

**FINAL RESTORATION PLAN AND NEPA EVALUATION**  
*for the*  
**CHEVRON MARINE OIL TERMINAL FACILITY**  
**NATURAL RESOURCE DAMAGES SETTLEMENT**

Hampden, Maine



**January 2020**

**Prepared by:**

Maine Department of Environmental Protection  
Maine Department of Inland Fisheries and Wildlife  
Maine Department of Marine Resources  
Maine Department of Agriculture, Conservation & Forestry  
United States Fish and Wildlife Service  
National Oceanic and Atmospheric Administration



**Maine Department of Inland Fisheries and Wildlife  
Approval of the  
Final Restoration Plan  
for the  
Chevron Marine Oil Terminal Site  
Hampden, Maine**

The Governor of the State of Maine has designated Judith Camuso, Commissioner, Maine Department of Inland Fisheries and Wildlife, to act on behalf of the public as a State of Maine Trustee for natural resources.

The Draft Restoration Plan prepared in conjunction with the Chevron Marine Oil Terminal Site was released for public review and a thirty-day comment period on July 30, 2019. One comment in support of the Draft Restoration Plan was received. After consideration of the comment received, the Final Restoration Plan is hereby approved.

Approved:

 10/29/19

Judith Camuso  
Commissioner

Date

Maine Department of Inland Fisheries  
and Wildlife



**Maine Department of Environmental Protection**  
**Approval of the**  
**Final Restoration Plan**  
**for the**  
**Chevron Marine Oil Terminal Site**  
**Hampden, Maine**

The Governor of the State of Maine has designated Gerald D. Reid, Commissioner, Maine Department of Environmental Protection, to act on behalf of the public as the State of Maine Lead Trustee for natural resources.

The Draft Restoration Plan prepared in conjunction with the Chevron Marine Oil Terminal Site was released for public review and a thirty-day comment period on July 30, 2019. One comment in support of the Draft Restoration Plan was received. After consideration of the comment, the Final Restoration Plan is approved.

Approved:

 10/30/19

Gerald D. Reid                      Date  
Commissioner  
Maine Department of Environmental  
Protection



**Maine Department of Agriculture, Conservation and Forestry**  
**Approval of the**  
**Final Restoration Plan**  
**for the**  
**Chevron Marine Oil Terminal Site**  
**Hampden, Maine**

The Governor of the State of Maine has designated Amanda E. Beal, Commissioner, Maine Department of Agriculture, Conservation and Forestry, to act on behalf of the public as a State of Maine Trustee for natural resources.

The Draft Restoration Plan prepared in conjunction with the Chevron Marine Oil Terminal Site was released for public review and a thirty-day comment period on July 30, 2019. One comment in support of the Draft Restoration Plan was received. After consideration of the comment received, the Final Restoration Plan is hereby approved.

Approved:

Amanda E. Beal 11/7/19

Amanda E. Beal

Date

Commissioner

Maine Department of Agriculture,  
Conservation and Forestry






U.S. Department of the Interior  
Approval of the  
Final Restoration Plan  
for the  
Chevron Marine Oil Terminal Site  
Hampden, Maine

In accordance with U.S. Department of the Interior policy regarding documentation for natural resource damage assessment and restoration projects (521 DM 3), the Authorized Official for the Department must demonstrate approval of draft and final Restoration Plans, with concurrence from the Department's Office of the Solicitor.

The Authorized Official for the Chevron Marine Oil Terminal Facility is the Regional Director for the U.S. Fish and Wildlife Service's North Atlantic-Appalachian Region.

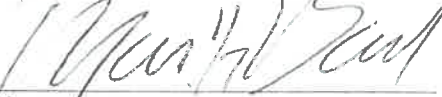
By the signatures below, the Final Restoration Plan is hereby approved.

Approved:

  
\_\_\_\_\_  
Wendi Weber  
Regional Director  
North Atlantic-Appalachian Region  
U.S. Fish and Wildlife Service

Acting

Concurred:

  
\_\_\_\_\_  
Mark Barash  
Attorney  
Department of the Interior  
Office of the Solicitor

12/16/2015



**National Oceanic and Atmospheric Administration**  
**Approval of the**  
**Final Restoration Plan**  
**for the**  
**Chevron Marine Oil Terminal Site**  
**Hampden, Maine**

The National Oceanic and Atmospheric Administration is providing its approval of the Final Restoration Plan for the Chevron Marine Oil Terminal Site, Hampden, Maine.

Approved:

 1-10-2020

Christopher Doley

Date

Division Chief

NOAA Restoration Center

National Oceanic and Atmospheric  
Administration

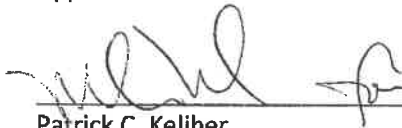



**Maine Department of Marine Resources  
Approval of the  
Final Restoration Plan  
for the  
Chevron Marine Oil Terminal Site  
Hampden, Maine**

The Governor of the State of Maine has designated Patrick Keliher, Commissioner, Maine Department of Marine Resources, to act on behalf of the public as a State of Maine Trustee for natural resources.

The Draft Restoration Plan prepared in conjunction with the Chevron Marine Oil Terminal Site was released for public review and a thirty-day comment period on July 30, 2019. One comment in support of the Draft Restoration Plan was received. After consideration of the comment received the Final Restoration Plan is hereby approved.

Approved:

Patrick C. Keliher

Date

Commissioner

Maine Department of Marine Resources



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## ACRONYMS

ASF – Atlantic Salmon Federation  
CE – Categorical Exclusion  
CFR – Code of Federal Regulations  
DACF – Maine Department of Agriculture, Conservation and Forestry  
DEP – Maine Department of Environmental Protection  
DIFW – Maine Department of Inland Fish & Wildlife  
DMR – Maine Department of Marine Resources  
DOC – Department of Commerce  
DOI – Department of the Interior  
EA – Environmental Assessment  
EFH – Essential Fish Habitat  
EIS – Environmental Impact Statement  
EPA – Environmental Protection Agency  
ESA – Endangered Species Act  
FONSI – Finding of No Significant Impact  
LNAPL – light non-aqueous phase liquid  
MCHT – Maine Coast Heritage Trust  
MS4 – municipal separate storm sewer systems  
NEPA – National Environmental Policy Act  
NHPA – National Historic Preservation Act  
NMFS – National Marine Fisheries Service  
NOAA – National Oceanic and Atmospheric Administration  
NRHP – National Register of Historic Places  
NRPA – Maine Natural Resource Protection Act  
NRDA – Natural Resource Damage Assessment  
OPA – Oil Pollution Act  
RC – Restoration Center (part of the National Oceanic and Atmospheric Administration)  
RC PEIS – Restoration Center Programmatic Environmental Impact Statement  
ROD – Record of Decision  
SHPO – State Historic Preservation Office  
TNC – The Nature Conservancy  
USFWS – United States Fish and Wildlife Service



## EXECUTIVE SUMMARY

Two former marine oil terminal facilities are located adjacent to each other on the west bank of the Penobscot River in Hampden, Maine. These two facilities, referred to collectively as the Chevron Site, operated from the early 1900s under the ownership of various companies to provide oil storage and distribution. In July 2016, the U.S. District Court of the District of Maine approved a settlement between the State of Maine, the United States of America, on behalf of the Department of the Interior (DOI) and the National Oceanic and Atmospheric Administration (NOAA), and five previous owners/operators of the Chevron Site. The approved settlement provides \$880,000 for restoration of natural resources due to discharges of oil from the Chevron Site.

The State of Maine, represented by the Department of Environmental Protection (DEP), Department of Inland Fisheries & Wildlife (DIFW), Department of Marine Resources (DMR), and Department of Agriculture, Conservation and Forestry (DACF), the DOI, represented by the U.S. Fish and Wildlife Service (USFWS), and NOAA are the Natural Resources Trustees for the Chevron Site, and as such are responsible for using these settlement funds to implement restoration projects that will restore, replace, rehabilitate or acquire equivalent natural resources or services to those that were injured.

The Trustees considered two alternatives for using the settlement funds:

<i>Alternative 1 (Preferred)</i>	<ul style="list-style-type: none"><li>• <b>Bagaduce Watershed Fish Passage Restoration Project</b></li><li>• <b>Snow Brook Fish Passage Restoration Project</b></li><li>• <b>Kenduskeag Headwaters Resiliency Project</b></li><li>• <b>Sucker Brook Corridor and Watershed Improvement Project</b></li></ul>
<i>Alternative 2</i>	<b>No Action – no restoration projects implemented</b>

The public had an opportunity to review and comment on these two alternatives in the Draft Restoration Plan and NEPA Evaluation for the Chevron Natural Resource Damages Settlement, which was published on July 30, 2019. The Trustees considered the public comments received and have now issued the Final Restoration Plan and NEPA Evaluation (Final Restoration Plan). Through the Final Restoration Plan, the Trustees are selecting Alternative 1, their preferred alternative, and will work with partners to implement the four restoration projects under this alternative.

Copies of the plan can be downloaded at:

<https://www.fws.gov/newengland/> , <https://darrp.noaa.gov/oil-spills/gulf-chevron-terminal-facility> , and <http://www.maine.gov/tools/whatsnew/attach.php?id=1988175&an=1> or requested by mail at: *Maine Department of Environmental Protection, 17 State House Station, 28 Tyson Drive  
Augusta, ME 04333-0017, 1-800-452-1942*

## 1. INTRODUCTION

Two former marine oil terminal facilities are located adjacent to each other on the west bank of the Penobscot River in Hampden, Maine (Figure 1). These two facilities, referred to collectively as the Chevron Site, operated from the early 1900s under the ownership of various companies to provide oil storage and distribution. The Chevron Site is bordered on the west by Main Road North, to the south and east by the Penobscot River, and to the north by industrial properties. Numerous discharges of oil and oil constituents to soil, sediment, groundwater, pore water, and surface water (the Penobscot River) at the Chevron Site were documented from 1973 to 2008. The oil and oil constituents caused injury to riverine, wetland and floodplain habitats, groundwater resources, and recreational opportunities, in the vicinity of the Chevron Site.



**Figure 1. Aerial of Chevron Site from 2007 (Maine DEP).**

In July 2016, the U.S. District Court of the District of Maine approved a settlement between the State of Maine, the United States of America, on behalf of the Department of the Interior (DOI) and the National Oceanic and Atmospheric Administration (NOAA), and five previous owners/operators of the Chevron Site. The approved settlement provides \$880,000 for oversight and restoration of natural resources due to discharges of oil from the Chevron Site.

The State and United States entered into this settlement under the authority of the Oil Pollution Act of 1990 (OPA, 33 U.S.C. §2701 et seq.) and the Maine Oil Discharge Prevention and Pollution Control law (38 M.R.S. § 551). OPA authorizes federal agencies, states and others to act on behalf of the public as Trustees of natural resources that are injured by oil spills. Maine law provides that licensees and persons permitting or suffering a prohibited discharge are liable for damage for injury to, destruction of, or loss of use of natural resources and the reasonable costs of assessing natural resource damage, as well as the costs of preparing and implementing a natural resource restoration plan. The Trustees for the Chevron Site are the U.S. Fish and

Wildlife Service (USFWS) on behalf of DOI, NOAA on behalf of the Department of Commerce (DOC), and the Commissioners of the Department of Environmental Protection (DEP), Department of Inland Fisheries & Wildlife (DIFW), Department of Marine Resources (DMR), and Department of Agriculture, Conservation and Forestry (DACF).

The settlement under OPA and Maine's Oil Law provides funding for the restoration of natural resources as compensation for injury to, destruction of, loss of, or lost use of, natural resources. Thus, the restoration funds from the settlement for the Chevron Site will be used to develop and implement a restoration plan (this document) that identifies specific projects that will restore the injured natural resources or services (riverine, wetland and floodplain habitats, groundwater resources and recreational opportunities).

Acting in their capacity as Natural Resource Trustees on behalf of the public, DEP, DMR, DIFW, DACF, NOAA and the USFWS prepared this Final Restoration Plan and NEPA Evaluation (Final Restoration Plan) that:

- ❖ *Promotes transparency and provides explanations for why projects were selected and what alternative projects were considered.*

**Section 1** describes the range of restoration project ideas that the Trustees received and explored, as well as the criteria the Trustees used to evaluate project ideas.

- ❖ *Selects specific natural resource restoration projects that will compensate the public for the natural resource injuries caused by oil spills that occurred at the Chevron Site.*

**Section 2** of this document describes and evaluates the reasonable range of restoration alternatives, including the Trustees' preferred alternative and a no-action alternative premised on natural recovery. **Section 3** of this document explains how the selected restoration projects will be monitored so that the Trustees can determine whether the projects are successful.

- ❖ *Ensures that restoration project selection and implementation complies with federal, state and local environmental laws and policies.*

**Section 4** evaluates the preferred and no-action alternatives within the context of the National Environmental Policy Act (NEPA), which requires all federal agencies to analyze the effects of their proposed actions on the human environment (including biological, physical, socioeconomic, historical and cultural resources). The Final Restoration Plan is the primary vehicle through which the Trustees are ensuring that the selected projects are compliant with NEPA. This Final Restoration Plan identifies the restoration projects considered therein and the amount of funding proposed by the Trustees for each project.

NOAA and the USFWS, the two federal Trustees, are acting as co-lead agencies for the purposes of compliance with NEPA in the development of this Final Restoration Plan. The Trustees are proposing to address NEPA compliance for the proposed projects

through the use of the NOAA Restoration Center Programmatic Environmental Impact Statement (<https://www.fisheries.noaa.gov/resource/document/restoration-center-programmatic-environmental-impact-statement>), which analyzes the environmental effects of a wide variety of common habitat restoration activities including those selected in the Final Restoration Plan. This approach is discussed further in Section 4 (NEPA Evaluation).

