

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. The Federal Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was signed into law by President Clinton on February 11, 1994, calling on each Federal agency to achieve EJ 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.

In the context of this RP, a number of EJ communities are located within the areas selected for restoration that include potential project alternatives in Massachusetts, Rhode Island, New York, New Hampshire, Vermont, and Maine. Potential benefits to EJ populations that are in proximity to the preferred restoration alternatives may include increased wildlife viewing, educational activities, and volunteering opportunities.

The Environmental Protection Agency has developed an online tool that is publicly available, and provides a way to display EJ communities and their associated demographic indicators:

EJSCREEN: Environmental Justice Screening and Mapping Tool (Accessed April 30, 2020)

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8. List of Preparers

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9. Agencies, Organizations, and Parties Consulted for Information

Adirondack Center for Loon Conservation, Saranac Lake, NY

Biodiversity Research Institute, Portland, ME

Buzzards Bay Coalition, New Bedford, MA

Loon Preservation Committee, Moultonborough, NH

Maine Audubon Society, Falmouth, ME

Maine Department of Inland Fisheries and Wildlife, Augusta, ME

Massachusetts Audubon Society, Dartmouth, MA

Massachusetts Department of Conservation and Recreation, Boston, MA

Massachusetts Division of Fisheries and Wildlife, Westborough, MA

National Park Service, Boston Harbor Islands National Park, Boston, MA

Northeast Loon Study Working Group

NOAA Restoration Center, Gloucester, MA

Rhode Island Department of Environmental Management, Division of Fish and Wildlife, Jamestown, RI

Rhode Island Department of Environmental Management, Office of Planning and Development, Providence, RI

The Trust for Public Land, Montpelier, VT

Tufts University, Grafton, MA

U.S. Fish and Wildlife Service, Migratory Birds Program, Hadley, MA

U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, WI

Vermont Center for Ecostudies, White River Junction, VT

10. Appendices

10.1. Appendix A: Comment Letters

CL1-ADK

Adirondack Center for Loon Conservation
Dr. Nina Schoch, Executive Director

October 31, 2019

Molly Sperduto, NRDAR/Spill Response Program Supervisor
US Fish and Wildlife Service
70 Commercial Street
Concord, NH 03301

Dear Ms. Sperduto,

I am writing in response to the invitation by the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, the Commonwealth of Massachusetts, and the State of Rhode Island to comment upon the Draft Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge (B-120) Oil Spill, which was circulated on August 29, 2019.

The Adirondack Center for Loon Conservation (ACLC) greatly appreciates the extensive time and effort of the Trustees in developing this draft restoration plan for Common Loons (*Gavia immer*) and other birds impacted B-120 oil spill on April 27, 2003 in Buzzard's Bay, Massachusetts. Based on scientific data from our research on the Common Loon population in New York's Adirondack Park over the last two decades, as well as our education and conservation programs to better protect the Adirondack breeding loon population, we have developed the attached comments regarding the draft restoration plan for the B-120 spill.

However, we have several concerns regarding the proposed allocation of the restoration funds, as we do not feel the draft restoration plan complies with the requirements of the Oil Pollution Act of 1990 to restore baseline conditions for Northeastern Common Loon populations prior to the spill. Thus we have also included recommendations for revising the draft plan prior to release of a final restoration plan for Common Loons impacted by the B-120 oil spill. We also recommend a second public comment period of the revised draft plan before a final restoration plan is developed.

Please contact me at 518-354-8636 or nschoch@adkloon.org if you would like to discuss these comments and recommendations, or have any questions.

Sincerely,

Nina Schoch

Dr. Nina Schoch, Executive Director
Adirondack Center for Loon Conservation

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ADIRONDACK CENTER FOR LOON CONSERVATION COMMENTS REGARDING THE DRAFT RESTORATION PLAN FOR COMMON LOON (*GAVIA IMMER*) AND OTHER BIRDS IMPACTED BY THE BOUCHARD BARGE 120 (B-120) OIL SPILL

1. A primary concern of the draft Restoration Plan (RP) for the Bouchard Barge 120 oil spill for Common Loons is that <u>the proposed projects will not adequately restore discounted loon years (DBYs) lost as a result of the spill.</u>

    a. The draft RP is proposing to allocate more than half of the restoration funds to Massachusetts and Rhode Island, where Northeastern loon populations winter, instead of proportionally allocating funding to those states whose breeding loon populations were actually affected by the B-120 spill. This is contradictory to RPs for other oils spills in which restoration funds were allocated to states where the breeding loon populations affected by the spill originated. For example, restoration funds from the North Cape Spill were allocated to Maine for protection of breeding loon habitat (Evers et al. 2018) and restoration funds from the Deepwater Horizon oil spill are being allocated to Minnesota for breeding loon habitat protection, enhancement of loon productivity, and reduction of adult loon mortality on the breeding area (Open Ocean Trustee Implementation Group 2019).

    b. The draft RP does not consider scientific evidence that loons impacted by the spill were not from MA and RI breeding loon populations.

        i. RI does not have a breeding loon population, thus it is not clear why restoration funds are being allocated to RI for land acquisition, which will not be utilized by loons wintering off the coast of RI, since loons do not go to shore during the non-breeding season.

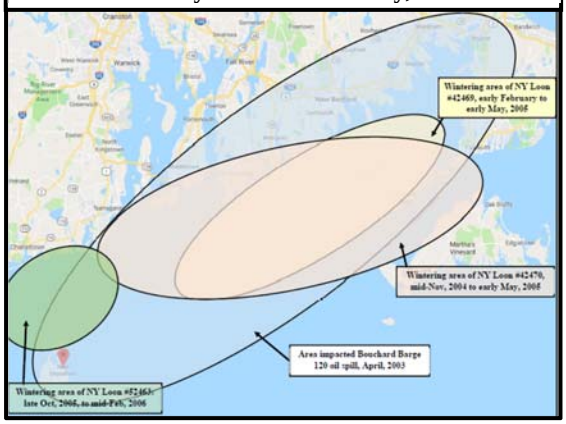
        ii. There is no evidence that the MA breeding loon population was affected by the B-120 spill, as MA loons were already back on their breeding territories when the spill occurred on April 27, 2003, since MA lakes were ice-free by late April. Additionally, there was no decrease in the numbers of loons (both territorial pairs and unpaired adults) observed on MA lakes in the summer of 2003, and the fact that there was an increase of three territorial pairs that summer further indicates that the B-120 spill did not affect this breeding population (NELSWG 2004; Spagnuolo 2012).

        iii. Breeding loons from more northern states, including Maine, New Hampshire, New York, and Vermont, were still on their wintering territories because ice was still present on their breeding lakes.

iv. Observations of oiled loons in ME and NH in 2003 and migration studies (band returns, resightings, and satellite telemetry (Kenow et al. 2009; Loon Preservation Committee (LPC) and Vermont Loon Recovery Project (VLRP), unpubl. data)) have shown that ME, NH, NY (Figure 1), and VT breeding loons winter in the area affected by the spill, including in Buzzards Bay, MA, and off the coast of RI.

- The Kenow et al. 2009 reference was not included in the Literature Cited section of the draft RP.

<u>Figure 1</u>: Wintering Areas of NY Loons Documented by Satellite Telemetry, 2004-2005



2. <u>Concerns Regarding the Proposed MA Loon Chick Translocation Alternative</u>:
   a. The proposed chick translocation alternative in the draft RP would result in restoring a possible historic loon population in MA, but it would not restore the DBYs lost from the breeding loon populations affected by the B-120 spill.

   b. This alternative is still experimental, based on a three-year pilot study that has not yet produced breeding loons in MA (Evers et al., 2018, Kneeland et al, *in review*)
      i. As of the fall of 2018, the return rate of the translocated chicks from the pilot study (21%) is almost half the expected survival of juvenile loons (41%, Evers et al. 2010).

   c. This alternative would further impact the ME and NY breeding loon populations affected by the B-120 spill by removing chicks from these poorly reproducing populations, instead of restoring DBYs lost due to the spill.
      i. The productivity of the ME and NY breeding loon populations has been decreasing for at least the last decade (NELSWG 2019; Adirondack Center for Loon Conservation (ACLC) unpubl. data). Thus every ME and NY loon chick is essential for these breeding populations, and the loss of chicks out of state to the proposed translocation effort would result in compounding the DBYs lost in these states due to the spill.

         - Both ME and NY loon productivity are below the 0.48 threshold of Chicks Fledged/Territorial Pair (CF/TP; Evers et al. 2010) required to maintain a breeding loon population over time (ME 2013-2017 CF/TP 5-year average = 0.32, NY 2013-2017 CF/TP 5-year average = 0.44 CF/TP; NELSWG 2019; Figure 2, ACLC unpubl. data). The rate of nest failure in NY has been increasing over the last two decades, contributing to decreased loon productivity (Figure 3), along with loss of loon chicks due to predation, which has been increasing as the population of Bald Eagles in NY has greatly expanded over the last 30+ years (ACLC unpubl. data).

Figure 2: Annual NY Common Loon Productivity (CF/TP), 2001-2018

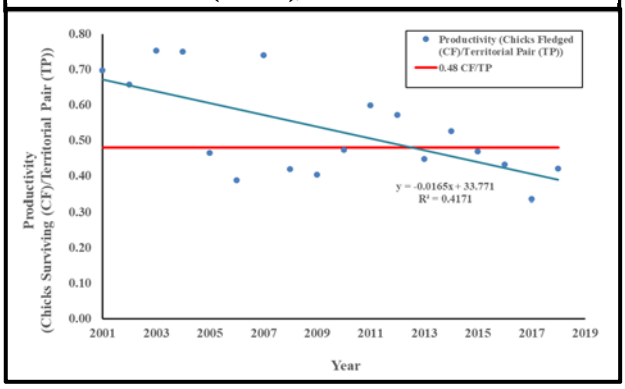
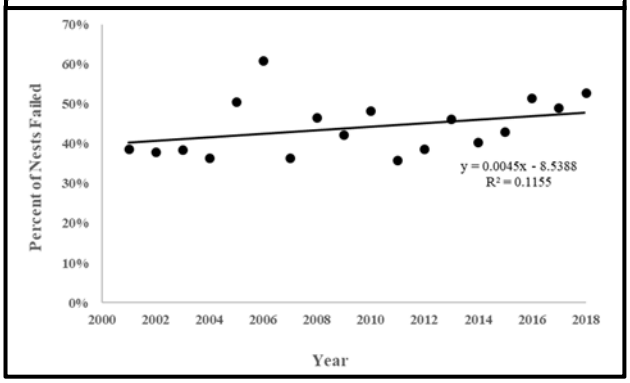


Figure 3: Percent of Adirondack Loon Nest Failures, 2001-2018 (n=1559 nests)



d. Costs in the draft RP do not adequately reflect the long-term management needs for a translocated loon population in an area that has such a high human population density.
   i. Such a translocated loon population would be exposed to significant recreational pressure from the human population, including disturbance by recreational boaters, fishing line entanglement, and lead toxicity due to ingestion of lead fishing tackle.

      - Since the proposed MA release sites have a higher human population density than the areas where loons breed in ME, NH, NY, and VT, it is anticipated that the incidence of loons needing rescue due to such problems as fishing line entanglement, boat strikes, or lead poisoning would be higher than in other areas in the Northeast.

        - For example, one of the chicks that was translocated to MA in 2015 became entangled in fishing line within three weeks' post-release and had to be recaptured to remove the line. It was also transported to Tufts Wildlife Clinic to be radiographed to ensure it had not also swallowed a piece of lead fishing tackle (Kneeland et al., 2016).

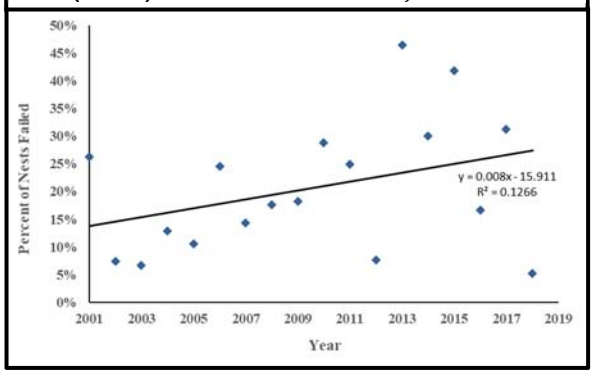
e. The full impact of climate change on such a population at the southern extent of the Common Loon breeding range was not adequately evaluated in the draft RP.
   i. Elevated temperatures affect both a breeding loon's tolerance for remaining out of the water to incubate a nest and successful egg development. LPC (*in prep*) has documented that a negative relationship between elevated ambient temperatures/high humidity and loon nesting success. The average summer daily temperature at the proposed MA translocation release sites is currently above the temperature threshold at that LPC observed reduced productivity in loons nesting in southern NH compared to those in northern NH (Loon Preservation Committee *in prep.*). Climate models indicate that temperatures and precipitation events in the NE will continue to increase over the next several decades (Guilbert et al. 2015, Schoof and Robeson 2016), which will further detrimentally affect egg viability and summering loon physiological stress, particularly at the southern extent of the breeding range, such as in the proposed MA release sites.

ii. Impacts of climate change to loon populations include:

- Water level fluctuations during the nesting period, resulting in inaccessibility of nest sites, nest inundation, or leaving a nest "high and dry." Given the projected increase in annual rainfall amount and intensity with significant rain events in the Northeast due to climate change (Guilbert et al. 2015, Schoof and Robeson 2016), it is highly expected that nest inundation will be an increasing cause of loon nest failure on natural nest sites in future years.

  For example, in NY, water level rise due to torrential rain events related to climate change is an increasing factor causing nest failure (Figure 4, ACLC unpubl. data; Buxton et al, *in review*).

Figure 4: Percent of Adirondack Loon Nest Failures (n=694) due to Water Level Rise, 2001-2018



- Increased exposure to infectious disease and parasites related to increasing temperature and moisture from climate change. For example, the incidence of avian malarial parasites in loons in the Northeast has increased, resulting in the death of five adult loons in ME and NH (Martinsen et al. 2017; ACLC and LPC unpubl. data); the first fatal case of Cryptococcus, a fungal disease, caused the death of a NY loon; and the presence of thorny-headed worms (*Acanthocephala* sp.), a gastro-intestinal parasite, has been found in loons in the Northeast in recent years (Pokras, pers. comm.).

- Mismatch of timing between molting and migration with the freeze-up of lakes on breeding grounds, resulting in loons getting "iced-in" on northern lakes because they were unable to migrate (Schoch et al. 2016; ACLC, Loon Preservation Committee, and Vermont Loon Recovery Project unpubl. data).

f. Intraspecific interactions would be expected to increase as the introduced MA loon population grows, which will impact the population estimates and reproductive success for the translocation alternative. Both male and female loons defend territories from conspecifics intruding on their breeding territories (Piper et al. 2000), which can result in fatality of the intruding loon or a member of the breeding pair (Piper et al. 2008).

   For example, as the NY loon population has expanded since the 1980s (Schoch 2008), the incidence of territorial intrusions and intraspecific fighting has increased, which has led to morbidity and mortality in both adult loons and loon chicks (ACLC, unpubl. data).

3. <u>The Gill Net Buy-Out Alternative was Not Considered as a Preferred Alternative</u>:
   a. Reducing adult mortality on both the breeding <u>and</u> the wintering grounds are critical to restoring DBYs from the B-120 spill. Being a K-selected species, the mortality of adult Common Loons has a population impact (Grear et al. 2009), and since Common Loons are

regularly caught in gill nets on the wintering grounds (Forsell 1999), measures to reduce mortality due to gill-net bycatch off the coasts of MA and RI would help restore loon DBYs lost as a result of the B-120 spill.

RECOMMENDATIONS

Based on our review of the draft RP, we recommend revising it significantly and releasing a second draft RP for public review, prior to the development of a final RP for the B-120 spill. The revised draft RP should include the following recommendations:

1. To adequately restore loon DBYs, restoration funds should be allocated proportionally to the states whose breeding loon populations were affected by the B-120 spill, including ME, NH, NY, and VT, instead of to MA and RI, which are states where those loons winter.
    a. Recognition in the final RP that NY breeding loons were impacted by the B-120 oil spill, based on published satellite telemetry data (Kenow et al. 2009) showing that NY breeding loons winter in Buzzard's Bay and off the coast of RI (and the Kenow et al. 2009 article should be included in the Literature Cited section of the final RP).
        i. If the final RP indicates that restoration funds will not be directed to NY as well as the other states in the NE that have breeding loon populations affected by the B-120 spill, then an explanation of the reason why NY is excluded should be included in the final RP,

2. Utilize proven management techniques (e.g., wardening, avian guards for nests, artificial nest rafts…) as suggested in the NELSWG 2009 proposal (Evers et al. 2009) to increase loon productivity in the affected breeding loon populations
    a. Nest site protection is particularly critical to reduce predation and human disturbance of loon nest sites.
    b. Artificial nest rafts utilization to address increasing impact of water level rise due to climate change related torrential rain events on loon nesting success.

3. Include loon rescues and rehabilitation as a management tool to restore DBYs lost from the B-120 spill. The incidence of NE loons needing rescue due to fishing line entanglement, lead poisoning, boat strikes, icing-in, and more has been increasing steadily in the last decade (ACLC, LPC, VLRP unpubl. data). Rescuing and restoring loons to their breeding areas is a proven method for contributing to the survival of adult birds and maintenance of the reproductive population. Without rescues, impaired loons would be lost from the breeding population, resulting in several years before a new territorial pair successfully produces young (Evers et al. 2010).

4. Utilize engaging educational outreach (e.g., lead fishing tackle buy-back and fishing line recycling programs) and management tools (e.g., rescues) to decrease loss of breeding adult loons due to such factors as lead fishing tackle ingestion, fishing line entanglement, boat strikes, and icing-in due to climate-molting/migration mismatch. The Lead Buy-Back Program proposed in the draft RP is a valuable management/education tool to decrease exposure of loons (and other wildlife) to lead fishing tackle, which is a significant source of adult loon mortality in NH, NY, and elsewhere in the NE (Stone and Okoniewski 2001; Grade 2018).

5. Conduct laboratory health assessments of captured loons and necropsies of loon mortalities to evaluate changes in the presence of infectious diseases and parasites in the loon population affected by the B-120 spill.

6. Reconsider the Gill-Net Buy-Out Alternative, along with a long-term management plan and educational measures regarding gill-net by-catch, as a way to reduce Common Loon mortality in the wintering area and restore DBYs lost as a result of the B-120 spill. Decreasing the number of gill-nets utilized off the MA and RI coasts on a long-term basis will significantly reduce the loss of wintering loons.

7. Do not conduct the proposed MA loon translocation alternative:
    a. The proposed restoration funds for the MA translocation project would restore more DBYs if redirected to proven management efforts to reduce adult loon mortality and to increase chick productivity in the states whose breeding populations were affected by the B-120 spill.

    b. Translocation/reintroduction is a useful management tool for critically endangered species whose populations are in severe decline. However, Common Loons are not endangered throughout the NE, and have expanded their range and populations since the 1970s (likely due to the banning of DDT). The MA population has been increasing over the last decade and will likely continue to spread throughout the state, as did the NH, ME, NY, and VT populations in recent decades (in conjunction with some management such as the placement of artificial nest platforms in the smaller populations).

    c. Do not utilize chicks from ME and NY because:
        i. The breeding loon populations from ME and NY were impacted by the B-120 spill, thus, chick translocation from these states would increase the harm caused by the spill to ME and NY, as it would exacerbate the DBYs lost, instead of restoring DBYs to those states.

        ii. The productivity of ME and NY breeding loon populations has been steadily decreasing in recent years, and is not above the 0.48 CF/TP threshold required to maintain a stable breeding loon population. Thus every loon chick is critical for maintaining the NY and ME loon populations, and translocation of loon chicks to out of state will further impact the stability of these populations.

        iii. In NY, fewer than 15% of loon nests successfully fledge two chicks (ACLC, unpubl. data). This limits the number of chicks available for translocation, since only two-chick broods would be considered as a source of chicks for the project.

    d. If, however, the decision is made to conduct a translocation project as part of the final B-120 RP, then it is recommended to:
        i. Direct release older chicks (>8 weeks of age) to decrease costs and the extensive management associated with captive rearing. The effort to raise young chicks in

captivity is unnecessary, since a direct release of translocated loon chicks is also an effective method of reintroduction (Evers et al. 2018).

ii. Implement a long-term (minimum of 20 years) monitoring, educational outreach, and management program in MA to ensure the survival and perpetuation of the translocated population by mitigating human-related impacts, such as fishing line entanglement, lead poisoning due to lead fishing tackle ingestion, and disturbance of nest sites and loon families.
   - The cost of such a long-term management program should be included in the projected costs of this restoration alternative.

iii. The impacts of climate change on such a southern loon population should be taken into consideration and discussed fully, including management-related costs, in the final RP to completely reflect the future costs and management requirements of the translocation alternative.

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CL2-TUFTS

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Response to The Draft Restoration Plan For Common Loon (*Gavia immer*) and Other Birds Impacted By The Bouchard Barge 120 (B-120) Oil Spill

Date: October 31, 2019
To: Molly Sperduto, NRDAR/EC Program Supervisor, USFWS
From: Mark Pokras, DVM

I appreciate the time and thought that resulted in the draft restoration plan to recover loons and loon years lost as a result of the oil spilled by the Bouchard Transportation Company's B-120 Barge on April 27, 2003. Everyone recognizes the difficulty and complexities in choosing among potential remediation efforts to recover, as closely as possible, those loons lost and to compensate the public for the loss of their ability to enjoy those loons both in their wintering and summering/breeding waters.

In collaboration with virtually all of the loon conservation groups in the northeast, I have been studying common loons for over 30 years. My work has focused on developing metrics to assess the health of this species, quantifying stressors and causes of mortality for loons, and developing research, educational, and policy initiatives. From 2013 through 2016 I was employed part-time by Biodiversity Research Institute as the senior consulting veterinarian to help develop techniques for loon chick translocation in both Minnesota and Massachusetts. In that capacity I worked closely with Dr. Michelle Kneeland, BRI's staff veterinarian at the time, and other BRI staff. Thus, I am deeply familiar with a wide variety of tools and approaches currently utilized in loon conservation and management, including translocation of chicks.

The majority of my concerns about the current draft restoration plan center on plans to try to increase the numbers of loons breeding at the southern margins of their New England range via translocation of chicks. This technique may result in short-term, local population gains. But it is my considered opinion that this management strategy is extremely unlikely to achieve the desired, sustained benefits, largely due to the anticipated effects of climate change. Because of this, I have great concerns that we're putting too many eggs in the wrong basket -- and too much of the proposed budget is being directed towards this strategy. My comments below focus on these concerns.

<u>Issues Related to Climate Change</u>

We can logically ask why virtually any species has the southern or northern range limits that it currently has. These questions are abundantly suitable questions for scientific inquiry. Of course, loons are largely boreal species, and only one, the Common Loon (*Gavia immer*), extends its breeding range into the lower 48 states.

From what we currently know (although early records are sketchy), significant populations of Common Loons have never bred a lot farther south of their current range during historic times (things may have been very different during recent glacial epochs). However there has been some loss at the southern margin of the range (especially in the western U.S.) that apparently is due to such factors as persecution (shooting, egg collecting) and habitat loss (loss of wetlands and alteration of lakes for uses that are less loon-friendly). Environmental changes may also have offered new opportunities for predators.

When we think about the southern limit question logically, it's puzzling. There seem to be perfectly lovely lakes with good water quality, suitable nesting sites, and fish (like yellow perch) that loons prefer in many regions of the U.S. far south of their current range and loons regularly make migratory stops on such lakes. Small numbers of common loons are even known to spend the winter on some southern lakes like Lake Jocassee in South Carolina.

So what might be going on? Although there are some uncertainties, there are some solid scientific findings that can help inform our speculations. One obvious variable might be the loons' limited ability to tolerate high temperatures. This is probably not a big deal when loons are on the water, where they can dilate blood vessels on their feet and shed excess body heat into the water. But what about when loons are on land? Here I think we have to consider 2 areas of interest. First is the ability of adults to deal with elevated temperatures, and second is tolerance of the developing eggs.

The adults, of course, are wearing thick down jackets. Suitable for staying warm in icy lake waters in early spring and frigid winter oceans, this plumage may provide too much insulation when sitting on nests out of the water in the June sun as air temperatures rise. The birds can erect their feathers, alter posture, or vasodilate the vessels in their foot webbing to try and dissipate some heat. But in recent years, observers have increasingly reported that when adult loons are out of the water on their nests, they appear to be vigorously panting to try to cool themselves. Of course, a behavioral option is for adults to leave the nests and enter the water where they can drink and where the water will drain heat from their feet. But this leaves the eggs in the nest more susceptible to predators and also, with their dark shells, prone to overheating without the shade provided by the parents.

The eggs may be the life stage most sensitive to temperature increases. We know a great deal about incubating eggs from the poultry industry, from zoos and aviculturists, and from avian ecologists. We know that for successful incubation and hatching, bird eggs typically must be kept within a fairly narrow range of temperature and humidity. Why is this? The developing embryo inside the egg has to breathe and metabolize. This means that gas and water vapor for respiration, growth, and development need to get back and forth through the eggshell and shell membranes.

There are a large number of microscopic pores in eggshells that allow this to take place, and the size and number of such pores is closely adapted to each species' metabolic needs. Studies have shown that this porosity is closely related to the length of avian incubation and to the preferred environmental temperatures and humidities to which each taxon has evolved. Parenthetically, we also know that a variety of environmental contaminants present in adult birds can cause alterations in the thickness of eggshells as well as the number and size of these pores and lead to embryonic death (or broken shells as we remember from the DDT era).

So how might this be related to climate change? As environmental temperatures increase, the metabolism of the embryo growing in the egg will also speed up. This means that the rates at which gas and water vapor must pass through the eggshell will increase. Simplistically, we can think of this as a need for the developing embryos to pant (not that they're really panting), particularly late in development. If the embryo's increased metabolism outstrips the permeable capacity of the eggshells, developing embryos will die. Thus, if environmental temperatures increase too fast for a species to evolve changes in eggshells, we might expect more embryonic deaths, most likely late in development. For example, for some ducks and geese optimal incubation temperature is around 37.7º C (just under 100º F) with a 50-55% relative humidity. Kenow et al (2003) found that loon eggs did well at 37.5 º C and 56-60% humidity. But temperatures just a couple of degrees higher can kill embryos in 15-30 minutes (depending on species and stage of development). A recent paper (Wisocki et al. 2019) points out that darkly colored eggs like those of loons appear to be a particular adaptation to maintain egg temperatures for high latitude species. But the corollary is that these same eggs will be at significant risk of overheating if environmental temperatures increase. Common Loons, with their low reproductive potential and very limited dispersal tendencies, seem unlikely to evolve changes in eggshell structure rapidly enough to keep ahead of predicted climate changes.

According to reports from New Hampshire's Loon Preservation Committee (LPC), their 40+ year dataset on loon reproduction in NH shows that precipitation events and hotter summer weather are increasingly common and are correlated with reduced reproductive success. Birds appear to be the most vulnerable in the southern part of the state, where temperature has been found to be a stronger negative influence and a more significant predictor of reduced reproduction in their long-term dataset. LPC results are being analyzed and prepared for publication, but this appears to be a worrisome trend for the future. Fragmentary evidence also indicates that loon reproductive success is declining in southern Minnesota and Canada in recent years.

A 2014 report by the National Audubon Society lent added urgency to the question of how a warming world may affect the geographic distribution of loons and many other species. This was followed up by a recent (2019) report that paints an even more alarming picture. It indicates that in the

near future, the distribution of common loons is likely to take a dramatic shift northward and that many, if not all, breeding populations may be lost from in the lower 48 states.

Disease and Parasites

Another issue to consider with changes in climatic temperature and moisture is the potential for an increase in infectious diseases and parasites. There is abundant literature to show that as climates change, a number of pathogens and parasites are beginning to move north into humans, domestic animals, and wildlife. We certainly know that the populations of mosquitos, biting flies, and ticks that can carry disease are changing.

In July 2015 campers in Umbagog National Wildlife Refuge on the Maine/NH border called rangers to report an adult loon that seemed to be weak and acting "funny". When the loon was found dead the next day the refuge biologist recovered the cadaver. He got the cadaver to the NH Veterinary Diagnostic Laboratory at the University of New Hampshire. After a detailed post-mortem and microscopic evaluation, they discovered distinctive lesions in the brain and other organs from avian malaria (*Plasmodium*). Tissue samples sent to Dr. Ellen Martinsen at University of Vermont for molecular diagnostics confirmed the first fatal case of this disease in a common loon. Since then there appears to be a significantly increased incidence of avian malarial parasites in New England loons, and the number of loons dying from this disease is increasing (a publication on this increase is in preparation by Martinsen, Pokras, and other collaborators). Studies to help us understand the scope of this disease are ongoing, including the impacts we may expect from climate change, and how big a threat it may pose to loon populations.

A second emerging disease in loons was found by Dr. Arno Wuenschmann at the University of Minnesota. He reported the first cases of West Nile Virus (WNV) in loons in 2002, the first fatal cases in 2005 and significantly more fatal cases in recent years (his findings have been submitted for publication). This mosquito borne disease first appeared in the Western Hemisphere in 1999 and has killed innumerable native birds (as well as other species). Although detailed studies in loon populations have yet to be done, it is apparent that they are quite susceptible to this virus and that mortality rates appear to be on the increase. Studies in New England are being planned.

Fungal respiratory disease (aspergillosis, caused by fungi in the genus *Aspergillus*), always a concern in common loons, appears to be increasing in frequency. Our 30+ year regional dataset is in the process of being analyzed. We've also seen the first case of another fatal fungal disease, *Cryptococcus*, in a loon found in New York state. Fungal pathogens are known to grow in the decaying vegetation of some aquatic bird nests and increasing temperatures may be expected to increase infections from this source. Parenthetically, recent scientific literature abounds with articles on increasing incidence of fungal

pathogens in wide range of species including domestic animals, other wildlife, humans, and plants. A great many of these cases show strong links to climatic changes. Although we cannot be sure what the risks to loons may be in coming years, they could be substantial, and we must do what we can to prevent such spread and be prepared to keep an eye out for the emergence of new pathogens.

Conclusions and Recommendations

1. translocation should be considered experimental, and I strongly recommend that a greater percentage of the budget be shifted to other techniques that have shown to benefit loon populations.

2. if translocation is to take place, the coastal plain at the southern edge of the species range is poor area for long-term conservation investment given predictions for sea level rise and increases in summer temperatures.

   Thus, if translocation is to be considered in the final plan, I recommend that the effort be confined to the western part of Massachusetts (Berkshires). As the loon population has been increasing in Vermont just north of the proposed reintroduction area, this would have the advantage of forming a more contiguous population. It should be noted that the increase in Vermont loons is entirely attributable to natural dispersal of loons encouraged by the active conservation efforts of the Vermont Center for Ecostudies and an educated citizenry.

3. translocation of young chicks (with the attendant construction of pens and required care, feeding and close monitoring) is very expensive. Young, naive chicks are also be more susceptible to a variety of environmental threats including increasingly serious predation pressures from bald eagles in many areas. Given that older, more experienced chicks appear to do well when translocated, I strongly recommend that only older chicks be captured and moved.

4. to optimize long-term benefits to the region's common loon population, a greater percentage of the budget should be focused on conservation activities in the central and northern portions of the species' U.S. range, not at the southern margin.

Thank you for your attention. Please feel free to contact me if additional information should be needed.

Sincerely,

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CL3-BRI

Biodiversity Research Institute
David Evers, Ph.D., Executive Director/Chief Scientist

David Evers, PhD
Executive Director and Chief Scientist
Biodiversity Research Institute
276 Canco Road,
Portland, Maine 04105
207-839-7600 x221

Molly Sperduto
U.S. Fish and Wildlife Service
Concord, New Hampshire

Dear Ms Sperduto, 25 October 2019

Please find below comments from myself and the science staff from Biodiversity Research Institute (BRI) and BRI's Center for Waterbirds in regards to the "Draft Restoration Plan for Common Loon (*Gavia immer*) and other birds impacted by the Bouchard Barge 120 (B-120) oil spill."

Overall Assessment: We believe the restoration plan is scientifically-sound, is based on current information, and is comprehensive. This document outlines the best available restoration alternatives, including: (1) translocation and captive rearing and (2) use of artificial nest sites, signage and wardening, protection of breeding habitat, and reduction of lead tackle.

There is significant information about how to manage breeding common loon populations (Evers 2007, Evers et al. 2010), how to calculate loon years lost (Sperduto et al. 2003) and gained (Evers et al. 2019), and raising loon chicks in captivity for translocation purposes (Kneeland et al. In Press). Therefore, the precedent-setting research and monitoring activities that have already been provided through other oil spills, such as the North Cape Oil Spill, provide a strong platform for confidently supporting the Restoration Plan as proposed.

Additionally, the restoration of breeding Common Loons in Massachusetts is important for accelerating the recovery of the species statewide. Currently, only about 15% of the estimated carrying capacity for Massachusetts has been realized since the loon's natural recovery from extirpation began in 1975 (Spagnuolo 2014). We believe the restoration of two new populations in high quality habitat located in the southeastern and western parts of the state will advance the loon recovery in a positive spatiotemporal manner. Even with changing climate projections for New England, we believe the habitat quality in Massachusetts will remain high because: (1) many of the restoration lakes have protected shorelines (which counters potential eutrophication with rising temperatures and potential input from nitrogen and phosphorus), and (2) forage fish biomass will remain high on mesotrophic lakes (vs. oligotrophic lakes in northern New England that have lower fish biomass, creating conditions for lowered loon productivity).

Ultimately, translocation activities for restoring loon years in Massachusetts creates the greatest potential for growing New England's population. Carrying capacity for loons in Maine, New Hampshire and Vermont are much closer to being filled when compared to Massachusetts.