**Section 5** provides an overview of how the Trustee Council's selected restoration projects will comply with a wide range of additional environmental laws and regulations. For some of the restoration projects, additional consultation, compliance and permitting under laws, such as the Endangered Species Act, the Clean Water Act, and the Magnuson-Stevens Fisheries Conservation & Management Act may be required once specific project engineering and design plans are developed. Table 1 describes how the Trustees will comply with relevant laws, regulations and policies.

❖ *Involves the public in decision-making.*

The Trustees published a public notice on the availability of restoration funds and requested comments and ideas for funding restoration projects on December 13, 2017. On July 30, 2019, the Trustees published a Draft Restoration Plan, which proposed specific restoration projects for funding. The Draft Restoration Plan was made available for public comment for 30 days and one public comment was received (Appendix A). The Trustees considered the public comment prior to preparing the Final Restoration Plan.

### **1.1 Purpose and Need for Restoration**

The purpose of the restoration projects in the Final Restoration Plan is to compensate the public for the injuries/losses to the affected natural resources caused by the oil spills at the Chevron Site by restoring, replacing, or acquiring the equivalent of those resources. This action is needed because there were injuries to the public's natural resources due to releases of oil from the Site, including loss of use and loss in function of the riverine ecosystem and its associated wetlands and floodplains.

### **1.2 History of the Site**

Historically, the Chevron Site has been used for marine oil terminal facilities dating back to the early 1900s. The southerly terminal was formerly owned and operated by Chevron U.S.A. Inc. and its corporate predecessors and has not been used to store oil since 1993. The above ground storage tanks (ASTs) and the loading rack were removed in 2014. The northerly terminal, adjacent to the Chevron terminal, was formerly owned by Texaco Inc. and its corporate predecessors. This terminal remains an active bulk oil storage and distribution facility.

Numerous discharges of oil and oil constituents to soil, sediment, ground water, pore water, and surface water at the Chevron Site have been documented from 1973 to 2008. The Chevron Site is adjacent to the Penobscot River and is located in the river's floodplain. The affected segment

of the Penobscot River is designated a Class B surface water by the State of Maine, and as such is managed with a goal of providing unimpaired wildlife habitat of sufficient quality to support all indigenous aquatic life, use as drinking water supplies, fishing, recreation in and on the water, and industrial processes. In this location, the Penobscot River is a freshwater tidal ecosystem.

### **1.3 Remedial Actions**

In 2006, the U.S. Coast Guard observed a sheen of light non-aqueous phase liquid (LNAPL) on the Penobscot River. The origin of the sheen was traced to the former Chevron Site. Since the 2006 sheen incident, a series of investigative and remedial activities have been completed. These activities included:

- soil borings and identification and mapping of soil stratigraphic layers;
- installation of monitoring wells;
- installation and maintenance of a boom system to collect hydrocarbon sheen on the river;
- installation of a LNAPL product recovery system including large diameter recovery wells and specialized computer-controlled pumps to provide interim hydraulic containment and enhanced LNAPL recovery;
- installation of 110 feet of interlocking sheet pile wall along the southern boundary of the Chevron Site to provide a barrier to migration;
- excavation of approximately 2,768 tons of impacted soil and sediment from the tidal flat and slope; and
- land application of gypsum for sulfate enhanced natural attenuation (ENA) of petroleum hydrocarbons.

The upgraded LNAPL recovery system operated from 2009 through 2013. During this time approximately 11,000 gallons of petroleum were captured and removed. Throughout the history of remedial activities approximately 38,620 gallons of petroleum have been removed from the ground. Soils and groundwater at the Chevron Site have been and currently are impacted by releases of petroleum, and groundwater at the Chevron Site remains unusable. Remedial measures were not successful in restoring the impacted areas to baseline conditions.

### **1.4 Injury Assessment**

In their injury assessment, the Trustees found that terrestrial habitat adjacent to and aquatic/wetland habitat (including subtidal and intertidal habitat) in the Penobscot River were impacted by oil discharged from the Chevron Site, based on the locations of samples indicating impacted soil, sediment, groundwater and pore water.

The affected segment of the Penobscot River is habitat for many bird, mammal, invertebrate, and fish species that may have been impacted by the contamination. Aquatic species that may have been affected by the spills include Atlantic salmon, shortnose sturgeon, Atlantic sturgeon, American eel, alewife, blueback herring and rainbow smelt.

The segment of the Penobscot River affected by spills from the Chevron Site is designated as “Critical Habitat” for the Gulf of Maine Distinct Population Segment (DPS) of Atlantic Salmon

(*Salmo salar*), which is listed as endangered under the Endangered Species Act. Turtles and amphibians, which are commonly found in and along riverbeds and banks, aquatic invertebrates like mussels, small mammals that feed on fish and invertebrates such as otters, and a variety of migratory bird species (e.g., great blue herons, dabbling and diving ducks, songbirds, eagles, ospreys) that inhabit this area may also have been affected.

The Trustees identified an active and growing recreational fishery for striped bass (*Morone saxatilis*) in the affected segment of the Penobscot River. The Trustees believe that the presence of spilled contaminants in the river has potentially reduced the number of available fish; the desire of people to use this part of the river for fishing; and the desire of people to use this part of the river for wildlife viewing, recreation and tourism in the area. Additionally, the Trustees' assessment found that petroleum contamination caused by the releases of petroleum rendered groundwater at the site unusable as a water supply.

### **1.5 Public Involvement and Comment**

Public participation is a key part of the restoration planning process. The Trustee Council reached out to over 50 representatives of local governments, non-governmental organizations, and state, federal and tribal agencies that work actively on natural resource restoration and conservation in the Penobscot River watershed to solicit potential restoration project ideas. Additionally, the Trustee Council published a public notice in both the Bangor Daily News and Kennebec Journal to solicit ideas from the public at large. The Trustee Council also published a fact sheet about the Chevron Site that included the suite of 11 criteria it had developed and would use to evaluate projects (section 1.8).

The public had an opportunity to comment on the Draft Restoration Plan from July 30, 2019 until August 30, 2019. One public comment was submitted. The comment was submitted by the Town of Hampden and expressed the Town's support of the Sucker Brook culvert replacement project (Appendix A). Additionally, the comment noted a factual error in the plan, which has since been corrected. The Trustees appreciate the Town's support of the project and are encouraged that the Sucker Brook culvert replacement may complement future stream habitat improvement work upstream of the crossing.

#### ***Trustee Council and Decision-Making***

The individual Trustees have formed a Trustee Council, which is the decision-making body in regard to the use of the restoration settlement funds and works by consensus to make decisions about how the funds will be spent. The Trustee Council has a responsibility and obligation to involve the members of the public and stakeholders in the restoration planning process and has worked actively to do so.

#### ***Administrative record***

Records documenting the information considered and actions taken by the Trustees during this restoration planning process comprise the Trustees' administrative record supporting the Final Restoration Plan. These records are available for review by interested parties who can access or view these records by contacting: Maine Department of Environmental Protection  
17 State House Station, 28 Tyson Drive, Augusta, ME 04333-0017, 1-800-452-1942.

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

### **1.6 Restoration Goals and Objectives**

The goal of the Final Restoration Plan is to compensate the public for the injuries to the affected natural resources caused by the oil spills at the Chevron Site, including loss of use and loss in function of the riverine ecosystem and its associated wetlands and floodplains. The objective of this restoration effort is to implement one or more natural resource restoration projects in the Penobscot River Habitat Focus Area in order to restore, replace or acquire the equivalent of the resources injured by oil spills at the Chevron Site. The Penobscot River Habitat Focus Area is part of the NOAA Habitat Blueprint and includes an initiative to restore fish passage and habitat within the Penobscot River watershed and tributaries to Penobscot Bay. Restoration and conservation of these areas is intended to improve and conserve habitat for fish, birds and wildlife as well as enhance other uses of the affected resources including recreational use.

### **1.7 Restoration Project Ideas Considered**

The Trustee Council solicited restoration project ideas from the public from December 13, 2017 through January 31, 2018 using a short submission form. Anyone could submit project ideas; project proponents were asked to complete a two-page submittal form (Appendix B) that provided basic background information on their proposed project including a short description, location of the project, expected cost and timeline, and project partners. The Trustee Council received four project submissions through this process:

- Sucker Brook Corridor and Watershed Improvement Project, Hampden, ME
- Bagaduce Watershed Fish Passage Restoration Project, Sedgwick and Brooksville, ME
- Snow Brook Fish Passage Restoration Project, Sedgwick, ME
- Kenduskeag Headwaters Resiliency Project, Charleston, ME

### **1.8 Restoration Ideas and Approaches Not Considered**

Prior to issuing the request for project ideas, the Trustee Council had lengthy discussions regarding differing approaches for identifying restoration projects and considered several alternatives for identifying projects. These alternative approaches included:

- the Trustees working with partners to conceive and develop restoration projects in proximity to the Chevron Site, including developing floodplain and wetland restoration projects;

- the Trustees issuing a formal Request for Proposals through Maine DEP and focusing on projects that are “shovel-ready” in the Penobscot River Habitat Focus Area; and
- the Trustees issuing a less formal request for project ideas (using a two-page idea submission form) and focusing on - but not being limited to - projects that are shovel-ready in the Penobscot River Habitat Focus Area.

Ultimately, the Trustee Council determined that the administrative costs of developing restoration projects that were not already underway would be so high that it would greatly diminish the funds available for project implementation. Given that the priority under OPA is to use the settlement funds to implement on-the-ground restoration, the Trustee Council chose to minimize administrative oversight costs as much as possible. Instead of working to develop new restoration projects, the Trustee Council decided to focus on identifying projects that were already conceptually developed.

Additionally, while the Trustees wanted to focus on finding projects that were “shovel-ready” to the greatest extent possible, they also wanted to leave the door open to project ideas that might be less developed but may still provide significant ecological benefits. Thus, the Trustees opted to use a short two-page project submission form that did not require the level of information required in a formal Request for Proposals.

The Trustee Council received four project ideas using the two-page project submission form and determined that all four restoration project ideas submitted were eligible for consideration. The Trustee Council will provide funding to all four projects under its preferred alternative. No project ideas submitted were excluded from consideration, though the Trustees are funding three of the four projects at amounts less than were requested. Funding allocations are discussed in greater detail in Section 2.1.

### **1.9 Criteria for Evaluating Restoration Projects**

The OPA regulations (15 CFR §990.54) identify the following factors that Trustees must use to evaluate restoration alternatives:

- 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.



Based upon these six factors, the particular circumstances of this case, and the Trustees' goals for restoration, the Trustees developed the following 11 criteria to evaluate restoration alternatives:

- Extent to which the restoration project provides services of the same type and quality, and of comparable value, as the services provided by the injured resources;
- Magnitude of benefits to ecological resources;
- Extent to which the project complements other state, federal and local habitat and conservation efforts in the Penobscot River watershed;
- Project's technical feasibility;
- Project's cost effectiveness;
- Project's ability to leverage additional funds;
- Extent to which the project avoids adverse effects to other natural resources and is protective of public health and the environment;
- Extent to which the project will enhance public access for recreation;
- Extent to which the project protects and conserves groundwater resources;
- Proximity of the restoration project to the site of injury; and
- Extent to which the project can be permitted, implemented and monitored in a timely manner.

These criteria were provided to the public during the restoration project solicitation process so that restoration project proponents would understand the project evaluation process. The Trustees used these 11 criteria to evaluate proposed restoration projects and develop the restoration alternatives that are described and evaluated in Section 2.

## **2. RESTORATION ALTERNATIVES**

After taking into consideration the evaluation criteria (Section 1.9), the Trustee Council determined that it would explore and analyze in detail the following two alternatives in the Final Restoration Plan:

<i>Alternative 1 (Preferred)</i>	<ul style="list-style-type: none"> <li>• <b>Bagaduce Watershed Fish Passage Restoration Project</b></li> <li>• <b>Snow Brook Fish Passage Restoration Project</b></li> <li>• <b>Kenduskeag Headwaters Resiliency Project</b></li> <li>• <b>Sucker Brook Corridor and Watershed Improvement Project</b></li> </ul>
<i>Alternative 2</i>	<b>No Action – no restoration projects implemented</b>

Each alternative is described below and then each one is considered within the context of the 11 evaluation criteria.

### 2.1 Preferred Alternative

The Trustees’ preferred alternative is to partner with the Atlantic Salmon Federation, Maine Coast Heritage Trust, The Nature Conservancy and Lane Construction to implement the following four projects:

<i>PARTNER</i>	<i>PROJECT</i>	<i>PROPOSED CHEVRON FUNDING</i>
Maine Coast Heritage Trust	<i>Bagaduce Watershed Fish Passage Restoration Project, Brooksville and Sedgwick, ME</i>	\$250,000
The Nature Conservancy	<i>Snow Brook Fish Passage Restoration Project Sedgwick, ME</i>	\$125,000
Atlantic Salmon Federation	<i>Kenduskeag Headwaters Resiliency Project Charleston, ME</i>	\$380,000
Lane Construction	<i>Sucker Brook Corridor and Watershed Improvement Project, Hampden, ME</i>	\$45,000
<b>TOTAL:</b>		<b>\$800,000</b>

These projects will improve habitat in a variety of riverine ecosystems in the lower and middle portions of the Penobscot River watershed (Figure 2) and will improve habitat for a wide variety of fish and wildlife that use or migrate through the region that was affected by the oil spills. Together, this suite of four projects will restore tidal, freshwater tidal and freshwater/headwater habitat for migratory fish (American eel, alewife, blueback herring, rainbow smelt, Atlantic salmon), invertebrates, amphibians, reptiles, birds and mammals.

The Trustees will provide a portion of the funding requested to complete the proposed projects with the understanding that project partners will use the Chevron Site funding to leverage additional local, state, federal and private funds. The Trustees anticipate that, given the high



***Bagaduce Watershed Fish Passage Restoration Project***

The Trustees will provide \$250,000 to the Maine Coast Heritage Trust (MCHT) to implement two fish passage restoration projects at Walker Pond and Parker Pond, both located in Brooksville.

Walker and Parker Ponds are two of five alewife spawning ponds that The Nature Conservancy (TNC), MCHT, NOAA, Maine Center for Coastal Fisheries, the Three-Town Alewife Committee, and a plethora of landowners and partners are working on to restore fish passage in the Bagaduce River watershed. MCHT previously installed nature-like fishways to restore fish passage to two (Wights Pond and Pierce Pond) of these five ponds in 2017. MCHT, TNC and their many partners are now working to improve fish passage at the remaining three ponds (Walker, Parker and Frost).

TNC is working with MCHT and partners to restore fish passage to Frost Pond, a project that the Trustees are also supporting (see Snow Brook Fish Passage description below). And MCHT is working with TNC and partners to restore passage at the other two ponds, Walker Pond and Parker Pond.

Parker Pond is a 66-acre pond located in Brooksville in the headwaters of Mill Stream, a tributary of the Bagaduce River. Parker Pond has historically supported large runs of returning alewives that completely stopped a few decades ago. An existing earthen berm remains, and a former water level control structure is no longer in place. A combination of historic mill remnants in the stream and beaver dams built opportunistically have created a series of complex flows and sharp drops that are too difficult for migrating alewives to navigate (Figure 3). Some fish may make it over portions of the mill structure, but they are stymied by beaver dams.



**Figure 3. View looking downstream from Parker Pond at mill remnants on Mill Stream.**

The project will restore fish passage to Parker Pond, and retain water levels. At the outlet of a large meadow downstream of Parker Pond, a stretch of riffle will be constructed at the former dam site to restore fish passage and retain water levels for high value wetlands, including wading bird and waterfowl habitat. Preliminary engineering was completed in 2018 and final engineering is underway. The project will include final design, permitting, construction and monitoring (implementation monitoring and fish monitoring).

Walker Pond is a 693-acre pond in the headwaters of the Bagaduce River. It lies near the town lines of Sedgwick and Brooksville (Figure 4). There is a stretch of earthen berm at the outlet, a road crossing, and remnants of a large former mill site and associated dam. The dam is a large stone, wood and concrete structure, about 10-feet high with a 9-foot spillway, with an existing bypass channel/fishway that needs improvement.



**Figure 4. View upstream from dam on the Walker Pond site, with Walker Pond in the distance.**

Thanks in large part to active, hands on volunteer efforts, the channel is reasonably successful at passing fish into the pond, which currently supports an active alewife run. But the high velocity flows from the dam spillway attract fish to the base of the dam, rather than to the fishway. Thus, many alewives never find their way to the fishway, significantly decreasing its effectiveness. Additionally, the fishway is narrow and gets clogged easily with debris. As a result, during migration, volunteers must go out more than once a day and clear debris from the fishway by hand so that alewives can pass. One of the prime limitations of the site is mortality during juvenile out-migration.

A better designed and constructed fishway at this location will greatly increase the alewife run and reduce the maintenance burden currently required, while also retaining and respecting the heritage of the mill site. A feasibility study was conducted in 2018 to evaluate alternatives for this site, which will consist of stabilization of the existing dam, some enhancement of the existing fishway to increase the capacity, and some modifications to sections of the dam and

immediately downstream to protect out-migrating fish, especially juvenile alewives. Preliminary design of the project has been completed. Additionally, work supported with the Chevron natural resource damages settlement funding may include final design, permitting, construction and monitoring (implementation monitoring and fish monitoring).

The cost to restore fish passage to Parker Pond and improve fish passage at Walker Pond was estimated at \$400 - \$900K at the time the project idea was submitted. The wide range in the cost estimate is due in part to the fact that final engineering designs have not been completed for the projects. NOAA and TNC have previously provided MCHT with \$50,000 to support feasibility study and engineering and design costs associated with this project. MCHT has been actively fundraising to obtain additional funds that will be needed to complete both projects.

MCHT has also been developing relationships with the landowners for both of the Parker and Walker Pond projects and there is broad-based community support for both efforts. Additionally, it is anticipated that the land around the Walker Pond fishway may become a public park and recreation area as part of this project, allowing the public greater opportunity to observe the alewife runs, the birds and other wildlife that are attracted by the pond, and enjoy nature. While the Trustees are not funding the public park and recreation area component of this project, they view the increased public access as an added benefit of the project. The Parker Pond project borders publicly-accessible land owned by the Blue Hill Heritage Trust, a local land trust, and signage and walking trails will allow future access to the stream and pond.

#### ***Snow Brook Fish Passage Restoration Project***

The Trustees will provide \$125,000 to TNC to assist with the replacement of a failing culvert located at the State Route 15 crossing over Snow Brook in Sedgwick (Figure 5). TNC is partnering closely with the MCHT, along with the Town of Sedgwick, the Maine Department of Transportation (as it is a state-owned road) and NOAA to implement this project. The failing culvert, which is perched (2-foot free fall at the outlet), is a complete barrier to all aquatic species at all flows. It currently blocks access to the 5.5 miles of Snow Brook above the culvert, as well as 155-acre Frost Pond at its source.

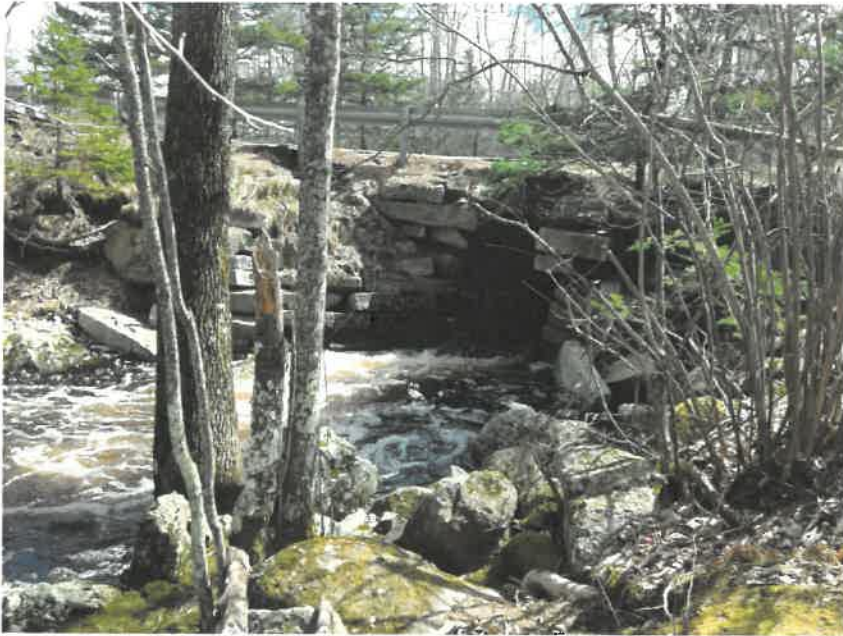


Figure 5. Perched culvert at Rte. 15 crossing over Snow Brook in Sedgwick.

Frost Pond is one of five alewife spawning ponds that TNC, MCHT, NOAA and numerous landowners and partners are working to restore access to in the Bagaduce River Watershed. MCHT installed nature-like fishways to restore fish passage to two of these five ponds in 2017 (Wights and Pierce Pond). The Trustees will provide MCHT with funding to support restoring fish passage to Walker and Parker Pond, (see description above) as part of the Final Restoration Plan. Through the Snow Brook project, TNC, MCHT and their partners will restore passage to the fifth pond, Frost Pond.

The wingwalls of the culvert are failing and there are areas of significant erosion around the culvert that are beginning to compromise the integrity of the structure. The undersized culvert is perched at its outlet and creates a barrier that is too high for migratory species like alewife, which were once plentiful in the Snow Brook watershed but were extirpated sometime after the culvert was installed. It is anticipated that an embedded box culvert with a 24-foot span would be installed to ensure that the stream channel and flows are not confined and allow safe passage for fish and wildlife. A natural streambed would be restored under the new bridge to ensure that there is habitat for benthic macroinvertebrates; and streambanks would be constructed under the bridge to ensure safe passage for turtles and other organisms that travel along riparian corridors.

In addition to improving instream and riparian habitats, Frost Pond is a historic alewife spawning pond and it is anticipated that an alewife run can be re-established at this location were an appropriately-sized road crossing installed. DMR has stocked Frost Pond with adult alewives to restore an alewife run should fish passage be reopened. The brook contains 118 units of modeled Atlantic salmon habitat (the Maine Atlantic Salmon Habitat Atlas Map, which was used to calculate these units, can be accessed on the Maine Office of GIS website, <https://www.maine.gov/megis/maps/>), and it drains directly into Snow's Cove on the Bagaduce River, a locally important rainbow smelt spawning site.

Based on data from other historic alewife ponds in Maine, this project is expected to enable 40,000 alewives per year to return to Frost Pond, making a significant contribution to the effort to restore the alewife runs in the Bagaduce River watershed. Most importantly, low trophic level fish like alewives provide food for many other species higher up the food chain, including many migratory birds, larger fish and mammals. Because alewives are a source of food for many other organisms, helping alewives to recover will benefit the entire food chain. Replacing this hanging culvert could also provide sea-run brook trout access to the freshwater refugia and spawning habitat necessary to maintain sustainable populations of this species, as well as provide passage for American eel.

NOAA has already provided \$80,000 to TNC to support the engineering and design of this project, the anticipated cost of which is \$1,100,000. The high cost of the project is due to the fact that the crossing is on a state road and must meet rigorous Maine Department of Transportation design, engineering and construction requirements.

TNC requested \$800,000 from the Trustees for this project. The high cost of this project for the expected ecological outcomes, uncertainty regarding the total projected cost, and the Trustees' interest in funding more than one project were factors that lead the Trustees to provide partial funding for this project. TNC and its partners will utilize the \$125,000 in Chevron settlement funds and the NOAA funding to leverage additional funds for this project. Currently, TNC and its partners are seeking additional funds through the Maine Department of Transportation Municipal Projects Initiative. Settlement funds provided by the Trustees for this project may be used to support design, permitting and/or construction activities as well as implementation monitoring and fish monitoring to verify that target species like alewife and American eel find the restored site passable during migration seasons.

#### ***Kenduskeag Stream Headwaters Resiliency Project***

The Trustees will provide \$380,000 to the Atlantic Salmon Federation (ASF), working in partnership with the Town of Charleston and the USFWS, to replace up to five undersized culverts on public road crossings along Crooked Brook and its tributaries in Charleston, opening upwards of 12.6 miles of stream habitat. Crooked Brook is a headwaters tributary of Kenduskeag Stream, which enters the Penobscot River in Bangor just upstream of the Chevron Site. Crooked Brook and its tributaries are important habitat for native wild brook trout, prime juvenile rearing areas for Atlantic salmon, and are cold-water habitats that are expected to support these species into the future even under projected climate changes.

Three of the five road crossings are located on the mainstem of Crooked Brook and the two additional road crossings are on two separate unnamed tributaries of Crooked Brook (Figure 6). Together, replacing these five road crossings will open up almost 12.6 miles of stream habitat in the Crooked Brook watershed (4.1 miles along the mainstem Crooked Brook, 2 miles in one unnamed tributary and 6.45 miles in a second unnamed tributary).

This project provides fish and other aquatic organisms access to miles of diverse habitat in Crooked Brook and its tributaries in the headwaters of the Kenduskeag Stream. Replacing these undersized crossings will open up a variety of cold-water stream habitats, including low gradient reaches adjacent to floodplain wetlands, shaded pools that provide refuge for fish from warm



summer temperatures, and higher gradient reaches with gravel stream beds that would be ideal for spawning.

In addition to improving access to diverse habitats for fish, culvert replacement projects like these restore in-stream habitat, by creating natural streambeds and banks where there was previously corrugated plastic or metal pipe. Replacement of these barriers will also enhance passage of numerous other wildlife species including turtles, salamanders, and small mammals allowing them to cross safely under a road and avoid vehicle-induced mortality. Beyond the ecological benefits, replacing these road crossings will also assist the community of Charleston with its efforts to become more flood resilient. Undersized road crossings, such as these five, cause roads to flood during storm events and are a major concern in towns throughout Maine.



**Figure 6. Perched and undersized culverts proposed for replacement at the crossing of Bacon Rd. over an unnamed tributary of Crooked Brook**

So much has been achieved in recent years to open more of the Penobscot River to the free passage of sea-run fish with removal of mainstem dams, and it is that work that has allowed Atlantic salmon, American eel and other species much easier access to headwater areas such as the Crooked Brook watershed. Replacement of these barriers in the upper Kenduskeag will augment these efforts by reconnecting downstream, larger rivers with small, productive, cold-water streams where young fish can move freely and grow among a diversity of habitat types.

ASF, with assistance from the USFWS, will provide technical expertise in stream survey, assessment, analysis, design, permitting, and project implementation. Initially in 2017, ASF requested \$475,000 from the Trustees to complete the five culvert replacement projects (total estimated project cost was \$580,000), with the anticipation that an additional \$95,000 would come from a Maine DEP Municipal Infrastructure Stream Crossing Upgrade grant and \$10,000 from the Town of Charleston. The high cost of the request relative to the funds available, the Trustees' desire to fund multiple projects in several locations throughout the Penobscot River

watershed, and the availability of the Maine DEP funding led the Trustees, in the Draft Restoration Plan, to propose providing ASF with \$380,000.

Since the project proposal was submitted in 2017, all five culverts have been assessed and preliminary replacement designs have been completed, allowing for development of more accurate cost estimates. Also during this time, construction and labor costs in Maine have been rising rapidly, leading the project proponents to increase contingency costs for the project. The total cost of the project is now projected to be \$718,000.

In 2019, the Town of Charleston applied for and was awarded two Municipal Infrastructure Stream Crossing Upgrade grants (\$175,000) to support two of the five culvert replacement projects. The Town of Charleston is providing an additional \$30,000 in in-kind services and funding to the project, raising its contribution to \$40,000. ASF and USFWS are contributing an additional \$28,000 in in-kind services (technical assistance with project management, coordination and logistics, design and permitting, and construction oversight). The project partners plan to apply for a third Maine DEP Municipal Infrastructure Stream Crossing Upgrade grant in fall 2019 to address the remaining funding shortfall.