Further, translocation is the most cost effective options. This proven approach is estimated at $850/DBY, while the use of rafts is over double the cost ($1,811/DBY), while the use of signage and

wardening is nearly triple the cost ($2,423 DBY). The loon chick translocation project, on its own, is expected to generate 2,190 DBY's (55% of the injury) in 30 years. The remaining DBYs needed to fulfill this project are likely best met through the (1) use of artificial nesting platforms on unmanaged waterbodies, with good forage fish biomass but lacking suitable nest sites, and (2) protection of breeding habitat in Maine (where land prices are most reasonable).

The following sections are meant to provide further general support in response to the two preferred restoration alternatives for Common Loons as described in the Restoration Plan: (1) Common Loon Restoration through Translocation and Captive Rearing and (2) Common Loon restoration through Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Exposure to Lead Tackle.

Summary of loon chick released and their returns, 2015-2019:

BRI has released 24 loon chicks (originating from New York and Maine) through captive rearing, then releasing them at 9-10 weeks of age, or directly releasing 9-10 week old chicks to the site. Loon chicks generally return to their natal lake area at 3-4 years of age (Evers et al. 2010). Of the 16 loon chicks released in 2015 and 2016, six (37.5%) have been re-observed in four lakes in or near the translocation site. This return rate is similar to that found in wild conditions. Since re-observation survey efforts to date have been limited, further field efforts are likely to find additional loons. Chicks released in 2017 are expected to start returning in 2020.

Table 1. Summary of loon chicks released in southeastern, Massachusetts as part of a previous BRI project*.

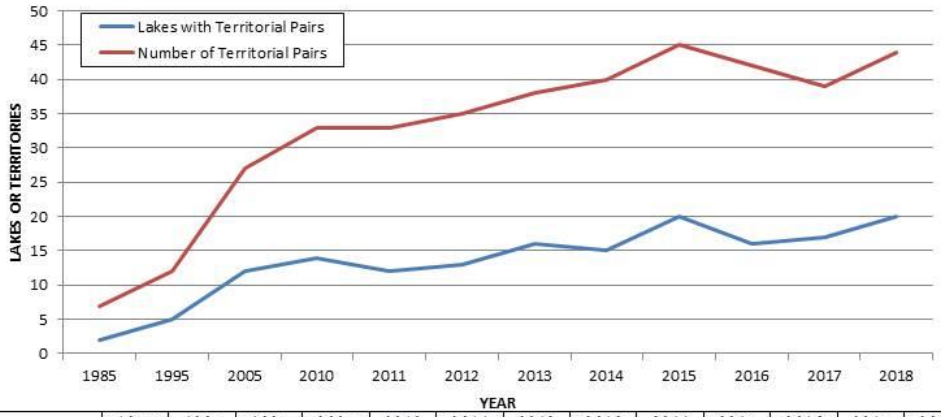
Release Year	Band #	Color Band Combo		Source	Sex	Method	Date Returned	Return Lake	Re-observations
		Left Leg	Right Leg						
2015	1118-15210	silver/none	blue vertical stripe/none	NY	M	CR	June 2018	Assawompset Pond	
2015	1118-15202	silver/none	red 2/blue 2	NY	M	CR			
2015	1118-15208	silver/none	green 3/blue 3	NY	M	CR			
2015	1118-15977	silver/none	orange 4/blue 4	NY	M	CR	June 2018, 2019	North Pocksha Pond	2019 Pocksha Pond
2015	1118-15203	silver/none	white 5/blue 5	NY	M	CR	May 2019	Copicut Reservoir	
2015	1118-15201	silver/none	yellow 6/blue 6	NY	M	CR			
2015	1118-15204	silver/none	blue 7/blue 7	NY	M	DR			
2016	1118-15838	green dot/silver	white/ red dot	NY	F	CR			
2016	0938-78833	green dot/silver	red/red	NY	M	CR			
2016	1118-15836	green dot/silver	blue/orange	NY	M	CR			
2016	0938-44493	green dot/silver	green stripe/green	ME	F	CR	June 2018	North Pocksha Pond	
2016	0938-78835	green dot/silver	orange stripe/white	ME	M	CR			
2016	1118-15832	green dot/silver	white/white	ME	M	CR	June 2018	North Pocksha Pond	
2016	0938-53072	green dot/silver	yellow stripe/yellow	ME	M	DR	August 2017	Assawompset Pond	June 2019 on Tispaquin Pond
2016	0938-78827	green dot/silver	yellow dot/ green stripe	ME	M	DR			
2016	1118-15837	green dot/silver	yellow/ blue	NY	F	DR			
2017	0938-44489	red/silver	green/yellow dot	ME	M	CR			
2017	0938-44486	red/silver	yellow/blue dot	ME	F	CR			
2017	0938-61745	red/silver	green/white stripe	ME	M	CR			
2017	0938-03365	red/silver	orange dot/red	ME	M	DR			
2017	0938-44351	red/silver	blue/red	ME	M	DR			
2017	0938-03364	red/silver	orange/blue	ME	F	DR			
2017	0669-21906	white stripe/silver	orange stripe/red stripe	ME	M	DR			
2017	0938-61725	white stripe/silver	yellow stripe/orange stripe	ME	F	DR			

*Note: Twenty-four loon chicks were successfully released in southern Minnesota as part of the overall translocation project.

Summary of loon territorial pairs in Massachusetts, 1985-2018:

As of 2018, there are 44 known territorial pairs of breeding loons in Massachusetts. While there was a large increase in the number of territorial pairs and the lakes they occupied in the 1970s through 2010, the population increase has been more limited in the past decade. This is likely related to breeding loons filling local available habitat (i.e., increasing density dependent pressures) and having a low ability to colonize new breeding areas (Figure 1).

Figure 1. Number of lakes and territorial Common Loon pairs in Massachusetts, 1975-2018.



	1975	1985	1995	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Lakes with Territorial Pairs	1	2	5	12	14	12	13	16	15	20	16	17	20
Number of Territorial Pairs	1	7	12	27	33	33	35	37	40	45	42	39	44

Translocation will facilitate the pace of breeding loons recolonizing in Massachusetts through the release of loon chicks to two identified areas. These locations have suitable high quality habitat, and are outside of the state's current core population. Territorial pairs are primarily located on the Quabbin and Wachusett Reservoir areas of central Massachusetts (Figure 2). Of the projected potential statewide population of approximately 300 territorial pairs, only 15% (44 territorial pairs) currently occupy the state (Spagnuolo 2014).

Therefore, there is great potential for supporting a larger and more robust breeding population of Common Loons in Massachusetts. In contrast, breeding populations in Maine, New Hampshire and Vermont are closer to reaching carrying capacity.

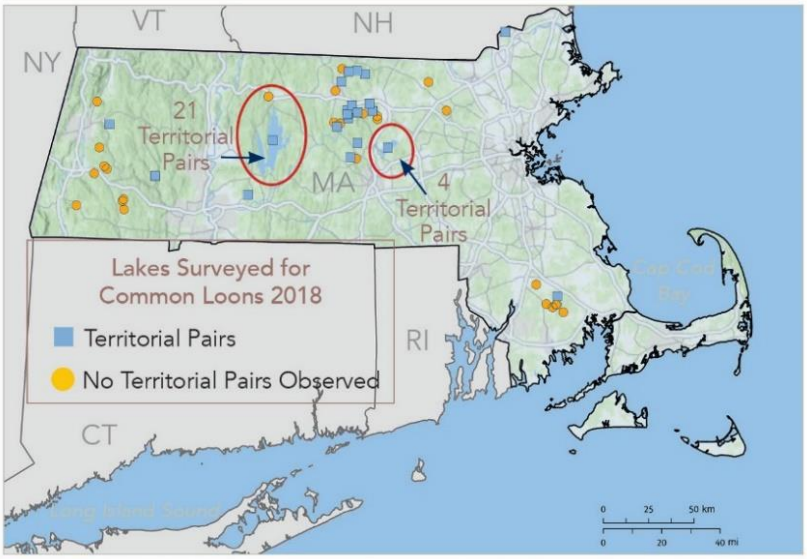
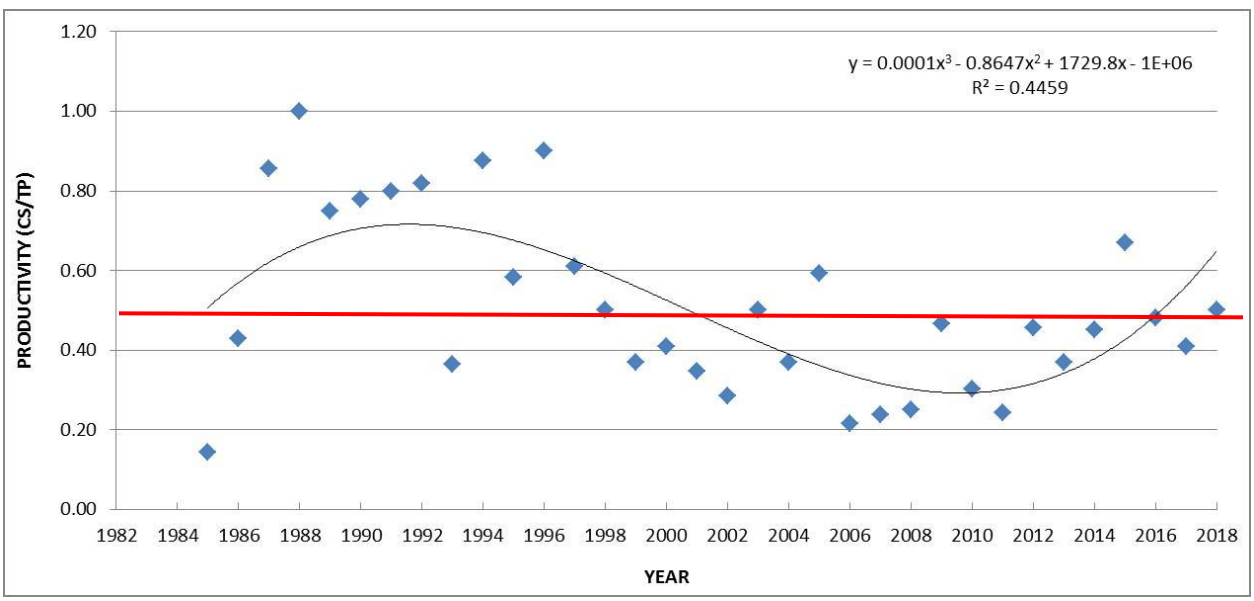


Figure 2. Distribution of Common Loon surveys in Massachusetts for 2018 depicting known territories and lakes without loons.

<u>Summary of loon productivity in Massachusetts, 1985-2018:</u>

Loon productivity in Massachusetts was overall positive (i.e., above lambda of 0.48 chicks surviving per territorial pair) from the late 1980s to the late 1990s. Since 2000, only eight of the past 18 years (44%) have had productivity at or above 0.48 chicks surviving per territorial pair. Density dependent pressures, mercury exposure (Evers 2018), and human disturbance are known reasons for negatively impacting loon productivity in other regions (Evers 2007). These three factors are considered to be less of an issue at both of the translocation sites, and therefore productivity is expected to be good at these new sites.

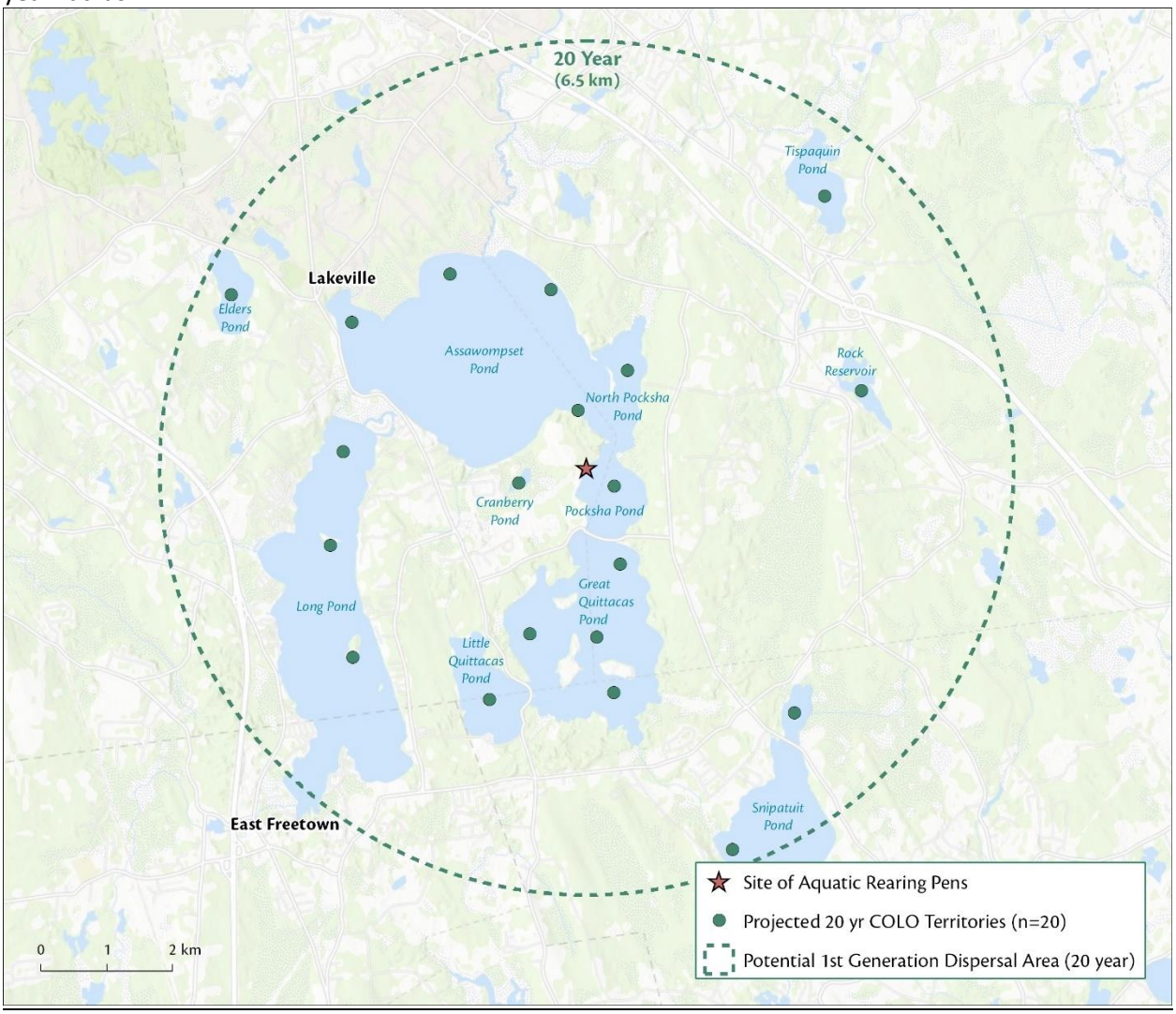
Figure 3. Overall productivity (chicks surviving per territorial pair) for Common Loons in Massachusetts, 1984-2018.



Summary of Translocation potential at the APC and Berkshire Mountain translocation sites:

There is great potential for restoring loon-years lost within Massachusetts. Two sites have been chosen for translocation, based on available high quality habitat, current lack of breeding loon pairs, and distance from existing breeding populations. These two sites include the Assawompset Pond Complex (APC) as show in Figures 4 and 5 (where BRI has already released 24 loon chicks – see Table 1) and in the Berkshire Mountains (Figure 6). For the APC, six loon chicks have already returned. The 2017 cohort is expected to start returning in 2020. We expect more intense monitoring will likely reveal a greater number of returns in the future.

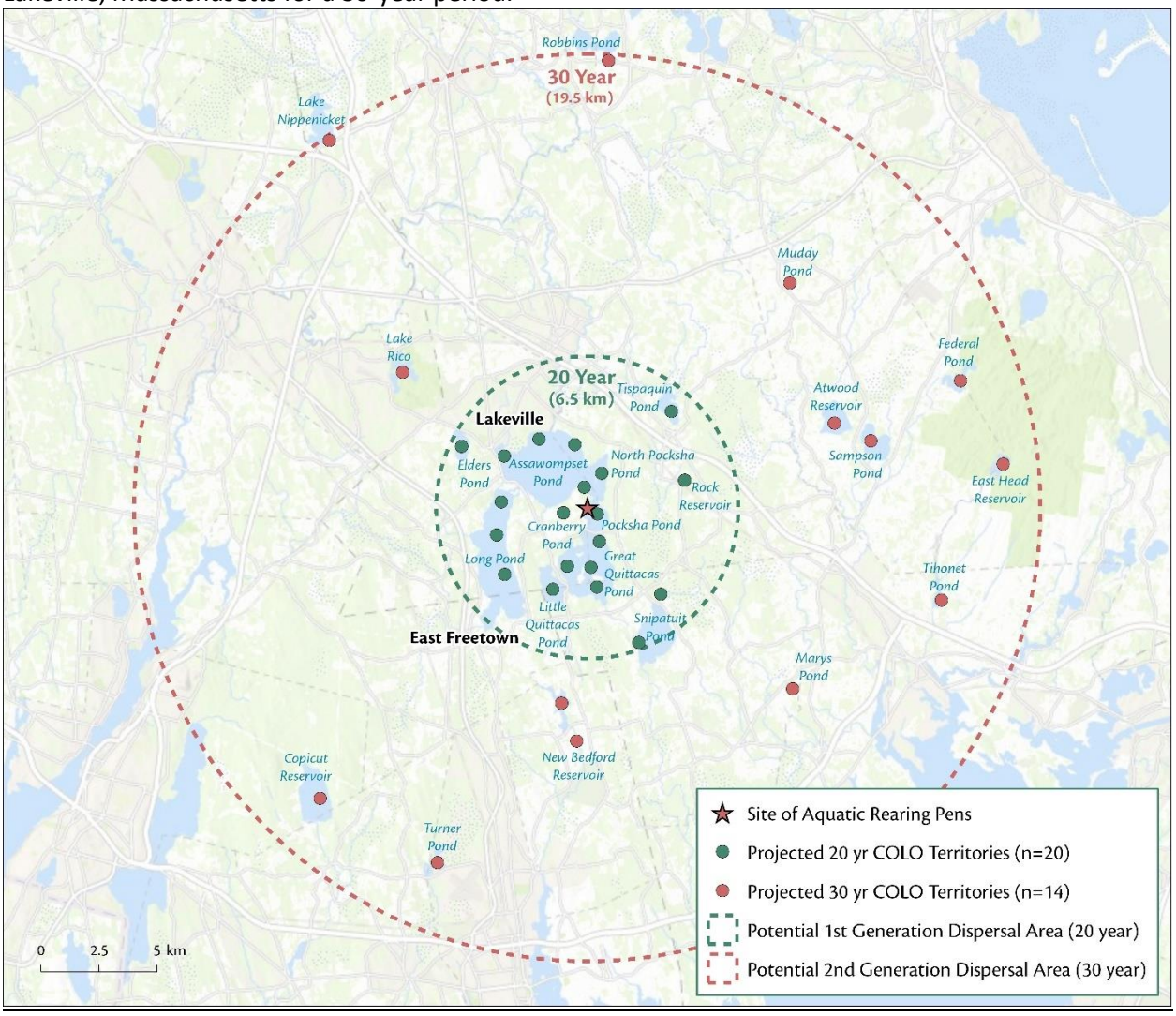
Figure 4. Projected occupancy and number of territorial pairs in the Assawompset Pond Complex near Lakeville, Massachusetts for a 20 year period (Note, translocated loon chicks have already returned to Assawompset Pond, Copicut Reservior, North Pocksha Pond, Tispaquin Pond – all within this or the 30-year radius.



Projections over a 20 year period of territorial loon pairs re-occupying the APC area total 20 on 11 lakes based on habitat quality, level of human disturbance, potential nesting locations, and predicted density (Figure 4). As the breeding population grows, further expansion in the APC area is expected and after a 30 year time period another 14 territorial pairs are projected to occupy another 14 lakes (Figure 5). The total number of territorial pairs over a 30 year period is expected to reach 34.

Community support to date for restoration has been high and there is great interest to continue restoration at the North Pocksha Lake site in conjunction with the local Conservation Commission. A strong local volunteer effort will again be incorporated in the restoration and monitoring activities, as happened during the 2015-2019 period as lead by BRI.

Figure 5. Projected occupancy and number of territorial pairs in the Assawompset Pond Complex near Lakeville, Massachusetts for a 30-year period.

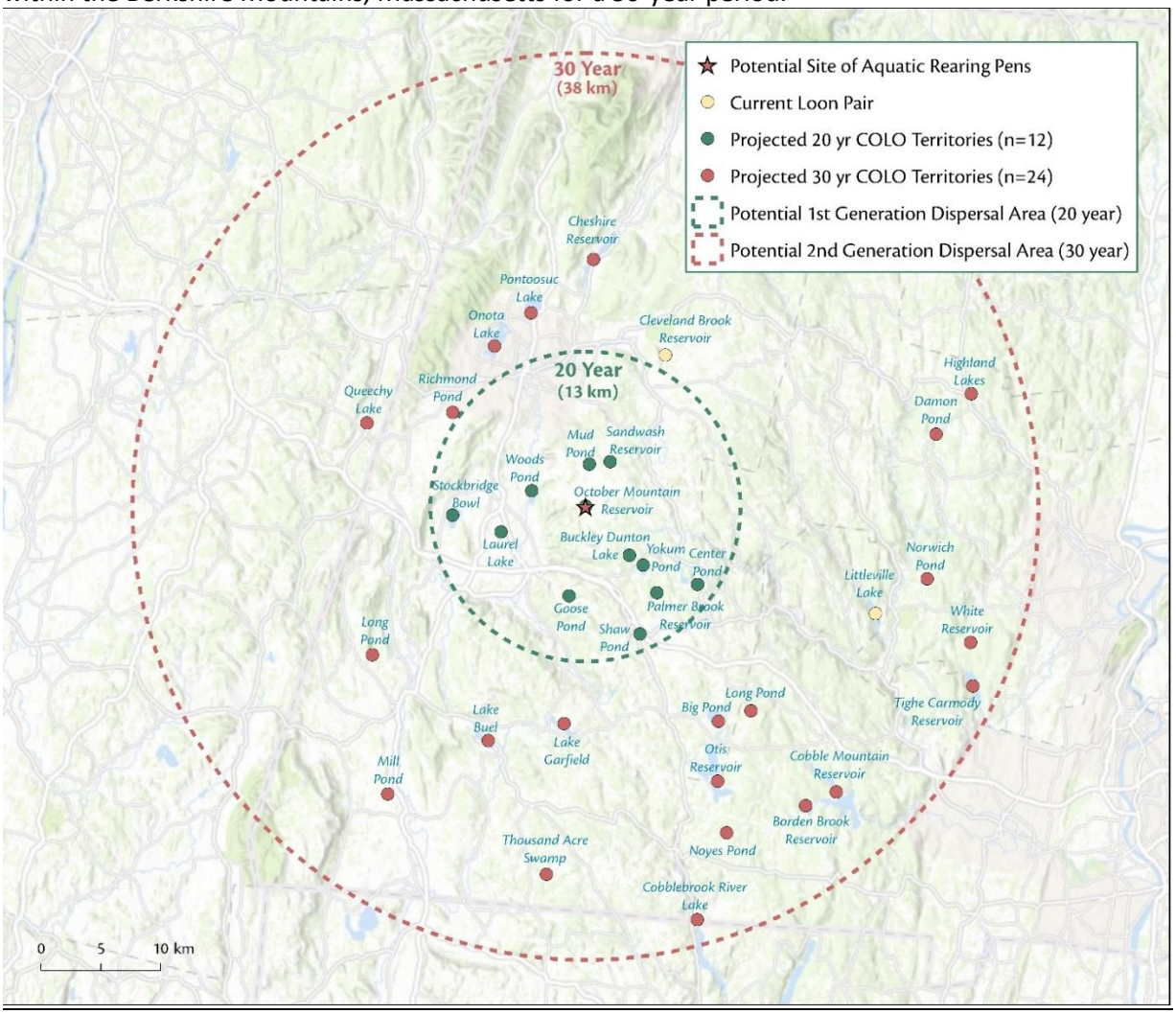


The second translocation site is proposed in the Berkshire Mountains, where the raising of loon chicks and their release is expected to center on October Mountain Reservoir (Figure 6). This area of the

Berkshire Mountains has ample high quality habitat. While there are recent incursions of territorial pairs beginning to occupy this area, recolonization has been slow. The translocation of loon chicks to the area will accelerate the recovery process for Common Loons in western Massachusetts. It is projected that after 20 years there will be a total of 12 territorial pairs on 12 lakes, and after 30 years there will be another 24 territorial pairs using 24 additional lakes. With this project, the Berkshire Mountains will once again support a healthy and robust breeding population of loons in two decades (after over a century of being extirpated from the area).

Overall, the restoration of approximately 70 breeding pairs of Common Loons over the next 30 years in southeastern and western Massachusetts will serve to greatly broaden the statewide recovery for the species.

Figure 6. Projected occupancy and number of territorial pairs in the October Mountain Reservoir area within the Berkshire Mountains, Massachusetts for a 30-year period.



Comments regarding Climate Change: A recently released report by the National Audubon Society predicted nearly two-thirds of birds are at risk for extinction at the current pace of climate change. In particular, this report cited adverse impacts to loons that would likely result in a northern retraction of their current range. According to their models, breeding loons in New England will mostly be confined to northern Maine by 2080. I have spoken to the lead scientists on this report personally on the loon results. These scientists used habitat model envelopes and admitted that their models are not relevant for the Common Loon and other obligate fish-eating birds.

However, there is still a question about climate change related factors, such as increased precipitation events and temperatures in New England and how those changes may impact breeding Common Loons. The Restoration Plan outlines the reasons why a changing climate has limited impact for decision-making with conservation needs of the Common Loon in Massachusetts. Additionally, ***the southern range of breeding Common Loons in the United States is not dictated by temperature, rather it is dictated by the southern limit of the last glacial period that created the kettle lakes that loons prefer for breeding*** (Evers 2007). Loons historically nested as far south as northeastern Iowa – where average June temperatures exceed projected average June temperatures in southeastern Massachusetts in 2050. Loons are also adaptive with their nesting locations, which can have a sun exposure gradient of full (on a sandy beach) to fully protected (under alder thickets). Changing water levels due to storm events could also have adverse impacts, where using artificial rafts create an advantage in the future over fixed, natural nest sites.

Comments regarding Preferred Alternatives for COLO-2 Project ID:

Artificial Nest Sites (Rafts): The successful use of rafts to improve loon reproductive success is well documented (DeSorbo et al. 2007). With biologists who are experienced with raft placements, rafts can be an effective tool for increasing reproductive success of loons. Scenarios that would provide the greatest benefit for increasing DBYs are on reservoirs or other waterbodies with early to mid summer water level fluctuations greater than a 6 inch increase or a 12 increase decrease (as used by the Federal Energy Regulatory Commission for a rule curve on Lake Umbagog, New Hampshire and Maine). ***High recommendation for the proper sites to effectively add many DBYs***

Signage and Wardening: While this management activity is useful and has been shown to be effective for many scenarios where human disturbance is high, most areas of need in New Hampshire and Vermont are already being managed. Scenarios that could use this management activity are likely still many in Maine, and less so, in Massachusetts – however, this is not a cost effective way to add DBYs (nearly 3x the cost of using rafts). ***Low recommendation for new sites to cost-effectively add limited DBYs.***

Protection of Breeding Habitat: This approach was solely used for the North Cape Oil Spill and because of matching support by Land Trusts, was very successful and exceeded the goal of protecting 70 territorial pairs (Evers et al. 2019). The ratio of Land Trust and restoration funds was approximately 100:4. If this ratio could be met again with the level of nesting loon pairs protected, it is a viable long-term choice. ***Moderate recommendation for Maine where it is more cost-effective to add DBYs.***

Reducing Exposure to Lead Tackle: This approach is interesting and if it can be scaled, would be useful (especially using the Restoration Plan's additional information for evaluation). It has a limited number of DBYs. ***Moderate recommendation for all New England states to add limited DBYs.***

About Biodiversity Research Institute: BRI is a 501(c)3 non-profit ecological research group based in Portland, Maine. It was incorporated in 1998 and has 40 part- or full-time staff. BRI is poised to continue the restoration of breeding Common Loons in Massachusetts. BRI currently works under contract with the Massachusetts Division of Conservation and Recreation to assist in monitoring Common Loons (under contract since 1999).

About David Evers, PhD: As the executive director and chief scientist, Evers has been conducting and coordinating loon research and monitoring since 1989. He has given over 200 presentations, published six books, and raised funds for over $80 million – often in conjunction with loon conservation and research.

Evers has published over 130 peer-reviewed papers with nearly half on the topic of loons. He was the author of the U.S. Fish and Wildlife Service Common Loon Management Plan (Evers 2007) and was the lead author of the Birds of North America account for the Common Loon (Evers et al. 2010) and a newly published paper that establishes the successful generation and tracking of loon-years-gained for the North Cape Oil Spill (Evers et al. 2019).

About Restore the Call Project:

The Ricketts Conservation Foundation (RCF) funded a $6.5 million project to restore breeding loons to areas that they previously occupied. RCF was successful in translocating loon chicks to new sites in southern Minnesota and southeastern Massachusetts.

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CL4-APC

Assawompset Pond Complex Management
Glenn McAvoy, APC Staff Manager

Sperduto, Molly <molly_sperduto@fws.gov>

[EXTERNAL] Loon restoration program at the Assawompset Pond Complex

1 message

Glenn McAvoy <grmcavoy@gmail.com> Tue, Oct 22, 2019 at 4:04 PM
To: molly_sperduto@fws.gov

22 October, 2019

Dear Ms.Sperduto:

It is my understanding the U.S. Fish and Wildlife Service and Trustees have identified continuing the long-term loon translocation effort in the Assawompset Pond Complex, located in
southeastern Massachusetts, in a draft restoration plan, in response to the B-120 oil spill mitigation effort. This letter is in support of the Common Loon translocation restoration goal
identified by the U.S. Fish and Wildlife service and the Trustees.

My name is Glenn McAvoy and I work with the Assawompset Pond Complex Management Team as a staff ranger. 14 years. I was involved as the daily APC contact for BRI for the
translocation effort 2015-2017. I was fortunate to accompany them for early morning releases of captive reared chicks and monitor all the chicks over the tree year period grow
on the APC and finally fledge to wintering grounds. My greatest highlight was to in late May of 2018 confirm the first returning adult loon to the APC. 2015 male chick #4.
I also work with Mass. Wildlife, reporting bald eagle nesting activity here on the APC, We have two resident pairs.

I am excited for the possibility of the loon translocation program to continue in the Assawompset Pond Complex in southeastern Massachusetts. I fully support the Biodiversity Research
Institute (BRI) in continuing this long term loon translocation effort and look forward to continuing local assistance with the program.

Sincerely,

Glenn McAvoy
APC staff

CL5-TLE

Trevor Lloyd-Evans, Biologist

October 31, 2019

Molly Sperduto, NRDAR/Spill Response Program Supervisor
US Fish and Wildlife Service
70 Commercial Street
Concord, NH 03301

Dear Ms. Sperduto,

I have worked as a professional conservation biologist based in Plymouth County, Massachusetts since 1972. My work has centered on bird populations, landbird, shorebird and water bird migration and ecology and the conservation biology of these species. The comments below are my own, not those of my organization, which prefers not to take a public stance in most cases.

Further, I have worked closely with Vermont Center for Ecostudies (VCE) staff on several research topics involving bird populations, banding, migration, and wintering areas. VCE's comments, aligned with those of the Adirondack Center for Loon Conservation, carefully document (with data and references) a strong case **against** allocating significant Bouchard Barge B-120 oil spill funding to an unproven translocation of NE loon chicks in order to establish breeding loons in southern Massachusetts and Rhode Island. I agree with their critical points and wish to reinforce them. Without repeating all the arguments, I briefly point out the following:

- Human population and housing development growth continue in Plymouth and Bristol counties (and much of RI) at a pace far above that in northern New England loon habitat.
- Disturbance, lack of large water bodies and increasing recreational use are all factors that negatively impact breeding loon restoration.
- Common loon *(Gavia immer)* is a slow reproducing species, has low clutch size, has a long period of maturation to breeding age (5+years), and is vulnerable to human disturbance.
- Given the extremely long time frame proposed for this translocation project and the rather doubtful establishment of a self-sustaining population in south coast New England for many years to come, the current effects of climate change will presumably accelerate in the next 50 – 100 years or less, to a point where warmer waters and climate will provide even less suitable local conditions to support reproduction and feeding of this northern New England breeding species. Further points about increased exposure to pathogens are worth consideration.

In summary, there are already excellent professional state, federal, academic and non-profit organizations working with citizen scientists in established loon breeding areas of NY, VT, NH and ME. Support of these groups' work would give far more conservation value than a substantial expenditure of oil spill funds to attempt a range expansion southwards into an area of expected adverse climate change and increasing probability of conflict with expanding human populations. Further points about increased exposure to pathogens and chemical or heavy metal pollution are worth serious consideration. I would recommend **against** funding of any translocation southwards.

Yours very sincerely,

Trevor L. Lloyd-Evans (Biologist).
44 West Street, Plympton, Massachusetts 02367.

CL6-LPC

Loon Preservation Committee
Harry Vogel, Senior Biologist/Executive Director
John Cooley, Senior Biologist
Tiffany Grade, Squam Lakes Biologist
Caroline Hughes, Staff Biologist

Loon Preservation Committee Response to the Draft Restoration Plan for Common Loons (*Gavia immer*) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill

Date: October 31, 2019

To: **Molly Sperduto**, NRDAR/EC Program Supervisor, USFWS

From: Harry Vogel, Sr. Biologist/Exec. Dir., Loon Preservation Committee
John Cooley, Senior Biologist, Loon Preservation Committee
Tiffany Grade, Squam Lakes Biologist, Loon Preservation Committee
Caroline Hughes, Staff Biologist, Loon Preservation Committee

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The Loon Preservation Committee (LPC) appreciates the time and thought that resulted in the draft restoration plan to recover loons and loon years lost as a result of the oil spilled by the Bouchard Transportation Company's B-120 Barge on April 27, 2003, and the following days. We recognize the difficulty and complexities in choosing among potential remediation efforts to recover, as closely as possible, those loons lost and also compensate the public for the loss of its ability to enjoy those loons both in their wintering and summering/breeding waters.