It is anticipated that final designs and permitting will be completed for the culvert replacement projects in 2019 and 2020, with the possibility of going to construction as early as summer 2020. Given the uncertainty around future construction and labor costs, ASF and its partners may choose to scale back the project and replace fewer culverts if necessary.

Stream	Road	Proposed Crossing	Cost (incl. 10% contingency)
<b>Crooked Brook Tributary</b>	Bacon Road	40' bridge	\$218,000
<b>Crooked Brook Mainstem</b>	Bacon Road	20' box culvert/bridge	\$136,000
<b>Crooked Brook Mainstem</b>	West Road	20' box culvert/bridge	\$136,000
<b>Crooked Brook Mainstem</b>	Garland Road	15' arch culvert	\$ 125,000
<b>Crooked Brook Tributary</b>	Bacon Road	12' arch culvert	\$ 103,000
<b>Total Estimated Project Cost</b>			<b>\$718,000</b>
<b>FUNDING SOURCES</b>			
In-kind services from Town of Charleston			\$40,000
Two Maine DEP Municipal Infrastructure Grants (awarded in 2019)			\$175,000
Additional Maine DEP Municipal Infrastructure Grant Funding (applied for in 2019)			\$ 95,000
In-kind services from Atlantic Salmon Federation			\$15,000
In-kind services from USFWS			\$13,000
Chevron Settlement Contribution			\$380,000
<b>Total Estimated Project Cost</b>			<b>\$718,000</b>

***Sucker Brook Corridor and Watershed Improvement Project***

The Trustees will partner with Lane Construction and the USFWS to provide \$45,000 to construct the replacement of an undersized culvert on Sucker Brook, a freshwater tidal stream located on Lane Construction property in Hampden (Figure 7). This undersized culvert

constrains the stream channel and likely prevents fish passage at certain flows and during certain tidal events. The culvert is approximately a quarter-mile from the Chevron Site and a quarter-mile upstream from the confluence of Sucker Brook with the Penobscot River. Sucker Brook itself enters the Penobscot River a little over a half-mile downstream of the Chevron Site. Thus, this project is very close to the site of injury. Replacing this culvert will reduce erosion around the road crossing, improve passage for fish, turtles and other organisms and improve in-stream habitat by creating a natural streambed and banks.



**Figure 7. Undersized culvert on Sucker Brook on Lane Construction property.**

The project will involve removing the culvert under the entrance road to the Lane Construction site and replacing it with a pre-fabricated concrete box culvert that would be sized according to state standards to allow fish passage and not constrict the stream channel. The original funding request submitted was for \$124,000 to cover the cost of materials; however, USFWS staff have identified suppliers who can provide the necessary materials at a lower cost. Thus, the Trustees will provide a total of \$45,000 for this project, which they expect will be sufficient to cover the cost of materials, design work, and project construction. Lane Construction has offered to provide the equipment and labor necessary to install the new culvert (estimated at \$40,000 to \$50,000), which is a substantial contribution – 100% match – of in-kind services that greatly reduces the total cost of this project. The settlement funds provided include approximately \$5,000 for the survey, assessment, engineering design and monitoring of the new culvert (to be conducted by USFWS staff) and \$40,000 towards materials and construction.

Sucker Brook is an urban impaired watershed with 25-30% impervious surface and degraded water quality (City of Bangor 2014). Given the magnitude of ecological impacts in this watershed, it is unlikely that the instream habitat and fish passage improvements provided by this project will create substantial ecological improvements in the Sucker Brook watershed for cold-water species like Atlantic salmon and brook trout. However, this is a low-cost, cost-effective project located in close proximity to the Chevron Site; and Maine DEP, the City of Bangor and the Town of Hampden have all identified the Sucker Brook Watershed as a priority for

implementing water quality and habitat improvement projects (City of Bangor 2014). Thus, the Trustees view this project as an opportunity to initiate water quality and ecological restoration efforts in this watershed.

Sucker Brook enters the Penobscot adjacent to Turtle Cove Park, where there is a public boat launch. The establishment of Turtle Cove Park was partially funded by a former settlement related to the Chevron Site. Thus, using current Chevron Site settlement funding to replace this culvert on Sucker Brook will build upon these previous efforts to improve this area and increase public recreational opportunities near the Chevron Site. It is hoped that this initial investment in Sucker Brook by the Trustees will jumpstart restoration efforts in this watershed, create some modest ecological improvements for resident fish and wildlife at a location that is close to the site of injury, and possibly benefit migratory species like American eel and sea lamprey. Additionally, this project presents the opportunity to build a partnership with Lane Construction, a neighbor to the Chevron Site and a landowner along the Penobscot River that has a strong interest in stewardship of the river and its floodplain.

## **2.2 Non-preferred Alternative: No Action**

In developing restoration plans for natural resource damage settlements, Trustee Councils are required to evaluate a “no action” alternative. Under the no action alternative, the Trustees would undertake no restoration projects and any further restoration of natural resources and services injured by the oil spills would instead occur through natural recovery alone. No actions to assist with the recovery and restoration of natural resources would be taken beyond those remedial actions that have occurred on-site to remove contaminants. Additionally, the “no action” alternative would not utilize settlement monies for restoration, which is the intended use of such funds. Thus, the “no action” alternative serves as a point of comparison to the preferred alternative.

## **2.3 Evaluation of Restoration Alternatives**

The Trustees considered each alternative within the context of the 11 evaluation criteria.

### ***Alternative 1: Preferred Alternative***

Together, this suite of four projects will restore estuarine tidal and freshwater tidal and non-tidal habitat in the Penobscot River watershed to benefit migratory fish (American eel, alewife, blueback herring, rainbow smelt, Atlantic salmon, sea lamprey), benthic macroinvertebrates, amphibians, reptiles, birds and mammals. The oil spills at the Chevron Site occurred over several decades and injured ground and surface waters, freshwater tidal river sediments, riverbanks and floodplain habitats. An extensive number of organisms rely upon these habitats and the river itself at some point during their life cycles. Many organisms in this watershed, particularly those that are migratory, rely upon multiple habitats in multiple locations in this watershed throughout their life cycle. This suite of four projects will restore a diversity of habitats and benefit a wide variety of species at various points in their life cycles. The Trustees believe that the combined ecological benefits of these four projects will best compensate the public for the injuries caused by oil spills at the Chevron Site.

*Extent to which the restoration project provides services of the same type and quality, and of comparable value, as the services provided by the injured resources:* Each of the four projects in the preferred alternative will provide benefits that relate in some way to the type and quality of resources or services provided by the injured habitats.

The two projects in the Bagaduce River will improve in-stream habitat for aquatic organisms; and in-stream habitat at the Chevron Site was injured. Additionally, these projects will help to increase the size of alewife runs in that watershed. Alewives are forage fish and thus are food for a vast array of other organisms, many of which are the same species found in the vicinity of the Chevron Site. Thus, though the Bagaduce project sites are downstream of the Chevron Site, the Trustees expect these projects to benefit similar species and populations of species – particularly migratory birds – to those that reside in or migrate through the Chevron site.

The Kenduskeag Headwaters Resiliency Project will improve in-stream habitat similar to the resources injured at the Chevron Site. This project will also open up access to spawning habitat for migratory fish. The Kenduskeag Stream enters the Penobscot River in Bangor, approximately two river miles upstream of the Chevron Site. Thus, fish species migrating through the Chevron Site will benefit from increased access to cold water spawning habitat and refugia in the Kenduskeag headwaters as a result of these culvert replacements. Replacement of road crossing barriers as part of this project will also enhance passage of numerous other wildlife species including turtles, salamanders, and small mammals; many of these species are also found in the vicinity of the Chevron Site.

The Sucker Brook project will restore in-stream habitat and improve access for fish and other organisms on the Lane Construction site, which is located less than a quarter-mile from the Chevron Site. Sucker Brook enters the Penobscot River a little more than a half-mile downstream of the Chevron Site. Given the proximity of this project to the site of injury, the project will benefit similar resources to those that were injured.

*Magnitude of benefits to ecological resources:* Cumulatively, these four projects will benefit a wide diversity of species and habitats including, freshwater stream habitats, tidal estuarine stream habitats, freshwater tidal stream habitats, along with the migratory fish, migratory birds, resident birds, fish, turtles, salamanders, macroinvertebrates and mammals that rely upon these habitats.

*Extent to which project complements other state, federal and local habitat and conservation efforts in the Penobscot River watershed:* DEP has identified the Sucker Brook watershed as a priority for water quality and habitat improvement efforts. The Kenduskeag Stream watershed and the Bagaduce River watershed are both focal areas for restoration for the USFWS, NOAA, DMR and DIFW, which are working to restore endangered Atlantic salmon populations, populations of at-risk species, such as alewife and blueback herring, and other cold-water species such as Eastern brook trout and American eel. At-risk species are species that face grave threats to their survival but are not protected under the Endangered Species Act.

*Project's technical feasibility:* All four of these projects rely on established and well-understood techniques for replacing road crossings and installing nature-like fishways. All four projects

have landowner and community support. The Trustees believe that all the projects are technically feasible.

*Project's cost effectiveness:* Individually, the four projects proposed under the preferred alternative vary in their cost effectiveness from extremely to moderately cost effective. The Sucker Brook culvert replacement may be the most cost effective, given its location on the Lane Construction site and the willingness of Lane Construction to provide all of the equipment and labor necessary to complete the project. The Snow Brook project may be least cost effective given the Department of Transportation's design, engineering and construction requirements for state highways, all of which increase the cost of the project. When considered as a group, the four projects are highly cost effective given all of the additional funding being provided to these projects. For an investment of \$800,000, the Trustees will leverage as much as an additional \$1.5 million and open up over 18 miles of stream habitat to migratory fish species, improve in-stream habitat at nine locations in the Penobscot River watershed and potentially dramatically increase the alewife runs in the Bagaduce River watershed, which are a primary component of the food chain in the river ecosystem.

*Project's ability to leverage additional funds:* Depending upon the final costs of the four projects under Alternative 1 (preferred), the Trustees anticipate that they will leverage as much as \$1.5 million in other funds under the preferred alternative.

*Extent to which project avoids adverse effects to other natural resources and is protective of public health and the environment:* All four projects under Alternative 1 (preferred) are protective of public health and the environment. There are no significant adverse effects to natural resources or public health anticipated from any of these projects. Several of these projects, including all of the culvert replacements, are expected to reduce the risk of road flooding in local communities, thus improving these communities' flood resiliency and benefiting public health and safety.

*Extent to which project will enhance public access for recreation:* The Kenduskeag and Bagaduce projects will indirectly improve fishing, birding and nature viewing opportunities for the public by restoring fish passage in areas that are near publicly accessible fishing locations. In particular, the Walker Pond and Parker Pond components of MCHT's Bagaduce River Fish Passage project will create new opportunities for public access to observe alewife runs, which is a great outdoor activity that helps to connect people to nature.

*Extent to which project protects and conserves groundwater resources:* The projects under Alternative 1 (preferred) are not anticipated to directly benefit groundwater resources. However, the Trustees expect that these projects will indirectly benefit groundwater resources by restoring stream ecosystem functions and generally improving road infrastructure to promote more infiltration of stormwater runoff into the ground (as opposed to running directly off roads and into waterways). Increasing the amount of rain and snow melt that seeps down into the ground (instead of running off pavement directly into rivers and streams) helps to maintain both the quality and quantity of groundwater.

*Proximity of the restoration project to the site of injury:* The Sucker Brook culvert replacement project is the closest of the four projects to the site of injury; it is less than a quarter-mile from the site of injury. The other three projects are a considerable distance from the site of injury but will benefit resources injured by the Chevron Site.

*Extent to which the project can be permitted, implemented and monitored in a timely manner:* All four projects under the preferred alternative can likely be designed, permitted and implemented within the next one to three years, and monitored within the next three to five years.

***Alternative 2: No action alternative***

Under the no action alternative, no efforts to assist with the recovery and restoration of natural resources would be taken beyond those remedial actions that have occurred on-site to remove contaminants. These remedial efforts are critically important, but frequently do not restore natural resources to baseline conditions, nor do they compensate the public for the many years that natural resources were being actively injured at the Chevron Site. Thus, were the no action alternative implemented, the public would not be made whole, as is the stated goal of the Oil Pollution Act.

*Extent to which the restoration project provides services of the same type and quality, and of comparable value, as the services provided by the injured resources:* Under Alternative 2 (no action) no projects would be implemented, so there would be no benefits to natural resources or services.

*Magnitude of benefits to ecological resources:* The magnitude of benefits to ecological resources would be minimal under the no action alternative as no additional restoration would be done beyond the remedial work that has occurred on the Chevron Site.

*Extent to which project complements other state, federal and local habitat and conservation efforts in the Penobscot River watershed:* Implementing Alternative 2 (no action) would not be complementary to other state, federal and local efforts in the Penobscot River watershed, as these efforts are focused on active restoration of river, stream and wetland habitats to benefit endangered and threatened species; other species of concern, migratory birds and the wide variety of invertebrates, fish, amphibians, reptiles and mammals that rely upon this watershed.

*Project's technical feasibility:* Criterion not applicable as no projects would be implemented.

*Project's cost effectiveness:* Criterion not applicable as no projects would be implemented.

*Project's ability to leverage additional funds:* Criterion not applicable as no projects would be implemented.

*Extent to which project avoids adverse effects to other natural resources and is protective of public health and the environment:* Given that no projects would be implemented under this alternative, the no-action alternative is not protective of the environment. No adverse effects to

public health are anticipated if the no action alternative is implemented. However, implementing the no action alternative could have adverse effects on natural resources because projects to restore currently degraded natural resources would not be implemented. Thus, these degraded natural resources would continue to be degraded, causing an existing adverse effect to continue indefinitely.

*Extent to which project will enhance public access for recreation:* Under Alternative 2 (no action) no projects would be implemented. Thus, this alternative would not provide any enhancement of public recreation or access opportunities.

*Extent to which project protects and conserves groundwater resources:* Under Alternative 2 (no action) no projects would be implemented. Thus, this alternative would not provide any additional protection or conservation of groundwater resources.