We believe that the Loon Preservation Committee's 44 years of work to monitor, research, manage, and educate to recover New Hampshire's threatened Common Loon population can provide the B-120 Trustees with a unique and valuable insight into these proposed alternatives. Drawing on that experience, we have the following 25 questions and comments about the measures proposed by the Trustees to create discounted bird years (DBYs) to address the loss of Common Loons from the B-120 spill.

A common theme among our questions and comments is an appeal to have Trustees reconsider their emphasis on untested experimental strategies to create DBYs at or exceeding the current southernmost limit of the loons' breeding range in favor of well-proven strategies in the northern states of New York, Vermont, New Hampshire, and Maine, as outlined in the 2009 Northeast Loon Study Working Group (NELSWG) Proposal (Evers et al. 2009). The measures outlined in that proposal, and reiterated and augmented in these comments, will allow a suite of 1) effective and 2) cost-effective approaches to recover *those DBYs lost* – as opposed to creating DBYs in new areas that LPC's data show will be challenging for loons due to habitat suitability, human population densities, climate, and loon life history considerations. We believe such a plan is necessary to satisfy the evaluation criteria for restoration alternatives specified by 15 CFR §990.54.

LPC is concerned that some alternatives presented in the draft restoration plan cannot meet the Trustees' goal of restoring the projected DBYs and will divert resources from efforts that can be

successful. We are submitting these comments to provide information we hope will be helpful to the Trustees in considering preferred restoration alternatives for a final restoration plan.

1 Loon Restoration Goals can be Met Most Effectively by a Plan that Emphasizes Loon Restoration in New York, Vermont, New Hampshire, and Maine

1.1 Trustees should follow the precedent set in the North Cape oil spill of funding restoration activities in northern New England states.

In their restoration plan for the North Cape oil spill, which took place on January 29, 1996, off the coast of Rhode Island, the North Cape Trustees (including the U.S. Department of Interior, represented by U.S. FWS, and NOAA) recognized that a focus on loon restoration activities in northern New England was warranted due to the lack of locally available restoration alternatives. The loon years lost as a result of the North Cape spill could not be restored through actions to increase loon breeding success in Rhode Island because the state is only a wintering area for loons. Although Massachusetts has a small breeding loon population, the B-120 spill is directly comparable to the North Cape spill because the viability of local alternatives to restore the total lost loon years is severely limited.

Question 1.1*: Why are the B-120 Trustees not following the precedent set in the North Cape spill and endorsing preferred alternatives that focus on restoring loon populations in northern states (NY, VT, NH, and ME)?*

1.2 Loons and loon years lost were predominantly from states other than Massachusetts; therefore, restoration should focus proportionately on those states.

The total Massachusetts adult loon population in 2003, as reported at the 2004 Northeast Loon Study Working Group (NELSWG) meeting, was 72 loons, comprised of 27 territorial pairs and 18 unpaired adults. Spagnuolo (2012) reported lower numbers of adult Massachusetts loons—21 territorial pairs in 2002 and 24 territorial pairs in 2003, plus an undetermined number of unpaired adult loons.

Even if every adult Massachusetts loon had been in Buzzard's Bay at the time of the B-120 spill, those loons would represent only 14% of the loons killed. Additionally, at the time of the spill (beginning April 27, 2003), many lakes in NY, VT, NH, and ME remained iced-in, but all or a majority of Massachusetts lakes were ice-free. Therefore, the majority of Massachusetts breeding loons would likely have been on their breeding territories, leaving only a small number of adult and juvenile Massachusetts loons potentially in the affected area. The increase of three MA territorial loon pairs (14% yearly growth) reported in the summer of 2003 following the spill is further evidence that the MA breeding loon population was not heavily impacted by the spill.

Therefore, we can be certain that the large majority (certainly more than 80% and likely more than 95%) of loons killed as a result of the B-120 spill were not from the Massachusetts adult population but from other loon populations known to overwinter in this area, including other northeastern states and possibly Canada.

Observations of oiled loons in New Hampshire and Maine in 2003, as well as sightings, satellite telemetry, and recoveries of New Hampshire, Maine, and New York loons wintering off the Rhode Island and Massachusetts coasts, document that the B-120 injury extended to loon breeding areas beyond Massachusetts and Rhode Island. We know that New Hampshire breeding loons were wintering in the vicinity of and affected by the B-120 spill, and New Hampshire's population is one of the best-documented breeding populations impacted by the spill. A dead loon recovered from Milton Three Ponds in 2003 was found to have been killed by oil matching that spilled from the B-120 barge, oiling caused the death of a loon recovered on Pawtuckaway Lake in 2003, and an oiled loon was observed on Squam Lake that same year. To date, a total of 14 banded loons from the New Hampshire breeding population have been recovered on the Rhode Island and Massachusetts coasts (Table 1), further confirming the connection between these wintering areas—including the area impacted by the B-120 spill—and the New Hampshire breeding loon population. Similar tables or maps demonstrating the breeding/summering areas of loons wintering off the RI and MA coasts can be provided by NY, VT, and ME.

Table 1. Source lakes and wintering locations of New Hampshire banded loons re-sighted or recovered in coastal Rhode Island and Massachusetts.

Breeding Lake/Territory	Band	Age/Sex	Year Found	Band Year	Recovery Location	Lat.	Long.
Umbagog/Southeast Arm	0938-06472	Adult-M	2000	2000	Great Rock Bite, MA	41.357	-70.765
Umbagog/Lawrence	0848-04729	Adult-M	2001	1994	Manch.-by-the-Sea, MA	42.561	-70.769
Grafton Pond	0898-09911	Juv.-Unk.	2001	1998	Weekepaug Beach, RI	41.329	-71.737
Massabesic/Deerneck	0938-06339	Juv.-Unk.	2003	2000	Cranston, RI	41.781	-71.390
Onway Lake	0938-06331	Adult-M	2004	2001	Sandy Neck, MA	41.738	-70.331
Squam/Mink Island	0559-618-61	Adult-M	2006	1998	Provincetown, MA	42.058	-70.179
Squam /Moon Island	0669-21971	Adult-F	2011	2010	Ipswich Bay, MA	42.660	-70.690
Winnipesaukee/Whaleback	0898-16130	Adult-F	2011	1999	Marshfield, MA	42.112	-70.666
Northeast Pond	0898-09002	Adult-M	2011	1997	Brewster, MA	41.760	-70.083
Highland Lake	1118-15940	Adult-M	2013	2011	Harwich, MA	41.686	-70.076
Winnipesaukee/Buzzells	1118-15905	Adult-M	2015	2011	Wareham, MA	41.729	-70.726
Winnipesaukee/Varney	1118-15289	Adult-F	2017	2017	Westerly, RI	41.200	-71.400
Little Squam/Riverbend	1118-15299	Adult-M	2017	1999	Gloucester, MA	42.300	-70.400
Squam/Great Island	0938-06347	Adult-F	2019	2001	Galilee, RI	41.200	-71.300

We request that the Trustees recognize that the loss of each loon from its breeding territory falls most heavily upon the public in the vicinity of that territory. LPC and other NELSWG organizations' staff and volunteers have invested substantial time and monetary resources to increase loon productivity and reduce anthropogenic mortality in our respective states. For example, LPC employed 8 year-round and seasonal biologists in 2003 to recover New Hampshire's loon population through monitoring, research, management, and education. These efforts were augmented by close to 1,000 volunteers throughout the state and supported by 789 members and contributors. LPC's network of volunteers, members, and contributors has grown substantially since then. The loss of a loon from its breeding territory also represents the loss of that investment by these stakeholders and many more New Hampshire residents and visitors who lost the ability to see and hear these magnificent birds and their young over the course of the 2003 and subsequent breeding seasons.

If the Trustees are to meet their obligation to make *those members of the public affected by the B-120 spill* whole by ensuring the restoration of the natural and recreational resources lost, the Trustees' preferred alternatives must focus upon restoration activities north of RI and MA, where likely more than 95% of the killed loons bred and/or summered. Trustees elected not to recommend efforts to protect breeding habitat in Canada for restoration efforts of other birds impacted by the B-120 spill, at least partially due to logistical difficulties in international locations (p. 51, Table 8). If the Trustees did not consider Canada as a location for B-120 loon restoration efforts for a similar reason, a reasonable and biologically-relevant alternative to create Common Loon DBYs and restore impacted breeding populations would be a proportionate focus on the northern states of NY, VT, NH, and ME, as outlined in the 2009 NELSWG proposal (Evers et al. 2009). The evidence provided by oiled loons and other measures of connectivity between summering and wintering locations clearly indicates that a substantial proportion of the loons hatched in these states will winter on the RI and MA coasts. Consequently, they will compensate MA and RI residents, who lost the ability to observe and enjoy NY, VT, NH, and ME loons that perished in the oil spill when they would have been on their wintering grounds.

The allocation of over 56% of Common Loon restoration funds to MA and RI in the draft B-120 restoration plan is disproportionate to the likely maximum of 5% of breeding/summering MA loons that were lost as a result of the spill. New Hampshire elected not to contribute any loon chicks from its state-threatened loon population to the previous MA translocation effort in order to avoid impacting its efforts to recover the NH loon population. However, the geographic imbalance of alternatives proposed by the Trustees has essentially the same effect by attempting to disproportionately create new loons in MA instead of replacing breeding/summering loons lost from other states in order to return those populations to pre-spill baselines and compensate the public in those states.

Comment 1.2.a: *We request that B-120 Trustees revise the draft restoration plan to proportionately direct restitution funds and efforts to areas north of MA and RI (including NY, VT, NH, and ME), where evidence clearly indicates that the majority of killed loons bred/summered.*

Comment 1.2.b: *We request that B-120 Trustees revise the draft restoration plan to proportionately compensate and make whole the people of NY, VT, NH, and ME for the loss of their ability to enjoy loons lost from their breeding/summering areas.*

Comment 1.2.c: *We request that B-120 Trustees acknowledge that replacing loon DBYs in northern states (NY, VT, NH, and ME) will benefit loons and people in these states as well as in MA and RI, due to the presence of loons produced in these northern states overwintering in RI and MA.*

1.3 Limitations of land acquisition in Rhode Island

It is our understanding that the purpose of the $7.3M allocated to loon restoration by the B-120 Trustees is to replace loon DBYs lost. We are uncertain of how Trustees determined that acquiring land in RI would replace a significant number of loon DBYs given that loons do not overwinter on land and RI has no loon breeding habitat. In Table 8 on page 51 of the draft restoration plan, the creation of a marine sanctuary to protect wintering habitat for loons was not considered worthy of full evaluation. This determination was made for several reasons, including a lack of direct compensation for loss, prohibitive costs, spatially limited benefits, and difficulty in measuring success. We question the value of protecting land habitat in RI for loons for these same reasons and the additional reasons mentioned above. In contrast, evidence indicates that measures proposed in the 2009 NELSWG Proposal (Evers et al. 2009) would substantively increase the number of loons overwintering off the coast of RI and compensate the RI human population for the loss of enjoyment of those wintering loons lost in the B-120 spill.

Comment 1.3: *We ask the Trustees to explain their reasoning that protecting shoreline to limit development, other land uses, or runoff from land proposed for protection will result in more loon DBYs and more loons overwintering off the coast of RI, than measures proposed in these comments to save adult loons and create loon chicks in NY, VT, NH, and ME that would contribute to loons overwintering in RI. We request that funds be reallocated to alternatives that would measurably increase the number of loons overwintering in RI.*

2 The Translocation Alternative Faces Many Obstacles

Based on our monitoring data and close review of the plan, we think the chances of establishing self-sustaining loon breeding populations at the translocation sites, or populations that can be a

source of recruitment and resilience for the state or region, are very small and that the translocation experiment, as proposed, cannot be justified as a way to restore loons. This concern is supported by recent reviews of translocation difficulties (Berger-Tal et al. 2019) and restoration planning (Evers et al. 2019), by our evaluation of the proposed translocation sites, by breeding season climate considerations, and by the expected demographics for the translocated populations, as detailed below. The proposal also appears to overlook impacts to the loon populations that would provide the translocated chicks and does not adequately address the management and monitoring costs needed to realize the hypothesized benefit (i.e., a subpopulation of 30-70 breeding loon pairs present in 100 years).

2.1 Translocation will compound the spill injury in the source populations (p. 28).

As proposed in the plan, we do not think that translocation can be considered to create or generate new loons. Instead, the removal of translocated loon chicks from breeding populations that were impacted by the spill will compound that original injury. The plan calls for translocating individual chicks from two-chick broods when they are at least 5 weeks old. Most of these translocated chicks would survive to fledge in the source population. Survival rates for second chicks from hatch to fledge are 59% and 63% in NH and VT, respectively. Almost all of the chick mortality reflected in those rates occurs during the first four weeks after hatch: in VT the survival of 5-week old chicks to fledging is estimated to be as high as 95% (E. Hanson, pers. comm., and LPC, unpublished data; NH: n=1,798 2-chick broods, 1975-2018; VT: n=1,034 2-chick broods, 1998-2018). Therefore, translocation will remove viable chicks from the source populations, even if it targets the second chick in two-chick broods, and the removal will be additive to natural juvenile mortality.

Question 2.1.a: *Has the loss of removed chicks and their future productivity within the source population been considered in quantifying a net restoration benefit from translocation?*

Question 2.1.b: *As proposed, it seems possible, even likely, that the restoration plan could fund management (e.g., artificial nest sites) to produce additional chicks in the same populations or even on the same lakes where chicks were simultaneously being removed as part of the translocation activities. We ask that the final plan clarify whether the source and destination populations involved in translocation are considered to be distinct or whether the source and destination sites are considered part of a single population. In case of the former, how is the source population impact quantified? In the case of the latter, where translocated chicks are moved within a single population, how is any substantial restoration benefit achieved?*

2.2 The plan does not adequately address the long-term costs needed to manage and monitor the translocated population (p. 31).

In general, the plan appears to suggest that translocation benefits will be realized with little additional management or wardening cost. In fact, the estimates of productivity and survival of loons at the translocation sites are derived from comparable vital rates within intensively managed populations on lakes with restricted access (e.g., the Quabbin and Wachusett Reservoirs). LPC data indicate that restoration through translocation will require management and wardening over the life of the project, i.e., the 30- and 100-year periods used to calculate restoration benefits. This general need for management and outreach in the southernmost tier of loon breeding populations is pointed out in evaluations of the initial Assawompsett Pond Complex (APC) translocation work (Kneeland 2016). In Massachusetts, beyond the Department of Conservation and Recreation monitoring and management at reservoirs like the Quabbin, there is limited existing loon-specific organizational capacity, increasing the initial costs to implement these measures and, therefore, the overall cost of a successful translocation project. We think the plan should clarify how the translocated population will be managed during *and after* the initial 6-year time frame, if restoration benefits are estimated to accrue in perpetuity (p. 32).

Comment 2.2: *We suggest the effectiveness of translocation will be substantially reduced without continued management. We request that the final plan consider the complete costs associated with translocation, including management (rafts, signs, wardening, rescues, education, etc.) and evaluate restoration cost effectiveness (unit cost per DBY) with those costs included, as well as calculating realistic restoration gains without management and wardening, based on data for unmanaged nests.*

2.3 Habitat Suitability Concerns

The draft restoration plan proposes two sites for introducing loons via chick translocation: the Assawompsett Pond Complex (APC) in southeastern Massachusetts and October Mountain Reservoir in the Berkshires. The plan estimates that within 30 years of project initiation, 34 and 36 loon pairs will be established in the geographic areas surrounding the APC and October Mountain Reservoir respectively, restoring 55% of DBYs lost in the B-120 oil spill. The plan postulates a long-term carrying capacity of 55 territorial loon pairs in southeastern Massachusetts and 35 territorial loon pairs in Berkshire County; however, this prediction is based on the notion that the landscape is currently in or can be restored to a pristine state, completely mitigating all human pressures on the loon population (Spagnuolo 2012, 2014). In our view, this unrealistic assumption regarding the habitat quality of southeastern Massachusetts has led to a substantial overestimation of the true restoration potential of the translocation alternative.

2.3.1 The predicted density of occupied loon territories exceeds that observed on lakes and ponds of similar habitat quality in New Hampshire.

To illustrate that the anticipated loon occupancy rates for southeastern Massachusetts in the plan are likely unrealistic, we compare the occupancy projections generated by Evers et al. (2018) and cited in the draft restoration plan for the subset of ponds immediately surrounding the translocation release sites with what we believe is a more realistic estimate for those ponds based on density estimates derived from LPC's occupancy data. Evers et al. (2018) state that within twenty years of the initial chick translocation, twenty loon pairs will establish territories between Assawompset, North Pocksha, Pocksha, Great Quitticas, Little Quitticas, Long, Elders, Cranberry, Snipatuit, Snows, and Tispaquin Ponds. On New Hampshire ponds with habitat similar to these, average loon territory density is 80.7 ha per pair on small ponds (<100 ha), 154.0 ha per pair on medium ponds (100-500 ha), and 385.4 ha per pair on large ponds (>500 ha). Using this density data to predict realistic occupancy for the listed ponds (Evers et al. 2018), we estimate that the APC and surrounding ponds can support 13 territorial loon pairs (Table 2).

Table 2: Predicted loon occupancy for ponds surrounding the Assawompsett Pond Complex within 20 years of translocation (Evers et al. 2018), based on NH loon density data.

Lake Size Class	Total lake surface area (ha; Evers et al. 2018)	Average loon territory size—NH estimate (ha)	# potential loon pairs
Small (<100 ha)	243	81	3.0
Medium (100-500 ha)	980	154	6.4
Large (>500 ha)	1550	385	4.0
Total			**13.4**

The occupancy estimate provided by Evers et al. (2018) and cited in the draft restoration plan for this subset of ponds is 1.5 times the occupancy that can realistically be supported based on LPC's data. Given the initial overestimation provided for these ponds, we believe that the predicted carrying capacity of 55 loon pairs for all of southeastern Massachusetts likely also substantially overestimates the true carrying capacity of this area.

Comment 2.3.1: *The restoration potential of the translocation alternative depends heavily upon the number of loon pairs that can be supported by the lakes and ponds surrounding the translocation areas. Accordingly, we request that the Trustees recalculate the potential carrying capacity of southeastern Massachusetts using realistic occupancy density data from nearby well studied populations and re-evaluate the true restoration potential of the translocation alternative as compared to other alternatives.*

2.3.2 High human population densities in southeastern Massachusetts will likely exert pressures that reduce survival and productivity in the translocated population.

Although the initial translocation lakes are relatively undeveloped, the plan expects that loon chicks translocated to the Assawompsett Pond Complex will colonize breeding territories on lakes located within Plymouth and Bristol Counties in Massachusetts. These counties are more densely populated by humans than the areas surrounding other loon populations in New England, including those in New York and Maine that are proposed as source populations for translocated chicks in the draft restoration plan. Plymouth County has a human population density 17.4 times higher than that of Maine and 52.5 times that of Adirondack Park, which would serve as the source population in New York (N. Schoch, pers. comm.). The human population density of Bristol County is higher—23 times that of Maine and 69.3 times that of Adirondack Park (U.S. Department of Commerce 2012a, U.S. Department of Commerce 2012b, Adirondack Park Agency 2019).

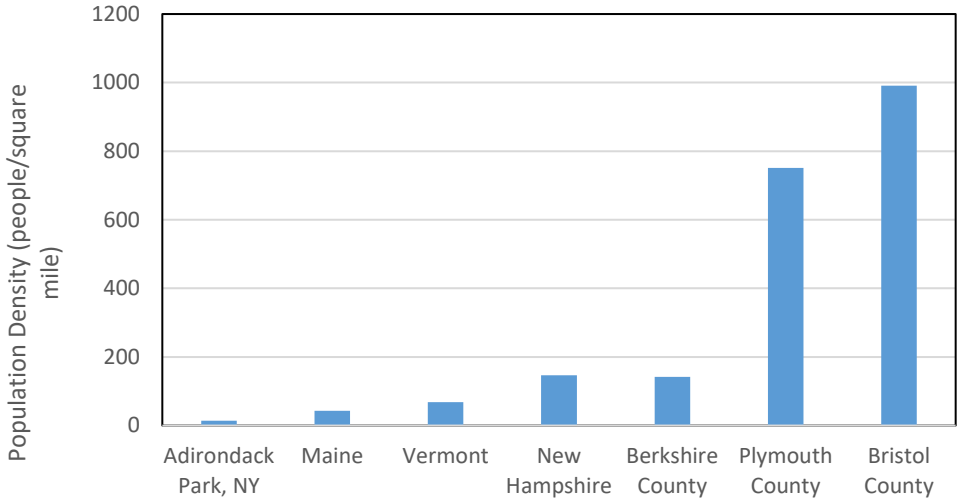

Figure 1: Human population density comparison of Massachusetts versus northern New England states and Adirondack Park. Data sourced from the 2010 Census conducted by the United States Census Bureau. Data for Adirondack Park based on the 2010 Census, compiled by Adirondack Park Agency (2019)

Given the higher human population in southeastern Massachusetts and lake accessibility via public boat launches, beaches, and public trails, it is likely that loon chicks translocated to this area would be exposed higher levels of human recreational pressure than if they had remained on their natal lakes. In New Hampshire, 45 years of education and outreach efforts have helped to buffer the loon population from the effects of human pressures by creating a large corps of dedicated volunteers who monitor the health and safety of their resident loons, work with lake associations and lake hosts to educate boaters and anglers about the threat posed to loons by lead fishing tackle and fishing line, remove lead from circulation via buyback or voluntary exchange programs, and educate the public about responding to a loon in distress, subsequently increasing the number of injured loons that are reported, rescued, and released. Despite these efforts, 62.6%

of documented loon mortalities between 1989-2019 (to date) were the result of anthropogenic causes, including lead toxicosis resulting from the ingestion of lead fishing tackle, fishing line entanglement, and boat strikes. Given that Massachusetts has higher fishing pressure than New Hampshire (400.1 angler days/km^2 in Massachusetts as compared with 152.0 angler days/km^2 in New Hampshire; Scheuhammer et al. 2003), the translocated loon populations in southeastern Massachusetts would likely be exposed to higher levels of human recreation than those in New Hampshire and may be subject to higher levels of injury or mortality from anthropogenic causes than is documented in New Hampshire.

In addition to the potential for increased levels of human-caused mortality, factors associated with human activity on and around lakes have been found to be negatively associated with loon presence (Newbrey et al. 2005, Kuhn et al. 2011) and productivity (Ream 1976, Titus and VanDruff 1981, Heimberger et al. 1983, McCarthy and Destefano 2011). High human population densities surrounding lakes in Plymouth and Bristol Counties may contribute to demographic problems, including reduced productivity, which are discussed in further detail in section 2.6 of this document.

LPC's experience indicates that intensive management, education, and outreach would be required to minimize the negative impacts of human pressures on loon survival and reproduction on ponds in southeastern Massachusetts. There is already at least one documented case in which a translocated loon chick required rescue after it became entangled in fishing line three weeks after release (Kneeland et al. 2016). Per section 2.2 of this document, it is our view that a more realistic cost estimate for chick translocation would include both the cost of the initial translocation effort and the cost of the rafts, signs, rescues, and other management and outreach strategies that would be needed to mitigate the negative effects of human recreational pressures. This would likely significantly increase the cost per DBY restored by chick translocation, thus reducing the cost effectiveness of the translocation alternative.

Question 2.3.2*: What productivity and survival rates were used in predictive models, and did those rates reflect the likely reduction in both productivity and survival due to human population pressures at translocation sites and surrounding lakes?*

2.3.3 Habitat suitability of Berkshire County

In contrast to Bristol and Plymouth Counties, the occupancy estimates outlined in the draft restoration plan for Berkshire County appear to be more realistic when compared with loon population density data from New Hampshire. Additionally, the human population density of Berkshire County is much lower than that of both Bristol County and Plymouth County and is more comparable to that of other New England states known to support Common Loon populations. However, those populations are supported with the aid of intensive management,

wardening, and outreach; therefore, we suggest that a translocated loon population in Berkshire county would likely also require intensive management in order to remain viable.

Comment 2.3.3*: Based solely on habitat suitability (see other considerations below), the translocation site in western MA may be marginally more suitable, with intensive management, than lakes in southeastern MA at the APC site.*

2.4 Climate in southeastern MA appears marginal for breeding loons.

The restoration plan states that translocation faces "[p]otential risks associated with a changing climate …. [that] could adversely affect the potential success and sustainability of the project" but concludes that "the impacts that climate change will have on loons remain uncertain" (p. 34, 3rd paragraph). We are concerned that the known, observed relationship between loon productivity and climate and the magnitude of the probable risks under future climate argue against experimental translocation from cooler to warmer sites that are beyond the current climate envelope for loons.

Our concern about climate suitability includes current breeding season climate at the APC site, regardless of further climate change. Our observations of > 4,000 loon nest attempts from four decades of monitoring in NH, matched with daily weather records at the scale of the individual nest attempt, have found a strong negative association between hot/wet weather and hatching success (LPC, in prep.; Figure 2). These findings reflect the critical role that temperature and precipitation play in observed incubation behavior, underlying physiological stress, and egg viability. They are robust to potentially confounding stressors like human population density, which was addressed in our models, and mercury exposure, which was not correlated with ambient temperature in our data, and to outliers (see the two fitted curves in Figure 2). Therefore, we are concerned that even without additional warming, unsustainably low productivity is likely at sites like the APC, where the average breeding season climate is currently warmer than 90% of observed nest attempts in New Hampshire (Figure 2). In New Hampshire, the average hatching success at the warmest 10% of nest attempts was 0.84 chicks hatched per nesting pair, equating to 0.43 chicks surviving per territorial pair. Predicted warming over the next 30-70 years is likely to reduce hatching success further below sustainable levels, initially at the APC but, by mid-century, at both proposed translocation sites.

Because they identify specific climate drivers that reduce hatching success, our findings in NH support broader climate envelope forecasts of northward shifts in suitable climate for loons. Our own estimate of the climate envelope for loons, derived by compiling summer climate normals from weather stations along nine randomly located transects perpendicular to the southern range limit (LPC, unpublished data) found that breeding loons do not occur anywhere in North America at average June/July temperatures warmer than 69.5 deg. F. In fact, predicted climate in the next 30-70 years (Executive Office of Energy and Environmental Affairs 2018) will be much

warmer *throughout* Massachusetts than the modeled climate envelope for Common Loons across North America (Rodenhouse et al. 2008). Based on these findings, loons are considered "highly vulnerable" to changing climate over the next three decades in Massachusetts (Walsh and Servison 2017).

We think this caution is fully justified for loons, based on our findings in New Hampshire and the emerging science that substantiates climate envelope associations. Concerns about lower productivity in loon populations at the southern margin of the breeding range have been cited in the Northeast (N. Schoch, pers. comm.) and in Wisconsin, where decreased juvenile survival has also been noted (W. Piper, pers. comm.). In addition, proximity to the southern range edge has been associated with increased metabolic stress in breeding loons, measured throughout their North American distribution (Byrd 2013).

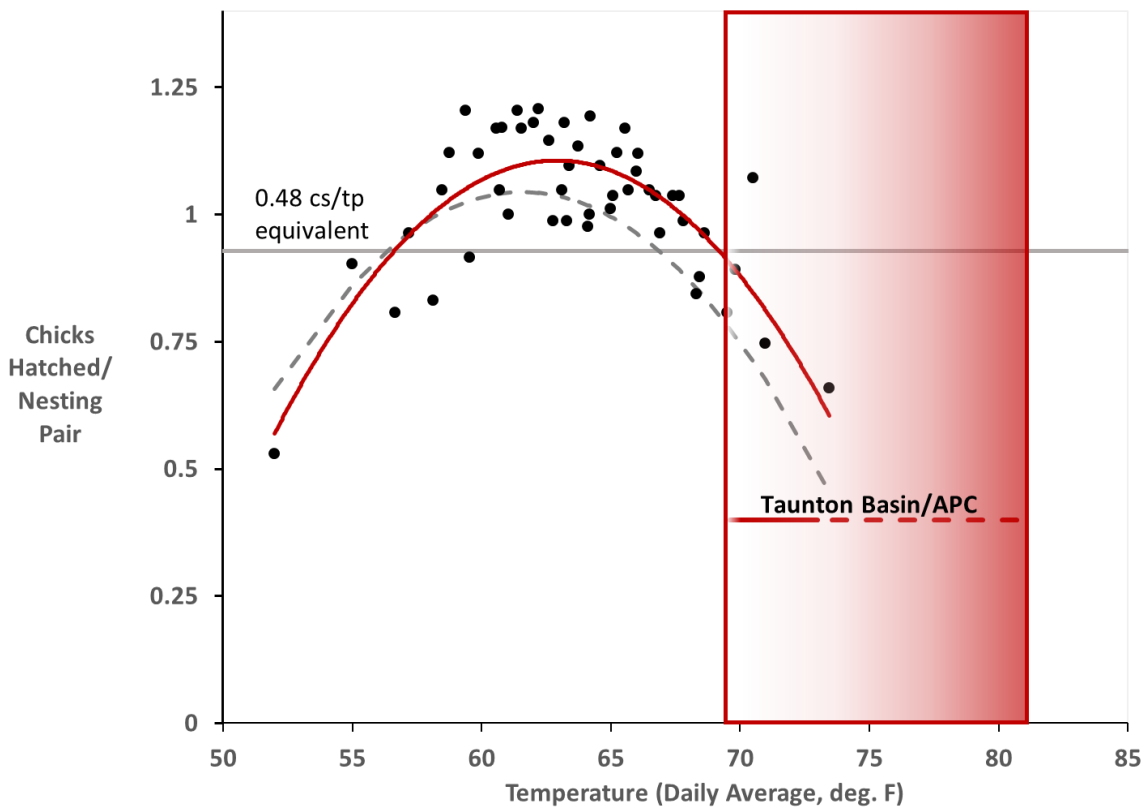

Figure 2. Loon hatching success declines below sustainable levels with average daily temperatures above 69 ℉. Each data point on the scatterplot represents aggregate hatching success and mean temperature for 84 individual nest attempts. The data are binned in 2% temperature quantiles to show 50 points and represent 4,142 nest attempts from 1975-2016 in New Hampshire, joined with local daily weather records. The solid red line is a best-fit polynomial curve for all 50 points. The dashed gray line shows the same trend based on a best-fit curve for the inner 40 points (eliminating the outer 5 points or 10 percentiles on either extreme). The red horizontal line labeled "Taunton Basin/APC" shows predicted average summer temperatures from the present (left end of the line) to the low-emissions (solid line, right end) and high-emissions (dashed line, right end) end-of-century end point for the Taunton watershed, the APC translocation area (Executive Office of Energy and Environmental Affairs 2018).

For a suite of avian species, recent work has confirmed that observed climate niches (their climate envelopes) have been conserved in the last century or in recent decades by a combination of poleward and elevational shifts, both in the northeastern US (Zuckerberg et al. 2009, Kirchman and Van Keuren 2017) and elsewhere (Tingley et al. 2009, Wu and Zhang 2015). These findings suggest that species like loons, with a strong association between observed distribution and current climate, are likely to shift their range northward as the climate changes. Plans to translocate loons further south, beyond the southern limit of their current breeding range, ignore the likelihood of that northward shift.

We also emphasize that, in addition to the impact of higher temperatures and precipitation on loon productivity, climate-dependent pathogens and parasites that may reduce survival rates (e.g., Korniłłowicz-Kowalska and Kitowski 2013, Favot et al. 2019) are likely to affect the viability of translocated populations and their intended growth. In New Hampshire, four mortalities caused by avian malaria have been documented since 2015, with none prior (Martinsen et al. 2017, and I. Sidor, pers. comm.). The advent of climate-dependent pathogens like malaria are a primary concern as the climate warms, especially at the range edge (Loiseau et al. 2012, Wilkinson et al. 2016).

Comment 2.4.a: *Given anticipated climate impacts on loons in New England, we think restoration efforts should focus on the most favorable sites under predicted future climate: refugia, or northern locations where loons have the most chance of persisting as the climate warms.*

Comment 2.4.b: *Our findings for the influence of both temperature and precipitation on loon hatching success substantiate the climate-dependent drivers that help define the current breeding range and make loons vulnerable to climate change in New England. Given the weight of evidence provided by studies of loons and the broader literature on climate impacts for nesting birds, we think the restoration plan should further clarify that risk and/or reallocate funds to alternatives proposed for sites within the current and predicted suitable climate envelope for loons (e.g., northern New England).*

2.5 Translocation will not promote loon population resilience to climate change.

We respectfully submit that the Trustees' justification for focusing restoration on the southern range edge to increase resilience is not applicable to Common Loons in Massachusetts or to a translocated subpopulation of loons, as proposed (p. 34, paragraph 5). Compared with colonial-nesting Common Eiders and their recovery over 40+ years, translocated loons will constitute a small population, arguably not a source for recruitment into the rest of the southern range because of limited productivity, limited dispersal, and slow maturation. The current southernmost populations (e.g., including present-day MA) do not fit Hampe and Petit's (2005)

definition of an appropriately targeted and genetically distinctive set of "stable rear edge" populations. Current loon populations at the southern limit of their range in New England are recently recovered from the range retractions of the mid-20th century and are unlikely to provide the kind of genetic diversity emphasized by Hampe and Petit (2005). Most importantly, the current "trailing edge" subpopulations in MA and loons translocated from stable populations in cooler climates (NY and ME) will not have time to contribute any genetic resilience at the southern edge (cf. Hufbauer et al. 2015) during the predicted period of rapid climate change this century.

Comment 2.5: *Given Common Loon life history and low density in southern New England, rapidly changing climate and the 1-3 decade restoration timeframe will not permit the expression, selection, and establishment of climate-adapted phenotypes. Loons are not comparable with eiders in this respect or with the taxa that Hampe and Petit (2005) emphasize as southern-edge conservation priorities (e.g., perennial plants).*

2.6 Translocated loons are likely to face demographic problems.

We think the plan should consider or explain more carefully the expected population dynamics, or demographics, of the translocated loons, since the merits of this alternative depend in part on the ability of the translocated population to act as a source for recruitment and population recovery in Massachusetts. We focus on the expected productivity of the translocated population, although survival rates for juvenile and adult loons at the translocation sites may also be reduced (Deredec and Courchamp 2007).

The plan notes that loon life history traits differ from species for which translocation is an "accepted practice" (p. 34, first paragraph). In addition to reduced productivity if the population is unmanaged or encounters unsuitable climate (discussed above), we point out the suite of factors that are known to impair productivity in small translocated populations (Berger-Tal et al. 2019) and that are especially relevant to loons. Loons are slow colonizers with limited dispersal rates, high territory fidelity once established, and low annual fecundity. Even in dense loon populations, territory vacancies (Croskery 1988) and turnover in breeding pairs (Evers et al. 2010) cause a lag in breeding (see also Figure 3, p. 21 of these comments). These life history traits explain in part why peripheral sites like southeastern and western MA have not been colonized naturally in the last half-century of population recovery. They will make it intrinsically hard to establish and maintain a small viable translocated population, and they highlight the particular vulnerability of the translocated population to so-called Allee effects.

We think the Osprey translocation described in Martell et al. (2002) is more relevant to the current plan than Common Eider translocations in New England. The osprey project took longer than the proposed loon translocation (11 years versus 6), involved 60% more translocated

juveniles (134 versus maximum proposed 84 loons), realized a productivity rate much higher than realistic loon rates (1.57 fledged Ospreys/year/occupied nesting territory versus optimal annual productivity for loon translocation of 0.48 chicks surviving to mid-August/territory, or 0.77 chicks surviving to mid-August/nesting pair; NH long-term average, 1976-2018), entailed a completely managed nesting population (all artificial nest platforms), and was augmented by free-ranging individuals (not translocated) that are unlikely for regions of Massachusetts remote from established loon populations. The net result for the Osprey project was 19 occupied sites in the final (16th) year of reporting. Given the similar age to maturity and annual survival but lower productivity and much smaller scale of the proposed loon translocation, we think it is unrealistic to expect 32 occupied territories after 20 years, and even half that number seems only marginally probable.

Comment 2.6.a: *We point out these demographic constraints to emphasize the need for a closer evaluation of likely productivity values and demographic risks for small experimentally translocated populations in estimating the potential restoration benefit. The plan should address small population viability for the initial translocated cohorts and subsequent breeding populations and justify the expectation that the translocated loons could serve as an effective source for recruitment into other parts of Massachusetts where loons already breed. We think that the demographic limitations are evident and that the translocation alternative can be rejected without developing a formal demographic model, but we think a formal model would be warranted to justify the alternative as it is currently proposed.*

Comment 2.6.b: *Initial translocation projects in Massachusetts and Minnesota have not yet produced a single nesting pair or loon chick. The plan describes the return of translocated loons to release lakes as "encouraging", but the return rate in Massachusetts (six loons in the 3rd year, after 24 chicks released) appears only marginally sufficient to meet the planning estimates for released, returned, and established adult loons. Lower return rates at the translocation project in Minnesota (one reported return from 18 released chicks) point out the need to estimate return rates conservatively and to provide a more detailed justification for the expected restoration benefit (or range of possible outcomes) from the translocation project.*

2.7 Population model shows poor prospects for translocation.

We summarize our concerns about expected restoration benefits from the translocation alternative by estimating the mean annual population growth rate and anticipated adult population after 30 years for the translocated sites under three scenarios.

The first scenario is optimal, as presented in the plan, using recent average productivity in Massachusetts. The second scenario discounts the expected productivity in the translocated populations to reflect a single aspect of the several likely negative influences (climate, little or no

planned long-term management or wardening, and intrinsically lower breeding and hatching success).

For this second scenario, we applied the productivity rate observed for unmanaged loons in Massachusetts. We derived this from recent long-term average productivity in MA (0.48 chicks surviving/territorial pair), the fraction of raft-nesting or managed pairs (38%), and the observed difference in hatching success between rafts (1.10 chicks hatched/nesting pair) and unmanaged natural nests (0.89 chicks hatched/nesting pair) in MA (Spagnuolo 2012; Evers et al. 2018). We optimistically assumed the same nesting propensity (nesting pairs/territorial pairs) and chick survivorship (chicks surviving/chicks hatched) at both unmanaged and managed territories. These assumptions assigned a productivity rate of 0.44 chicks surviving/territorial pair to the unmanaged territories, and we used that rate for this scenario. As a mid-range scenario, we regard this as hopeful for the translocation sites, since it exceeds the long-term rates observed on larger lakes in NH and low rates of hatching success on natural nests in marginal habitat.

The third scenario reduces the productivity rate below the mid-range to reflect productivity expected at realistic (2030s) climate projections and/or a combination of other stressors. At expected breeding season average temperatures for the 2030s in the Taunton basin (73.5 ˚F), we estimated a climate-dependent productivity rate of 0.31 chicks surviving/territorial pair, based on the fitted relationship in New Hampshire (Figure 2). We applied this rate for the third scenario.

We use the deterministic density-independent stage-based Leslie matrix model developed for loons in Grear et al. (2009). We use published values for annual adult survival (Mitro et al. 2008) and juvenile survival (Piper et al. 2012) and breeding propensity observed in NH (0.84 paired adults/total adults), a more optimistic value than the NH and WI values used by Grear et al. (2009). We assumed an even sex ratio (r=0.5), ignoring the prospect that female translocated loons are more likely to disperse out of the project area (Evers et al. 2010), which would produce a biased sex ratio in the returning cohort.

To simplify the initial conditions, we considered the combined growth of the two translocated subpopulations (84 chicks translocated total). We assumed that all 84 chicks except for the most recent cohort (the final translocation year) had matured to adulthood at the apparent juvenile survival rate estimated by Piper et al. (2012; 0.46 for the juvenile stage to 3 years old). For simplicity, we modeled a 30-year period *after* the initial six years of the proposed translocation project, and assumed that all translocated loons that survived to adulthood were the same age at the start of the modeled time period. This gave 32 adults for the initial time step of the model. For the final cohort of translocated chicks, we assigned the most optimistic annualized juvenile survival estimated by Piper et al. (2012; 0.81), resulting in 12 juveniles for the initial time step. We also assumed no emigration or dispersal by returning juveniles outside the translocation area.

Table 3. Combined experimental translocation populations decline under realistic scenarios.

Scenario	Productivity (chicks fledged/ pair/year)	Juveniles -Initial	Adults -Initial	Adults @ 30 years	Occupied terrs. @ 30 years	Mean annual growth rate
Optimal	0.48	12	32	45.1	19	1.012
Realistic-1	0.44	12	32	38.1	16	1.006
Realistic-2	0.31	12	32	20.9	9	0.985

Note that the best-case scenario results in no increase in the translocated populations over the 30-year interval, producing a population end point (19 pairs) that is 51 pairs short of the restoration goals that formed the basis for estimating benefit. More realistic scenarios produce a range of 9-16 loon pairs after 30 years, or 21-38 adult loons, approximately one-third of the number originally translocated. We provide these projection scenarios to underscore the likely difference in outcome between optimally productive and more realistic reduced productivities and the impact these lower productivities are likely to have on the realized restoration benefit.

Question 2.7.a: *As stated in Section 7 of these comments, what is the timeframe used to develop projected or estimated restoration benefits for translocation, and has that been consistently applied to all alternatives for which DBY or cost/DBY estimates were calculated?*

Comment 2.7.b: *Based on the multiple concerns described above including habitat suitability, climate-driven reduction in productivity, demographic challenges specific to loons and also common to translocation efforts in general, the impact to the source populations, and the additional costs to manage the translocated populations, we request that the Trustees re-evaluate the cost-effectiveness of this alternative and its feasibility.*

3 COLO-2 Alternative

3.1 Artificial Nest Sites

LPC concurs with the Trustee's inclusion of artificial nest sites as a restoration component. As with other components of this alternative (COLO-2), we suggest that the final restoration plan specify the scope and location of proposed restoration activities at a level of detail similar to that provided for the translocation alternative (COLO-1). We note that costs used to develop the plan or estimate the restoration benefit, for example from Evers et al. (2009), do not reflect the potential to leverage matching resources. The cost-effectiveness of this alternative will be

increased where volunteers help build, deploy, and maintain nest rafts. Active networks involving thousands of volunteers are well-established in NY, VT, NH, and ME.

Comment 3.1: *We recommend re-assessing the cost-effectiveness and absolute costs of this and the other components of the COLO-2 alternative based on the cost-leveraging possible through well-established volunteer networks.*

3.2 Signage and Wardening

We support the inclusion of nest signs and active wardening as a restoration component and point out the potential for increased effectiveness through coordination among programs throughout the Northeast (i.e., non-profit loon programs, state and federal agencies, and the volunteer public). As with the Artificial Nest Site (Raft) Alternative, the cost-effectiveness of this component will be increased by leveraging matching resources through the involvement of volunteers in the construction, deployment, maintenance, and wardening of nest signs.

3.3 Protection of Breeding Habitat

We think that this component of the restoration activities deserves a fuller, perhaps separate, treatment in the plan because the restoration approach relies on different assumptions, different mechanisms to implement, and a much different cost scale than other alternatives (for example, the cost is 6-24 times higher per DBY than the artificial nest site component). We have several concerns:

We question whether land acquisition as described in Evers et al. (2019) will actually provide the asserted benefit to loons. The premise for the North Cape project reviewed by Evers et al. (2019) was that restoration through land acquisition would completely protect nest sites that would otherwise be lost entirely to development. This benefit was assigned to all loon nest sites throughout the lake systems where shoreline habitat was protected. In our experience, shoreline development is a critical problem for nesting loons but does not completely eliminate nesting or productivity on a lake-wide basis and can be mitigated by management or a combination of wardening/management and direct habitat protection. Many human impacts result from dispersed recreational use that are only partly mitigated by shoreline conservation. For example, lead mortalities and fishing line entanglement are problems on lakes and reservoirs with relatively little shoreline development but active recreational use (e.g., the Quabbin, Massabesic Lake, and, per the initial translocation project, the APC [Kneeland et al. 2016]). For a given lake, the risk of impact depends heavily on the lake's prospects for development and current status. We suggest that most lakes in the Northeast are at some risk of shoreline development affecting loons but that the loon productivity loss would be partial. This substantially changes the calculus needed to

establish restoration benefit for this alternative. We think the plan should clearly spell out the basis for restoration benefit in this regard.

Furthermore, local population dynamics are more determinant than habitat protection for loon productivity. For example, average loon productivity over the last two decades has been about the same on Lake Umbagog and Lake Winnipesaukee in New Hampshire, in spite of intensive habitat protection efforts at Umbagog and relatively high levels of human development—mitigated by intensive management—on Lake Winnipesaukee.

We question the basis for assigning benefits from land acquisition from the beginning of the project period in perpetuity, since the risk of nest loss from development grows over time with the likely pace of habitat conversion. Also, while habitat protection has many benefits to loons and other species, a comprehensive conservation program is necessary for loon breeding success and to ensure successful restoration. We do not believe the benefits of land acquisition can be assigned in perpetuity without ongoing management. Realistic costs of a land acquisition alternative may therefore be the high initial costs of acquiring the land plus the costs of long-term management, wardening, and education/outreach.

Comment 3.3: *Evers et al. (2019) and the draft plan both identify a clear need to target land conservation carefully, based on loon productivity, shoreline habitat quality on the whole lake, and potential to conserve habitat close to vulnerable nest sites (p. 37, paragraph 1, last sentence). We agree, although we question the underlying cost-effectiveness of this component compared to other aspects of the COLO-2 alternative. We suggest that the plan and subsequent RFP process specifically include a method to assemble and screen potential land acquisition projects against these and other factors (for example, priority as climate refugia) across the entire Northeastern region to identify the most effective projects. In our opinion, the feasibility of habitat protection as an effective restoration measure depends on this careful planning, long-term management, wardening, education/outreach, and cost-leveraging from partnering conservation entities. These aspects could result in very high unit costs for the restoration benefit, and should be weighed in choosing preferred alternatives.*

4 Lead Tackle Reduction Efforts Will Provide Substantial Benefits to Loon Populations

LPC applauds the Trustees for their inclusion of efforts to reduce exposure to lead tackle as a preferred restoration effort. As the Trustees acknowledge in the plan, adult survivorship is critical to population viability for a species like loons with K-selected life history characteristics. Nonetheless, we note that Section 3.2.1 of the restoration plan states, "Because the focus of common loon restoration is to increase production of loons to offset the loss, priority is given to restoration projects that enhance productivity of the species…" (p. 27). Increasing productivity to offset losses is important, but we hope that at least equal weight will be given to projects that enhance adult survival, such as lead tackle reduction efforts.

Scientific literature stresses the crucial role played by adult survival over productivity in loon population growth rates (Mitro et al. 2008, Grear et al. 2009, Grade et al. 2018), and mortality from lead fishing tackle primarily impacts adult loons (Sidor et al. 2003). After noting the low sensitivity of their model to productivity changes and its high sensitivity to small changes in adult survival, Grear et al. (2009) stated, "it is likely that minimal impairments or improvements of adult survival would be sufficient to cause long-term changes in loon population fitness" (p. 1114)—a statement supported by a documented negative population-level effect from lead tackle mortality in New Hampshire (Grade et al. 2018).

The death of an adult loon from lead tackle ingestion has immediate impacts on the population, including the loss of that individual's potential to breed and, if it was a member of a breeding pair, reduced productivity rates in its territory. Loon nest failures and loss of chicks after the death of a pair member are well-documented (LPC, unpublished data). Consequences of the death of a paired adult include longer-term decreased occupancy of its territory (i.e., a delay in the formation of a new pair) and decreased productivity due to either the lack of a pair in that territory or reduced reproductive success of newly-formed pairs. Contrary to the one-year "floater productivity duration" utilized by the restoration plan in Table 1 (p. 18), LPC's data suggest that the death of an established pair member may continue to have negative impacts on productivity at least 5 years after the mortality (Figure 3) and thus substantively affect the population's overall growth rate.

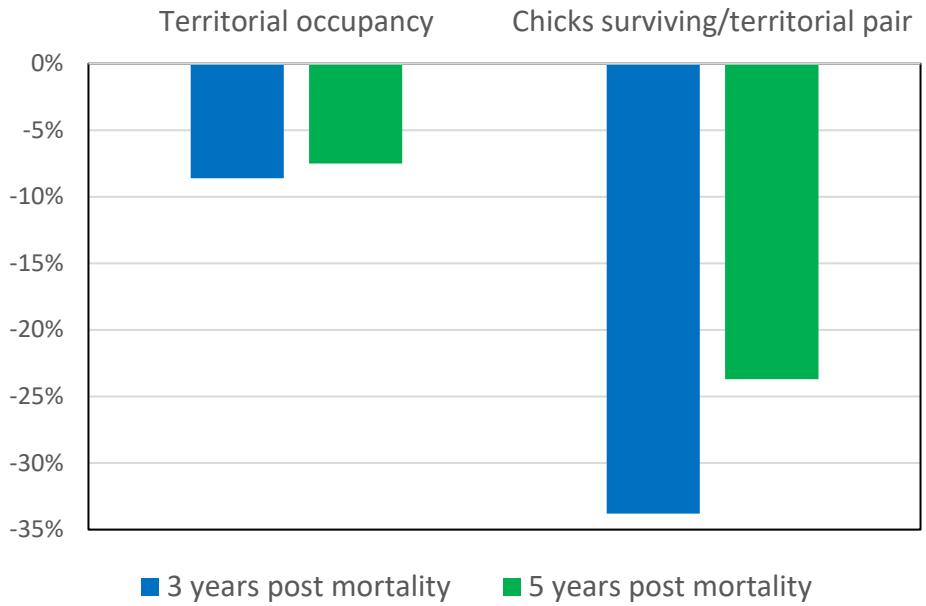

Figure 3: Percentage decline of territorial occupancy and productivity (chicks surviving/territorial pair) in the years following the death of a known pair member.

Because of these life history characteristics, avoiding the death of an adult loon by lead tackle ingestion will provide substantial immediate and long-term benefits to the loon population. An adult saved has the potential to breed immediately and contribute to the restoration of DBYs in the current and next generations. Assuming age at first breeding of 6 years, a lifespan of 30 years, and a productivity rate of 0.48 chicks surviving/territorial pair, Evers et al. (2010) calculated that a breeding loon will produce approximately 12 fledged young over the course of its lifetime. Based on these calculations, even a loon that dies at 15 years old would be expected to produce 7 additional fledged chicks. Therefore, saving an adult loon will significantly benefit the population growth rate, as demonstrated by Grear et al. (2009). Avoiding the death of an adult loon would result in the immediate potential of that individual to breed, whereas a translocated chick would not have the potential to breed for another 3-6+ years. Given the survivorship rate of a juvenile loon to age 3 of 0.53 (Piper et al. 2012), the productivity benefit of a translocated chick and a saved 15-year-old loon is approximately equal. While the restoration plan rightly notes the benefits of lead tackle reduction projects being greatest during the lifetime of the project but extending as public awareness grows (p. 39), the potential chicks produced over the lifetime of a loon saved from lead tackle ingestion are an additional longer-term benefit. These long-term benefits should be considered by the Trustees, given the 100-year time frame posited in the restoration plan for translocation, an experimental method dependent on the survival, return, and future breeding of chicks.

The contribution of chicks by a saved adult and the avoidance of lasting negative consequences of its death result in benefits to the loon population and the restoration of lost loon years far greater than saving one bird. Grade et al. (2018) demonstrated the long-term and compounding harm to a loon population from mortality of adult loons caused by lead tackle ingestion. And, once removed from use, lead tackle has been forever removed as a threat to loons and other wildlife. Grade et al. (2019) reported 33 species of birds documented to have ingested lead tackle, of which 26 commonly occur in New England. EPA estimated that 75 North American bird species are at risk of ingesting lead fishing tackle (US EPA 1994). The benefit of lead tackle removal is immediate, perpetual, and accrues to many species.

Given these long-term benefits, we hope that the loon DBYs and other benefits associated with lead tackle reduction programs will be viewed in a time frame consistent with that of other preferred alternatives, such as translocation (see Section 7 in these comments). The prominence of lead tackle deaths among loon mortality factors and the resultant impact on adult survival and loon population dynamics clearly establish lead tackle as a primary limiting factor for loons—and the sole factor for which a negative population-level effect has been documented and quantified in New Hampshire (Grade et al. 2018). Sperduto et al. (2003) stressed the critical importance of identifying and addressing limiting factors to target populations in restoration efforts, and the inclusion of lead tackle reduction efforts as a preferred alternative is an important step to fulfilling this requirement. Grear et al. (2009) called for "increased focus on adult

mortality factors by managers" (p. 1114)—we commend the Trustees for focusing on the issue of lead tackle reduction and urge them to consider all of the benefits to loon and other wildlife populations from such programs.

Comment 4.1: *Given published data and LPC's findings discussed above, we request that Trustees recognize and acknowledge the full and long-term benefits of saving adult loons from lead poisoning.*

5 Rescue Alternative

We agree with the Trustees' rejection of the rescue alternative related to oil spill mitigation (p. 41, Section 3.2.2.2). However, we encourage the Trustees to include funding freshwater rescues as a preferred alternative. Such rescues are a predictable and effective way to successfully restore juvenile and adult loons to the breeding population throughout New England. In the past decade, NELSWG programs, working with other NGOs and state wildlife agencies, have rescued and released adult and juvenile loons and documented their return to the breeding population in subsequent years. Current estimates of conservation benefit, in terms of population growth rate, for these surviving rescued loons is on the same order of magnitude as other nest site management, like nest rafts and signs.

Rescues are conducted opportunistically but occur at a predictable rate from year to year in New England. In NH, rescues have averaged 10.4 adults and 4.9 juveniles per year over the last decade (2009-2018), with 4.1 adults and 2.6 juveniles successfully released annually. About one-third of rescued loons are successfully rehabilitated and released. Based on regular case-by-case evaluations of the condition of these released loons and the history of their rehabilitation, we estimate that over one-third of the released loons have a good chance for long-term survival and subsequent breeding. Survival and return rates for rescued, banded, and released loons that have returned to breed successfully in NH confirm this estimate and the benefit from these rescues. Since 2013, when we started opportunistically banding rescued loons as they were released, we have re-sighted six rescued adults returning as successful breeders and two others surviving and occupying territories out of a total of 13 banded and released loons (i.e., 62% of banded released loons survived and were re-sighted). Two released loons were later confirmed deceased and two have not been re-sighted. Another eleven adult loons were released un-banded over those years.

A tangled or iced-in loon is usually so compromised that it is almost certainly doomed if it is not rescued. Even though the confirmed success rate is low, in recent years rescued loons represent an annual conservation gain similar to raft nest sites and other management, in terms of inferred increase in population growth rate. With the recent advent of more concerted efforts to rescue iced-in loons, and an increase in the frequency of iced-in loon reports, NELSWG partners have experienced more successful releases. Increased coordination with rehabilitators and

veterinarians has also led to increased success in detecting and treating lead toxicosis in its early stages, although the typical prognosis for lead poisoning cases remains very poor.

Restoration funding will leverage existing programs to monitor and report distressed loons. Additional training, rescue equipment, and staffing for timely response will increase the number of successful rescues. Orientation and training across the partnering NGOs, state wildlife agencies, and wildlife rehabilitation community will increase the number of rescues and their success rate.

Comment 5.1.a: *Given the benefits of prevented mortalities explained above (Section 4), established and effective rescue techniques, and the potential for increased success through enhanced effort, coordination, training, and better-equipped programs in New England, we encourage Trustees to make year-round freshwater rescues a preferred alternative.*

Comment 5.1.b: *We suggest that the rescue and release of juvenile loons provides the same restoration benefits currently assigned to translocation, but at sites more favorable to loons, and is more cost-effective. Currently, juvenile loons are rescued in some cases in New Hampshire and Maine, but a comprehensive effort across northern New England programs would substantially increase that rate and could enable options like cross-fostering chicks within breeding populations*.

6 Outreach/Education/Wardening

The benefits of education/outreach/wardening are difficult to quantify but intuitively necessary to realize the potential of conservation efforts to recover and maintain viable loon populations. Efforts to create a culture of respect and appreciation for loons are a necessary accompaniment to ensure the success of rafts, ropes and signs, lead tackle reduction efforts, land acquisition, or translocation. An established and dedicated group of volunteers allows the timely reporting of loons in distress and assistance for loon rescues and forms a corps of people who help to build, place, maintain, and warden rafts, signs, and ropelines and leverage conservation funds by augmenting the efforts of a small staff.

Comment 6.1: *We applaud the recognition of the efficacy of outreach/education/wardening in recovering loon years lost in the B-120 spill and submit that this is a worthy use of B-120 funds and a necessary component of any preferred alternative to ensure that project's success.*

7 Summary of Preferred Restoration Alternatives (Section 3.4)

Comment 7.1: *As mentioned in comments above, the restoration benefits and cost-effectiveness stated in the plan for the different preferred alternatives do not appear to be*

directly comparable. For example, alternatives are calculated over different time intervals. We ask that the Trustees provide a table comparing cost, total benefit, and cost/DBY across a standard time frame, for all preferred and non-preferred alternatives in the draft plan. If possible, a range of cost-leveraging scenarios through contributed volunteer effort or partner resources might be provided for each component, as has been done, briefly, for habitat protection through land acquisition in the draft plan. We see this comparison as a useful and necessary step to demonstrate the basis for the selection of preferred alternatives.

CONCLUSION

We thank the Trustees for their work to create the draft restoration plan and are grateful for the opportunity to provide our comments. Based on our 44 years of successful work to recover NH's loon population through monitoring, research, management, and education, we believe that the disproportionate focus of restoration funds and efforts on land acquisition in RI and unproven experimental techniques in MA proposed in the draft plan will not be as effective or cost-effective as well-proven restoration strategies in the northern states of NY, VT, NH, and ME. The focus on the proposed RI and MA projects will not meet targets to restore DBYs lost, and the diversion of resources to these efforts will jeopardize the overall success of B-120 restoration funds in restoring affected breeding/summering loon populations and making the public that enjoyed those populations whole.

Translocating loons to MA will compound the harm done to loon and human populations first impacted by the spill and then required to donate loon chicks to the translocation effort. Studies and data presented in this document clearly show that high human densities and temperatures combined with the lack of funding for long-term (beyond six years) management to mitigate these known stressors will likely reduce the breeding success of translocated loons to well below that of source loon populations. The translocation experiment will be an expensive undertaking that will likely result in a *lower* number of wintering loons in RI and MA in 20, 30, or 100 years than if translocated chicks had been left in their breeding populations. Therefore, we recommend that Trustees remove translocation of loons into MA as a preferred restoration alternative and direct these funds to projects that will increase the number of wintering loons off the coasts of RI and MA. In so doing, these funds will restore *those loons that were lost*, rather than attempting to create new loon populations in habitats and conditions that are marginal for loons in many ways, and also compensate the public that lost the ability to enjoy the loons lost from both their summering and wintering grounds.

We believe the comprehensive suite of restoration activities in NY, VT, NH and ME proposed by NELSWG earlier in the B-120 damage assessment process, augmented by lead tackle reduction efforts and loon rescues, is the most viable and cost-effective plan for

restoring lost loon years. We encourage B-120 Trustees to fulfill their duty to act in the best public interest by creating a final plan that includes proven restoration strategies focused on northern New England loon populations in proportion to losses suffered by loon populations in states other than Massachusetts and Rhode Island. We believe anything less will fail to meet restoration goals and will fall far short of the requirements of 15 CFR § 990.

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CL7-MEA

Maine Audubon
Tracy Hart, Maine Loon Project Director
Sally Stockwell, Director of Conservation

Maine Audubon Response to
the Draft Restoration Plan For Common Loon (*Gavia immer*) and Other Birds Impacted By The Bouchard Barge 120 (B-120) Oil Spill

Date: October 31, 2019
To: **Molly Sperduto**, NRDAR/EC Program Supervisor, USFWS
From: Tracy Hart, Maine Loon Project Director and Sally Stockwell, Director of Conservation, Maine Audubon

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Maine Audubon would like to thank the Trustees for their work in developing the draft restoration plan to recover lost loon years that resulted from the Bouchard B-120 Barge oil spill on April 27, 2003. As coordinators of the Maine Loon Project, Maine Audubon has worked with professional partners and thousands of citizen volunteers across the state to track and protect common loons over the past 36 years. Maine Audubon has also been a partner to the comprehensive approach implemented throughout Maine to restore the state's loon population—resulting in a 70% increase in the population in the southern half of the state over three decades. This experience makes us particularly qualified to comment on alternatives for restoring loon losses resulting from the B-120 spill.

We are encouraged by the Trustees' determination that restoration must include the northern New England states where the vast majority of loons affected by the spill breed. However, we have questions and concerns about the plans to allocate more than half of the funding to translocation and land acquisition projects in the states where the spill occurred (MA & RI). ***To restore the loon years lost, we request that a larger portion of the restoration funds be allocated among the states that incurred losses to their breeding loon populations, and that the funds be used for comprehensive management actions that have proven effective in restoring loon populations throughout the Northeast.*** Specifically, we support the **second preferred alternative**, which proposes a suite of projects throughout New England to increase loon productivity in the affected populations, including protecting breeding habitat, creating artificial nest sites, implementing a nest protection program with loon wardens, signage and public outreach, and reducing exposure to lead tackle. We recommend some of these funds be awarded to New York as well because we know loons that breed in upstate New York also winter in Buzzards Bay.

Following are detailed comments about the draft plan, our reactions to the plan, and our recommendations for changes to the plan.

1. ***Focus restoration on the loon populations that were most affected by the spill--predominately breeding populations from Northern New England and New York that winter in Buzzards Bay.*** As recognized in the draft proposal (USFWS 2019), common

loons that winter in Buzzards Bay breed in Maine, New Hampshire, Vermont, New York, and Massachusetts; and, following the B-120 spill, oiled loons were recovered in Maine, New Hampshire, and Massachusetts (USFWS 2019; Evers 2018 & 2014), indicating that losses occurred in the breeding populations of these states. Monitoring data indicate that Massachusetts' small and growing breeding population actually increased rather than decreased following the B-120 spill (Evers et al. 2018), suggesting that Massachusetts' breeding loons did not suffer significant losses. Therefore, the balance of evidence indicates that the large majority of loons affected by the B-120 spill winter in Buzzards Bay, but breed north of Massachusetts.

Therefore, establishing new loon breeding populations in areas of Massachusetts where they have been extirpated will not directly mitigate losses to the populations that sustained the majority of injury and diverts the focus of restoration efforts away from the populations most affected. In contrast, focusing restoration on existing loon populations within their current breeding areas will directly enhance the populations that were impacted, while also addressing injuries to wintering populations in Buzzards Bay.

Prior cases provide precedent for enhancing existing breeding populations as a means to mitigate oil spill-related impacts in loon wintering areas. For example, the Trustees' response to the 1996 North Cape Oil Spill in Rhode Island focused on enhancing loon reproductive success through protection and management actions at breeding locations in Maine versus measures in close proximity to the spill site (Sperduto et al. 1999). Similarly, the BP Deepwater Horizon Spill final restoration plan focuses on a suite of restoration activities within loon breeding areas of Minnesota (USFWS 2019).

These precedents are relevant to the current example because all of these oil spills resulted in injuries that extended beyond the immediate spill area to more northern breeding populations, as a result of the connectivity between loon breeding and wintering locations. The B-120 draft proposal recognizes this extended "footprint of impact" by concluding that the restoration must occur in northern New England breeding areas, as well as within the states directly impacted by the oil. We support directing funds to affected breeding populations as the best means to restore the actual loon years lost. Measures that address the most critical threats to the affected populations throughout their range and in the location where they occur will have a greater impact in restoring loon years than selecting actions based on their proximity to the spill site. We conclude, therefore, that allocating over half of the funds to translocation in Massachusetts and land acquisition in Rhode Island is inconsistent with precedent and also inconsistent with the level of injuries sustained by the breeding populations of each state. A greater allocation of funds to the states that incurred the greatest losses to their breeding populations, including New York, Vermont, New Hampshire, and Maine, will address losses to both breeding and wintering populations.

2. ***Use a suite of proven restoration actions.***

We also request additional funding for the types of comprehensive management actions outlined under Preferred Alternative 2. The goal of the Second Preferred Alternative is to use a variety of management and outreach techniques, which have been used successfully throughout the Northeast for more than 40 years (Evers et al. 2009), to restore losses to common loon populations. There is both precedent and support for these comprehensive approaches to enhance common loon productivity and adult survival at breeding sites.

As outlined in the draft proposal, many of these actions have been used successfully following other oil spills, including:
1) the Deepwater Horizon Spill (which used the same suite of activities proposed in Preferred Alternative 2);
2) the North Cape Spill (protection of breeding habitat); and
3) the Sanborn Pond Spill (reduction of lead tackle exposure, voluntary protection of water quality and habitat, and installation of nesting rafts).

In addition to these precedents, Maine's example provides evidence that a comprehensive restoration approach at breeding locations is effective. Many of the actions proposed to address the impacts of the B-120 spill have already been used to steadily increase the adult loon population in Maine, including habitat and shoreline protection, signage, providing artificial nesting platforms, improving water quality, reducing toxin ingestion, and addressing human disturbance. Based on results of the Maine Audubon Annual Loon Count, conducted by over 1,000 volunteers for 36 years running, the loon population in the southern half of the state grew from approximately 1,800 in 1983 to an estimate of 3,629 in 2018. The population increase is attributed to a number of factors that highlight the importance of a combined regulatory and voluntary approach to loon protection, including:

- annual counts that engage local residents and lake associations and generate thousands of loon ambassadors who serve as the eyes, ears, and voices for loons on their lakes;
- posting **Look Out for Loons!** signs at boat ramps and/or near nests;
- outreach presentations on loon ecology and conservation;
- distribution of The Maine Loon Kit for students and civic groups;
- citizen support for the state's no-wake law to protect nests and nursery areas;
- statewide support for a phased-in ban on lead tackle to reduce loon lead poisonings, along with corresponding outreach and voluntary tackle exchange efforts;
- ongoing citizen monitoring and protection efforts focused on water quality and habitat improvements on breeding lakes throughout the state;
- wardening; and

- the provision of artificial nests in areas prone to flooding or where natural nesting sites remain non-productive for multiple years (DeSorbo et al. 2007).

This suite of actions has led to the restoration of the Maine loon breeding population, and demonstrates that a comprehensive strategy can restore loon productivity effectively. Our partners in other New England states also report successes using similar strategies at their locations. Based on the gains achieved through these comprehensive conservation programs, we believe more funds should be directed to these activities.

3. Reduce the Allocation to Translocation

In contrast to these techniques, loon translocation does not have the same proven track record, and imposes additional impacts on source populations already affected by the spill by removing chicks from their natal lakes. With a suite of proven restoration strategies available in the region, and given uncertainties around translocation, we believe the total level of funding that is proposed for translocation efforts is excessive.

Translocation will enhance regional productivity and therefore compensate for damages only if:

1) Moving chicks provides future breeding opportunities not otherwise available for those individuals; and
2) Productivity on natal lakes cannot be improved through in situ efforts to protect or restore nesting sites, improve water quality, and protect loons from toxins and human disturbance.

In other words, translocation will only increase regional productivity if translocated chicks have better breeding success than chicks left on source lakes, and additional in situ protection and restoration efforts within their established breeding range would not sufficiently improve productivity. Barring that situation, translocating loon chicks will not represent a net regional reproductive gain and the additional impacts to source populations and stressors caused by removing chicks from their natal lakes and their families therefore become unjustified.