*Proximity of the restoration project to the site of injury:* Criterion is not applicable as no projects would be implemented.

*Extent to which the project can be permitted, implemented and monitored in a timely manner:* Criterion is not applicable as no projects would be implemented.

In evaluating the two restoration alternatives under the OPA NRDA regulations and the 11 Trustee evaluation criteria, the Trustees conclude that Alternative 2 (no action) must be considered non-preferred, primarily because the Trustees signed a court-approved Settlement Agreement (Consent Decree) agreeing to conduct natural resource restoration activities with the funds from the settlement. Furthermore, the injuries to natural resources caused by the oil spills at the Chevron Site were substantial enough that the affected natural resources cannot recover on their own. Additional restoration actions are needed to assist in the recovery and restoration of riverine habitats in the Penobscot River watershed in order to compensate the public for the decades of injury that occurred.

The restoration projects under Alternative 1, the preferred restoration alternative, meet all of the criteria identified in the OPA NRDA regulations, along with the 11 criteria developed by the Trustees. These projects will improve habitat in a variety of riverine ecosystems through the lower and middle portions of the Penobscot River watershed (Figure 2) and will improve habitat for a diversity of fish and wildlife that use or migrate through the region that was affected by the oil spills. Together, this suite of four projects will restore tidal, freshwater tidal and freshwater/headwater habitat for migratory fish, benthic macroinvertebrates, invertebrates, amphibians, reptiles, birds and mammals. Based upon this evaluation, the Trustees select their preferred alternative, Alternative 1 and will use the Chevron Site natural resource damage settlement funds to implement the four restoration projects identified under this alternative.

### **3. MONITORING**

The Alternative 1 (preferred) projects primarily involve the installation of appropriately designed culverts, bridges and fishways. The installation of properly designed road crossings and nature-like fishways has been demonstrated to improve fish passage and, in the case of culvert



replacements, restore instream habitat and reduce flooding caused by channel constriction. The key to achieving these results is the effective design, engineering, installation and maintenance of these structures. Thus, the focus of the monitoring effort for the Final Restoration Plan will be to ensure the proposed culverts and fishways are designed, installed and maintained correctly.

If not replaced correctly, newly installed culverts can cause additional stream channel incision and continued blockage of aquatic organism passage. Based upon existing USFWS recommendations (Castro 2003), the Trustees, working with their partners, will evaluate the success and/or failure of culvert removal and replacement by documenting the design process and any changes to the design during construction, reviewing as-built surveys, and by photo-documenting the site conditions before implementation and for three years post-implementation. Site observations and photo points are useful for documenting significant changes to the stream, and should be taken from the road surface looking both upstream and downstream (Castro 2003). Monitoring will be conducted by partner organizations or Trustees responsible for project implementation. The cost of this monitoring effort is minimal and has been incorporated into the project cost estimates provided in Section 2.1.

In regard to the fishway design and implementation, similar efforts will be made to ensure that fishways are installed and maintained according to the engineered specifications. Fishways will be monitored by partner organizations annually for a minimum of three years to document the number of returning fish (during migration) and to assess the integrity of the fishway.

It is possible that the DMR will stock salmon in locations near the Kenduskeag Headwaters culvert replacement projects. If so, these sites will be incorporated into DMR's salmon monitoring program and DMR will share the results with the Trustee Council.

The Trustee Council will work with project partners to publish news releases and other outreach materials to let the public know when restoration projects are implemented and share the results of monitoring efforts.

#### **4. NEPA EVALUATION**

The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321, *et seq.*, and the regulations guiding its implementation at 40 C.F.R. Part 1500, apply to restoration actions that federal natural resource trustees plan to implement under OPA and other federal laws. NEPA and its implementing regulations outline the responsibilities of federal agencies and provide specific procedures for preparing the environmental documentation necessary to demonstrate compliance. NOAA and the USFWS are co-leads for purposes of NEPA compliance.

The Trustees integrated the OPA and NEPA processes in the Final Restoration Plan. Integration of the NEPA evaluation process into this document allows the Trustees to provide for public involvement under both statutes concurrently. This approach is recommended under 40 C.F.R. § 1500.2(c), which provides that federal agencies should “[i]ntegrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively.” Thus, this document serves as the agencies’ compliance with NEPA.

#### **4.1 Requirements for Analysis under NEPA**

Under NEPA, federal agencies must evaluate potential impacts to the environment from their proposed actions and reasonable alternatives. If impacts are potentially significant an environmental impact statement (EIS) is required, but if impacts are either unclear or considered not significant, an environmental assessment (EA) may be prepared. Additionally, some types of actions may qualify for a Categorical Exclusion (CE), or otherwise not be subject to NEPA. NEPA allows for broad programmatic analyses that subsequently can be used to meet NEPA requirements for project-level actions through “tiering.” This process is discussed further below. The NEPA process ensures that public decision-makers are fully informed about the potential impacts of the proposed actions and alternatives and allows for meaningful public involvement in the decision-making process.

In this case, the federal trustees are satisfying their NEPA obligations by applying the impacts analysis and conclusions drawn in another, previously published programmatic NEPA document (NOAA Restoration Center Programmatic EIS). The public was provided an opportunity to comment on the Trustees’ proposed action and alternatives and NEPA Evaluation in the Draft Restoration Plan.

This Final Restoration Plan complies with NEPA by 1) describing the purpose and need for restoration; 2) addressing public participation for this process; 3) identifying alternative actions; 4) summarizing the current environmental setting; and 5) analyzing environmental consequences.

#### **4.2 NOAA Restoration Center Programmatic Environmental Impact Statement**

After decades of experience evaluating and implementing environmental restoration projects, NOAA’s Restoration Center (RC) has determined that many of its efforts involve similar types of activities with similar environmental impacts. To increase efficiency in conducting future NEPA analyses for a large suite of habitat restoration actions, the RC developed the “Programmatic Environmental Impact Statement for habitat restoration activities implemented throughout the coastal United States” (RC PEIS) in 2015. After a public comment period, a Record of Decision was signed July 20, 2015. The RC PEIS is available at the following link:

*<https://www.fisheries.noaa.gov/resource/document/restoration-center-programmatic-environmental-impact-statement>*

The RC PEIS provides a program-level environmental analysis of NOAA’s habitat restoration activities throughout the coastal and marine environment of the United States. Specifically, it evaluates typical impacts related to a large suite of projects undertaken frequently by the RC, including, but not limited to: Coral Reef Restoration; Debris Removal; Beach and Dune Restoration; Signage and Access Management; Fish Passage; Fish, Wildlife, and Vegetation Management; Levee and Culvert Removal, Modification, and Set-Back; Shellfish Reef Restoration; Subtidal Planting; Wetland Restoration; Freshwater Stream Restoration; and

Conservation Transactions. These analyses may be incorporated by reference in subsequent NEPA documents, where applicable.

For example, a site-specific NEPA document may evaluate a restoration project where all potential impacts were addressed in the RC PEIS. In that instance, the site-specific NEPA document would, in effect, incorporate by reference the full impacts analysis from the RC PEIS. In those cases where the RC PEIS determined none of the potential impacts would be significant, the site-specific NEPA document could incorporate that conclusion by reference as well. In short, no further NEPA analysis may be necessary so long as the proposed activity is within the range of alternatives and scope of potential environmental consequences analyzed in the RC PEIS and would not cause significant adverse impacts. Conversely, if the site-specific restoration activity is not within the scope of alternatives or environmental consequences considered in the RC PEIS, it will require additional NEPA analysis through preparation of a new NEPA document.

For this Final Restoration Plan, the Trustees have made the determination that the RC PEIS fully covers the scope of the proposed actions and all environmental impacts, and a separate NEPA analysis and decision document is not needed. This determination has been documented in sections 4.5 and 4.8 below, and in the NEPA “Inclusion Analysis” (Appendix C).

The environmental impacts from fish passage projects (including culvert removal, modification, and replacement; and fishways) and technical assistance activities (planning, design engineering, and permitting; implementation monitoring; fish and wildlife monitoring) in support of these types of projects have been analyzed in the RC PEIS. Those general analyses are incorporated here by reference and are summarized in the final Inclusion Analysis (Appendix C), as discussed in Section 4.5.2 below.

### 4.3 Proposed Action and Alternatives

The proposed actions being evaluated under NEPA are the restoration alternatives (and restoration projects therein) being considered as part of the Final Restoration Plan:

<i>Alternative 1 (Preferred)</i>	<ul style="list-style-type: none"><li>• <b>Bagaduce Watershed Fish Passage Restoration Project</b></li><li>• <b>Snow Brook Fish Passage Restoration Project</b></li><li>• <b>Kenduskeag Headwaters Resiliency Project</b></li><li>• <b>Sucker Brook Corridor and Watershed Improvement Project</b></li></ul>
<i>Alternative 2</i>	<b>No Action – no restoration projects implemented</b>

Alternative 1 is preferred by the Trustees and includes a combination of technical assistance in support of, and construction of, fish passage projects in the lower and middle portions of the Penobscot River watershed. This alternative is evaluated in this Final Restoration Plan to determine whether the scope of the alternative and all potential impacts are sufficiently

addressed in the RC PEIS. This evaluation is described below in section 4.5 and is documented in the Inclusion Analysis, which is appended to this Final Restoration Plan (Appendix C).

Alternative 2 represents the “no action” alternative which is not preferred. Under the no action alternative, the Trustees would undertake no restoration projects and any further restoration of natural resources and services injured by the oil spills would instead occur through natural recovery alone. No action is a non-preferred alternative because it fails to compensate the public for losses associated with the incident. However, NEPA mandates that federal agencies evaluate the environmental impacts of no action.

#### **4.4 Affected Environment**

This section provides a general and site-specific description of the affected physical, biological, and social environments, and related resources, as they relate to the geographic area that may be affected by the restoration alternatives considered in this Final Restoration Plan.

##### **4.4.1 General**

While stream and riverine systems are dynamic and highly variable environments, they do share certain qualities that are somewhat universal. Tidal and nontidal stream and river systems are located in every region of the NOAA RC. Many rivers and streams along the coast are tidal, with the effects of ocean tides extending upstream. The channel of a stream or river is the portion of the cross section that is usually submerged and totally aquatic. Channel substrates may be composed of various materials, including cobbles, boulders, sand, clay, and silt. Portions of a river channel often contain biological elements such as oyster reefs or submerged aquatic vegetation beds that help shape or define the channel.

Stream and river channels are critical to the viability of living coastal and marine resources. In addition to providing freshwater, rivers and streams transport nutrients and provide habitat for thousands of aquatic and terrestrial species, including birds, shellfish, finfish, amphibians, reptiles, mammals, plants, and invertebrates. Vegetation that grows along the banks of rivers and streams stabilizes the banks, shades the water, and provides cover and food for animals and nutrients for the ecosystem (e.g., from fallen leaves).

The integrity of stream and river channels is important to the viability of not only the streams and rivers themselves, but also to the estuaries, oceans, marshes, and wetlands connected to them. Processes such as accelerated channel erosion, pollution, diking, damming, channel alteration, scouring, and dumping can drastically affect the rivers and streams and their receiving waters by causing accelerated sedimentation, and alteration of temperature and water quality, among other factors.

The Trustees have made the determination that the RC PEIS contains an applicable description of the affected environment generally associated with the restoration activities described in this Final Restoration Plan. Site-specific attributes of the affected environment are described below.

#### 4.4.2 Site-Specific

The Penobscot River is New England's second largest river, draining nearly one-third of the State of Maine with a watershed area of 8,570 square miles (NOAA 2016). Its West Branch rises near Penobscot Lake on the Maine/Quebec border; its East Branch rises near the headwaters of the Allagash River. The main stem is 264 miles in length and empties into Penobscot Bay near the town of Bucksport (EPA 2015). The landscape of the watershed includes Maine's highest peak, Mt. Katahdin, rolling hills and extensive bogs, marshes and wooded swamps.

There is a rich history of cultural, social, and economic tradition associated with the Penobscot River. The Penobscot Indian Nation is a federally recognized tribe whose primary reservation is on Indian Island near Old Town, Maine and includes islands upstream from the Milford Dam.

Despite its size, the watershed has a low human population density, is largely forested, and contains many large lakes and multiple tributaries offering habitat for sea-run fish like alewives, blueback herring and American eel, and cold-water refuge for native salmonids like Atlantic salmon and brook trout (NOAA 2016). The Penobscot River is best known for its large historic salmon run and its much smaller contemporary run, which is the largest Atlantic salmon run remaining in the United States (EPA 2015).

NOAA has identified the Penobscot River as one of 10 habitat focus areas in the United States (NOAA 2016). Twelve diadromous fish species can be found in the Penobscot watershed including Atlantic salmon, Atlantic tomcod, American shad, American eel, alewife, blueback herring, striped bass, Atlantic sturgeon, shortnose sturgeon, rainbow smelt, sea lamprey and sea-run brook trout. Three of these species are listed under the Endangered Species Act (Atlantic salmon, Atlantic sturgeon and shortnose sturgeon) and three species are recognized by NOAA as Species of Concern (alewife, blueback herring, and rainbow smelt).

Ten species of freshwater mussel are found in Maine and all ten can be found in the Penobscot River watershed. The river is an important stopover for migratory birds and provides habitat for herons; loons; kingfishers; diving and dabbling ducks, such as common and Barrow's goldeneyes, ring-necked ducks, black ducks, mergansers and mallards; songbirds, such as ruby-crowned kinglets, phoebes, orioles, sparrows, and warblers; and raptors, such as eagles, owls and osprey. The watershed is home to a wide variety of reptiles, amphibians, birds and mammals.

Human activities have caused a number of adverse impacts to the Penobscot River watershed including: reduction of fish and wildlife populations and habitat; loss of recreational opportunities, including world-renowned recreational fishing for Atlantic salmon and whitewater boating; loss of fish for tribal sustenance fishing; water quality and benthos degradation due to point and non-point source pollutants, restrictions on fish consumption, and eutrophication or undesirable algae; reduction of prey species for commercially-important Gulf of Maine groundfish; and diminished resilience to the effects of climate change, including warming water temperatures and potentially increasing flood magnitudes and frequencies (NOAA 2016).