It is not clear that translocation will increase productivity more than in situ efforts to address threats within existing breeding areas. For one, the anticipated impacts of climate change on loon productivity and breeding range will likely limit significant population expansion in the most southern reaches. The draft proposal recognizes that "potential risks that may be associated with a changing climate…could adversely affect the potential sustainability of the [translocation] project" (USFWS 2019), but concludes that the risk is warranted because the project focuses restoration near the oil spill (nexus of injury) and restores individuals at the southern extent of the range as a way to facilitate adaptation to climate change.

Translocating chicks to the southern extent of the current breeding range at a time when field findings show declines in nesting success with rising average daily temperatures, and climate models consistently predict northward shifts for loons (National Audubon 2015, Langham 2015, McCarthy 2010), indicates that translocation will likely subject relocated chicks to additional environmental challenges.

We are concerned that climate-related changes--such as changes in ice-out dates, water quality, harmful algal blooms, extreme storm events, incidence of disease and parasites, and heat stress--will undermine the success of translocating loons southward, and threaten their survival, productivity, or range expansion. We have reviewed the Loon Preservation Committee's analysis of translocation productivity estimates in their draft comments (Vogel, H. personal communication, September 20, 2019) and note that both their current and climate-altered scenarios are in stark contrast to the estimates contained in the draft proposal. We feel that the discrepancy warrants additional analysis before translocation strategies are selected as a preferred alternative. In addition, we reiterate that the key to restoring lost loon years lies in assessing the primary threats facing affected loon populations throughout their range and addressing those impacts on location rather than in proximity to the spill. This aligns with the conclusion in Sperduto (2003) that "the most important assumptions regarding restoration are ones that involve identification of the factor(s) that currently limit the target population(s). Once the population bottleneck is identified, restoring the injury involves identifying and scaling the most effective mechanism to overcome this limitation."

Furthermore, the proposal to remove chicks only from two-chick broods seems to acknowledge our concern that translocation may pose impacts to the source population's productivity--which has already sustained injury and is presumably the focus of the restoration efforts. In our experience, it is not a foregone conclusion that one chick in a pair will not survive and, therefore, the action of removing half of the brood diminishes chances for successful fledging of both chicks on their natal lakes. While we don't have an estimate of the number of Maine lakes that successfully rear two chicks because the annual loon count occurs in July, each year we receive reports of two surviving chicks from single pairs sent by associations that continue to monitor loons after the count. For example, we have reports of two surviving chicks from Jordan Pond, Mount Desert Island, and Keoka Lake, Waterford in 2019 (Helprin, B. personal communication, *Summer MDI Loon Update*, September 12, 2019 and Tarbell, C. personal communication, October 3, 2019). Even on lakes with impairments to productivity, such as fluctuating water levels on Mooselookmeguntic Lake, pairs have been documented to successfully rear two chicks (BRI 2005). Similarly, New Hampshire has reported second-chick survival rates of 59% and Vermont 63% (LPC draft comments, Vogel, H. personal communication, October 18, 2019). Therefore, removing one chick from a brood should be considered cautiously when weighing the merits of a translocation strategy against opportunities to improve productivity within existing breeding areas, as removal will likely inflict additional injury on the population impacted by the spill.

As outlined above, all indications are that there are additional opportunities to increase productivity and adult survival through in situ efforts in existing breeding areas. The draft proposal recognizes that many of the threats that impact productivity adversely affect loons during the breeding season (e.g., shoreline development, mercury, bioaccumulation, lead poisoning from fishing tackle, disturbances by recreational boaters, and variability in lake water levels due to hydropower operations). Therefore, actions to address these threats on existing breeding grounds are expected to increase reproductive success. Maine provides a useful example. Comprehensive actions have been successful in restoring loon populations and loon productivity in the state. With more effort put towards these strategies, we expect to reduce mortality and impacts on reproductive success even more, especially given that many of the impacts to loon productivity in the state continue to pose threats. Notably, translocated chicks would also face many of these threats in their new locations, as well as any additional risks posed by the translocation process and climate change. As Kneeland (2015) states, "generally active management and outreach actions are needed to offset adverse human impacts in areas of their [common loon] southern breeding range."

Given the uncertainties surrounding translocation's success and the availability of other effective actions, we request that funds currently allocated for translocation be significantly reduced and reallocated among the three Northern New England states (VT, NH, and ME) and New York, where most of the oiled birds are known to breed, and recommend that money be used to provide additional funds for outreach, monitoring, and management actions that have proven effective at enhancing productivity and populations within those states as well as on wintering grounds. However, if despite these concerns, the Trustees still elect to support some level of translocation, we urge that it be limited only to the Berkshire Mountains area of western Massachusetts.

4. Additional Comments:

A. Lead tackle reduction and reducing adult mortality. We support the proposed funding for efforts that aim to reduce ingestion of lead fishing tackle throughout the region. In Maine, analyses of causes of death suggest that regulatory measures and outreach efforts have made a positive impact on reducing lead poisoning in the state, given findings that lead-related deaths decreased over a study period from 1990 to 2016 (MacDonald 2018). Yet, lead poisoning remains a leading cause of adult mortality in the state, and additional actions are needed to address loop holes in the legislation and to continue to spread the word about the tackle ban and lead free fishing. While progress has been made through regulatory measures and associated outreach efforts in several states, lead poisoning remains a leading cause of adult loon mortality region-wide. As noted in Evers et al. (2010), adult survivorship is critical to population viability because common loons are a long-lived species, do not breed until their sixth year, and have low annual productivity. The Trustees' proposal to increase adult survival rates by funding outreach efforts for anglers about lead toxicity and tackle

exchanges is vital to reducing adult lead poisoning in the populations injured by the B-120 spill. Grear et al. (2009) provide further support for this approach stating that "it is likely that minimal impairments or improvements of adult survival would be sufficient to cause long-term changes in loon population fitness."

B. *Suggested revisions to the evaluation criteria.* We also suggest several revisions to the evaluation criteria that were developed to assess the merits of the preferred alternatives and proposed restoration projects. First, we suggest that community involvement receive greater importance within the evaluation criteria. The Maine Loon Project provides evidence that community outreach and involvement are effective, cost-efficient, and sustainable approaches to loon conservation. Conducted by over a thousand volunteers each year, the Annual Maine Loon Count has enabled us to track population changes consistently over time, across hundreds of lakes at low cost. This effort and others throughout the state (such as the Maine Lakes Society's LakeSmart and Loon Smart programs and Maine DIFW outreach programs) have generated thousands of loon ambassadors working on numerous projects throughout the state to advance loon protection. We have found that community involvement is vital to the success and sustainability of restoration efforts and serves as a cost-effective and long-term investment in loon protection.

Secondly, as stated above, we believe the nexus to injury criteria is less important in evaluating restoration projects than a project's potential to address critical threats to productivity and adult survival in affected populations. Similar to concerns we have outlined about translocation, land acquisition in Rhode Island may help to protect water quality for wintering loons in Buzzards Bay, but it is unlikely to be as effective at restoring lost loon years as actions to stabilize and grow the breeding populations. We are concerned that allocations for land acquisition in Rhode Island and translocations to Massachusetts are not the best ways to address the most critical threats to the loon populations that winter in Buzzards Bay.

5. ***Conclusion***

In summary, Maine Audubon believes there is significant room for improvement in how the B-120 funds will be allocated to recover lost loon years and specifically asks that funding be allocated to a suite of outreach and management projects implemented in the affected breeding populations, where productivity and adult survival can be enhanced, including:

- Integrated, comprehensive management and monitoring strategies that address the most critical threats to the loon populations that incurred losses;
- Reducing exposure to lead tackle;
- Creating artificial nest sites on lakes with fluctuating water levels or long-term failed productivity;
- Installing signage and increasing wardening to reduce threats from boats and humans;

- Community involvement in tracking and protecting loons on their lakes; and
- Protection of breeding habitat (through programs like Maine's voluntary Lake Smart/Loon Smart programs).

Thank you for your consideration of these comments and for the Trustees efforts to protect the region's loons, wildlife, and habitat.

Sincerely,

Tracy Hart
Wildlife Ecologist

Sally Stockwell,
Director of Conservation

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CL8-STB

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October 31, 2019 ***via email and Fax***

United States Fish and Wildlife Service
Attention: Molly Sperduto
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Molly_sperduto@fws.gov

Re: Comments on Draft Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge (B-120) Oil Spill.

Dear Ms. Sperduto:

I am writing in response to the invitation by The National Oceanic and Atmospheric Administration ("NOAA"), United States Department of the Interior ("DOI")—acting through the U.S. Fish and Wildlife Service Fish and Wildlife Service ("USFWS"), the Commonwealth of Massachusetts—acting through the Executive Office of Energy and Environmental Affairs ("EEA"), and the State of Rhode Island to comment upon their *Draft Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge (B-120) Oil Spill* ("Draft RP"), which was released on August 29, 2019.

As an attorney, avid bird watcher, and conservation advocate, I have provided paid representation and pro bono services to a variety of local, state, and national entities engaged in the conservation of birds. This includes leading successful legislative efforts in New Hampshire resulting in the nation's toughest regulation of lead (Pb) fishing tackle, establishing state-level oil spill preparedness requirements for pipeline operators, and preventing the taking of wild owls for falconry. These efforts have allowed me to work alongside dedicated volunteers working long hours to protect loons and other birds. They have substantial impact with minimal resources due to their efficiency, and they deserve a restoration plan for common loons that operates the same way.

Based on both legal and practical considerations, I have deep concerns about the Draft RP, believe it needs serious revisions to comply with the requirements of the Oil Pollution Act of 1990 ("OPA") 33 USC § 2701 *et seq.,* and must advocate in all possible venues for a Final Restoration Plan differing greatly from the Draft RP. I offer the following comments:

I. BACKGROUND

On April 27, 2003, the Bouchard B-120 Barge, owned by Bouchard Transportation Co., Inc., struck a rocky shoal in Buzzards Bay, releasing ninety-eight thousand (98,000) gallons of No. 6 fuel oil. The B-120 oil spill ("Spill") affected more than 100 miles of Buzzards Bay, its shoreline, and nearby coastal waters in both Massachusetts and Rhode Island.[1]

The location of the Spill was approximately five miles offshore, where a large concentration of wintering and migrating birds were gathered.[2] This location would place the Spill, and the injury to common loons, in the United States Territorial Sea. It is estimated that one thousand one hundred seventy-four (1,174) of these birds died as a result of the Spill.[3] Hardest hit among these was the northeastern population of common loon which lost five hundred thirty-one (531) birds.[4]

In 2010, the United States, the Commonwealth of Massachusetts, and the State of Rhode Island each filed separate claims for damages related to the Spill—including the loss of natural resources. The parties' complaints were consolidated in the United States District Court for the District of Massachusetts under *United States, et al. v. Bouchard Transportation Co., Inc. et al.,* Civil Action No. 1:10-cv-11958-NMG.

The Court entered a consent decree ("Consent Decree 1") settling the claims for "damages to aquatic resources, recreational resources, shoreline resources, and piping plovers, in addition to the costs of assessing those damages" on May 17, 2011.[5] A subsequent consent decree ("Consent Decree 2") entered on January 24, 2018 settled claims for "wildlife resources," defined as "animal species except for piping plovers; the habitats and other living organisms that support those species; and the ecological services provided by those species, habitats, and other living organisms."[6]

II. DRAFT RESTORATION PLAN FOR COMMON LOON – TRUSTEES PREFERRED ALTERNATIVES

On Aug. 29, 2019, the National Oceanic and Atmospheric Administration ("NOAA"), United States Department of Interior ("DOI"), Commonwealth of Massachusetts, and State of Rhode Island released a *Draft Restoration Plan for Common Loon and Other Birds Impacted by the 2003 Bouchard Barge (B-120) Oil Spill* ("Spill") acting as natural resource trustees ("Trustees") under authority allegedly granted under Oil Pollution Act of 1990 ("OPA"), 33 USC § 2701 *et seq*.

The Draft Restoration Plan ("Draft RP") sets forth the proposed uses of eight million two hundred forty-four thousand dollars ($8,244,000.00) for the restoration of common loons and other birds. Of this amount, seven million three hundred thousand dollars ($7,300,000.00) is allocated to the restoration of common loon.[7]

In the Draft RP, the Trustees allocate ten percent (10%) of the settlement funds for loon restoration, seven hundred thirty thousand dollars ($730,000.00), to a land acquisition project in Rhode Island (identified as Project ID Number OB-1RI).[8] The trustees also allocate three million one hundred eighty-five thousand dollars ($3,185,000.00) to a loon translocation project in Massachusetts (identified as Project ID Number COLO-1).[9] Lastly, the trustees make available three million one hundred eighty-five thousand dollars ($3,185,000.00) for a suite of restoration activities including artificial nest sites, signage and wardening, protection of breeding habitat, and reducing exposure to lead (Pb) tackle "throughout new England." (identified as Project ID Number COLO-2).[10] The Trustees make no allocations to specific jurisdictions, organizations, or projects for COLO-2 actions in the Draft RP.

The Trustees explain that "[b]ecause common loon do not breed in Rhode Island, loon restoration will focus on efforts to improve wintering habitat along the Rhode Island coast."[11] The nexus between OB-1RI and efforts to restore common loons to baseline is unclear, however, as loons winter on the ocean—not land. The nexus is never explained.

The Trustees next assert that translocation (COLO-1) "directly compensates for those injuries to common loon and to the public of Massachusetts by restoring common loon in Massachusetts where they were impacted."[12] Translocation is to be "…accomplished by moving individual loon chicks from existing breeding lakes to potential breeding lakes. It is based on the knowledge that common loon chicks will imprint on the lakes where they are born and raised and subsequently return to these lakes to breed."[13]

Lastly, through a comprehensive suite of restoration actions in COLO-2, "[r]estoration of common loon in northern New England is expected to help compensate for losses that occurred to the population in those states." Additionally, "restoration of breeding common loon in Massachusetts and northern New England should increase the overall loon population wintering in Buzzards Bay."[14]

The comprehensive suite of management activities outlined in COLO-2—excluding land acquisition—was proposed by the Northeast Loon Study Working Group

("NELSWG") whose members include the leading loon conservation organizations in Maine, Massachusetts, New Hampshire, Vermont, and New York.[15]

III. STATE TRUSTEES HAVE NO AUTHORITY OVER COMMON LOONS IMPACTED BY THE SPILL

The Spill injured wintering common loons that were on the territorial seas of the United States. As such, the injured common loons were natural resources under the trusteeship of the United States. Under OPA, federal trustees "shall develop and implement a plan for the restoration, rehabilitation, replacement, or acquisition of the equivalent, of the natural resources under their trusteeship."[16] As the designated federal trustee for migratory birds, USFWS has the exclusive authority for restoration planning related to common loons injured by the B-120 Spill.

Furthermore, it is a bedrock principle underlying the validity of the Migratory Bird Treaty Act, 16 USC §701 *et seq*. ("MBTA"), that states cannot claim title to migratory birds. In upholding the MBTA against a challenge on Tenth Amendment grounds (infringement of state's rights), the Supreme Court held:

> "Wild birds are not in the possession of anyone; and possession is the beginning of ownership. The whole foundation of the State's rights is the presence within their jurisdiction of birds that yesterday had not arrived, tomorrow may be in another State and in a week a thousand miles away. If we are to be accurate we cannot put the case of the State upon higher ground than that the treaty deals with creatures that for the moment are within the state borders, that it must be carried out by officers of the United States within the same territory, and that but for the treaty the State would be free to regulate this subject itself."[17]

The Trustees are given only the authority allowed by OPA. Consent Decree 2 requires the Trustees to "prepare a Restoration Plan(s) for Wildlife Resources, and jointly, as provided in the Trustee Memorandum of Agreement, approve expenditures from the Bouchard B.120 Oil Spill Restoration Account consistent with the Restoration Plan(s) for the [injured wildlife resource] and pursuant to the terms of the Trustee Memorandum of Agreement.[18]

Consent Decree 2 defines "Restoration Plan(s)" as "a <u>*plan or plans developed in accordance with OPA and its underlying regulations*</u> at 15 CFR 990.53-990.56." (*emphasis added*). [19]

IV. THE TRUSTEES' DRAFT RESTORATION PLAN FAILS TO MEET OPA'S REQUIREMENT TO RESTORE BASELINE CONDITIONS

As acknowledged by the Trustees, the purpose of the OPA is to make the environment and public "whole" for injuries to natural resources and services that result from an oil spill.[20] "This mandate is carried out by first returning the injured natural resources to 'baseline.'"[21]

As defined by 15 CFR § 990.30:

> "Baseline means <u>the condition of the natural resources and services that would have existed had the incident not occurred</u>. Baseline data may be estimated using historical data, reference data, control data, or data on incremental changes (e.g., number of dead animals), alone or in combination, as appropriate." (Emphasis added).

Assuming, arguendo, that Massachusetts and Rhode Island can have a valid claim for damages for loons injured on the territorial seas of the United States and then collected dead from their shores, any injury to those states' loons is minimal. "The total Massachusetts adult loon population in 2003 (as reported at the 2004 Northeast Loon Study Working Group Meeting) was seventy-two (72) loons, comprised of 27 territorial pairs and 18 unpaired adults. Spagnuolo (2012) reported lower numbers of adult Massachusetts loons—21 territorial pairs in 2002 and 24 territorial pairs in 2003, and an undetermined number of unpaired adult loons."[22] Meanwhile, the total Rhode Island breeding adult loon population in 2003 was zero.

As already pointed out to the Trustees by the Loon Preservation Committee, "Even if every adult Massachusetts loon had been in Buzzard's Bay at the time of the B-120 spill, those loons would represent only 14% of the loons killed. Additionally, at the time of the spill (beginning April 27, 2003), all or a majority of Massachusetts lakes were ice-free and the majority of Massachusetts breeding loons would have been on their breeding territories, leaving only a small number of adult and juvenile Massachusetts loons in this area. Therefore, we can be sure that the large majority (certainly more than 80% and likely more than 90%) of loons killed as a result of the B-120 spill were not from the Massachusetts adult population, but rather from other populations known to overwinter in this area including other northeast states and possibly Canada."[23]

Despite the overwhelming evidence that none of the loons injured by B-120 were Rhode Island loons and probably no more than ten percent (10%) of the loons injured were from Massachusetts, the Trustees have developed a plan that specifically

allocates greater than 50% of settlement funds for common loon restoration in Massachusetts and Rhode Island. Meanwhile, the Plan makes no specific allocation of funds for restoration in other jurisdictions from which likely more than ninety percent (90%) of the injured loons were lost.

As part of their mandate under OPA to make the environment and public whole, the Trustees **must** quantify the degree, and ***spatial*** and temporal extent of such injuries relative to baseline." 15 CFR § 990.52(a) (*emphasis added*). In other words, the Trustees must measure the injury in all places where it impacted the natural resource that is to be restored—not just where a spill occurred. The Trustees have acknowledged injuries throughout the Northeast, but they have not calculated their distribution.

Instead of making a good faith effort to quantify the spatial extent of injury to common loon as required, the Trustees have developed a Draft RP that directs funding based on the area of the Spill and numbers of dead birds recovered. For example, whereas "10 percent of the dead birds recovered following the Spill were found in Rhode Island," 10 percent of available funding is allocated to Rhode Island.[24]

The Draft RP fails to make whole the environment and public in places other than Massachusetts and Rhode Island for the injury to their breeding loon populations. Moreover, the Trustees cannot achieve their mandate of making the environment and public whole if their Draft RP is not informed by some approximation of the number of loons lost from each jurisdiction whose loons are known to winter in Buzzards Bay.

As well-stated by the Loon Preservation Committee, "the loss of each loon from its breeding territory falls most heavily upon the public residing in the vicinity of that territory."[25] Various organizations' staff and volunteers invest substantial time and monetary resources in monitoring, research, management, and education activities to increase loon productivity in their states. "The loss of a loon from its breeding territory also represents the loss of that investment by stakeholders. Furthermore, for recreational users of lakes and ponds or nearby residents, there is a loss of enjoyment of these magnificent birds."[26]

Even if the Trustees are unable to exactly quantify the spatial extent of injury to common loon, they can most certainly do so with more precision than they have. The restoration plan would be far more likely to make the environment and public whole in places that lost breeding loons if it allocated an equal amount of the available $7.3M to restoration efforts in Maine, Massachusetts, New Hampshire, New York, Vermont, and Canada.

Efforts throughout the northeast will help make the environment and public in Massachusetts and Rhode Island whole for any minimal injury to their common loons. As acknowledged, the only way to replace wintering loons is by improving loon productivity.[27] Meanwhile, "[r]estoration of common loon in Massachusetts and northern New England should increase the overall loon population wintering in Buzzards Bay."[28]

On the other hand, creating breeding pairs of loons in Massachusetts—in places where they did not exist prior to the Spill—does not return lost loons or their reproductive capacity to the places from which they were lost. As a result, the strategy employed by the Plan fails to make the environment and public whole by returning the loon population to baseline.

V. TRUSTEES HAVE FAILED TO PROPERLY EVALUATE RESTORATION ALTERNATIVES USING REQUIRED MINIMUM CRITERIA

The Trustees' Evaluation Criteria consists of nine criteria purportedly "based on the six evaluation criteria in the OPA regulations and other factors important to meet the Trustees' restoration goals."[29]

The nine criteria are weighted as follows:

High Importance	• Nexus to Injury – Spatial proximity within affected area. • Nexus to injury – Same or similar species.
Medium Importance	• Project implementation readiness. • **Technical feasibility/likelihood of success of project.** • Sustainability of resource benefits. • **Cost/cost effectiveness.**
Low Importance	• Impact avoidance or minimization. • Level of funding and resources needed for project implementation. • Community involvement.

Only two of these criteria bear any discernable similarity to the required minimum criteria set forth in 15 CFR §990.54(a)[30], which provides that trustees "**<u>must evaluate the proposed alternatives based on, at a minimum:</u>**

> (1) The cost to carry out the alternative;
> (2) 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;
> (3) The likelihood of success of each alternative;
> (4) 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;
> (5) The extent to which each alternative benefits more than one natural resource and/or service; and
> (6) The effect of each alternative on public health and safety."

By emphasizing their own criteria while downplaying and ignoring minimum required criteria, the Trustees have bolstered the selection of OB-1RI and COLO-1. For example, land acquisition in Rhode Island (OB-1RI) is high-ranking based upon proximity to spill. However, if this project were evaluated based upon its cost ($730,000 of loon restoration funds), extent to which it will meet the trustees' goals of returning resources to baseline (zero), and likelihood of success in restoring loons (zero), it wouldn't even be considered.

As already mentioned, the Trustees provide no evaluation of OB-1RI other than "[b]ecause common loon do not breed in Rhode Island, loon restoration will focus on efforts to improve wintering habitat along the Rhode Island coast."[31] The nexus between OB-1RI and efforts to restore common loons to baseline is unclear, as loons winter on the ocean—not land. The Trustees never explain this.

While the mandate that trustees "must evaluate the proposed alternatives based on, *at a minimum*…" in 15 CFR §990.54(a)(*emphasis added)* suggests that additional criteria may be considered by trustees, it is unreasonable to interpret the regulation as allowing trustees to use additional criteria in a way that displaces or diminishes the required minimum criteria. Otherwise, the minimum criteria would be rendered meaningless, and projects meeting subjective criteria (e.g., proximity to trustee's home state) could get a green light even when they are neither cost-effective nor likely to succeed.

While any minimal injuries to Rhode Island and Massachusetts loons are greatly overcompensated by their plan, the Trustees have not evaluated the extent to which each alternative is expected to return common loon to baseline in other jurisdictions. Translocation in Massachusetts and land acquisition in Rhode Island neither restore common loons to baseline nor make the environment and public whole in Canada and the states of Maine, New Hampshire, New York, and Vermont who were most heavily impacted by the loss of their breeding loons.

For these most-heavily impacted jurisdictions, the Plan merely provides that under COLO-2 three million one hundred eighty-five million dollars ($3,185,000) will be made available for the Restoration of Common Loons in New England on www.grants.gov. (*emphasis added).*[32] This leaves open the door to additional allocations to Massachusetts and Rhode Island from COLO-2 funds. For example, the plan states that "[i]n conjunction with the translocation efforts, additional management techniques may be utilized to enhance productivity of newly established common loon pairs."[33]

It is impossible for the Trustees to meet their obligation of evaluating proposed alternative COLO-2 based on minimum criteria without allocating specific amounts to various jurisdictions and proposed projects. Absent such a framework, COLO-2 could vary widely in cost, extent to which it can be expected to restore common loon to baseline, likelihood of success, benefits to natural resources other than loons, and other key metrics. Nonetheless, instead of performing the required evaluation as part of selecting preferred alternatives, the Trustees defer this work to a grant solicitation or request for proposals ("RFP") stage, when the public will be deprived of the opportunity for review and comment upon alternatives intended by OPA.[34]

Additionally, just as the weighting of "spatial proximity within affected area" as "high priority" has favored the selection of projects in Massachusetts and Rhode Island in the Draft RP, the carrying forward of this criteria into the grant solicitation stage will create further bias toward restoration projects in these jurisdictions.[35] At a minimum, to ensure that the environment and public in all jurisdictions that lost loons to the Spill are made whole, the Plan should have some structure to ensure COLO-2 Maine, New Hampshire, New York, Vermont, and Canada receive substantial resources for loon restoration.

Ideally, the Trustees should remove all land acquisition (including OB-1RI) and Massachusetts translocation (COLO-1) from their restoration plan and put forward a well-defined preferred alternative that focuses on comprehensive management as contemplated in COLO-2. The 2009 proposal by the Northeast Loon Study Working Group ("NELSWG") provided an excellent template for this.

Developed in collaboration between the leading organizations and individuals engaged in loon restoration in the Northeast, the NELSWG proposal set specific allocations for projects in Maine, Massachusetts, New Hampshire, New York, and Vermont. It would be ideal as the lone preferred alternative with three revisions:

1. It should be given a total budget of the $7.3M now available rather than the $3M the parties anticipated would become available when the document was prepared nine years ago.[36]

2. It should devote funding to efforts to reduce lead tackle exposure—an action that benefits other species in addition to loons and addresses the number one cause of adult loon mortality in New Hampshire.

3. It should not include land acquisition, which was not among activities proposed by NELSWG. Including land acquisition as a component of COLO-2 in its current generic form allows potential land acquisition projects—which could substantially reduce available funds for comprehensive restoration—to avoid evaluation on minimum criteria required by 15 CFR §990.54(a) before preferred alternatives are selected.

VI. PROPOSED RESTORATION PROJECTS SHOULD BE TREATED EQUALLY

Outside of the restoration planning process, it is the Trustees intent to use the evaluation criteria in Section 2.2 (discussed at page 8-9 of this memo), "along with the following additional information to evaluate and select project proposals:

a. number of common loon (or pairs) likely to benefit;
b. expected effects of project proposal on common loon productivity and adult survival;
c. site location (must be located within New England);
d. habitat area and quality;
e. cost effectiveness.
f. performance monitoring protocols; including availability of existing baseline information."[37]

These criteria are largely a restatement of the required minimum criteria in 15 CFR §990.54(a), which the Trustees have <u>not</u> applied to COLO-1 and OB-1RI. As a requirement of OPA, the minimum required criteria should be applied to all proposed restoration actions <u>before</u> their selection as preferred alternatives. Individual projects can then be selected through an RFP process if they are consistent with the Final Restoration Plan. As a matter of fundamental fairness and due process, projects in COLO-2 should not be held to a higher standard of review than projects in COLO-1 or OB-1RI.

All projects should also be part of a competitive request for proposals ("RFP"). Alternatively, specific projects and recipients—such as NELSWG partners—should be identified in the Restoration Plan along with Biodiversity Research Institute ("BRI"). Just as the Trustees are proposing to work with BRI to implement the translocation project, based on BRI's "in-depth knowledge and relevant experience," the Trustees could justify the allocation of funding to NELSWG partners.[38] The latter parties possess in-depth knowledge and relevant experience in comprehensive management techniques to restore common loons.

For well-qualified applicants with meritorious proposals, an RFP process is minimally burdensome. On the other hand, awarding a non-competitive or sole-source contract deprives the public of a valuable opportunity to secure the most cost-effective proposals through a competitive process. Much of the Trustees analysis of translocation's likelihood of success is based upon work with other species and in other states. If this work is similar enough to loon translocation in New England to be used as a predictor of COLO-1's likelihood of success, then all parties involved in that similar work should be allowed to offer translocation proposals.

VII. TRANSLOCATION SHOULD BE TREATED AS A PILOT PROJECT

Translocation is an experimental technique that has yet to create a single breeding pair of common loons or loon chick. According to the Draft RP, BRI began moving chicks from Maine and New York into Massachusetts in 2015. Of the 24 chicks released in Massachusetts, five have been resighted, with two establishing a territory in 2018.[39]

With insufficient data related to loon translocation with which to identify and evaluate the feasibility and likelihood of success of translocation in creating additional loon years, the Trustees point to successful translocation efforts for bald eagle, peregrine falcon, and common eider."[40] The Trustees also reference a single scientific paper—still in review—that attributes the expansion of common eider along the Massachusetts Coast to a translocation project in the 1970s.[41]

The Trustees note that "Preliminary common loon translocation has already begun in southeastern Massachusetts; however, additional funds are needed to continue this effort…"[42] The Trustees also note that BRI "has led recent translocation efforts in Massachusetts, Minnesota, and Wyoming," yet they utilize no data from these latter states to show whether these efforts are ongoing or successful. These would seem to be far more relevant predictors of COLO-1's likelihood of success than projects involving other species. As acknowledged by the trustees, salary accounts

for more than 2/3 of the cost of translocation, which is "labor intensive and requires a significant level of effort to be effective."[43] If private resources have moved away from loon translocation projects, it is incumbent upon the Trustees to understand why before continuing those projects with public dollars.

The Trustees assert that COLO-1 "directly compensates for those injuries to common loon and to the public of Massachusetts by restoring common loon in Massachusetts where they were impacted."[44] In reality, the plan drastically overcompensates for injuries to the public of Massachusetts by attempting to establish loon pairs where they did not exist at the time of the Spill and were not injured by the Spill. This diminishes resources available to make whole the environment and public of jurisdictions with loon populations most predominantly injured by the Spill.

Furthermore, for experimental alternatives such as translocation, OPA's implementing regulations are clear:

> "Where additional information is needed to **identify and evaluate the feasibility and likelihood of success** of restoration alternatives, trustees may implement restoration pilot projects. Pilot projects should only be undertaken when, in the judgment of the trustees, these projects are **likely to provide the information, described in paragraph (a) of this section, at a reasonable cost and in a reasonable time frame. 15 CFR § 990.54(c).**

The information required by OPA's implementing regulations is unlikely to be produced at a reasonable cost and in a reasonable timeframe—especially if there is no data from Minnesota and Wyoming that the Trustees can cite in the Draft RP. Although the number of chicks relocated can be measured during the 6-year duration of the project, COLO-1's success in creating new common loons cannot. Loons do not breed until six years of age.[45] Additionally, "[o]nce the juveniles fledge, they will spend up to 3 years on or near the ocean, likely in wintering grounds off the southern coast of New England."[46]

Chicks moved to Massachusetts can only begin to be re-sighted on lakes where they are released after the third year of the COLO-1 project and a $1.5M investment. The reproductive success of translocated loons can only be measured years after the full expenditure of more than $3M. While the trustees propose to measure COLO-1's progress based on the number of chicks moved and number of re-sightings on Massachusetts territories, neither is a measure of likelihood of translocation's success in restoring loons to baseline by creating new loon years.

If the Trustees are insistent upon proceeding with translocation of loons as a preferred alternative, the amount of funding allocated to COLO-1 should be significantly reduced and the proposal should be more rigorously evaluated.

VIII. LOON RESCUE AND REHABILITATION SHOULD BE MADE PART OF THE COMPREHENSIVE MANAGEMENT ALTERNATIVE (COLO-2).

Trustees designated as a non-preferred alternative a proposal to "enhance and expand the capabilities of organizations that rescue, rehabilitate, and release recovered birds impacted by spill events to reduce future mortality of adult common loon."[47] The Trustees reason that "[t]he potentially responsible party ("PRP") is ultimately responsible for the costs of bird rescue and rehabilitation, so this alternative would not meet the Trustees' eligibility requirements except from 'mystery' spills where a PRP has not been identified."[48]

The Trustees have ignored myriad other scenarios not involving oil spills or PRPs. For example, rescue and rehabilitation of loons grounded during rainstorms, loons trapped on waterbodies that have iced in, and loons entangled in monofilament. These rescues boost reproductivity by keeping adult loons alive. If there is a value to moving adult loons from Maine and New York to Massachusetts, there is certainly a more cost-effective benefit to keeping adult loons alive in their existing breeding territories via rescue and rehabilitation.

IX. TRUSTEES SHOULD REPUBLISH THE DRAFT RESTORATION PLAN FOR COMMENT AS AN ALTERNATIVE TO LITIGATION.

As detailed herein, the Trustees—including NOAA and USFWS—have failed to perform mandatory duties under the OPA and its implementing regulations and their actions are reviewable under 33 U.S.C. §2706(g). Republishing a revised Draft RP would provide a mechanism for the public to ensure that the substantial deficiencies in the Draft RP are addressed without injunctive and other relief being sought from the United States District Court.

Respectfully submitted,

s/ Sheridan T. Brown
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[1] NAT'L OCEANIC AND ATMOSPHERIC ADMIN. ET AL., DRAFT RESTORATION PLAN FOR COMMON LOON AND OTHER BIRDS IMPACTED BY THE BOUCHARD BARGE (B-120) OIL SPILL (Aug. 29, 2019), p. 2, *available at* https://www.fws.gov/newengland/PDF/news/B120-Bird-Draft-RP-final.pdf (hereinafter "Draft RP").
[2] Draft RP, p. 9, Fig. 1
[3] Id., p. 8.
[4] Id., p. 8.
[5] Consent Decree, *United States, et al. v. Bouchard Transportation Co., Inc. et al.,* No. 1:10-cv-11958 (D. Mass. 2011)(hereinafter "Consent Decree 1").
[6] Consent Decree, *United States, et al. v. Bouchard Transportation Co., Inc. et al.,* No. 1:17-cv-12046, p. 10 (D. Mass. 2018)(hereinafter "Consent Decree 2").
Consent Decree 2, p. 10.
[7] Draft RP, p. 3. The remainder of the thirteen million three hundred thousand dollars ($13,300,000.00) paid by Bouchard as damages for injury to Wildlife Resources under Consent Decree 2 will be allocated by a Draft restoration plan for common and roseate terns. Id.
[8] Id., p. 22.
[9] Id., p. 3.
[10] Id., p. 35-37.
[11] Id., p. 42.
[12] Id., p. 32.
[13] Id., p. 28.
[14] Id., p. 38.
[15] NORTHEAST LOON STUDY WORKING GROUP, A PROPOSAL TO RESTORE COMMON LOON LOSSES RESULTING FROM THE BOUCHARD BARGE 120 OIL SPILL (June 14, 2019)(hereinafter "NELSWG Proposal").
[16] 33 USC § 2706(c)(1).
[17] Missouri v. Holland, 252 US 416, 434 (1920).
[18] Consent Decree 2, p. 17.
[19] Id., p. 9.
[20] Draft RP, p. 12.
[21] Id.
[22] LOON PRESERVATION COMMITTEE, MEMO TO MOLLY SPERDUTO, USFWS RE RECOMMENDATIONS FOR B-120 DRAFT RESTORATION PLAN, p. 2-3 (Dec. 20, 2018) (hereinafter "LPC 2018 Memo").
[23] Id.
[24] Id.
[25] LPC 2018 Memo, p. 3.
[26] Id.
[27] Draft RP, p. 27.
[28] Id., p. 38.
[29] Id., p. 26.
[30] 15 CFR §990.54(a).
[31] Draft RP, p. 42.
[32] Id., p. 37.
[33] Id., p. 31.
[34] See Draft RP, p. 38 and 33 USC § 2706(c)(5).
[35] Draft RP, p. 38.
[36] NELSWG Proposal.
[37] Id., p. 37-38.
[38] Id., p. 29 (citing BRI's qualifications).
[39] Id., p. 29.
[40] Id., p. 28.

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[41] Id., p. 28-29. Although relied upon by the Trustees, the study is not included within publicly available Administrative Record required by 15 CFR § 990.45, which I inspected on Oct. 4, 2019 at the USFWS New England Field Office.
[42] Id., p. 32
[43] Id., p. 31, 35.
[44] Id., p. 32.
[45] Id., p. 18 (citing Evers, 2007).
[46] Id., p. 32.
[47] Id., p. 41
[48] Id., p. 42.

CL9-VCE

Vermont Center for Ecostudies
Eric Hanson, Conservation Biologist
Chris Rimmer, Executive Director

VERMONT CENTER FOR ECOSTUDIES
Uniting People and Science for Conservation

Vermont Center for Ecostudies Comments on the Draft Restoration Plan for Common Loon (*Gavia immer*) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill

Date: October 31, 2019
To: Molly Sperduto, NRDAR/EC Program Supervisor, USFWS
From: Eric Hanson, Conservation Biologist, Vermont Center for Ecostudies
Chris Rimmer, Executive Director, Vermont Center for Ecostudies

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Dear Ms. Sperduto,

The Vermont Center for Ecostudies (VCE) is submitting the following comments on the "The Draft Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill." We appreciate the efforts of the Trustees in developing this plan, and we look forward to utilizing our experience in loon conservation to help compensate for the loss of loons in the B-120 oil spill. In partnership with the Vermont Fish and Wildlife Department, VCE has overseen the Vermont Loon Conservation Project since 1977, a period during which the statewide breeding population has increased from seven to 101 nesting pairs.

Most of our comments focus on concerns about the translocation alternative; we also offer comments on management alternatives and loon rescues. In our judgment, the translocation alternative is still entirely experimental—it has yet to produce a nesting loon pair, removes chicks from a source population negating its potential benefits, and is based on untested assumptions of survival, recruitment, population growth, and suitable habitat. We feel the discounted bird year (DBY) values for translocation do not reflect the uncertainty behind these assumptions. In addition, Common Loon has been repeatedly cited as a species at high risk to climate change, with populations predicted to disappear from the southern edge of the breeding range over the next 50-100 years.

We offer our comments in a purely constructive vein, and we sincerely hope they will prove useful to optimize alternatives that we are confident can help replace loon years lost.

Sincerely,

Eric Hanson

Eric Hanson

Conservation Biologist
Vermont Center for Ecostudies

Vermont Center for Ecostudies (VCE) comments about allocating more than 50% of restoration funds to MA and RI

Section from Plan	VCE Comments
P.2 The plan is intended to provide "restoration for injuries to common loon and all other remaining bird species affected by the Spill." p.32 3.2.1.1.4 Evaluation of the Alternative "the restoration alternative directly compensates for those injuries to common loon and to the public of MA by restoring common loon in MA, where they were impacted."	It is our understanding that restoration funds are to be used for alternatives that replace loon years lost from the regions where the injured loons spent their lives (wintering on MA and RI coast, breeding in NY, VT, NH, ME, and Canada), and to compensate the public affected in these regions. Few, if any, of the loons affected by the B-120 oil spill originated from breeding populations in MA and RI. Restoration funds for the Deepwater Horizon oil spill in the Gulf of Mexico focused all restoration funds for loons in MN, not the Gulf region (Open Ocean Trustee Implementation Group 2019). The spill occurred on 27 April 2003. All MA loon pairs would likely be on territory by this date. Loon pairs in NY, VT, NH, and ME arrive to their territories in late April and early May, soon after ice-out. Except for the possibility of some non-breeding individuals that remained on the coast, MA breeding loons were minimally affected by the oil spill. 531 loons were killed by the spill. Spagnulo (2012) reported that MA supported 21 and 24 loon pairs in 2002 and 2003, respectively. The MA adult loon population likely numbered between 65 and 75 birds, including floaters. If the B-120 spill caused mortality of 70-75 MA loons, this represents 13-14% of the 531 killed overall. Yet, the MA population increased in 2003, indicating that many fewer than 13-14% were affected. Dedicating 50% of loon restoration funds to MA does not follow the stated intent of restoring loons affected by the spill. We offer further evidence of this: • Oiled loons from the spill were found in ME and NH. • It is well documented that loons breeding in NY, VT, NH, and ME overwinter in the spill area. Although there has been limited banding of loons in VT, a loon from Island Pond, Brighton, VT (banded in Aug. 2000) was recovered on Martha's Vineyard, MA (July 2002). Most of the loons injured or killed by the B-120 spill bred in NY, VT, NH, ME, and Canada. The people of these more northern states and Canada were thus directly impacted by the spill and we believe that compensation should reflect the geographic breeding origin of affected loons. The people of MA will also benefit through increased numbers of wintering loons along the coast. The people of MA are also benefitting from other restoration projects for other bird species affected by the spill.

Comments about the Translocation Alternative (3.2.1.1)

We have serious concerns about the use of 50% of restoration funds (outside RI) for an experimental alternative whose longer-term efficacy as a loon conservation tool is unproven, and which targets a geographic area at the extreme southern edge of the species' breeding range, where climate change impacts are likely to be pronounced.

- The justification for the translocation alternative is based on numerous assumptions on suitable habitat, chick survival, the rate of colonization, and future loon population growth that are unlikely to be met.
- The translocation alternative ignores the impacts on source populations for translocated loon chicks. The removal and loss of chicks from their source populations effectively negates the loon years (DBYs) potentially created by the translocation effort.
- This translocation entirely ignores the need for follow-up, sustainable management and monitoring, in terms of human, logistical and financial resources.

Translocation might be a useful conservation method, but as an experimental and unproven technique, it does not warrant a significant investment at this time. We believe that B-120 oil spill restoration funds should be used to replace loon years lost for the breeding loon populations affected by the spill, by supporting alternatives with well-documented track records. Restoration efforts for loons after the Deepwater Horizon spill provided no funding for translocation efforts even with initial studies on translocation having been carried out in MN (Open Ocean Trustee Implementation Group 2019).

Section from Plan	Comments
p. 28 Common Loon bred throughout Massachusetts	To our knowledge, Common Loons were not abundant in MA historically. Veit and Petersen (1993) state that "there appear to be only three confirmed 19-th century records" in MA. Outside of Bent (1919, cited in Spagnulo 2012), we are aware of very few confirmed historic loon nesting records for MA.
p.29 Initial results indicate that translocated common loon chicks have successfully imprinted on lakes in SE MA.	Translocation of loons is still experimental. Efforts to date have yet to result in formation of an established pair, a nest attempt, or any chicks produced. From initial translocation efforts, 4 of 24 (17%) released chicks have been re-observed in MA, while only 1 of 18 (6%) chicks in MN were re-observed in southern MN (MN DNR communication). Although the re-sighting of 4 chicks in MA provides promising evidence that translocated loons will return to SE MA, observing 2 subadult loons together does not itself indicate establishment of a territorial pair. Our three decades of observing how pairs form has made clear that loons are social and will interact with each other if on the same waterbody. Territorial pairs can be confirmed only if nest searching, courtship behavior, or nest building are observed. The MN translocation project took place from 2014-16, thus many of these 18 translocated birds would now be 4-5 years old and returning to their natal lake region as potential breeders. To date, only one observation of a single bird has been recorded, with no repeated observations, a very low rate of apparent return and survival. We feel it is imperative to examine why this translocation project was discontinued, whether there have been follow-up studies of the translocated population, and what conclusions have been reached about the efficacy of translocation efforts in MN. In addition, it would be helpful to know the return rates of translocated loons in SE MA in 2019.

p.31 Projections on success of translocated loons: 20 territories at the APC site and 12 territories at the October Mountain site after 20 years, and suitable habitat for 55 territories in SE MA and 35 in Berkshire County.	The analysis of suitable habitat, chick survival, the rate of colonization, and future loon population growth make numerous assumptions. The figures reported appear to be based on ideal or average survival rates, return rates, and high rates of colonization and breeding. Because translocation is still experimental, the survival rates and return rates of translocated chicks are not known. These chicks experience a different set of circumstances than if allowed to remain in their source region with their parents. Translocated chicks will likely have lower survival and return rates than chicks in established loon populations. Analyses that predict demographic parameters of these translocated loons should err on the conservative side.
	• We do not feel that valid comparisons of survival, recruitment, and productivity can be made between lakes in an area currently unoccupied by loons and areas with established, breeding populations. Colonization of isolated lakes without an established population will likely take longer than anticipated.
	• We question whether potential loon nesting sites were thoroughly evaluated for the SE MA and Berkshire regions.
	  ○ Reservoirs and lakes controlled for water supplies are often the most vulnerable to water level fluctuations that result in flooding or stranding of loon nests. It is unclear whether an evaluation of water level fluctuations was conducted at proposed translocation sites.
	  ○ Islands with gradually-sloped shorelines and marshes with hummocks are critical for natural nesting. If translocation lakes lack these

	features, loon nesting success will be limited, even if potential territories are available. Personal experience working on loons in the Midwest and Vermont over the past 25 years has revealed the existence of numerous "empty" or "non-breeding" lakes in the middle of higher density loon populations. These lakes tend to lack high quality nesting sites, are highly developed, and/or have high levels of human activity. Productivity will be lower on lakes that lack quality nesting habitat or where management activities (rafts, nest signs, wardening, and education) are required. In Vermont, sustained management of human-based activities (e.g., shoreline development, angling, boating) have been critical in allowing loons to breed successfully on many waterbodies. We strongly suspect that many of the proposed translocation lakes in MA will be subject to these same pressures. Human population densities in SE MA far exceed those of Vermont, where management activities are necessary for over 50% of the state's 120 territorial pairs. The costs of such management (rafts, nest signs, wardening, and education) must be incorporated for all lakes in MA with public boat access, private cottages, and other recreational uses.
p. 32 3.2.1.1.4 Evaluation of the Alternative "this project directly creates common loon"	Loon chicks are being removed from NY and ME and re-located to MA. Loons are not being directly created. The removal of these chicks from NY and ME must be accounted for in the DBY assessment. It is our understanding that second chicks from 2-chick clutches will be removed for the translocation alternative after 5 weeks of age. If these loons were left in their source populations, their survival rate to late August, after reaching 5 weeks of age, would be greater than 95%. Survival rate of 2nd chicks in 2-chick clutches in Vermont: From 2000-2019, the Vermont Center for Ecostudies (VCE) monitored 579 territories with 2-chick hatches. Of these 1158 chicks, 888 (77%) survived through the end of August. Sixty-three percent of all 2nd chicks survived through August, but this evaluation is based on survival from the day of hatch. Most chick mortality occurred during the first 4 weeks of life. The translocation alternative proposes to use chicks over 5 weeks of age. The survival of 2nd chicks greater than 4 weeks of age was over 95%, thus most of the 2nd chicks removed from NY and ME would have contributed to future population growth in their source areas. Based on these data alone, we believe that any gain in loon years (DBY) from the translocation alternative is negated by the loss of loon years from the source populations.
3.2.1.1.4 Evaluation of Alternative p.32-35 Translocation DBYs are evaluated over 30 and 100 year time frame. DBYs for management alternatives are assessed for only 20 years (p.39).	As stated above, translocation of loons is experimental. Under ideal conditions, survivorship, colonization, and utilization of all habitat, the 20-, 30- and 100-year modeled projections might be attained, but these are all based on untested assumptions. Loons are slow colonizers and produce few young even in high density regions. Applying average demographic rates to currently unoccupied regions relies on overly optimistic assumptions. We believe it is unrealistic to use the $850/DBY cost for translocation over a 100-year time frame. DBY's for all alternatives should be calculated over the same time frames. • If 20, 30 and 100 years are used to calculate DBYs for the translocation alternative, then the benefits of other proposed alternatives should also be calculated over the same time-frame (including all chicks produced from other alternatives from year 21 to year 100). In addition, a large percent of other

	alternatives (rafts, signs, wardening) will not cease after 20 years, and associated benefits will continue.
	• Many lakes in the proposed translocation areas will require concerted management actions to mitigate for water level fluctuation and human activity. This assertion is based on conservation efforts that have been conducted over the past 40 years throughout the northeastern U.S. Both no management and active management scenarios must be addressed in revising translocation DBY estimates.
	  ○ No Management: colonization and productivity rates will almost certainly likely be lower than average without on-going, targeted conservation programs.
	  ○ Active Management: cost of rafts, signs, wardening, monitoring, and educational activities must be included in translocation DBY calculations.
	• The loss of juveniles from NY and ME must be subtracted from the gains in translocated loons in MA in the DBY estimates. It could be argued that there is no gain in DBYs from the translocation project. There is a loss of loons in one region and potential gain in MA, if translocation succeeds. The process has yet to produce a known nest in either MN or MA.
	• Climate change is occurring and at a minimum, an analysis of various predicted impacts (none to high) should be conducted, especially since MA loons will likely be more adversely affected by climate change than loons breeding further north.

Project implementation readiness p. 34 "the project is expected to be naturally self-sustaining."	Outside existing loon breeding sites on reservoirs in western MA, there have been limited on-the-ground regional or statewide conservation efforts to coordinate volunteers, and manage threats to nesting loons. Most loon monitoring and management on these reservoirs has been conducted by the MA Dept. of Conservation and Recreation. There have been a few years of specific monitoring projects in other regions of the state (Spagnulo 2012). Areas of loon habitat and human recreation on lakes almost entirely overlap. For loons to be successful on moderate to high risk sites, both education and management are needed. While some of the proposed translocation lakes have limited human activity, for loon population growth to occur as projected in the plan, it is likely that the loons will have to utilize lakes with human activity. To our knowledge, MA currently lacks an established organization to tackle this challenge beyond the 6-year project time frame. NY, VT, NH, and ME have multiple organizations that currently coordinate thousands of individuals, lake associations, conservation groups, and state agencies for loon conservation. These organizations have successfully coordinated and funded loon conservation work since the 1970s and 1980s. All are resource-limited, but this history assuring that their work will continue into the future at some level.
p.34 The impacts of climate change remain uncertain.	• National Audubon's "Survival by Degrees: 389 Bird Species on the Brink" (October 2019) predicts that habitat in MA will not be viable for Common Loons by 2080 under current modeling scenarios. • Mass Audubon has cautioned that Common Loons are "highly vulnerable" to changing climate by 2050 (Mass Audubon 2017). • Loon Preservation Committee data along a north-south gradient have shown that reproductive success drops as temperatures rise and rain events increase. Heat stress, frequency of large rain events, changes to lake ecosystems (algal blooms, changes in base of food web, water temperatures, disease) are all likely factors. In Vermont, we documented a record 13 flooded nests in 2019. To mitigate flooding of nests, nesting rafts can reduce some effects, but a stable, long-term organization must oversee use of this and other conservation tools.

	• In Vermont, more loons have died from aspergillosis in the past 10 years than during the previous 20 years. Aspergillosis is a fungal disease associated with loons under high stress. Stress caused by climate change-associated factors is predicted to be higher in MA than in northern NE states. • Warmer summers are predicted to diminish water quality and increase the number of algal events, especially cyanobacteria. These negative changes will likely occur more frequently in MA than on lakes further north.
p.35 Low importance considerations Some local community involvement is anticipated.	Coordination of local and state agencies, volunteers, water suppliers and dam regulators all require considerable time and effort, and will likely be required to meet the $850/DBY over a 100-year time period. The assumption that this project will become self-sustaining with no additional costs is unrealistic to meet this level of success (see above).
Cost considerations	If translocation is going to be used as an alternative for replacing loon years lost, we recommend that only chicks greater than 8 weeks of age be captured and released on the translocation lakes. The cost of pens and the labor required for raising younger chicks for 3-6 weeks seems unnecessary based on early evaluation of the translocation technique.

Comments about Common Loon Restoration through Artificial Nest Sites, Signage and Wardening, Protection of Breeding Habitat, and Reducing Exposure to Lead Tackle 3.2.1.2

Section from Plan	Comments
p. 36 Raft occupancy rate of 43% in NH	Raft occupancy rates can vary for many reasons. In Vermont from 2015-2019, the raft occupancy rate varied from 60-70%. During these five years, only one of 43 deployed rafts was not used by a nesting loon pair at some point. Careful placement and intentional removal of unused rafts since 2000 has increased the occupancy rate. As additional new rafts are placed to encourage non-nesting territorial pairs to nest or to increase nesting success at sites that fail frequently, there will likely be an increase in unused rafts, or at least a time lag before loons start using new rafts.
3.2.1.2.3 Medium importance p.39 benefits are limited to the duration of the project	The need for and use of rafts and signs will not cease after restoration funds become unavailable. Rafts, signs, wardening, and monitoring are already a major part of loon conservation programs throughout the northeastern U.S. The restoration monies will be used to leverage current support and long-term management activities far into the future. Chicks produced during the restoration-funded component of this plan will continue to contribute to loon populations far beyond the project time period. For the translocation alternative, DBYs were calculated for 20-, 30-, and 100-year time periods. The same should be done for other alternatives.
p.39 Costs of rafts and signs	It could be beneficial to provide a range of cost structures to implement rafts, nest signs, monitoring, and wardening programs. The costs required to build, maintain, and monitor artificial nests and signs varies. For example, rafts located on reservoirs subject to large water level fluctuations require more maintenance and monitoring than rafts located in protected bays on small ponds that provide habitat alternatives to reduce conflict with human shoreline activities. Raft maintenance will cost more at remote locations than on ponds that are easily accessible. Lakes with high recreational pressures will require higher levels of wardening and outreach efforts. In our experience, the figures from Evers, et al. (2009) reflect the higher-end costs. In Vermont since the 1990s, VCE has annually deployed and maintained 25-45 rafts on a limited budget. We have developed techniques to increase the lifespan of rafts, along with measures to reduce the effort required to maintain them. We have also streamlined

	our maintenance and placement of nest warning signs, which allows us to efficiently use signs at about 50% of the nest sites in Vermont. Again, certain sites require considerably more effort than others, depending on local circumstances. For example, signs used for loon pairs that shift nest sites annually require substantially more monitoring than signs for pairs that tend to use the same nest site annually. Use of volunteers for both maintenance and monitoring of rafts and signs has also kept costs lower and will therefore leverage funds allocated for rafts and signs. Costs to maintain existing territories using rafts and signs will be less than for new locations. The benefits in creating loon years will be higher for sites where loons are currently using rafts consistently. Loons pairs do not always take to new rafts. If certain sites where rafts and signs are needed can be assigned to 2-3 different cost structures, the cost per DBY might be less for a subset of territories. For example, if a program deploys 10 rafts at higher cost estimates and 20 at costs at two-thirds the amount in the plan, these latter 20 rafts could be maintained for 30 years instead of only 20 at the same cost with higher DBY benefits. This increased period of funding would be important for the long-term stability of small non-profits like VCE.
Breeding season loon rescues	Loon rescues during the breeding season and into early winter contribute substantially to the adult and juvenile loon population. Because loons are long-lived species and breed over their lifespan, adult loon survival contributes more to loon population growth than does chick survival (Grear, et al. 2009). In addition, rescue events contribute greatly to PR and awareness about loons and their conservation. We request that the Trustees consider allocating restoration funds to support on-going loon rescue work in NY, VT, NH and ME. From 1998-2019, VCE and the Vermont Fish and Wildlife Department rescued 71 adult and 23 juvenile loons, successfully releasing 53 of these adults and 18 juveniles. Overall during this period, 4.3 loons were rescued annually, with 3.7 loons released. Follow-up surveys of most of the released loons have shown that survival rates are high. We have observed numerous banded rescued loons return to the region and breed in subsequent years. The frequency of conducting loon rescues has been surprisingly consistent over the years. The VCE loon biologist and volunteers have spent between 100 and 200 hours annually coordinating and conducting rescues and monitoring of birds in distress. Similar patterns on rescues occur in NY and NH. Increased funding to support rescue efforts will result in even higher success rates. We will be able to spend more time on rescues, respond sooner to birds in distress, and increase rehabilitation efforts when necessary.

We hope these comments prove useful in maximizing the restoration of loons throughout the northeastern U.S.

- Focus restoration efforts on loons breeding loons in NY, VT, NH, and ME. Loons from these states (and Canada) were most likely affected by the B-120 oil spill as they all over-winter in the spill region and would have been present at the time of the spill in late April. MA residents will benefit by the increase in wintering loons. Follow the precedent of the North Cape and Deepwater Horizon restoration plans in directing restoration funds to where the loons were from.
- Utilize proven alternatives for restoring loon years lost (rafts, nest signs, wardening, and monitoring in combination with appropriate outreach efforts, and rescues of loons during the breeding to fall migration time periods).
- Re-evaluate the benefits of the translocation alternative:
    - Translocation is experimental and has yet to be a proven conservation technique.

- Loons chicks are being moved from one location to another likely lowering their survival rates, causing the loss of loons in one location, and only potentially increasing loon numbers in another region. There is no net gain.
- Analyses that predict demographic parameters of these translocated loons should err on the conservative side; the estimates used in the restoration plan are overly optimistic.
- The cost of management actions to mitigate for water level fluctuation and human activity must be added to the analysis and the demographic rates used in the original analysis (colonization rates, nesting rates, and productivity) must be decreased to more realistic levels, especially if no management is going to be used. Who will continue on-going loon conservation efforts into the future must be considered.
- Climate change is occurring and at a minimum, an analysis of various predicted impacts must be conducted, especially since MA loons will likely be more adversely affected.

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CL10-APC

Assawompset Pond Complex
Nancy Yeatts, Environmental Manager

October28, 2019

U.S. Fish & Wildlife Service

Attention Molly Sperduto

70 Commercial Street, Suite 300

Concord, New Hampshire 03301

Dear Ms. Sperduto,

My name is Nancy Yeatts and I am the Environmental Manager of the Assawompset Pond Complex (APC), and represent the Management Team.

This letter is in support of the Common Loon translocation restoration goal identified by the U.S. Fish and Wildlife Service, and referenced in the draft restoration plan in response to the B-120 oil spill mitigation.

We look forward to continuing our relationship with the Biodiversity Research Institute (BRI) and benefiting from the success of this long-term loon translocation project.

Sincerely,

Nancy Yeatts

346 Bedford Street

Lakeville, MA 02347

508-498-4347 (cell)

CL11-NHA

New Hampshire Audubon
Pamela Hunt, Ph.D., Senior Biologist for Avian Conservation

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USFWS
Attention: Molly Sperduto
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

October 31, 2019

Dear USFWS,

I would like to take this opportunity to voice some concerns of New Hampshire Audubon with regard to the *Draft Restoration Plan For Common Loon (Gavia immer) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill* (hereafter The Plan). I have read the various alternatives and find the proposal of translocating loons to areas currently south of their southern range extent to be both misinformed and likely unsuccessful in the long term. These concerns can be grouped into three broad categories, as outlined in more detail below.

Climate Change

First and foremost, there is increasing evidence that loons are susceptible to high temperatures, and given that all climate change models indicate increasing summer temperatures across Massachusetts and New England, attempts at introducing the species to areas that will be the first to warm is misguided. There is only one reference to the potential effects of climate change on loons in the entire Plan (p. 34, paragraph 2), and I find this lack of attention a significant oversight in light of known potential risks and the clear threat that climate change poses to natural ecosystems in general. It simply makes no sense to move a northern species to the south when a large number of such species are currently retracting their ranges to the north. And for loons, evidence for temperature sensitivity is probably larger than the same evidence for the other species, which are largely going to respond to habitat changes instead.

I understand the evolutionary/conservation value of populations at a species' southern range edge, and as such the idea of transplanting *northern* individuals to the *south* is actually counterintuitive. If the goal is to preserve local adaptations and genetic diversity, translocated loons would not be bolstering the locally-adapted population. At worse, they would be maladapted and less likely to survive or reproduce successfully. In this case, the better alternative would be to implement strategies that improve productivity of birds that may already be adapted to the southern range edge.

Protecting New Hampshire's natural environment for wildlife and for people.

Regional Context

While I understand the desire to focus resources in the state where the spill occurred, the biology of loons, and of migratory species in general, would argue against this. Migratory species such as loons do not pay attention to state boundaries, and band recoveries clearly indicate that the coastal areas of New England support wintering loons from across their breeding range in the northeastern United States and eastern Canada. As such, impacts to loons in Buzzards Bay are impacts to that entire regional population, and mitigation should reflect that impact. This is clearly reinforced by actual loon data for Massachusetts, which as of 2018 supported 45 territorial pairs. While this represents a significant increase since the species returned to the state as a breeder in 1975, these roughly 100 individuals are still less than 20% of the *documented* Buzzard's Bay deaths (531). If one extrapolates to undetected deaths and loon-years (DBYs), this proportion declines even more. Thus the impact of the Buzzards Bay oil spill were likely spread disproportionally *away* from Massachusetts, with no one state or province in the Northeast suffering more than others.

In addition, the most recent estimate of 45 territorial pairs is almost double that present in the state after the spill (27 pairs in 2003), suggesting that loons continued to increase on their own in the state following the mortality event. If the population can almost double in 15 years *despite* a nearby oil spill, I'm not convinced it needs additional assistance to continue this recovery. Indeed, according to the second Massachusetts Breeding Bird Atlas, loons were already breeding or prospecting in both of the general areas proposed for translocation. In this context, a far better use of resources would be to facilitate the continued productively of these existing pairs, as already mentioned above.

Value for Cost

The sheer cost of the translocation proposal seems out of proportion to its stated gain, especially in the context of the overall mortality from the spill. If the same amount of money were to be put into stewardship and management of existing populations (including those in Massachusetts), I suspect it would go much farther toward ensuring future reproductive success – and thus population stability – than trying to establish another 70 pairs in Massachusetts. I also find that goal highly optimistic in the light of no solid evidence that such translocation will even work in the first place, much less in the long term (as per comments on climate change above).

In conclusion, given that a) the translocation proposal does not fully consider the likely impacts of climate change, b) the majority of loons impacted by the spill could not have been Massachusetts breeders, c) the Massachusetts loon population has continued to increase since the spill, and d) there are far more cost-effective and proven means of enhancing loon productivity, I am not supportive of the translocation effort in the Preferred Alternative as currently outlined in The Plan. Species recovery works best when we take the broader view, and in the case of all migratory species this necessitates that we look across state – and ideally national – borders. We should not assume that mortality of loons wintering in Massachusetts means we need to augment populations breeding in that same state. It make far more sense in this regard to focus the considerable financial resources outlined in The Plan toward ensuring that regional populations continue to thrive, and in the process provide dispersers that may supplement the Massachusetts population on their own.

While my primary concerns relate to the loon translocation component of The Plan, I would also like to comment briefly on the Preferred Alternative for "Other Birds." Habitat protection is an admirable goal, but I have mixed feelings about using these funds for this purpose. It is certainly true that preventing future development at coastal sites will reduce pollution into nearby water bodies, but honestly wonder about the extent this applies to the open ocean where the majority of impacted species spend most of their time. If we are concerned about marine food chains that support eiders, loons, and wintering sea ducks, the impacts to these food chains are far more complicated than those implied by the simple (and laudable) act of preventing development at coastal parcels. In fact, it's likely that the marine invertebrates on which these species feed are more at risk from climate change (ocean acidification, altered prey distributions) than whatever land-based pollution enters into the open waters of Buzzards Bay. It's not clear *what* a better mitigation option might be in this case, since there are probably no currently feasible means of restoring degraded marine benthos at a reasonable scale. In this context, land conservation is perhaps "better than nothing." That said, since shorebirds are included in this part of the Plan, I would like to have seen more specific references to existing strategies (e.g., the *Atlantic Flyway Shorebird Business Plan*) and discussion about whether there were ways of better incorporating this group of birds into The Plan. After all, of the species impacted by the spill, shorebirds are the only ones that spend the majority of their time on land in the impact area, and are thus the species most likely to benefit from habitat protection of coastal areas.

Thank you for allowing the opportunity to comment on this important matter.

Sincerely,

Pamela D. Hunt, Ph.D.
Senior Biologist for Avian Conservation

CL12-NHA

New Hampshire Audubon
Carol R. Foss, Ph.D., Senior Advisor for Science and Policy

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Molly Sperduto, NRDAR/EC Program Supervisor
U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301

Dear Molly,

Please accept the following comments on the Draft Restoration Plan For Common Loon (*Gavia immer*) and Other Birds Impacted By The Bouchard Barge 120 (B-120) Oil Spill (DRP hereafter) as an addendum to the comments provided by Dr. Pamela D. Hunt. New Hampshire Audubon appreciates the thoughtful effort involved in preparing the DRP and the opportunity to comment on this document.

Common Loon Restoration
I concur with the concerns expressed in Dr. Hunt's comments. Given the that lead fishing tackle is an important cause of loon mortality, greater emphasis on reducing exposure to lead tackle, including a lead tackle buy-back program in Massachusetts focused on the regions where loons are currently nesting, would be a more cost-effective approach than translocation, and would have no potential detrimental effects on current breeding populations.

Other Birds Restoration Alternatives
I strongly support the proposed habitat protection on Cuttyhunk Island. It is not clear to what extent the proposed habitat protection in Rhode Island would be focused on mainland coastal areas to prevent future degradation of water quality versus offshore islands that provide resting areas for wintering waterfowl. I would like to recommend that land protection projects that both protect rocky shorelines from human activity and prevent degradation of water quality should receive highest priority for consideration. I would also like to note that while Common Eider experienced the highest estimate of mortality (82.7) among diving ducks, Black Scoter mortality was a close second (76.6). Mortality estimates for these two species were substantially higher than other affected divers, and together accounted for more than 50% of estimated diving duck mortality. Given that the Black Scoter is listed by the IUCN as Near Threatened, we recommend that land protection efforts on the Rhode Island coast specifically target areas that will benefit wintering Black Scoters. Research by Silverman et al. (2013) and Loring et al. (2014) could be helpful in identifying appropriate areas.

Sincerely,
Carol R. Foss, Ph.D.
Senior Advisor for Science and Policy

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CL13-VS

Vincent Spagnuolo, Wildlife Biologist

Comments regarding The Draft Restoration Plan for Common Loon (*Gavia immer*) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill

Submitted to:

Molly Sperduto, NRDAR/EC Program Supervisor, USFWS

Submitted by:

Vincent Spagnuolo, Wildlife Biologist
Member of the Northeast Loon Study Working Group

I would like to thank you and the Trustees for your work in assessing the damage from the Bouchard Barge 120 (B-120) oil spill on April 27th 2003 in Buzzards Bay, Massachusetts, determining the settlement for the responsible party, and developing the draft restoration plan. Loon conservation in the northeast has been a lengthy endeavor spanning multiple decades relying on strong collaborations involving state and federal agencies, NGOs, academics, veterinarians, wildlife rehabilitators, and concerned members of the public from across the region. This effort has been highlighted by the Northeast Loon Study Working Group (NELSWG) which has been in existence for over 30 years. As a member of NELSWG, I am pleased to offer the following comments and questions to help guide the development of the final restoration plan. My contributions stem from my experience working with common loons in Massachusetts and New Hampshire, as well as my direct involvement in the planning, development, and implementation of Biodiversity Research Institute's (BRI) common loon translocation projects in Minnesota and Massachusetts.

Comments regarding the draft restoration plan

After reading through the draft Restoration Plan and attending the Public Comment meeting at MassWildlife's Headquarters on September 12, I would like to offer a few clarifications to the draft restoration plan which may inform and aid the development of the final version.

1) Section 3.2.1.1.4 The common loon chick #COLOMA16007 (USGS #0938-53072) resighted (via color bands) as an immature in 2017 and then resighted and counted as a returned adult in 2019, was a direct release translocation in 2016 rather than captive reared as stated in the draft restoration plan and in BRI's brochure on translocation and captive rearing (note: while the brochure text says it was captive reared, it correctly lists it as a direct release chick in Figure 1). Details on this individual loon can be found in BRI's annual reports for the 2016 Massachusetts common loon Translocation Project, the Massachusetts Translocation Project Summary Report 2015-2017, and Kneeland et al. A novel method for captive rearing and translocation of juvenile common loons (*In Review*). This return of a direct release loon demonstrates that both methods are viable, especially given that sample sizes of translocated loons were heavily skewed towards captive reared birds in the first two years of the Massachusetts project.