Wastewater treatment facilitated by the Clean Water Act led to significant improvements in water quality in the watershed (NOAA 2016), though recommended limits on consumption of

fish, ducks and turtles are still in place due to mercury contamination (EPA 2015, DIFW 2018). Additionally, the removal of the Great Works and Veazie dam and the installation of the new fish lift at the Milford dam have dramatically improved the ability of diadromous fish to access the river and its tributaries. However, many barriers still remain in the watershed, including approximately 31 power-generating dams, 108 non-power generating dams and more than 2,100 culverts (NOAA 2016).

The releases of oil at the Chevron Site occurred within the context of these existing stressors in the Penobscot River watershed. Under the preferred alternative (Alternative 1), restoration projects would be implemented in the Sucker Brook sub-watershed, the Kenduskeag Stream sub-watershed and the Bagaduce River sub-watershed, in order to restore impacted and impaired habitats to benefit a wide variety of fish and wildlife species throughout the watershed that may have been affected by the decades-long releases at the Chevron Site.

#### ***Sucker Brook Watershed***

Sucker Brook is a small tributary to the Penobscot River, flowing from Bangor into Hampden. The brook begins near the southeastern end of the runway at Bangor International Airport, flows south through the exchanges of I-95, I-395, and US Rt. 2, and enters Hampden in a semi-forested area adjacent to industrial development off Route 202 in Hampden (City of Bangor 2014). The brook continues under Route 202, passing through a mix of agricultural, residential, and commercial development before entering the Penobscot River at the Turtle Cove Park and public boat launch in Hampden (City of Bangor 2014), just downstream of the Chevron Site.

The brook itself is approximately 3 miles long; 2.5 of which are listed on the State of Maine's list of urban impaired waters based on benthic macroinvertebrate bioassessments and dissolved oxygen (City of Bangor 2014). These impairments are likely caused by the high amount of impervious surface in the watershed (25-30% of the watershed is impervious surface), large volumes of stormwater runoff into the brook and a lack of vegetated riparian buffers.

#### ***Kenduskeag Stream Watershed***

Kenduskeag Stream is 36 miles long and has a watershed of 215 square miles. French Stream, Black Stream and Crooked Brook are its largest tributaries (MaineDEP 2006). The Kenduskeag Stream originates in Garland Pond (Garland) and enters the Penobscot River in Bangor. Approximately 40% of the active agricultural land in the Penobscot watershed is found around the Kenduskeag Stream watershed. According to the Penobscot County Soil and Watershed Conservation District watershed plan (1988) 87% of the watershed (120,000 acres) is forested primarily with mixed hardwoods, and 16,500 acres is cropland, pasture or grassland (MaineDEP 2006). The principal crops are corn and potatoes, with some active dairy and cattle farms. Phosphorus and nitrogen (from fertilizers) are the primary pollutants of concern in this watershed.

The Penobscot River watershed is one of the few watersheds in Maine where wild Atlantic salmon still return and the headwaters of the Kenduskeag Stream provide important cold water refuge and spawning and rearing habitat for Atlantic salmon, American eel, Eastern brook trout and other cold-water species. Four Atlantic salmon redds and five test pits were found near Crooked Brook's confluence with Kenduskeag Stream in 2017.

### ***Bagaduce River Watershed***

A tributary to the Penobscot Bay, the Bagaduce River is a tidal, estuarine river system. Although the river is only about 12 miles long, it is one of the most productive estuaries in Maine because of its narrow constriction and broad coves. The tidal fluctuations within its protected waterways provide excellent conditions for a productive shellfishery (Beginning with Habitat 2018). The intertidal flats beyond the Narrows include more than 1,000 acres of habitat for soft-shell clams, marine worms, and other invertebrates. Waterfowl and wading birds flock here for the more than 2,700 acres of available habitat, critical for feeding, breeding, and resting during migration (Beginning with Habitat 2018).

The diverse resources found in the mudflats, coves, tidal creeks, and estuaries around the Bagaduce River all provide abundant breeding grounds, feeding areas, and nesting areas for birds, invertebrates, fish, and shellfish. Migratory shorebirds frequent several areas within the Bagaduce Estuary to feed on their long journeys (Beginning with Habitat 2018). Diadromous fish such as American eel and alewife are found within the Bagaduce estuary, and the Bagaduce River is known as one of the few significant horseshoe crab breeding sites in Maine (Beginning with Habitat 2018).

## **4.5 Evaluation of the Preferred Alternative**

### **4.5.1 Evaluation of Preferred Alternative Relative to the RC PEIS**

As discussed above in section 2.1, the preferred alternative is comprised of multiple fish passage restoration activities, and supporting technical assistance, in a variety of riverine ecosystems in the lower and middle portions of the Penobscot River watershed. Section 2.0 (Alternatives) of the RC PEIS addresses fish passage project alternatives, including the types of restoration activities proposed in this Final Restoration Plan. Specifically, the RC PEIS describes the actions associated with dam and culvert removal or modification; and technical and nature-like fishways, in sections 2.2.2.3.1 and 2.2.2.3.2 of that document. Further, the “technical assistance” components of the restoration activities described in this Final Restoration Plan are fully described in section 2.2.1 of the RC PEIS, specifically in sections 2.2.1.1 (Planning, Feasibility Studies, Design and Engineering, and Permitting), 2.2.1.2 (Implementation and Effectiveness Monitoring, and 2.2.1.3 (Fish and Wildlife Monitoring).

The Trustees have determined that the project types that comprise the preferred alternative described in this Final Restoration Plan fall within the scope of the Fish Passage and Technical Assistance alternatives considered in the RC PEIS. Further, the restoration activities associated with the preferred alternative described in this Final Restoration Plan are fully described in the Inclusion Analysis under “Project Description/Scope of Activities” (Appendix C).

### **4.5.2 Impacts Analyzed for Preferred Alternative**

The RC PEIS impacts analysis includes a description of the impacts associated with the types of restoration activities in this Final Restoration Plan. That information can be found in section 4.0 of the RC PEIS (Environmental Consequences; also see Table 11). More specifically, the environmental consequences from fish passage restoration activities are described in sections

4.5.2.3.1 and 4.5.2.3.2 and Tables 18 and 19 of the RC PEIS (Fish Passage) (also see section 4.2 above). In addition, the technical assistance activities supporting this type of restoration, including planning, design engineering, permitting, and monitoring (implementation monitoring and fish and wildlife monitoring), are analyzed in section 4.5.1.1 – 4.5.1.3 and summarized in Tables 12, 13 and 14 of the RC PEIS (also see section 4.2 above). Direct, indirect, and cumulative impacts to relevant resources (geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, cultural and historic resources, land uses, and demographics) with the preferred alternative are also fully summarized in the Inclusion Analysis under “Project Impact Analysis,” core questions 4 and 5 (Appendix C).

The Trustees have also determined that the preferred alternative would not have adverse impacts beyond the scope of those analyzed in the RC PEIS, or meet any other criteria for exclusion from analysis under the RC PEIS (refer to Table 10 of the RC PEIS).

Ultimately, the RC PEIS concludes that the anticipated impacts would not be significant, and the Trustees propose to adopt that conclusion and the analysis in this case. A more detailed description of the Trustees’ justification for doing so can be found in the Inclusion Analysis (Appendix C).

#### **4.6 Evaluation of the No Action Alternative**

The Trustees evaluated the impacts of the no action alternative on geology and soils, water, air, living coastal and marine resources and Essential Fish Habitat, threatened and endangered species, cultural and historic resources, land use and recreation, and socioeconomics. As noted above, the no action alternative is a non-preferred alternative because it fails to compensate the public for losses associated with releases from the Site. However, NEPA mandates that federal agencies evaluate the environmental impacts of no action.

By definition, the no action alternative lacks physical interaction with the environment. Accordingly, the no action alternative would cause no direct impacts to any of the elements of the environment listed above. However, if the Trustees undertook no action, the environment would not benefit from the ecological uplift created by active restoration. Conversely, the type of active restoration with the proposed action would restore the resources and services that were injured by the Chevron oil discharges.

Based on this evaluation, the Trustees concluded that the no action alternative would have either no effect or minor to moderate short or long-term indirect adverse effects on the environment, including living coastal resources and threatened and endangered species.

#### **4.7 Cumulative Effects**

Under NEPA, federal agencies are required to consider the cumulative effects of their proposed actions within the affected environment, taking into consideration other activities that have occurred, are occurring and are likely to occur in the future. The Trustees expect that there will be a long-term, minor to moderate positive cumulative effect on the biological and physical health of the Penobscot River watershed and its three specific sub-watersheds under Alternative



1 (preferred). However, relative to the magnitude of adverse ecological impacts that currently exist in the watershed, the positive cumulative benefits of these proposed restoration actions are not expected to be significant as defined under NEPA. Cumulative impacts to relevant resources (geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, cultural and historic resources, land uses, and demographics) with the proposed action are also summarized in the Inclusion Analysis under “Project Impact Analysis – IV.5” (Appendix C).

Cumulatively, it is anticipated that there would be a long-term adverse effect to the physical and biological resources of the Penobscot River watershed were Alternative 2 (no action) selected because no active restoration would occur. However, relative to the magnitude of adverse ecological impacts that currently exist in the watershed, the adverse cumulative effect of the no action alternative is not expected to be significant as defined under NEPA.

#### **4.8 NEPA Conclusion**

Through the analysis in this Final Restoration Plan, the Trustees have made a determination that the corresponding project type descriptions and impacts fall entirely within the scope of the project descriptions and analysis contained in the RC PEIS sections referenced herein. Moreover, there are no site-specific considerations, sensitivities, unique habitat, or resources that warrant additional NEPA analyses beyond what is provided in the RC PEIS. The public was invited to provide feedback on the Trustees’ proposed action and alternatives and the analysis conducted in the Draft Restoration Plan, which included a draft Inclusion Analysis. Only one comment was received and the Trustees determined that no substantive changes were needed to Restoration Plan or the NEPA Evaluation as a result of this comment.

In conclusion, the Trustees will not prepare any further NEPA analysis or seek a FONSI or Record of Decision (ROD) for the selected restoration projects. Only those activities described and analyzed in the Final Restoration Plan and Inclusion Analysis (Appendix C) shall be implemented. Upon implementation of the technical assistance phase of the project(s) (e.g., planning, engineering and design), if the Trustees make a determination that modifications or refinement to the fish passage alternatives presented in the Final Restoration Plan are needed beyond what was described and analyzed, then any such activities would need to be addressed in a subsequent NEPA analysis prior to implementation.

### **5. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS AND POLICIES**

The selected restoration projects have been evaluated for consistency with applicable Federal, State, and local laws, regulations, and programs. A brief description of the Final Restoration Plan’s compliance with these governing bodies is provided in Table 1.

**Table 1. Consistency and compliance with state and federal laws, regulations, and programs.**

<b>Law, Regulation or Program</b>	<b>Compliance Description</b>
Maine Oil Discharge Prevention and Pollution Control Law (Oil Law)	This document is consistent with the Oil Law. The Oil Law establishes the importance of protecting Maine's natural resources and provides the authority for natural resource damages assessment and restoration.
Maine Natural Resources Protection Act (NRPA)	This document is consistent with the NRPA. The NRPA establishes that the state's rivers and streams, great ponds, fresh water and coastal wetlands, among other natural features, are resources of state significance and establishes standards for storm water management plans, and performing work such as installing culverts, and improving habitat in these areas.
National Environmental Policy Act (NEPA)	This Final Restoration Plan has been developed in compliance with NEPA.
Oil Pollution Act (OPA)	This Final Restoration Plan has been developed in compliance with OPA
Magnuson-Stevens Fisheries Conservation and Management Act	Impacts to Essential Fish Habitat (EFH) for Atlantic salmon will be minimized and projects will restore habitat and provide a beneficial impact. Consultations with NMFS on EFH will be conducted in accordance with this Act, as required.
Watershed Protection and Flood Prevention Act	The selected projects are expected to assist in the reduction of erosion, floodwater and sediment damages.
Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972)	Any necessary applications for 404 General Permits to the U.S. Army Corps of Engineers will be filed in compliance with this Act. Any necessary steps and activities will take place to ensure compliance with existing industrial storm water permits as well as requirements for the municipal separate storm sewer systems (MS4) for the Bangor Area MS4.
Endangered Species Act of 1973, as Amended (16 USC 1531 et seq.)	Impacts to identified State- and federally protected species will be minimized during the construction phase of the selected projects; projects will enhance fish and wildlife habitat value. Consultations with the USFWS and NOAA's National Marine Fisheries Service for selected projects will be conducted in accordance with this Act.
Rivers and Harbors Act of 1899	Any necessary applications for General Permits to the U.S. Army Corps of Engineers will be filed in compliance with this Act.
Presidential Executive Order 12898 – Environmental Justice	The proposed projects will enhance safety and recreational opportunities for all residents and visitors, regardless of ethnic background. Public meetings and comments are open to the public.
Fish and Wildlife Coordination Act	The USFWS has played an integral role in the development of the proposed projects and alternatives analysis.
Presidential Executive Order 11990 – Protection of Wetlands	The selected projects avoid, to the extent possible, the long- and short-term adverse impacts associated with the alteration of wetlands.
Presidential Executive Order 11988 – Floodplain Management	The selected projects will not encourage any human development or building within the existing mapped floodplain.

<p>National Historic Preservation Act of 1966 as amended (16 USC 470 et seq.)</p>	<p>The USFWS and NOAA 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.</p>
<p>Water Resources Development Act of 1990</p>	<p>The selected projects seek to increase acreage and enhance the quality of wetland resources.</p>
<p>Federal Noxious Weed Control Act and Executive Order 13112</p>	<p>The selected projects are not expected to introduce or spread noxious weeds or non-native invasive species.</p>

## 6. CONCLUSION

After significant and meaningful consultation with the public and interested stakeholders, state and federal fish and wildlife biologists, and restoration project proponents – and after evaluating the restoration alternatives under the OPA NRDA regulations and all other relevant state and federal laws and policies – the Trustees select Alternative 1 (preferred) to implement with the Chevron Site natural resource damage settlement funds. The preferred alternative involves expending \$800,000 in order to help implement the following projects:

- **Bagaduce Watershed Fish Passage Restoration Project (\$250,000)**
- **Snow Brook Fish Passage Restoration Project (\$125,000)**
- **Kenduskeag Headwaters Resiliency Project (\$380,000)**
- **Sucker Brook Corridor and Watershed Improvement Project (\$45,000)**

The Trustees may distribute any unused administrative funds as well as interest that has accrued on the settlement funds to these four projects. Should any of the proposed projects under the preferred alternative not require the full amount provided by the Trustees or not be fully implemented due to unforeseen reasons, the Trustees may distribute unused project funds to any of the other proposed projects under the preferred alternative.

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**APPENDIX A: Public Comments**

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Town of Hampden

Town Planner

106 Western Ave.  
Hampden, Maine 04444  
207-862-4500  
planner@hampdenmaine.gov

Scott Whittier  
Maine DEP  
17 State House Station  
Augusta, ME 04333-0017

August 12, 2019

RE: Draft Restoration Plan and NEPA Evaluation – Penobscot River

Dear Mr. Whittier,

I am writing this letter in support of the culvert replacement project on Sucker Brook in Hampden, on the Lane Construction property. The Town is gradually working toward being able to perform other work along Sucker Brook to improve the stream channel, and the culvert replacement at Lane will complement any future work upstream. I am pleased to see that this relatively small project, which is close to the oil spill site, is receiving some funding and will build on the earlier funded project for the Town to purchase what is now Turtle Head Park (referred to as "Turtle Cove Park" in the draft plan.

My only other comment is that I believe there is an error on page 39: the first paragraph under the heading Sucker Brook, the last line states the park is "just upstream" of the spill site; in fact it is just downstream of the spill site.

Thank you for the opportunity to comment on the draft plan, and thank you to all involved for choosing the culvert replacement on the Lane Construction property here in Hampden for funding.

Sincerely,

Karen M. Cullen, AICP  
Town Planner

cc: Paula Scott, Interim Town Manager  
Sean Currier, DPW Director

**APPENDIX B: Project Idea Submission Form**

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# Natural Resource Damage Assessment (NRDA)

## Restoration Project Information Sheet

### A General Information

Organization			
Contact Name (First Last)		Title	
Address		City	State ZIP
Phone Number	Email		
Organization	Website		

### B Project Information

Type of Project	(If this is a Change to an Existing Project, enter the Project ID Number)		
Project Name			
Location (e.g. John Smith National Wildlife Refuge)			
State(s) (Use 2-letter abbreviations separated by commas)	County/Parish	Watershed/Basin	
Latitude (decimal degrees)	Longitude (decimal degrees)	Project Size (Choose one)	Affected Area
		miles	acres tons acres

### C Project Description

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

# Natural Resource Damage Assessment (NRDA)

## Restoration Project Information Sheet *(continued)*

<b>D Project Activity(s)</b>	<i>(Check all that apply)</i> <input type="checkbox"/> Restoration <input type="checkbox"/> Debris Removal <input type="checkbox"/> Maintenance/Management <input type="checkbox"/> Protection <input type="checkbox"/> Land Acquisition <input type="checkbox"/> Education													
<b>E Project Habitat(s)</b>	<i>(Check all that apply)</i> <input type="checkbox"/> Upland <input type="checkbox"/> Marine/Estuarine Wetlands <input type="checkbox"/> Beach/Dune <input type="checkbox"/> Riverine <input type="checkbox"/> Freshwater Wetlands <input type="checkbox"/> Subtidal (Nearshore/Offshore)													
<b>F Resource Benefit(s)</b>	<i>(Check all that apply)</i> <input type="checkbox"/> Marine Mammals <input type="checkbox"/> Shellfish <input type="checkbox"/> Water Column <input type="checkbox"/> Birds <input type="checkbox"/> Terrestrial Wildlife <input type="checkbox"/> Sediments/Benthos <input type="checkbox"/> Reptiles/Amphibians <input type="checkbox"/> Corals <input type="checkbox"/> Shoreline <input type="checkbox"/> Fish <input type="checkbox"/> Vegetation <input type="checkbox"/> Human Use (Recreational, Cultural)													
<b>G Project Status</b>	<table border="1"> <tr> <td>Property/Resource Acquisition</td> <td>Time to Implementation</td> </tr> <tr> <td>Project Planning/Design</td> <td>Time to Project Completion</td> </tr> <tr> <td>Project Permitting</td> <td></td> </tr> </table> <p>Is this project included under a regional or statewide plan? If so, please list:</p>		Property/Resource Acquisition	Time to Implementation	Project Planning/Design	Time to Project Completion	Project Permitting							
Property/Resource Acquisition	Time to Implementation													
Project Planning/Design	Time to Project Completion													
Project Permitting														
<b>H Project Costs</b>	Estimated Cost	Funding Available												
<b>I Project Partners</b>	<table border="1"> <tr> <td>Partner 1 Organization</td> <td></td> </tr> <tr> <td>Partner 1 Contact</td> <td>Partner 1 Involvement</td> </tr> <tr> <td>Partner 2 Organization</td> <td></td> </tr> <tr> <td>Partner 2 Contact</td> <td>Partner 2 Involvement</td> </tr> <tr> <td>Partner 3 Organization</td> <td></td> </tr> <tr> <td>Partner 3 Contact</td> <td>Partner 3 Involvement</td> </tr> </table>		Partner 1 Organization		Partner 1 Contact	Partner 1 Involvement	Partner 2 Organization		Partner 2 Contact	Partner 2 Involvement	Partner 3 Organization		Partner 3 Contact	Partner 3 Involvement
Partner 1 Organization														
Partner 1 Contact	Partner 1 Involvement													
Partner 2 Organization														
Partner 2 Contact	Partner 2 Involvement													
Partner 3 Organization														
Partner 3 Contact	Partner 3 Involvement													

**Disclaimer:**

The submission of project information does not guarantee project funding. Projects will be evaluated using criteria identified in OPA, NEPA, implementing regulations, and related laws. Selection and funding determinations will be made by the Trustee Council.

**APPENDIX C: NOAA Restoration Center NEPA Inclusion Analysis**

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# NOAA Restoration Center NEPA Inclusion Analysis

Award Number

## I. IDENTIFYING PROJECT INFORMATION

Project Name <b>Chevron Marine Oil Terminal Facility - Natural Resource Damage Settlement</b>		Project State <b>ME</b>
Project Proponent / Applicant <b>NOAA, USFWS, State of Maine (DEP, DMR, DIFW, DACF) - Trustees</b>		Project Contact <b>Matthew Bernier, NOAA Restoration Center</b>

## II. OTHER FEDERAL PARTNERS AND LEVEL OF NEPA ANALYSIS

Has another Federal agency completed NEPA?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
is NOAA the lead federal agency for this NEPA analysis?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

## III. PROJECT DESCRIPTION / SCOPE OF ACTIVITIES FOR ANALYSIS

Please check one of the following conditions:

I am analyzing impacts of project planning and design activities, in order to gather all required project information

I have all information needed to complete the final analysis of impacts for the entire project

Has a NEPA review been conducted for prior project activities?	<input type="checkbox"/> Yes	Date of NEPA completion for prior phase
	<input checked="" type="checkbox"/> No	<b>N/A</b>

Describe the full scope of the project, including historic/ geographic/ ecological context, the type of restoration, and how it will be conducted.

1) Bagaduce Watershed Fish Passage Restoration Project: Fish passage will be restored to two historic alewife ponds. At 66-acre Parker Pond, dam remnants will be removed and replaced with a constructed riffle at the outlet of the pond and meadow complex, restoring passage for diadromous fish (alewife, American eel) and maintaining water levels to support significant wading bird and waterfowl habitat. Downstream, at a former mill site, collapsed stone foundations will be rearranged into the weirs of a nature-like fishway to restore fish passage past a steep ledge drop. At Walker Pond, a stone masonry dam controlling water levels in the 693-acre lake, will be stabilized and an existing nature-like bypass fishway will be widened to support a larger run of alewives. The project will also include a chute and plunge pool for the safe passage of outmigrating fish past the dam. 2) Snow Brook Fish Passage Restoration Project: An undersized, perched culvert on Snow Brook will be replaced by a channel-spanning box culvert with natural stream bottom to restore passage for fish (alewife, American eel, sea-run brook trout), to 5.5 miles of stream and 155-acre Frost Pond. 3) Kenduskeag Headwaters Resiliency Project: Five undersized culverts will be replaced with arch culverts with natural stream bottoms, restoring passage for fish and wildlife. 4) Sucker Brook Corridor and Watershed Improvement Project: An undersized culvert will be replaced with a box culvert to restore fish passage.

Describe the proposed action (i.e. the portion of the project that NOAA is funding/approving).

Funding will be provided to the four individual fish passage restoration projects and will support all or portions of technical assistance (i.e., design, permitting, and monitoring) for the Bagaduce Watershed (design, permitting, monitoring), Snow Brook (monitoring), and Sucker Brook (design) projects, as well as fish passage construction for the Bagaduce Watershed (fish passage/ fishways), Snow Brook (culvert replacement), Sucker Brook (culvert replacement), and Kenduskeag Headwaters (culvert replacement) projects. The monitoring will consist of project implementation monitoring (such as as-built surveys) and the monitoring of fish passage, including the documentation of diadromous fish use and alewife counts at the Bagaduce Watershed (Parker Pond, Walker Pond) and Snow Brook/Frost Pond projects. The proposed activities are further described in the Final Restoration Plan/NEPA Evaluation for the Chevron Marine Oil Terminal Facility.

Non-preferred alternatives to the proposed action described above include the no action alternative, which is premised on natural recovery and is further described and evaluated in the Final Restoration Plan/NEPA Evaluation for the Chevron Marine Oil Terminal Facility.

Check the types of activities being conducted in this project:

<input checked="" type="checkbox"/> Implementation and Effectiveness Monitoring	<input type="checkbox"/> Environmental Education Classes, Programs, Centers, Partnerships and Materials; Training Programs	<input checked="" type="checkbox"/> Fish and Wildlife Monitoring
<input checked="" type="checkbox"/> Planning, Feasibility Studies, Design Engineering, and Permitting	→ Check the specific project planning activities being analyzed in this checklist	<input type="checkbox"/> Engineering and Design
<input type="checkbox"/> Beach and Dune Restoration	<input type="checkbox"/> Feasibility Studies	<input type="checkbox"/> Other (enter here)
	<input checked="" type="checkbox"/> Permitting and Consultations	

# NEPA Inclusion Analysis

<input type="checkbox"/> Debris Removal	<input type="checkbox"/> Bank Restoration and Erosion Reduction	<input type="checkbox"/> Water Conservation and Stream Diversion
<input checked="" type="checkbox"/> Dam and Culvert Removal & Replacement	<input type="checkbox"/> Coral Reef Restoration	<input type="checkbox"/> Levee & Culvert Removal, Modification, Set-back
<input checked="" type="checkbox"/> Technical and Nature-like Fishways	<input type="checkbox"/> Shellfish Reef Restoration	<input type="checkbox"/> Fringing Marsh and Shoreline Stabilization
<input type="checkbox"/> Invasive Species Control	<input type="checkbox"/> Artificial Reef Restoration	<input type="checkbox"/> Sediment Removal
<input type="checkbox"/> Prescribed Burns/Forest Management	<input type="checkbox"/> Road Upgrading/Decommissioning; Trail Restoration	<input type="checkbox"/> Sediment/Materials Placement
<input type="checkbox"/> Species Enhancement	<input type="checkbox"/> Signage and Access Management	<input type="checkbox"/> Wetland Planting
<input type="checkbox"/> Channel Restoration	<input type="checkbox"/> SAV Restoration	
	<input type="checkbox"/> Marine Algae Restoration	
<input type="checkbox"/> Land Acquisition	<input type="checkbox"/> Water Transactions	<input type="checkbox"/> Restoration/Conservation Banking

## IV. PROJECT IMPACT ANALYSIS

1. Are the <b>activities</b> to be carried out under this project fully described in Section 2.2 of the NOAA RC PEIS?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
2. Are the specific <b>impacts</b> that are likely to result from this project fully described in Section 4.5.2 of the NOAA RC PEIS?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
3. Does the level of adverse impact for the project exceed that described in Table 11 of the NOAA RC PEIS for any resource, including significant adverse impact?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

4. Describe the project impacts to resources (including beneficial impacts) and any mitigating measures being implemented.

**1. Culvert Replacement and Fishway Construction - Proposed fish passage construction activities are similar to those described in section 2.2.2.3 of the RC PEIS. Project impacts from the proposed construction activities are consistent with those described in the RC PEIS (section 4.5.3 and tables 18 and 19) and are summarized below.**

**Geology and Soils:**  
 All projects will require the use of heavy construction equipment for culvert replacements and nature-like fishways, and include the removal of instream structures and temporary grading. Impacts such as soil erosion and sedimentation will be mitigated using best management practices such as temporarily cofferdamming and bypassing flow around work areas, using turbidity curtains to prevent sedimentation from extending beyond work areas, and stabilizing banks with native seed and vegetation. Construction will occur in the summer, during low flow periods, minimizing erosion and sedimentation. All projects are on relatively small tributaries to the Penobscot River and estuary. Therefore, direct and indirect impacts may be adverse but will be localized, minor and short term.

**Water:**  
 All projects will require temporarily cofferdamming and bypassing flow around work areas, with some short term impacts to stream sedimentation. Short term impacts of construction will be minimized by using turbidity curtains to prevent further migration of sediment and construction during summer (low flow) months, July through September. Long term indirect impacts will be beneficial, by restoring sites with channel-spanning culverts or nature-like fishways that allow for the migration of fish and wildlife and restore natural stream processes and flow regimes. As described earlier, impacts related to sedimentation may be direct and adverse but will be localized, minor and short term.

**Air:**  
 All projects will require the use of heavy construction equipment that will cause short term impacts due to noise and exhaust. The impacts will be temporary and will only occur for several hours during each workday. The work sites are in sparsely populated, rural areas in Maine and are not adjacent to homes or businesses. While direct and adverse impacts will occur, they will be localized, minor and short term.

**Living Coastal and Marine Resources and EFH:**  
 Impacts of all projects will be similar to those described for geology, soils, and water, including temporarily cofferdamming work sites and bypassing flows during construction. In addition, bank vegetation may be disturbed during construction and require native seed and tree plantings. All sites are on relatively small streams with coarse substrates, and there are minimal sediments and instream vegetation to be disturbed. The long term impacts of restoration, with projects restoring fish passage, will be of long term benefit to coastal resources. Therefore, the long term benefits of restoration will be direct, major and beneficial, with some indirect and direct impacts in the short term (such as work in streams) having adverse effects on a minor to moderate scale.

## Threatened and Endangered Species:

The culvert replacements in the Kenduskeag River watershed/headwaters are within designated critical habitat for Atlantic salmon, an endangered species. Culvert replacements in critical habitat are addressed by a programmatic Section 7 interagency consultation (USFWS) detailing best practices for the protection of Atlantic salmon and their habitat, such as erosion and sediment control practices described above. The consultation will also apply to culvert replacements in areas outside of critical habitat designations (Snow Brook, Sucker Brook). Nature-like fishways in the Bagaduce Watershed (Walker and Parker Ponds) are outside of critical habitat for Atlantic salmon and will be addressed by an intra-agency consultation within NMFS, which is responsible for Endangered Species Act consultations involving dams (including former dams) and fishways, and include the best practices previously described for minimizing instream impacts such as soil disturbance and sedimentation. All projects are on small, non-tidal streams and are not within habitat for other listed species such as shortnose and Atlantic sturgeon. Direct, adverse effects may occur with construction work in streams, but will be localized, minor and short term.

## Cultural and Historic Resources:

Culvert replacement projects (Kenduskeag Headwaters, Snow Brook, Sucker Brook) are located in areas of extensive prior disturbance and are not historically or archaeologically significant. For the Bagaduce River Watershed projects (Walker Pond, Parker Pond), remaining historic structures (such as mill foundation remnants) will be surveyed in accordance with a Memorandum of Agreement with the Maine Historic Preservation Commission, who serves as the State Historic Preservation Office (SHPO) in Maine. The construction of nature-like fishways (Parker Pond) and widening of a current nature-like bypass and installation of chute for downstream passage (Walker Pond) may require removing some historic structure (granite blocks) from fish passageways, requiring documentation of historic resources, historic research, and mitigation such as interpretive signage. As described in the RC PEIS, direct, adverse and long term impacts related to historic resources may occur, but will be of minor to moderate intensity due to the altered condition of sites due to past damage from erosion and repairs with modern materials such as concrete.

## Land Use and Recreation:

Projects will not alter existing land uses. Culvert replacement projects (Kenduskeag Headwaters, Snow Brook, Sucker Brook) will continue to provide road transportation over streams and be more resilient to high flow events. All of the projects are on small streams that do not provide for recreation such as canoeing and kayaking, although recreational activities such as fishing and wildlife watching may benefit from improved fish passage and therefore impacts would be indirect, long term, and beneficial on a minor to moderate scale.

## Socioeconomics:

All projects will have short term beneficial impacts through the temporary increase of economic activity related to construction. Long term, maintenance activities (such as the repair and replacement of failing culverts) will be greatly reduced, and the restoration of native fish such as alewives, an important prey species, may benefit activities such as recreational and commercial fishing in coastal areas and wildlife viewing. Beneficial impacts will therefore be both short term and long term, and be localized and moderate in scope.

2. Technical Assistance - Proposed technical assistance activities are similar to those described in section 2.2.1 of the RC PEIS. Project impacts from the proposed technical assistance activities are consistent with, or less than, those described in the RC PEIS (section 4.5.1 and tables 12 - 14) and are summarized below.

## Design Engineering and Permitting:

The completion of project Design Engineering studies and Permitting activities would cause minor, indirect, long-term beneficial impacts to the affected environment, including living coastal and marine resources and threatened and endangered species, since these activities would support the continued implementation of successful fish passage projects and therefore result in effective and efficient habitat restoration. Adverse impacts to resources are not anticipated as there would be no direct contact with the environment during the design engineering or permitting activities.

## Fish and Wildlife Monitoring:

Fish and Wildlife Monitoring activities are related to monitoring the performance and progress of restoration projects relative to their established project goals, and could cause indirect, long-term, minor to major beneficial impacts to geology and soils, water resources, living coastal and marine resources, and threatened and endangered species that may be localized or extend beyond the project site. Despite the beneficial impacts expected from this activity, monitoring could cause adverse impacts. Indirect and direct, short-term, localized, minor to moderate adverse impacts to living coastal and marine resources and EFH, and threatened

# NEPA Inclusion Analysis

and endangered species may include effects from handling, noise, turbidity, and displacement. Some monitoring activities may disturb cultural or historic resources (e.g., dam/mill remains); however, these impacts would be minor, short-term, and highly localized, and would be mitigated through the section 106 consultation process with the Maine SHPO. Certain sampling techniques, such as electrofishing, may also result in direct and indirect, short- and long-term, localized, minor adverse impacts to living coastal and marine resources and threatened and endangered species, such as some fish and invertebrate species. Direct, short-term, localized, minor adverse impacts are expected to geology and soils, water, and air quality from the human presence and movement around the project site and the resulting soil compaction, in-stream turbidity, and construction equipment emissions. Further, direct, short-term, localized, minor, adverse impacts may occur to land use and recreation because anglers or other individuals recreating at the project site may need to vacate or avoid the site in order to avoid interacting with monitoring activities. Impacts would be minimized through the implementation NOAA mitigation measures and Best Management Practices.

### Implementation and Effectiveness Monitoring:

Implementation and Effectiveness Monitoring could cause direct and indirect, short-term, minor, localized, adverse impacts to geology and soils, water, air, living coastal and marine resources and EFH, threatened and endangered species, historic resources, and land use and recreation as a result of disturbances associated with in-water or on-site observations and sampling. Although these adverse impacts may occur, the monitoring products would result in indirect, long-term, minor to major beneficial impacts that extend beyond the project site, and that would inform future restoration planning efforts of these types.

3. No action - The no action alternative, which is premised on natural recovery, is the non-preferred alternative to the proposed activities described above and is further described and analyzed in the Draft Restoration Plan/NEPA Evaluation for the Chevron Marine Oil Terminal Facility.

### 5. Describe any potential cumulative impacts that may result from past, present or reasonably foreseeable future actions (beneficial or adverse).

The removal of barriers to fish passage—including the construction of nature-like fishways and culvert replacements—has been occurring throughout Maine and the Penobscot River watershed for many years and the proposed restoration will set no precedents for future actions of a type that would affect the quality of the natural or human environment.

Cumulative project impacts would not be significant or occur at a regional scale, and are consistent with those described in the RC PEIS. Overall, any adverse impacts from project construction and related technical assistance are likely to be short-term and localized, and only minor to moderate when they do occur. Because projects are restoring natural habitat structure and function, they should lead to overall longer-term minor to moderate beneficial impacts on the community, living coastal resources, and endangered species of the Penobscot River watershed and its three specific sub-watersheds under the preferred alternative.

### 6. Describe the public outreach and/or opportunities for public comment that have taken place to this point. Are any future opportunities for public input anticipated?

As part of the planning process for the Natural Resource Damage Assessment Settlement, the trustees publicly invited the submittal of restoration ideas and received four recommendations (Kenduskeag Headwaters, Bagaduce Watershed, Snow Brook and Sucker Brook). The trustees propose to provide funding to design, permit, implement and monitor all four submitted project ideas. A Draft Restoration Plan/NEPA Evaluation, including a draft Inclusion Analysis, was made available to the public for a 30-day review and comment. The Trustees received one comment, from the Town of Hampden, in support of the preferred alternative (specifically, the Sucker Brook Corridor and Watershed Improvement Project). Accordingly, there were no significant changes made to the Final RP/NEPA Evaluation or the Inclusion Analysis.

### 7. Have any public comments raised issues of scientific/environmental controversy? Please describe.

There have been no public comments to date identifying issues of scientific and environmental controversy. Only one comment was received during the comment period for the Draft RP/NEPA Evaluation, which was in support of the preferred alternative.

### 8. Describe the most common positive and negative public comments on issues other than scientific controversy described above in Question 7.

During the public comment period, a positive comment strongly supporting the selection of the Sucker Brook Corridor and Watershed Improvement Project was received from the Town of Hampden, Maine.

### Dam and Culvert Removal, Modification, or Replacement

*(These considerations are most likely applicable to dams, not culvert removal or modification, but should be addressed for all projects of this type)*

*Describe the amount and type of sediment in the reservoir behind the dam, its impact on downstream areas, and how the impact has been evaluated.*

Culvert replacement projects (Kenduskeag Headwaters, Snow Brook, Sucker Brook) are located in relatively small watersheds without large sediment loads, with very little fine sediment accumulated upstream of culverts. Culverts are undersized and perched, and have scour pools at their outlets that will require the transport of sediment from upstream areas to restore a natural

# NOAA Restoration Center NEPA Inclusion Analysis

<p>and sustainable channel morphology. Therefore, the movement of small amounts of sediment from upstream areas will have a beneficial impact for downstream areas.</p>
<p><i>Will the restored river channel be in the same location as the original channel? Please describe any changes.</i></p> <p>Culvert replacements (Kenduskeag Headwaters, Snow Brook, Sucker Brook) will restore channels to former alignments and will be at least 1.2 times the natural bankfull widths of streams, allowing for stream processes be unimpeded by the new road crossings.</p>
<p><i>Are there contaminated sediments behind the dam? Describe the disposal method (i.e., will these be released downstream or taken off-site?).</i></p> <p>Culvert replacements (Kenduskeag Headwaters, Snow Brook, Sucker Brook) are not located in areas subject to past discharges of hazardous material, and existing structures retain little to no sediment upstream. There are no known contaminated sediments and disposal of sediments will not be required by local, state or federal permitting.</p>
<p><i>Describe the anticipated changes to the flood zone.</i></p> <p>Culvert replacements (Kenduskeag Headwaters, Snow Brook, Sucker Brook) will provide larger openings at road crossings, lowering upstream water levels during floods, a beneficial impact. The sites have relatively small drainage areas and the amount of lowering of water levels will vary by site.</p>
<p><b>Technical and Nature-like Fishways</b> <i>(These considerations are most likely applicable to nature-like fishways, but should be addressed for all fishways.)</i></p>
<p><i>Describe the amount and type of sediment in the reservoir behind the dam. Compare it to the stream's usual sediment load.</i></p> <p>The Bagaduce Watershed project includes two sites, at Walker Pond and Parker Pond.</p> <p>At Walker Pond, an existing nature-like bypass fishway will be widened to increase its capacity for sea-run fish, especially alewives. An existing dam at Walker Pond will be stabilized and provided with a chute and plunge pool for downstream passage. Because the existing water level regime will be retained, there will be no mobilization of sediments. (The sediment load is also very small, being just downstream of a large lake.)</p> <p>At Parker Pond, a nature-like fishway (constructed riffle) will be constructed at the pond outlet, maintaining the existing water level regime upstream and not resulting in sediment mobilization. Farther downstream, a series of boulder weirs will be constructed at a former mill site to restore fish passage. The site consists of exposed ledge and large, coarse substrate (mostly boulders) and has very little fine sediment accumulated.</p>
<p><i>Will the restored river channel be in the same location as the original channel? Please describe any changes.</i></p> <p>For the Bagaduce Watershed project (Walker Pond, Parker Pond) nature-like fishway construction will occur in the same alignment as the original channel and restore natural stream features (riffles) appropriate to the stream morphology.</p>
<p><i>Are there contaminated sediments behind the dam? Describe the disposal method (i.e., will these be released downstream or taken off-site?).</i></p> <p>For the Bagaduce Watershed project (Walker Pond, Parker Pond), industry at the sites consisted of water-powered sawmills not associated with the discharge of hazardous materials or oil spills. There are no known contaminated sediments at either site and no sediment disposal will be required by local, state or federal permitting.</p>
<p><i>Describe the anticipated changes to the flood zone.</i></p> <p>For the Bagaduce Watershed project (Walker Pond, Parker Pond), the nature-like fishways will have the effect of slightly increasing the hydraulic capacity at the outlets of dams, lowering water levels slightly (several inches) at high flood flows. Otherwise, normal upstream water levels will be retained.</p>
<p>See following page for NEPA Determination</p>



# NEPA Inclusion Analysis

## V. NEPA DETERMINATION

The action is completely covered by the impact analysis within the NOAA RC Programmatic EIS (PEIS). The project and its potential impacts may be limited through terms or conditions placed on the recipient of NOAA funds. It requires no further environmental review. An EIS Inclusion Document will be prepared.

The action analyzed here has unknown impacts. At this time, funding will be limited to those portions of the action and impacts analyzed in the PEIS. These limitations will be described in terms or conditions placed on the recipient of NOAA funds. If all remaining activities and impacts are later determined to be described in the PEIS, this analysis will be documented in the program record and the applicant may then proceed with the project. If all remaining activities and impacts are later determined to not be described in the PEIS, further NEPA review will be required; see below.

The action or its impacts are not covered by the analysis within the PEIS. It will require preparation of an individual EA, a supplemental EIS, adoption of another agency's EA or EIS, or will be covered by a Categorical Exclusion.

Signature

**BERNIER.MATTHEW.EDWA**  
**RD.1382843580**

Digitally signed by  
BERNIER.MATTHEW.EDWARD.1382843580  
Date: 2019.11.07 10:23:04 -05'00'

Date Signed

**Nov 7, 2019**