2) Section 3.2.1.1.4 There was another mortality associated with the translocation project in Minnesota where a chick was translocated, directly released, and days later was observed beaching itself. This chick was recaptured and transferred to a wildlife rehabilitation center and unfortunately did not survive. Details on this mortality can be found in BRI's annual report for the 2015 Minnesota common loon Translocation Project.

3) Section 3.2.1.1.2 While some plans for common loon translocation in Wyoming have been discussed and permitting obtained, no translocation has been conducted to date.

4) Section 3.2.1.1.1 The draft restoration plan translocation alternative states, "It is based on the knowledge that common loon chicks will imprint on the lakes where they are born and raised and subsequently return to these lakes to breed." The previous loon translocation efforts worked with the reasoning that loon chicks gain most, if not all, of their imprinting during the fledging process when they fly off the lake for the first time (regardless if they were hatched there or not) and during subsequent flights in the area. The speculative imprinting mechanism is that the juvenile loons identify their fledging lake as well as the surrounding landscape features from the air and use that information to return to the fledging lake or adjacent lakes as adults. Evidence supporting this reasoning is provided by the loon chick #COLOMA16007 (direct release) returning to the release area as an adult in 2019.

Questions regarding the draft restoration plan

Questions 1 & 2 - Section 3.2.1.1.2
In the draft restoration plan, details were presented from a proposal for translocation and captive rearing and direct release of common loons in Massachusetts. There are a few questions regarding the approach of this proposed project:

1) Loons are notoriously difficult to keep in captivity and prone to many serious health issues during times of stress and confinement. The project outlines the staff that will be involved in the project, but there is no mention of a veterinarian other than during the event of capture and transport. If following the methods outlined by Kneeland et al. (*In Review*) and obtaining an IACUC for the project, there will need to be an attending veterinarian available for the duration of the project. Has this need for veterinary involvement been accounted for in the project planning, given that BRI does not currently employ a veterinarian on staff?

2) Given the level of specificity of the project proposal and budget, can details be provided on the projected number of captively reared vs direct released loons at each site during each year of the project? This information will help the public understand the project approach and budget presented for each site.

Question 3 – Public Comment Meeting
During the public comment meeting on September 12, it was stated that there will be significant trustee oversight and involvement with the proposed translocation alternative. Can it be explained why this alternative has been identified as needing trustee oversight and involvement as well as what potential issues the Trustees foresee with the translocation project?

Question 4 – Section 3.2.1.1.1

In evaluating the translocation alternative, the Trustees have utilized demographic rates from the existing population of loons in Massachusetts. The loon pairs in Massachusetts largely reside on protected waterbodies with partial or full restrictions on development and recreation. Loon pairs on Quabbin Reservoir also benefit from annual management and wardening from the Department of Conservation and Recreation. Most loon pairs proposed to be restored in the Berkshires and Southeast Massachusetts will reside on unprotected waterbodies, and outside of the six-year translocation alternative project period, have no guarantees there will be any significant wardening or management activities. The return of loons to these areas of Massachusetts will be a novel experience for the general public, particularly southeast Massachusetts, and there are likely to be considerable issues related to human disturbance, entanglement in fishing line, etc. Considering these comparative differences between the current and projected loon population areas in Massachusetts and the likelihood for anthropogenic driven issues, will any adjustments be made to the DBY projections related to the translocation alternative, particularly considering a 100-year projection timeline?

Question 5 – Section 3.3.1

With restoration funding for common loons being allocated to OB-1RI, can the Trustees provide additional reasoning and justification as to how coastal land/island habitat protection projects like the Cuttyhunk Island habitat protection project (OB-1MA) will benefit common loons?

Question 6 – Section 3.2.2.1

While the gill net permit buyout alternative may have barriers surrounding implementation and evaluation, have the Trustees considered using B-120 monies to fund a program for implementing gill net bycatch mitigation technology (i.e. bird panels) as a similar but perhaps easier to implement alternative? Bird panels have been shown to be an effective bycatch mitigation technique in marine fisheries (Melvin et al. 1999; Wiedenfeld et al. 2015) but are not currently implemented in northeast fisheries (Zollett 2009; NOAA 2019). This potential restoration alternative would benefit common loons from all breeding populations impacted by the B-120 oil spill as well as other bird species that are killed annually as a result of bycatch in gill nets.

Literature Cited

Kneeland, M.R., V. Spagnuolo, D. Evers, J. Paruk, L. Attix, N. Schoch, M. Pokras, G. Stout, A. Dalton, K. Silber. 2019. A novel method for captive rearing and translocation of juvenile common loons. Zoo Biology. In Review.

Melvin, E.F., Parrish, J.K., and Conquest, L.L. 1999. Novel Tools to Reduce Seabird Bycatch in Coastal Gillnet Fisheries. Conservation Biology, 13(6): 1386-1397.

NOAA. “Fishing Gear: Gillnets.” NOAA Fisheries, 12 Feb. 2019, https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-gillnets#bycatch-reduction.

Wiedenfeld, D. A., Crawford, R., and Pott, C. M. 2015. Results of a Workshop on Reduction of Bycatch of Seabirds, Sea Turtles, and Sea Mammals in Gillnets, 21-23 January 2015. American Bird Conservancy and BirdLife International.

Zollett, E. A. 2009. Bycatch of protected species and other species of concern in US east coast commercial fisheries. Endangered Species Research, 9(1), 49-59.

CL14-SP

Sakonnet Preservation
Abigail Brooks, President

Sakonnet Preservation

Conserving land Preserving Little Compton

Abigail Brooks
President

Sheila Mackintosh
Vice President

Bill Theriault
Treasurer

Ann Beardsley
Secretary

Directors
Paul Bazzoni
Michal Brownell
John Cook
Lawre Goodnow
Nan Haffenreffer
Maureen Harrington
Warren Jagger
Judy Melanson
Perky Nellissen
David Palumb
Charlie Whipple

Kathy Klees Clarendon
Director of Development and Communications

Mary-Kate Kane
Director of Stewardship

October 22, 2019
US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

Dear Ms. Sperduto,

On behalf of the Board of Sakonnet Preservation Association, I am writing to express our support for allocating the remaining $1.8 million of the Rhode Island portion of the B-120 Oil Spill funds to the Cuttyhunk Land Protection Project proposed by the Buzzards Bay Coalition.

As a community land trust operating in Little Compton, Rhode Island with holdings that include two islands located off our town's southern coast, we are well aware of the use made by both resident and migratory birds of even the smallest of New England's offshore islands that include ours. Cuttyhunk is only 11 miles to our southeast, clearly visible on most days from our town and a historic birding and fishing hotspot. Protecting the largest remaining undeveloped holding on that island will be critical to conserving important bird habitat at a time when the statistics of species losses over the last 40 years are grim indeed.

Our community has a history of active conservation since the early 1970's that has resulted in conservation protection of the principal coastal and barrier beaches and uplands here that support shorebirds — Goosewing, Briggs and Lloyd's. Our organization is not planning to undertake any future projects that involve protections the settlement funds from the B-120 Oil Spill are intended to fund. Therefore, we are requesting that the Trustees approve dedicating the remaining $1.8 million Bouchard 120 Oil Spill Penalty funds reserved for 'other bird species' to the Cuttyhunk Land Protection Project.

Most sincerely,

Abigail Brooks

Abigail Brooks, President

Sakonnet Preservation Association
7 South of Commons | P O Box 945 | Little Compton, RI 02837 | 401.635.8800 | sakonnetpreservation.org

CL15-BBC

Buzzards Bay Coalition
Mark Rasmussen, President

October 31, 2019

US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

Re: Comments on Draft Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge 120 (B120) Oil Spill – August 29, 2019

Dear Ms. Sperduto:

The Buzzards Bay Coalition writes to urge the B120 Trustee Council to amend its recommended funding allocation for the **Cuttyhunk Land Protection Project** under the Draft Restoration Plan released on August 29, 2019.

The Coalition is a nonprofit membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. Founded in 1987 and supported by more than 10,000 individuals, families and businesses, we work to improve the health of the Bay for all through education, conservation, research and advocacy. As the Massachusetts DEP-Designated Volunteer Coordinator for Oil Spills in Buzzards Bay, our organization was heavily involved in the response and cleanup of the B-120 Spill. Since the spill, we have and continue to work closely with the agencies of the Trustee Council to successfully implement land protection and habitat restoration projects in our watershed.

As you know, the Buzzards Bay Coalition has agreements in place to acquire and protect over 300 acres of valuable, high quality and diverse coastal habitats on the island - including an extraordinary 5 miles of undeveloped shoreline – and open them for public access. This is a once-in-a-lifetime opportunity to forever protect one of the Northeast's most extraordinary coastal landscapes. But the project will likely fail without full funding of $1.8 million from the Bouchard 120 Trustee Council.

The Draft Plan provides a good summary of the extraordinary habitat values of Cuttyhunk and further information was provided in our December 2018 Preliminary Proposal to the Trustee Council. We don't believe that we need to re-make our case for the ecological value of Cuttyhunk here and are heartened by the Trustee Council's recognition of those values. Our concerns fall into two related categories: first, the false, politically-based spending allocation between MA and RI for the 'Other Bird' funds, and second, the profound impact the allocation will have on the viability of the Cuttyhunk project.

www.savebuzzardsbay.org

114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913
21 Luscombe Avenue, Woods Hole, Massachusetts 02543 | Tel: 508-540-6222 Fax: 508-540-5222

Cuttyhunk and Rhode Island

Our primary concern with the Draft Plan is political, not natural. The recommended funding allocation of $500,000 to the Cuttyhunk Project and $1,274,000 held for a yet-to-be-determined Rhode Island project is constructed around an artificial state boundary. Ironically, Cuttyhunk lies just 4.5 miles from the state line whereas Rhode Island's own Block Island is two times (9 miles) further from the state's own mainland shore. The natural resources of Cuttyhunk, particularly bird and bird habitat resources which are the subject of the Draft Plan, are part of and benefit the coastal environment of Rhode Island.

We ask that you carefully consider the position taken by our colleagues in Rhode Island who have reviewed the Restoration Plan and urge your full funding support for the Cuttyhunk project. Both the **Massachusetts and Rhode Island Chapters of The Nature Conservancy, the Rhode Island Natural History Survey, Save the Bay, and the Sakonnet Preservation Association in Little Compton** are all asking that you ignore the artificial political boundary and recognize the Cuttyhunk project as having the greatest natural resource benefits to both states.

The Draft Plan notes that "The Trustees will identify and select a ***similar*** habitat protection project in Rhode Island" and that "In Rhode Island, the Trustees will focus on coastal habitat protection with a ***preference for areas impacted by the Spill***." (emphasis added) We argue that the scale (300+ acres and 5 miles of shoreline), ecological significance, financial leverage, and community support that define the Cuttyhunk project <u>is not replicable</u> in Rhode Island. In fact, the two organizations most actively working to protect land on the stretch of Rhode Island coastline most affected by the spill – The Nature Conservancy and Sakonnet Preservation Association – both are clear in their comment letters that they are aware of no opportunities that can compare with Cuttyhunk.

Therefore, we ask that the Trustee Council recognize Cuttyhunk as the strongest coastal habitat protection project to meet the Draft Plan's objectives <u>for the State of Rhode Island</u>. As currently drafted, the Plan endangers the Cuttyhunk deal by reserving funds for a possible "similar" project in Rhode Island which does not exist.

Negative Financial Impact on Cuttyhunk Project

The Cuttyhunk Project will likely fail without additional funding support from the B120 Trustee Council. This is presently both a One-Shot and All-or-Nothing purchase opportunity by the Sellers.

The attached 'Donors to Date' sheet is updated through today and lists all funds pledged and pending to raise the $7 million needed to preserve Cuttyhunk. All local, state and federal grant sources traditionally available for habitat conservation have been submitted and awarded with great success. Nevertheless, the collective size of those grant awards are insufficient to meet the need. And we have now raised more in private funding from individuals, families and foundation than has ever before been raised for a project of any kind on Cuttyhunk and believe we have near exhausted that source of funding. Cuttyhunk is not wealthy Martha's Vineyard or Nantucket.

We have only one pending state grant request to the Massachusetts Department of Fish & Game's "In Lieu Fee" program, but for the potential contribution of $500,000 – not enough to cover the shortfall left from the B120 Draft Plan allocation. We continue to seek out new grant sources each

day and will apply to any that have even a small chance of success. But our organization has been doing projects like this for two decades (usually in partnership with one or all of the Trustee Council agencies) and **we do not see a clear path to close the Cuttyhunk deal without additional B120 Trustee Council support.**

Thank you for the opportunity to comment on this Draft B-120 Restoration Plan. We understand and regret that our tone is so critical and serious, but the implications of your recommended decision could not be more dire for the Cuttyhunk project.

We hope that you will carefully consider the negative impact that the Draft Plan would have on what most people believe to be the greatest coastal habitat protection opportunity on the Massachusetts and Rhode Island coast in more than a generation.

Please amend your decision to provide the $1.8 Million needed to preserve the irreplaceable ecological resources supported by the remarkable landscape of Cuttyhunk Island.

Sincerely,

Mark Rasmussen
President

cc: James Turek, NOAA Restoration Center
Martin Suuberg, Commissioner, MA Department of Environmental Protection
Millie Garcia-Serrano, MA Department of Environmental Protection

U.S. Senator Elizabeth Warren
U.S. Senator Edward Markey
U.S. Congressman William R. Keating

State Senator Julian Cyr
State Senator Michael Rodrigues
State Senator Mark C. Montigny
State Representative Dylan Fernandes

Gosnold Board of Selectmen

Cuttyhunk Conservation Campaign

A fundraising effort of the Buzzards Bay Coalition - updated October 31, 2019

Donors to Date

Private Fundraising Need $ 2,000,000

Total Gifts & Pledges to Date: $ 1,907,774

David & Victoria Croll	$ 750,000	Twichell Family Gifts	$ 250,000
Joop & Ria Nagtegaal	$ 100,000		
Kitsy Garfield	$ 50,000	Allen & Sarah Berry	$ 25,000
Wyatt & Rachel Garfield	$ 50,000	M. Huguenin & S. Chown	$ 25,000
William C. Bullitt Foundation	$ 50,000	Anonymous I	$ 25,000
Bass Bend Associates	$ 50,000	George & Anna Shaw	$ 25,000
Nicole & John	$ 50,000	In Memory of Patricia Symonds	$ 25,000
In Memory of Chic Granger	$ 30,000	Fields Pond Foundation	$ 20,000
John & Tally Garfield	$ 30,000	George & Elaine Davis	$ 20,000
Orchard Foundation	$ 20,000	Paul & Sara Lehner	$ 20,000
The Verano Fund	$ 15,000	Hinrichs Family	$ 10,000
Gail Blout	$ 15,000	Anonymous II	$ 10,000
In Memory of John & Kate Tabor	$ 15,000	Michael & Anne Ryan	$ 10,000
Jim & Sheila Barry	$ 15,000	David & Dede Frothingham	$ 10,000
Tom & Debbie Garfield	$ 14,592	Jay & Molly Conway	$ 10,000
Jane S. Young	$ 13,000	Chris & Jenny Hart	$ 10,000
In Memory of Janet Stuart Waugh	$ 11,760	Bob & Tibbie Field	$ 10,000
		Nancy Wilder & Jerome Frazel	$ 10,000
Subtotal of 97 Gifts under $10,000	$ 104,714	Anonymous III	$ 10,000

Federal & State Government Grants $ 4,600,000

Total Awards to Date: $ 1,720,419

U.S. Fish & Wildlife Service Coastal Wetlands Grants	$ 1,000,000	Awarded April 2019
MA Local Lands & Natural Diversity (LAND) Grants	$ 400,000	Awarded January 2019
MA Drinking Water Supply Protection Grant	$ 300,000	Awarded April 2019
Buzzards Bay National Estuary Program Mini-Grants	$ 20,419	Awarded June 2019
Bouchard 120 Oil Spill Natural Resource Damage Funds	$ 500,000	recommended Sept 2019
North American Wetlands Conservation Act Grants	$ 1,200,000	proposal pending
MA Fish & Game In Lieu Fee Grants	$ 500,000	proposal pending

Town of Gosnold Contribution $ 400,000

Total Gifts & Pledges to Date: $ 400,000

Beech Tree & Michael Paine Trusts	$ 200,000
Town of Gosnold General Fund	$ 160,000
Comm Foundation SEMA - Gosnold Community Fund	$ 40,000

TOTAL RAISED TO DATE: $ 4,028,193

TOTAL NEED: $ 7,000,000

CL16-MAGC

Commonwealth of Massachusetts, The General Court
Julian Cyr, State Senator, Cape and Islands District
Dylan Fernandes, State Representative, Barnstable, Dukes, and Nantucket District

COMMONWEALTH OF MASSACHUSETTS

THE GENERAL COURT

STATE HOUSE, BOSTON 02133-1053

Bourchard 120 Natural Resource Damage Trustees
US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

October 23, 2019

Re: Natural Resource Damages Trustee Council for the Bouchard Barge 120 (B-120) oil spill
Comments on Draft Restoration Plan for Common Loon and Other Birds

Dear Ms. Sperduto,

We are writing to express our dissatisfaction with the funding proposed for the Cuttyhunk Land Protection Project under the Draft Restoration Plan released by the B-120 Trustee Council on August 28, 2019. **We urge the Council to amend its decision and provide full funding of no less than $1.8 million for the Project as proposed by the Buzzards Bay Coalition.**

In May 2019, along with colleagues in the U.S. Congress and Massachusetts Legislature, we submitted comments in support of the Cuttyhunk Project. Following that letter, the Council proposed allocating only $500,000, rather than the $1.8 million requested. We respectfully reiterate our request that the full amount be allocated for the Project.

As you know, the Buzzards Bay Coalition has agreements in place to acquire over 300 acres of valuable, high quality, and diverse coastal habitats on the island and open them for public access. This is a rare, unique opportunity to forever protect one of the Northeast's most extraordinary coastal landscapes.

The 2003 Bouchard 120 Oil Spill devastated the coastline of the Buzzards Bay region. Preservation of the remaining undeveloped lands on Cuttyhunk will have significant benefits for a variety of important natural resources identified by the B120 Natural Resource Damage settlement including terns, loons, waterfowl, waterbirds, shorebirds, other migratory birds, fish, shellfish and wildlife species. **The B120 funds requested for the Cuttyhunk Land Protection Project would provide the urgent protections for these resources, coastlines, and communities.**

The Commonwealth of Massachusetts, Town of Gosnold, and private donors have already stepped forward to pledge more than $4 million to this effort, but the project will fail without full funding of at least $1.8 million from the Bouchard 120 Trustee Council.

Respectfully,

Julian Cyr
State Senator
Cape and Islands District

Dylan Fernandes
State Representative
Barnstable, Dukes, and Nantucket District

CL17-GOS

Town of Gosnold, Board of Selectmen
Sarah Berry
Gail Blout
Stewart Young

Town of Gosnold

CUTTYHUNK ISLAND
MASSACHUSETTS 02713

October 25, 2019

US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

Re: Natural Resource Damages Trustee Council for the Bouchard Barge 120 (B-120) oil spill
Comments on Draft Restoration Plan for Common Loon and Other Birds

Dear Ms. Sperduto,

On behalf of the Town of Gosnold, we are writing to express our strongest support for full funding of $1.8 million for the Cuttyhunk Land Protection Project as proposed by the Buzzards Bay Coalition.

The Town of Gosnold, the smallest of the 351 towns in Massachusetts, is made up of the Elizabeth Islands; Nonamesset, Uncatena, Weepecket, Gull, Naushon, Pasque, Nashawena, Penikese and Cuttyhunk. There are about 30 year round residents on Cuttyhunk and a few dozen on Penikese, Nashawena and Naushon.

For more than a year, we have been working in close partnership with the Buzzards Bay Coalition to realize the permanent protection of nearly 60% of the remaining undeveloped lands on Cuttyhunk. We cannot understate the importance of this opportunity as it will define the future of this island forever. Our community has embraced this vision wholeheartedly. But we cannot do it alone.

In May 2019, Gosnold Town Meeting voted unanimously to expend $400,000 in support of the Cuttyhunk Land Conservation Project. This was an exceptionally large commitment from our small town, but we dug deep to make it happen. The Gosnold Community Fund at the Community Foundation of Southeastern Massachusetts and the Beech Tree Trust, a private foundation based on Naushon Island, were engaged to help cover $240,000 of the town's share, leaving $160,000 to be paid by the taxpayers. This is just one example of the extraordinary efforts being made on the part of our community to ensure the success of this conservation effort.

But we also recognize that the natural resources of Cuttyhunk Island provide benefits that extend far beyond the interests of our residents or our physical borders. The island's position at

the juncture of Buzzards Bay, Vineyard Sound and Rhode Island Sound make our barrier beaches and shrubland hills a hotspot for migratory songbirds and shorebirds from across the hemisphere. And the richness of our nearshore fishing grounds is legendary. These are natural treasures that draw so many people to Cuttyhunk each year and we are committed to their long-term protection through permanent land conservation.

The Bouchard Barge 120 ran aground within sight of our island and its oil and the resulting dead birds washed up on our shores. Today, these shores provide critical habitat and forage for the same species harmed by the spill as well as the entire ecosystem upon which they depend. If successfully funded, the Cuttyhunk Land Protection Project will ensure that our island continues to support and provide safe haven for these species in perpetuity. And we cannot imagine a more appropriate or worthy application of the B-120 Natural Resource Damage Funds than that.

Therefore, we are requesting that the Trustees approve dedicating the full $1.8 million Bouchard 120 Oil Spill Penalty funds reserved for 'other bird species' to the Cuttyhunk Land Protection Project.

Sincerely,

Gosnold Board of Selectmen

Sarah Berry

Gail Blout

Stewart Young

cc: Senator Elizabeth Warren
Senator Edward Markey
Congressman William Keating
State Senator Julian Cyr
State Representative Dylan Fernandes

CL18-USC

Congress of the United States
Elizabeth Warren, United States Senator
Edward J. Markey, United States Senator
William R. Keating, Member of Congress

Congress of the United States
Washington, DC 20510

October 31, 2019

US Fish and Wildlife Service
Attn: Molly Sperduto
molly_sperduto@fws.gov
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

VIA ELECTRONIC MAIL

Re: Draft Restoration Plan for Common Loon and Other Birds Impacted by 2003 Oil Spill

Dear Ms. Sperduto,

We write today in support of Buzzards Bay Coalition's (BBC) Cuttyhunk Land Protection Project. We ask that the Bouchard 120 Natural Resource Damage Trustees reconsider the allocation of funds to permanently protect three-hundred acres of high-quality coastal habitats on Cuttyhunk Island outlined in the draft restoration plan released on August 28, 2019 before a final plan is issued.

This letter is to serve as a follow-up to our letter dated May 16, 2019, which asked for your careful consideration of granting the then-outstanding $3.1 million in federal funds required to allow the Buzzards Bay Coalition's efforts to protect the three-hundred acres on Cuttyhunk Island in perpetuity. The Coalition has already secured more than $4 million in funding through the Commonwealth of Massachusetts, a USFWS Coastal Wetlands Grant, the Town of Gosnold, and private donors to bring this project to fruition.

While we were pleased to see that the Trustees have identified this project as an effort worthy of Trust funding, we are deeply disappointed to see that the proposed funding falls short of what is required to move the project forward, especially as this project will help birds in both Massachusetts and Rhode Island. The Buzzards Bay Coalition has worked diligently with public and private funding sources for years to protect these three-hundred acres on Cuttyhunk in perpetuity, and they are ready to begin this once-in-a-lifetime conservation project as soon as they close the remaining funding gap. The full $1.8 million in Bouchard 120 Trust funds allocated for Other Birds Restoration would allow the Buzzards Bay Coalition to move forward with their project, preserving critical habitat for species from both states. It is our understanding through the Buzzards Bay Coalition that if the restoration plan is issued as written, the entire Cuttyhunk preservation project will be placed in jeopardy.

The benefits of preserving three hundred acres in Gosnold will pay dividends not only on Cuttyhunk, but throughout the region – including the mainland of both Southeastern Massachusetts and Rhode Island. We strongly agree with the analysis of The Nature Conservancy's Rhode Island State Director John Torgan and Massachusetts Director Wayne Klockner who stated "…we feel strongly that the Cuttyhunk Land protection project represents the best use of funds to secure permanent protection nesting birds and other wildlife and living marine resources impacted by the B-120 spill."

We ask that you give full and fair consideration in revising the funding allocated for Cuttyhunk before issuing a final restoration plan for the Common Loon and other birds impacted by the 2003 Oil Spill. If you have any questions about this matter please contact Chris Matthews in Congressman Keating's office at (508) 746-9000 or at Chris.Matthews@mail.house.gov, Jessica Wong in Senator Warren's office at (617) 565-3170 or at Jessica_Wong@warren.senate.gov, or Rory Clark in Senator Markey's office at (617) 565-8519 or at rory_clark@markey.senate.gov.

Sincerely,

Elizabeth Warren
United States Senator

Edward J. Markey
United States Senator

William R. Keating
Member of Congress

CC: Bouchard 120 Natural Resource Damage Trustees

CL19-RINHS

Rhode Island Natural History Survey
David Gregg, Ph.D., Executive Director

RHODE ISLAND NATURAL HISTORY SURVEY

1994 ~ 2019 25 YEARS

October 9, 2019

Received
U. S. Fish & Wildlife Service
OCT 15 2019
New England Field Office
Concord, NH 03301

US Fish and Wildlife Service
Attention: Molly Sperduto
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

Dear Ms. Spurduto:

I am writing to register a comment on the Draft Restoration Plan for Common Loon (*Gavia immer*) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill on behalf of the Rhode Island Natural History Survey, of which I am the director.

I am writing in support of the Other Birds Restoration—Preferred Alternative but also to express concern that the draft plan does not fund the Cuttyhunk Land Protection Project sufficiently to ensure it happens. Making sure it happens may require the allocation of the entire Other Birds amount to this Massachusetts project, but doing so would be a tremendous benefit for both states.

In my opinion, there are several arguments for how this course would benefit both states. 1) If Cuttyhunk is one side of the "mouth" of Buzzards Bay, Sakonnet Point, Rhode Island, is the other. As well preserved as the Sakonnet landscape already is, as wildlife habitat, it is nonetheless inevitably degraded by cumulative small impacts. Preserving the Cuttyhunk side of the "mouth" so well would limit the accumulation of small impacts in the whole area. 2) Buzzards Bay and Narragansett Bay both exchange their water with Block Island Sound, forming a single coastal complex, and any project as large and as central as that proposed for Cuttyhunk will benefit wildlife in the whole complex. 3) Having worked around the shores of Block Island Sound, Narragansett Bay, and Buzzards Bay, I can say there is no place as well preserved for wildlife habitat as the Elizabeth Islands, and that is why I think it makes sense to invest more of the settlement money in saving the very best place rather than spreading it out to projects more removed, in areas where habitat value is never going to be as high as on the Elizabeths.

In 2017, I had the chance to ride the fast ferry from Quonset Point, Rhode Island, along the Elizabeth Islands, to Martha's Vineyard. It was a spectacular ride. As the boat

URI East Farm, Building 14 | P.O. Box 1858 | Kingston, RI 02881 | 401-874-5800 | info@rinhs.org | www.rinhs.org

sliced along, there was a spot off of Newport where, standing on the top deck, I could see both Cuttyhunk, Massachusetts, and Block Island, Rhode Island. It was a powerful demonstration of the fact that when viewed from the sea, the southern New England coast is an archipeligo, one coastal system of morrainic islands and narrow bays in a shallow sea. It is a perspective we don't usually get when we come to the shore from the land side, bound as we are by political and social identities whereby coastal Massachusetts is more closely tied to inland Massachusetts than to coastal Rhode Island which is geographically closer. If we take the seaward perspective, it is clear how beneficial the project on Cuttyhunk will be for the natural system that does not stop at state lines.

I am not aware of any projects in Rhode Island that could be in line for funding from the Bouchard restoration fund so my comments are made with regard to the strength of the Cuttyhunk Land Protection Project without comparison to any other project. Based on my experience and knowledge in both states, I commend the Cuttyhunk Land Protection Project to the trustees as strongly positive for the entire two-state coastal system.

Sincerely yours,

David Gregg, Ph.D.
Executive Director

CL20-STB

Save the Bay, Narragansett Bay
Jonathan Stone, Executive Director

SAVE THE BAY®
NARRAGANSETT BAY

October 28, 2019

US Fish and Wildlife Service
Attention: Molly Sperduto
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

Received
U. S. Fish & Wildlife Service
OCT 31 2019
New England Field Office
Concord, NH 03301

Re: Draft Restoration Plan for the Common Loon

Dear Ms. Spurduto:

Thank you for considering Save The Bay's comments on the Draft Restoration Plan for Common Loon (*Gavia immer*) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill. Species including common eider (*Somateria mollissima*), black scoter (*Melanitta americana*), and red-throated loon (*G. stellata*) were also killed in the spill. Common loons are of conservation concern in the northeastern USA due to a variety of factors including human intrusion at breeding lakes, commercial fishing, acid rain, mercury exposure, lead poisoning, and marine oil spills.

Save The Bay is committed to preserving and protecting the Narragansett Bay and its watershed. Narragansett Bay is a bay and estuary on the north side of Rhode Island Sound. Covering 147 square miles, the Bay forms New England's largest estuary, which functions as an expansive natural harbor, and includes a small archipelago, parts of which extend into Massachusetts. Loons and diving ducks are an integral part of our coastal ecosystem, and protecting coastal habitat in and around Narragansett Bay is key to the protection and conservation of these species.

Save The Bay supports the Other Birds Restoration - Preferred Alternative (for restoration of birds impacted by the oil spill), which calls for contributing all of the settlement money allocated for Other Birds Restoration in Massachusetts, or $500,000 ($490,000, plus interest earned), to the Cuttyhunk Land Protection Project (Cuttyhunk Project). The best way to restore bird populations is to preserve wildlife habitat and protect coastal systems. Unfragmented lands, such as the 67-acres available for purchase, provide an opportunity for preservation and restoration that will benefit migrating and wintering birds by preventing habitat

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SaveThe Bay (sāv the bā) noun. advocate, watchdog, steward, educator, voice for Narragansett Bay. verb. defend, lead, protect, improve, teach. adj. nimble, passionate, steadfast, inspiring, effective.

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loss due to development and by avoiding ecological impacts of future land development. Land development can destroy valuable habitat and negatively affect water quality in the coastal ecosystems that provide food to these birds.

We also support providing additional funds to the Cuttyhunk Project from those funds designated for Rhode Island habitat protection efforts. As you know, coastal ecosystems are not subject to state boundaries. Migratory birds do not identify as Rhode Islanders, and all species using this portion of the Atlantic Flyway, including species impacted by the oil spill, will benefit from preserving the entire Cuttyhunk Project, identified as highest priority for conservation. Sakonnet Point, Rhode Island, lies across from Cuttyhunk at the mouth of Buzzards Bay. Buzzards Bay and Narragansett Bay are a single coastal complex, and preservation and restoration through the Cuttyhunk project will benefit all migratory birds that either winter within or use Narragansett Bay as a staging area for migration. Last but not least, Save The Bay is not aware of any suitable lands available for acquisition in Rhode Island that would permanently protect such valuable wildlife habitat for the impacted bird species.

As you know, the opportunity to preserve permanently all the land in the Cuttyhunk Project may be lost due to a lack of available funds. Therefore, we support the Trustees proposal to contribute all of the settlement money allocated for Other Birds Restoration in Massachusetts to the Cuttyhunk Project and ask that Trustees allocate additional funds from those designated for Rhode Island habitat and restoration efforts to the Cuttyhunk Project. The Cuttyhunk Project will achieve the purpose of offsetting harm to the environment and restoring populations of affected bird species to what they may have been if the spill had not occurred.

Sincerely yours,

Jonathan Stone
Executive Director

CL21-MASM

Commonwealth of Massachusetts, Massachusetts Senate
Mark Montigny, State Senator, Second Bristol and Plymouth

The Commonwealth of Massachusetts
MASSACHUSETTS SENATE

SENATOR MARK MONTIGNY
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Chair
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Vice Chair
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HEALTH CARE FINANCING
PUBLIC SAFETY
AND HOMELAND SECURITY
SENATE COMMITTEE ON
INTERGOVERNMENTAL AFFAIRS

October 30, 2019

US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

Re: Natural Resource Damages Trustee Council for the Bouchard Barge 120 (B-120) oil spill
Comments on Draft Restoration Plan for Common Loon and Other Birds

Dear Ms. Sperduto:

I am writing to express my deep disappointment with the funding proposed for the Cuttyhunk Land Protection Project under the Draft Restoration Plan released by the B-120 Trustee Council on August 28, 2019. **I urge the Council to amend its decision and provide full funding of no less than $1.8 million for the project as proposed by the Buzzards Bay Coalition.**

This letter follows up on comments I and colleagues in the US Congress and Massachusetts legislature submitted to the B120 Trustee Council in April 2019 in support of the Cuttyhunk project.

As you know, the Buzzards Bay Coalition has agreements in place to acquire and protect over 300 acres of valuable, high quality and diverse coastal habitats on the island - including an extraordinary 5 miles of undeveloped shoreline – and open them for public access. This is a once-in-a-lifetime opportunity to forever protect one of the Northeast's most extraordinary coastal landscapes.

The 2003 Bouchard 120 Oil Spill devastated the coastline of the Buzzards Bay region. Preservation of the remaining undeveloped lands on Cuttyhunk will have direct and significant benefits to a variety of important natural resources identified by the B120 Natural Resource Damage settlement including terns, loons, waterfowl, waterbirds, shorebirds, other migratory bird, fish, shellfish and

wildlife species. **We cannot imagine a more suitable and urgent use of B120 fund than spending it to protect Cuttyhunk – a currently-threatened natural treasure that lies within sight of the location of the 2003 B120 Oil Spill.**

The Commonwealth of Massachusetts, Town of Gosnold, and private donors have already stepped forward to pledge more than $4 million to this effort. But the project will fail without full funding of at least $1.8 million from the Bouchard 120 Trustee Council.

Thank you for your attention to this matter and please do not hesitate to contact my office with any questions or concerns.

Sincerely,

Mark C. Montigny
STATE SENATOR
SECOND BRISTOL & PLYMOUTH

cc:

James Turek, NOAA Restoration Center
Martin Suuberg, Commissioner, MA Department of Environmental Protection
Millie Garcia-Serrano, MA Department of Environmental Protection

CL22-MASR

Commonwealth of Massachusetts, Massachusetts Senate
Michael J. Rodrigues, State Senator/Chair, Senate Committee on Ways and Means

The Commonwealth of Massachusetts
MASSACHUSETTS SENATE
COMMITTEE ON WAYS AND MEANS

SENATOR MICHAEL J. RODRIGUES
First Bristol and Plymouth District

CHAIR
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October 31, 2019

US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

Re: Natural Resource Damages Trustee Council for the Bouchard Barge 120 (B-120) oil spill
Comments on Draft Restoration Plan for Common Loon and Other Birds

Dear Ms. Sperduto,

I am writing to express my deep disappointment with the funding proposed for the Cuttyhunk Land Protection Project under the Draft Restoration Plan released by the B-120 Trustee Council on August 28, 2019. I urge the Council to amend its decision and provide full funding of no less than $1.8 million for the project as proposed by the Buzzards Bay Coalition.

This letter follows up on comments I and colleagues in the US Congress and Massachusetts legislature submitted to the B120 Trustee Council in May in support of the Cuttyhunk project.

As you know, the Buzzards Bay Coalition has agreements in place to acquire and protect over 300 acres of valuable, high quality and diverse coastal habitats on the island - including an extraordinary 5 miles of undeveloped shoreline – and open them for public access. This is a once-in-a-lifetime opportunity to forever protect one of the Northeast's most extraordinary coastal landscapes.

The 2003 Bouchard 120 Oil Spill devastated the coastline of the Buzzards Bay region. Preservation of the remaining undeveloped lands on Cuttyhunk will have direct and significant benefits to a variety of important natural resources identified by the B120 Natural Resource Damage settlement including terns, loons, waterfowl, waterbirds, shorebirds, other migratory bird, fish, shellfish and wildlife species. We cannot imagine a more suitable and urgent use of B120 fund than spending it to protect Cuttyhunk – a currently-threatened natural treasure that lies within sight of the location of the 2003 B120 Oil Spill.

The Commonwealth of Massachusetts, Town of Gosnold and private donors have already stepped forward to pledge more than $4 million to this effort. But the project will fail without full funding of at least $1.8 million from the Bouchard 120 Trustee Council.

Sincerely,

Michael J. Rodrigues
State Senator
Chair, Senate Committee on Ways and Means

cc:
James Turek, NOAA Restoration Center
Martin Suuberg, Commissioner, MA Department of Environmental Protection
Millie Garcia-Serrano, MA Department of Environmental Protection

CL23-TNC

The Nature Conservancy
John Torgan, Rhode Island State Director
Wayne Klockner, Vice President and Massachusetts State Director

The Nature Conservancy
Protecting nature. Preserving life.™

The Nature Conservancy in Rhode Island
159 Waterman Street
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tel [401] 331.7110
fax [401] 273.4902

nature.org/rhodeisland

October 11, 2019

US Fish and Wildlife Service
Attn: Molly Sperduto
70 Commercial Street, Suite #300
Concord, New Hampshire 03301

Dear Ms. Sperduto,

On behalf of The Nature Conservancy's Rhode Island and Massachusetts Chapters, we are writing in support of allocating the remaining Rhode Island portion of the B-120 Oil Spill funds to the Cuttyhunk Land Protection Project as proposed by the Buzzards Bay Coalition.

The Nature Conservancy in both RI and MA assisted with the shellfish restoration component of the spill and has been working with the state natural resource agencies of MA and RI and the trustees of the B-120 spill to identify the best opportunities for habitat restoration and land protection to mitigate the impacts.

Based on all the proposals and potential opportunities we have seen to-date in both states, we feel strongly that the Cuttyhunk Land protection project represents the best use of funds to secure permanent protection for nesting birds and other wildlife and living marine resources impacted by the B-120 spill.

The project as proposed will advance conservation in perpetuity on an island that is unique and that has extraordinary ecological value to the region that benefits both states near the RI/MA border. We can think of no better way to make a meaningful difference to nature in the area and for the resources most directly damaged by the spill.

TNC is pleased to assist the USFWS and all federal, state, and NGO partners in this important effort. Thank you for considering these comments.

Sincerely,

John B. Torgan

John Torgan
RI State Director

Wayne Klockner
VP and MA State Director

Received
U. S. Fish & Wildlife Service
OCT 24 2019
New England Field Office
Concord, NH 03301

10.2. Appendix B: Public Meeting and Webinar Transcript

Public Informational Meeting for the Draft Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge-120 Oil Spill:

QUESTION AND ANSWER SESSION

Transcript Details

Date: September 12, 2019
Version: Verbatim Questions & Answers – only stutters and incomplete/incoherent words removed
Input sound file: B120 Restoration Plan Public Meeting Presentation Recording Final.mp4

Transcript Results

Call Assistant: If you would like to ask a question over the phone please press star (*) one (1) and record your name at this time. Once again, it is star one and record your name.

Call Assistant: Excuse me we do have a question on the phone if you'd like to take it.

Molly Sperduto: Okay.

Call Assistant: We actually have two (2). Our first one is from Sheridan Brown. Your line is open.

Sheridan Brown: Hi. Greetings from New Hampshire. Sorry I couldn't be with you today. Thanks for all of your work on this. My question is with regard to equivalency and thinking in the context of diving ducks first of all. Is there any sort of weight put on how well species are already doing if you have a species that is probably going to recover on its own or do you strive in this restoration plan to, no matter what really, restore directly to that species the same numbers that were lost?

Molly Sperduto: Alright. So, Sheridan welcome. Thanks for joining us. I guess if I understand your question. You know, you're saying do we strive to restore the individual species that were lost?

Sheridan Brown: Correct, yeah.

Molly Sperduto: Yeah, so really we are grouping the other birds together because it's impractical for us really to try and restore all the different individual species that were lost. There are probably I'm guessing right now but, you know twenty-five to twenty-six (25-26) species that were affected and some of those, less than twenty (20) individuals were affected so it's not very practical for us to try and do individual restoration projects for each of the groups of species. So, what we've done in this case and we've done it in many cases really is to try and focus on species that were

impacted in the greatest numbers and we do take into account how different species are doing but also you know what types of projects are available for different species. Some species are harder to restore because they may only nest in boreal Canada and we have shied away from doing restoration projects in boreal Canada when we could do a restoration project for a species like an eider that could also benefit from restoration in New England. So, we look at both types of projects that can be done, and also the species that were impacted in the greatest numbers. And as I said trying to do projects that would benefit a number of species if possible. A million dollars sounds like a lot of money but it's also not if you were trying to divide it up amongst 25 species so we're trying to be cost effective and benefit as many as possible.

Sheridan Brown: So in a similar vein, if you're focusing on species impacted in the greatest numbers I'm wondering with regard to common loons, how you reached a determination that there should be a heavy emphasis on Massachusetts restoration when a lot of those, probably predominantly, the loons lost in that spill based on timing and population, as I understand it, would be from other places. They would be from states throughout the Northeast. They would be from Canada, and few of them would be from Massachusetts. So, I'm wondering, you know, I guess how you define baseline in this and how you determine that things like translocation and the proportionality of this funding is restoring equivalency to the species that was lost. Does geography not matter in this context?

Molly Sperduto: Well that's a good question. And it's a complicated answer. I think, the birds, you raised the point clearly the number of birds that breed in Massachusetts, 45 pairs last year, not all the birds that died obviously are birds that breed in Massachusetts and we recognize that. You know that, as I said many breed in northern New England and as you point out, some probably also breed in Canada. We are trying to balance doing restoration work for the birds, all the birds that were affected, in northern New England, as well as in Massachusetts. We have a responsibility to restore those species, but also restore them for the benefit of the American people. And I say, how do you measure that? Clearly, the people in northern New England you know really value their loons, but the people in Massachusetts also value their loons both on the coast, and you know, inland in central Massachusetts. As well, in Massachusetts you have an opportunity with translocation to have, if successful, the ability to put back large numbers of the species fairly quickly. So, we're weighing a lot of different factors when we try to come up with an allocation and we really tried to come up with a balanced approach to both look at restoring the species lost for the species and the people that were affected and how to do it cost effectively.

Sheridan Brown: Well I thank you for that. I won't drag things out but I will submit comments obviously. You know, as you go through this I would encourage you to maybe reassess a little bit. It sounds to me like maybe there's not a restoration of equivalent resources here because much of what's being accomplished through translocation is it sounds like bringing back species that were there historically, but you know not necessarily at the time of the spill. So, it seems like it's bringing back something that wasn't really lost in the spill, and I think Fish and Wildlife Service

at least representing the entire public including those other Northeast states should be looking at restoring resources in the other states to a more significant extent than what's in this plan because we've got a lot of volunteers up here that have put in sweat equity into bringing back our loon populations and that really shouldn't, I don't think, subsidize a restoration somewhere else of a resource that wasn't really lost in the spill. So, I know you have lots of things to balance in this but I would encourage you to please come up with something that is truly a balance versus sending things disproportionately to other states.

Molly Sperduto: I guess is what I'd add to that is part of what we are looking to do though is actually try and really boost the loon population. And one of the places we think we have the best opportunity to increase numbers to the loon population and the loons as a population that were impacted is to do restoration work in Massachusetts and bring birds back. It really presents a unique opportunity to bring birds back to areas where they no longer breed. If we can be successful, we can really generate a lot of loon years in those locations. So, we look at it as trying to really take a holistic look at the population and we do that frequently with some of our restoration projects looking at net population levels.

Sheridan Brown: Does the absence of numbers in here, dollar amounts, going to other states indicate that you don't see those states as places where you can get gains and does that indicate that they would be unlikely in grant rounds to get funding? It would seem to me if you wanted to restore equivalent resources a good approach might be to look at the places where these loons were lost from, where were these populations wintering from. And then maybe set some dollar amounts to go to those other northeastern states. I mean right now it's left pretty vague with a large amount earmarked going to Massachusetts and Rhode Island, and then no real sense of how other states are going to be made whole for their loss of the resource. And I'd probably feel more comfortable with the plan, personally, if it said something more specific about what's happening in New Hampshire, what's happening in Vermont, what's happening in Maine. And I think, certainly, there are targets that can be set that people could meet.

Molly Sperduto: In the grant round, the three (3) million (roughly) that's going to be allocated for the different management actions; what we anticipate is that it will be available for projects throughout New England. And rather than put a dollar amount and confine ourselves to a dollar amount per state for those, I think what we'd like to do is pick the projects that have the greatest benefit, where we all agree we have the most likely chance for success. Where you can place rafts and get the greatest benefit where there's the greatest need for rafts. Or a really high productivity pair that has a nesting shoreline that is proposed for development. Let's choose that to be protected. Let's not confine ourselves to one state, but let's see what comes in and choose based on where we have the best chance for success. We know in the past when we pre-selected sites and then not had a good a rate of productivity as maybe we anticipated, we didn't get as much gain as we could. So, rather than confine ourselves, I think that's why we left it open to really see what are the projects and to try and identify based on the projects themselves where we have the greatest chance for success.

Sheridan Brown: I think that's inconsistent with your approach of choosing a single vendor for a translocation project in the draft restoration plan for such a big chunk of money, something that seems to be experimental still at this point.

Molly Sperduto: It may be a little bit different, yeah absolutely, but again it's a balance. But we'll look forward to the comments.

Sheridan Brown: Thank you.

Molly Sperduto: Yes, bye.

Call Assistant: You have a question from Mark Pokras. Your line is open, sir.

Mark Pokras: Thank you. Actually, I pressed the button not because I have a question at the moment but because I hoped to be able to participate as things go on further. But, thank you.

Molly Sperduto: Hi Mark, thanks for joining us.

Mark Pokras: Absolutely.

Call Assistant: You have a question from Nina Schoch. Your line is open.

Nina Schoch: Thank you. Hi Molly, great presentation. Thank you very much, and I have two (2) questions. One is, I noticed that you didn't feel that a gill-net permit buyout program would be an effective use of funds, but I'd like that to be more evaluated in the final plan because I do think that is kind of an important component of reducing deaths of loons and other birds. And these were wintering birds so addressing factors that would affect them on the wintering grounds is very important. And also, along the lines of what Sheridan was talking about, you know, these are wintering birds and you are not assigning funding to the populations of the states where the birds breed for restoration. And it's their birds that are being affected, that had the loss of birds due to the oil spill, and it does surprise me again that, as I brought up before, that you did not even consider a published documentation of New York birds wintering on the coast and none of the funding is going to be used for restoring New York's birds. You know, we have officially documented that at least one (1) if not more of our breeding loons winter in Buzzards Bay and that was not mentioned at all in this plan and it was not listed in the references.

Molly Sperduto: So, Nina, if you want to provide us more information about a buyout program, you know, definitely feel free to do that and we can include that in the plan. In terms of the projects throughout New England, I guess we do envision that the three (3) million dollars for the suite of management actions wouldn't be focused in Massachusetts. It would be focused in other areas of New England. Massachusetts would be eligible to apply along with other states, but we anticipate that most of Massachusetts' needs will be covered through the translocation program and

existing work that they do. So, we envision that the bulk of that money will be spent outside of Massachusetts probably, primarily where birds breed in northern New England. In terms of New York, we do have, you know the data that we looked at showed that most of the birds probably were coming from northern New England. I was told that a band recovery hadn't been found from New York east of Long Island. Now, you may have data to show that some of those Adirondack birds do winter and you can send that to us.

Nina Schoch: I have that.

Molly Sperduto: Okay, so send us that.

Nina Schoch: I have done that in the past.

Molly Sperduto: I didn't think you had send me a recovery from East of Long Island.

Nina Schoch: I sent you the published paper that documented that the satellite bird went and wintered in Buzzards Bay.

Molly Sperduto: Okay, well refer me to that again. I was thinking it hadn't shown up. But part of it for us, too, is that we could restore birds, you know, loons, the population at a large scale as I was talking a little bit about with Sheridan, in Canada, further west in New England, but we have a limited supply of money. So, the more projects that we fund, the more we expand the area, our efficiency does goes down and our administrative costs go up. There is only so much money and only so many projects that we can fund. So, we are in some ways trying to limit the area that we would fund. But we do want to do the best projects, that'd restore them the quickest, and make sense for the resources. So, you know, send me that information and we'll look at it, but also I think when we go into the grant round what's really important is the site selection. We'll be looking at the projects where we think we can get the greatest benefit. And we know we can't fund everything.

Nina Schoch: Right, I understand that. It's just you know there are some collaborative projects that we could do throughout New England and New York that would be cost effective, and would help restore loon years lost to all the states where the breeding loons were affected. You know, that wouldn't rule out one state just because it wasn't included in the plan even though the data is there.

Molly Sperduto: Yup.

Nina Schoch: You see what I'm saying?

Molly Sperduto: Yes, I understand. Send me it again, Nina.

Nina Schoch: Okay, will do. Thank you.

Molly Sperduto: Yup.

Call Assistant: We have no more questions on the phone at this time. If you'd like to ask a question, please press star (*) one (1) and record your name.

Molly Sperduto: Go ahead Harry.

Harry Vogel: Molly, thanks for the presentation, and it's nice to see it finally get to this stage…

Molly Sperduto: Agreed.

Harry Vogel: We've all been anticipating this since 2003, so it's been a long wait for us. And I did send you several questions ahead of the meeting, and generally, I don't know if you would like me to go through each of those in detail or if you have them, I suppose for the record. But essentially, the questions that I had circle around these concerns that we had in reading this Draft about the cost-effectiveness of some of these alternatives, at least as they had been presented in the plan. And it's difficult for us to comment on those alternatives if we don't have a good understanding of how those discounted loon years are arrived at or how those cost estimates were derived. And so, for example, in going through this and doing our own evaluation of some of these alternatives, in preparation for commenting, we had questions like if we save an adult loon through a rescue or lead tackle buyback or something, how many discounted loon years does that actually result in. And does that, is there a difference between saving a bird in year one (1) of a program versus ten (10) or twenty (20) years down the line. I understand that these are complex questions and you probably may not be able to answer those right away. I just wanted to be on record as saying it would be helpful for us to have more information on exactly how much we gain for each loon chick we could produce through rafts, signs, or anything and how much we would gain through an adult loon or even juvenile loon, if you happen to save one of those through a rescue. Because, rescues were seen as a non-preferred alternative and we think we have data that we could submit that could even change that. So it is a possibility that we could do that, but without having the information that we need to present. So I'd love to at some point be able to talk with you and get into a little bit, modeling that was created to do that, and also some of the assumptions that went into the estimates of the costs. That would be very helpful. Given that we have a limited amount of time to submit comments on this and then seems like an implementation date of January 2020, you'll have limited time to also think on those comments once we have submitted them. And I think that we'll have some fairly substantial comments on this plan. I'm a little bit concerned with the timeline to both submit these comments and then to have you do a thorough and real assessment of those in preparation for the final plan.

Molly Sperduto: Well, so, I did receive your comments and they are quite specific and technical in nature. So, I don't have a chance to respond specifically to them in this presentation. I need to go back and run some analyses and then look at them. But what I can say generally is, you know, what really drives the benefits are how much of an increase in productivity there is, when you're looking at a management project, or another project that increases productivity, how much of a boost in productivity is there. So, like our raft project has a greater potential for increasing

productivity than a signage project typically. They both have pretty similar costs. They both can be implemented, you know, their benefits accrue during the period of implementation. Now they don't accrue after you pull the rafts out. So, if we fund a project for five (5) years, you'll only have the benefits for the five (5) years when the rafts are being floated. So, compared to a project like a land protection project, there what we've assumed in the past is that you're preventing the loss of productivity over a long period of time. So there, the costs are really high. Protecting shoreline, you know, is very costly compared to some of the management efforts, but the period of time is longer. When you're thinking about the translocation, the costs are pretty high, but the productivity gained is very high because you really have that entire amount of productivity that you wouldn't have otherwise in that location. You're getting a real big uplift, and they can be sustainable. I mean, there are the risks of climate change as you know, but without those or even if there are some of those risks, you're still going to have a fairly self-sustainable effort once the project work is completed. You know, the loons aren't going to stop coming once you don't continue to bring them back or translocate them. You know what I mean? So, those kinds of things are what are key. What's the uplift? What's the period of time, and what are the costs? And there are so many variables that go into the calculations. And yes, the year that it happens, I'm looking at the economist in the room, but I mean it really depends when the benefits start to accrue. You know, in the case of land protection, arguably, the benefit doesn't really happen until that time when it would have been developed. So, sometimes the benefit is kind of delayed. And the kind of stuff we know that in the future benefits aren't worth as much because of discounting. Further out you get, you know, they get reduced. So, there are a whole bunch of factors that go into it. The other piece is, the projects where you're just saving an adult or preventing the loss of adults, typically they don't benefit us as much in terms of putting bird years back because you're just preventing the loss of adults, you're not generating new birds. And while that's really key, and we know that in New Hampshire, for example, the population of birds is declining because so many adults have been lost, we do know there are some floaters that can also move in and take over the nests. So, the impact isn't as great and there's much more uncertainty. If we funded a project where people were going to rescue loons that became entangled in fishing gear say, or a rescue program for stranded loons. The uncertainty is you never know when somebody's going to call and say, "We've got a loon that's been stranded". You're paying for somebody to be available all the time for that moment in time when there's an issue and a bird needs to be rescued. You know, so there's a lot of uncertainty. Maybe you'll have a year when a lot of birds need to be rescued. Maybe no birds need to be rescued one year. You know what I mean? So, we have to factor that uncertainty in to try and figure out what the benefit would be. So, we try to pick projects that we think the benefits are most certain, like where those actions are producing more birds.

Harry Vogel: I guess I have questions on both thoughts of that equation because if, you know, putting out a raft, if we do that for five (5) years, we're going to produce some chicks from those rafts. Those are going to grow into adults. They will continue to produce chicks. So, a hundred (100) years later you're likely to assume you're accruing benefits from a raft program. Even if it's only been carried on for five (5)

years or ten (10) years. And the flip side of that is that protecting land or translocating chicks, it's been LPC's experience, certainly, that sometimes protecting land is simply not enough. So, Lake Umbagog, large amount of protected land, and yet productivity is still low. And most of the productivity, or much of the productivity, that does happen that lake is result of floating rafts every year. And so, translocation, even a five (5) year or six (6) year program of translocation will still require fairly intensive management to achieve any sort of self-sustaining population [which means continued rafts. So, the cost of translocation is really the cost of translocation plus the cost of management ongoing for those birds. I'm not sure if that is weighted in to translocation, the cost gained or the cost per discounted bird year. And those are the sorts of things that it would be nice to see some details on those, the measurements used for those.

Molly Sperduto: Yeah. Well I appreciate your thoughts on that, and it is something that we look at. Particularly, right, the issue of the benefits of the chicks over their lifetime. Typically, when we're assessing injury, you know, we could say, when you think about the loss, you know you have the dead birds loss and then you have the first generation of fledges. Well those would have produced fledges, and had a second generation those would have had another generation, but there comes more uncertainty the further removed you go. So, we do make a judgement, and we cut off the time period at some point. You sort of have to. Otherwise, it becomes unmanageable, both on the injury side and the restoration side. Those sorts of variables that we have to consider. You know, there's choices.

Harry Vogel: And it seems like the details are very important when you talk about discounted bird years per dollar spent. So, and not having those details in this plan, it's hard for us to be able to comment.

Molly Sperduto: Some of those details are in the plan so that you could try and measure or compare. We were looking at some of what we had costed out when we initially were negotiating with the responsible party. So, some of the time periods are variable in the plan. But we don't typically extend the benefits out from a raft program to that second generation because we don't know what's going to happen to the chicks that are produced, where they're going to go, if they are going to be successful. So, what's important is to be consistent when you're talking about land protection or rafts, and that you look at the same generation. So, you're only looking at, you know, the benefits from the rafts or the protected nests. You're not going to the second generation on one and not on the other. You know what I mean? You're only looking at birds produced at that raft or birds produced at that protected nest. I'm not saying I'm going to go to the next generation with one but not with the other. And that's what we tried to do is be consistent.

Harry Vogel: Okay.

Vincent Spagnuolo: Thanks Molly for your work you've done on this, and thanks Massachusetts for hosting all of this today. It's great to be [inaudible 1:29:44] again. I have some questions, but I also have some clarifications on data that you have and statements

that you have in the draft RP. So, I guess I can start with some of the clarifications on some inaccuracies.

Molly Sperduto: Yup.

Vincent Spagnuolo: In the draft RP you have stated that the immature loon that returned in 2017 was captive reared. That bird was direct release. That bird which came back again this year as an adult in 2019, that's the same bird. That was direct release, not captive reared.

Molly Sperduto: Okay.

Vincent Spagnuolo: That's a major distinction to make. Following on Harry's point about translocating loons into these areas of Massachusetts and how much effort it might take to maintain those populations, that carrying capacity estimate which is based on LPC's models they've used in New Hampshire. It was under the assumption that you could fully mitigate human influences or in the absence of human influences. So, you would need some additional management through time to hit those numbers.

Molly Sperduto: Yup.

Vincent Spagnuolo: Yes. And another clarification, while translocation and rearing had been planned in Wyoming, no actual translocation and captive rearings have been conducted in Wyoming.

Molly Sperduto: Yeah.

Vincent Spagnuolo: So, I'll be submitting comments in writing, but I just have some questions to help me guide and understand those comments. I understand you may not be able to answer some of these today. So, maybe we can reconnect over email or we can follow up again over email. You said seven (7) birds returned in 2019 that BRI recorded, which they recorded seven (7) birds returning. You said three (3) banded and two (2) unbanded so is it five (5) or seven (7) that had returned this year?

Molly Sperduto: Seven (7) returned. Two (2), they don't know the status of whether they're banded or not banded.

Both: Three (3) were banded

Molly Sperduto: Two (2) were definitely not banded. The seven (7) total, we know three (3) were banded. Two were not banded.

Vincent Spagnuolo: And four (4) were unbanded.

Molly Sperduto: Well…

Vincent Spagnuolo: Oh, I'm sorry. Oh, gotcha.

Molly Sperduto: Two (2) they don't know. To be determined.

Vincent Spagnuolo: Gotcha. Thank you.

Molly Sperduto: Lucas was the source of that information so, you know, you can follow up with him.

Vincent Spagnuolo: Yeah. I've only heard partial details so...

Molly Sperduto: Yeah.

Vincent Spagnuolo: In the plan, do you have, for translocation captive rearing, do you have a sense of the number of direct release chicks versus the number of captive reared chicks expected over time?

Molly Sperduto: Well, no. We don't exactly. That's really, I think, some of the detail that needs to be worked out and really refined. The costs do vary between the two (2) approaches. The costs with the captive release are greater kind of up front having to have a pen, but the direct release birds are much more difficult to capture, as you know. So, you know, there's additional cost there. So, that's really to be determined.

Vincent Spagnuolo: Yeah. Do you have that kind of sorted out in the next couple months or is that to be determined on a rolling basis, you think?

Molly Sperduto: I think that's going to depend as we go along. You know, certainly the first phase is to finalize the plan, and determine whether we want to go forward, but then I'm thinking on a yearly basis we're going to come up with a plan, and then see how it goes and adapt as we go.

Vincent Spagnuolo: Have you identified or has BRI identified a source of fish for the Berkshires rearing site?

Molly Sperduto: I do not know that.

Vincent Spagnuolo: In the plan, I just want to clarify the language about the staff needed for the rearing project. Is it that there'd be three (3) assistants rearing at each site or three (3) assistants total for the rearing? Could you clarify that? The rearing effort for loons is incredibly intensive.

Molly Sperduto: Yeah, no. I think I'd need to go back to their proposal without answering that. I don't know if Drew knows that off the top of his head.

Andrew Vitz: I think a lot of those details aren't completely worked out in terms how the loon translocation is going to work whether it's captive rearing or direct release. There's been some discussion there, but not anything…

Vincent Spagnuolo: Yeah.

Andrew Vitz: I think overall, I think the idea was to have just one rearing facility at a time, but not be doing both sites at the same time. So, you know, only three people per site. So, only one group at a time.

Vincent Spagnuolo: Right. They'd kind of bounce back and forth, perhaps.

Andrew Vitz: Yes.

Molly Sperduto: Yes.

Vincent Spagnuolo: Will the project be obtaining an IACUC for this work?

Latice Fuentes: Isn't that for institutional captive rearing?

Vincent Spagnuolo: Yeah. This falls under it. Under certain jurisdictions, state by state, perhaps even, but certainly working on federal lands you would obtain an IACUC for work like this. It may not be necessary in Massachusetts, but I'm curious if there's plans for obtaining an IACUC for this. There was an IACUC in place for the previous translocation project.

Molly Sperduto: I'd would think they would follow the same procedures that they had previously followed. All permitting and everything that we would need to get we would follow up on that.

Vincent Spagnuolo: Yeah. That's good. Thanks. And kind of one other clarification or perhaps with a question towards BRI's proposal. But, in the draft RP, you used the phrasing that the chicks that are translocated imprint on the lakes where they're hatched and raised. But from my involvement with the project and everything that we've had, and reports and publications, it's more that that imprinting occurs at the time, more we believe, that it occurs most of the time of fledging or through the fledging process, and maybe some component that's related to the rearing process or, rather, brooding process on the lake that they're on. We believe the majority if not all of it occurs during the fledging process. That's kind of proven now by the direct release birds that have returned that hadn't spent more than, I think, just a couple weeks on that lake. So, that's maybe a clarification to make.

Molly Sperduto: Yeah.

Vincent Spagnuolo: You may want to touch base with BRI on that one as well, but that's my understanding of how that process function.

Molly Sperduto: Yeah.

Vincent Spagnuolo: Yeah, that's the majority of my questions. I'll be submitting more in writing in more detail at another point, but that really helps me steer my comments.

Molly Sperduto: That's helpful. And, you know, to the extent you have thought about how much staff time is needed for this effort and can provide comments that would be helpful to us.

Vincent Spagnuolo: Yeah. Excellent.

Call Assistant: We have no other questions on the phone. There are about 21 people on the phone.

Vincent Spagnuolo: Molly, another question.

Molly Sperduto: Yup?

Vincent Spagnuolo: For the translocation and rearing process, is there funding, either directed toward entities in the source populations in New York and Maine for the monitoring of the chicks that are potentially to be translocated, or is that effort built into the budget that BRI has put forward for translocation and rearing?

Molly Sperduto: Monitoring of the chicks that get translocated?

Vincent Spagnuolo: Yeah. You're identifying a two (2) chick broods, you're aging them, you're working with, you know, lakeshore residents.

Molly Sperduto: My understanding, yes. That is built into the budget as well as the monitoring in subsequent years those chicks that were translocated, yes.

Molly Sperduto: You know, this isn't your last opportunity, of course, to ask questions and provide comments. So, we really do look forward to getting your comments before October. And then, Harry, it will be ambitious, but we'll be trying to address the comments. And, you know, it depends on how many we get, for sure, how well we'll be able to meet the goals in the months. But, part of our emphasis is trying to do it, honestly, we want to do a good job, but we also want to get this done so we can get to the business of restoration, moving forward to implementation because it's been a long time.

Vincent Spagnuolo: Molly, on that process, will the comments be synthesized and included in the final proposal?

Molly Sperduto: So, typically we include verbatim comments that people submit as well as our response to those. Sometimes, you know, if there are short comments that are all either a report or some technicality, those might be synthesized together, put together, but typically they are verbatim, and then our response to all of them.

Gerard Martin: And even the comments they made today, do you want to submit those in writing as well just to make sure we got them right?

Molly Sperduto: It's most helpful if you submit the comments in writing. This will be recorded so we'll have a sense of the comments for sure from today that we can respond to. But it's helpful if you can also provide them in writing.

Latice Fuentes: I'm not encouraging we wrap up or anything, but make sure you sign in with your contact information so that we can inform you whenever things become available: the recording, things like that, the plan, updates. Thanks.

Molly Sperduto: And thanks everybody for participating. Thanks all of the folks on the line. I hope this was helpful to you. This is the first time we've ever hosted one of these meetings for a restoration plan in the NRDAR process, at least that I'm aware of anyway, via the webinar format. So, let us know if you thought that was helpful. We thought in this case it was a good way to try and reach all the people in New England that might be interested. So, I'm encouraged by, at least, the number of people that were able to participate. And it will be recorded so if you want to go back and listen to it or if folks want to see it, it will be available to them. So, thank you. Thank you all for coming.

Call Assistant: That does conclude today's conference call. We thank you all for participating. You may now disconnect and have a great rest of your day.

10.3. Appendix C

Trustee Agency Approvals of the Final Restoration Plan for Common Loon and Other Birds 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 for Common Loon and Other Birds 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 (Department) policy regarding documentation for natural resource damage assessment and restoration projects (521 DM 3), the Authorized Official for the Department must demonstrate approval of draft and final restoration plans and their associated National Environmental Policy Act documentation, with concurrence from the Department's Office of the Solicitor.

The Authorized Official for the Bouchard Barge 120 Oil Spill is the Regional Director for the U.S. Fish and Wildlife Service's Northeast Region.

By the signatures below, the Final Restoration Plan (RP) is hereby approved.

Approved by:

WENDI WEBER Digitally signed by WENDI WEBER Date: 2020.06.02 12:34:25 -04'00'

Wendi Weber
Regional Director
North Atlantic-Appalachian Region
U.S. Fish and Wildlife Service

Date:

Concurred:

5/8/2020

Mark Barash
Senior Attorney
Northeast Region
Office of the Solicitor

Date:

UNITED STATES FISH & WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of the *Final Restoration Plan for Common Loon (Gavia immer) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay Massachusetts and Rhode Island:*

_XX_ is a categorical exclusion as provided by 516 DM 6 Appendix 1 and 516 DM 6, Appendix 1. No further documentation will therefore be made. The proposed action falls under categorical exclusions:

> B(6) The reintroduction or supplementation (e.g., stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated; and
>
> B(11) Natural resource damage assessment restoration plans, prepared under sections 107, 111, and 122(i) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA); section 311(f)(4) of the Clean Water Act; and the Oil Pollution Act; when only minor or negligible change in the use of the affected areas is planned.

____ is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

____ is found to have significant effects, and therefore further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.

____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

____ is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list): *Final Restoration Plan for Common Loon (Gavia immer) and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay Massachusetts and Rhode Island*

WENDI WEBER

Digitally signed by WENDI WEBER
Date: 2020.06.02 12:34:55 -04'00'

Regional Director/DOI Authorized Official _____ Date _____

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Approval of the Final Restoration Plan for Common Loon and Other Birds
Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay
Massachusetts and Rhode Island

In accordance with Trustee protocol regarding documentation for Natural Resource Damage Assessment and Restoration projects, the Massachusetts Executive Office of Energy and Environmental Affairs is providing its approval of the Final Restoration Plan (RP) for Common Loon and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill.

Approved by:
K. Theoharides

Date: 5/27/20

Secretary Kathleen A. Theoharides

Natural Resource Trustee for the Commonwealth of Massachusetts

State of Rhode Island
Rhode Island Department of Environmental Management
Approval of the Final Restoration Plan for Common Loon and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill, Buzzards Bay Massachusetts and Rhode Island

In accordance with Trustee protocol regarding documentation for Natural Resource Damage Assessment and Restoration projects, the Rhode Island Department of Environmental Management is providing its approval of the Final Restoration Plan (RP) for Common Loon and Other Birds Impacted by the Bouchard Barge 120 (B-120) Oil Spill.

Approved by:

Jason McNamee, Ph.D.
Deputy Director, Bureau of Natural Resources
Rhode Island Department of Environmental Management

Date: