

NOAA Damage Assessment, Remediation and Restoration Program
Seattle, Washington 98515

**Damage Assessment and Restoration Plan:
Western Port Angeles Harbor**

The Port Angeles Harbor Natural Resource Trustees:

National Oceanic and Atmospheric Administration

US Fish and Wildlife Service

Lower Elwha Klallam Tribe

Jamestown S'Klallam Tribe

Port Gamble S'Klallam Tribe

Washington State Department of Ecology

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Acronyms & Abbreviations

CERCLA	Comprehensive Environmental Remediation Comprehensive Liability Act CITE
COPC	Contaminant of Potential Concern
NEPA	National Environmental Policy Act
DARP	Damage Assessment and Restoration Plan
EA	Environmental Assessment
ESA	Endangered Species Act
HEA	Habitat Equivalency Analysis
Jamestown	Jamestown S’Klallam Tribe
Lower Elwha	Lower Elwha Klallam Tribe
MTCA	Model Toxics Control Act, RCW 70.105D
NEPA	National Environmental Policy Act, 42 U.S.C. § 4321 et seq.
NOAA	National Oceanic and Atmospheric Administration
NOPL	North Olympic Peninsula Lead Entity
NRDA	Natural Resource Damage Assessment
PEIS	The Restoration Center’s Environmental Impact Statement
Port Gamble	Port Gamble S’Klallam Tribe
Program	The Port Angeles Harbor Restoration Program
PROJECTS	Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services
PSNERP	Puget Sound Nearshore Ecosystem Restoration Project
SEPA	State Environmental Policy Act
Strait LIO	Strait of Juan de Fuca Local Integrating Organization
The Trustees	The Port Angeles Harbor Natural Resource Trustees
USFWS	United States Fish and Wildlife Service
WPAHG	Western Port Angeles Harbor Group

Executive Summary

This Final Damage Assessment and Restoration Plan (DARP) describes a decision by the Port Angeles Harbor (Harbor) Natural Resource Trustees (the Trustees), to implement a restoration program based on a settlement with six parties alleged to have caused injury to natural resources by the release of hazardous substances from their facilities.

The Western Port Angeles Harbor (the Western Harbor) is a distinct segment of the Port Angeles Harbor Natural Resource Damage Assessment (NRDA), on the North Olympic Peninsula of Washington State. A history of plywood, pulp, and paper manufacturing, marine shipping, boat building and refurbishing, fueling facilities, marinas, commercial fishing, stormwater and sewer discharge, and process wastewater discharge has led to discharges of petrochemicals, organic toxins, heavy metals, and other hazardous substances, resulting in a legacy of contaminated sediments.

The Trustees entered into a memorandum of agreement in 2012, forming a Trustee Council. The Trustees are the National Oceanic and Atmospheric Administration (NOAA), the US Fish and Wildlife Service (USFWS), the Lower Elwha Klallam Tribe (Lower Elwha), the Jamestown S’Klallam Tribe (Jamestown), the Port Gamble S’Klallam Tribe (Port Gamble), and the Washington State Department of Ecology (Ecology).

Pursuant to federal and state authorities, the Trustees completed a damage assessment and negotiated a cash settlement with six Potentially Responsible Parties: the port of Port Angeles, the city of Port Angeles, Georgia-Pacific LLC, Nippon Paper Industries USA Co., Ltd., Merrill & Ring Inc., and Owens Corning (collectively, the Western Harbor PRPs). Initially, the Western Harbor PRPs worked as a single group to negotiate with the Trustees. While this group referred to themselves collectively as the Western Port Angeles Harbor Group (WPAHG), each of the six distinct constituent PRPs are the legal entities that have entered into one of two consent decrees – one between the Trustees and the City of Port Angeles and the other between the Trustees and the remaining Western Harbor PRPs.

Using the total funds of \$9.3 million from these settlements, the Trustees will compensate the Trustee agencies for their past costs, and establish and implement the Port Angeles Harbor Restoration Program (the Program) with an estimated operating fund of approximately \$8.5 million. Through the Program, the Trustees will fund restoration actions at a scale that will compensate the public and tribal trust for natural resource damages.

This document describes: 1) a decision to establish the Program, 2) the basis for that decision, and 3) how that decision is consistent with the Trustees’ obligations under state and federal law. This document also compares alternative approaches to implementing that restoration program, and considers potential effects on the human environment, consistent with the National Environmental Policy Act (NEPA).

The Trustees think that a trustee-led, Harbor-focused, ecosystem-based habitat restoration program is preferable over taking no action, or implementing a program focused on stormwater remediation, wood waste remediation, education, or recreational access. In addition, the Trustees believe that a Harbor-focused trustee-led program is preferable to distributing settlement funds through existing funding mechanisms.

The Puget Sound Nearshore Ecosystem Restoration Project (PSNERP), completed by the US Army Corps of Engineers and Washington State between 2001 and 2015, would inform an ecosystem-based habitat restoration program. PSNERP provides a framework for nearshore restoration and protection, based on best available science. This restoration and protection framework considers the strong effects of coastal processes on restoration, values rare or threatened habitat components, and recognizes the importance of context in restoration success.

The Trustees think a restoration program is preferable to a program focused on recreation or education. Six generations of development have greatly degraded the natural resources of Port Angeles Harbor. Recreational access and education would be much less likely to recover degraded natural resources than ecological restoration. Those resources are under continued threat by climate change, population growth,

and shoreline development. CERCLA requires the replacement of ecosystem services lost. That replacement will only occur under a coordinated ecological restoration effort.

A Harbor-centered restoration program is preferred to distributing settlement funds through an existing funding allocation system, such as salmon recovery Lead Entity. CERCLA requires restoration of those resources equivalent to those injured by the release of hazardous substances, which includes natural resources that extend beyond salmon and are geographically associated with the injuries in Port Angeles Harbor. Establishment of a trustee-led Harbor-focused restoration program insures that restoration will be most likely to recover those resources injured in Port Angeles Harbor, consistent with CERCLA requirements, with a minimum of administrative effort. The Program will aim to leverage ongoing regional efforts by working in synergy with existing regional partners.

The restoration actions anticipated under this program include a range of predictable techniques, based on regional and national practices. The Trustees anticipate that actions completed under this Program may have long-term, direct and indirect beneficial effects on the human environment, as described in the NOAA Restoration Center's Programmatic Environmental Impact Statement (RC PEIS). Some actions may have minor short-term, adverse effects, typical for restoration actions, as also described in the RC PEIS. The Trustees anticipate that the Program, in combination with other local, state, and federal actions, will have a beneficial cumulative effect on the natural resources of the North Olympic Peninsula. Trustees will monitor the funded actions to evaluate their effectiveness. The Trustees will use the lessons learned from similar regional efforts to adjust the selection and funding of actions to maximize the effectiveness and efficiency of ecosystem restoration under the Program.

The actions anticipated under the Program are also expected to be consistent with actions analyzed by the Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services (PROJECTS) under section 7 of the Endangered Species Act. The state of Washington will complete its State Environmental Protection Act (SEPA) analysis of each individual restoration action. These project-specific assessments by local governments and state agencies will inform a NEPA consistency analysis conducted by federal partners for each funded action. Actions that the Trustees select under the Program, that are consistent with the RC PEIS, PROJECTS and the analysis described herein, are anticipated to need no additional evaluation for their implementation under NEPA or ESA, other than the programmatic inclusion procedures described within the RC PEIS and PROJECTS.

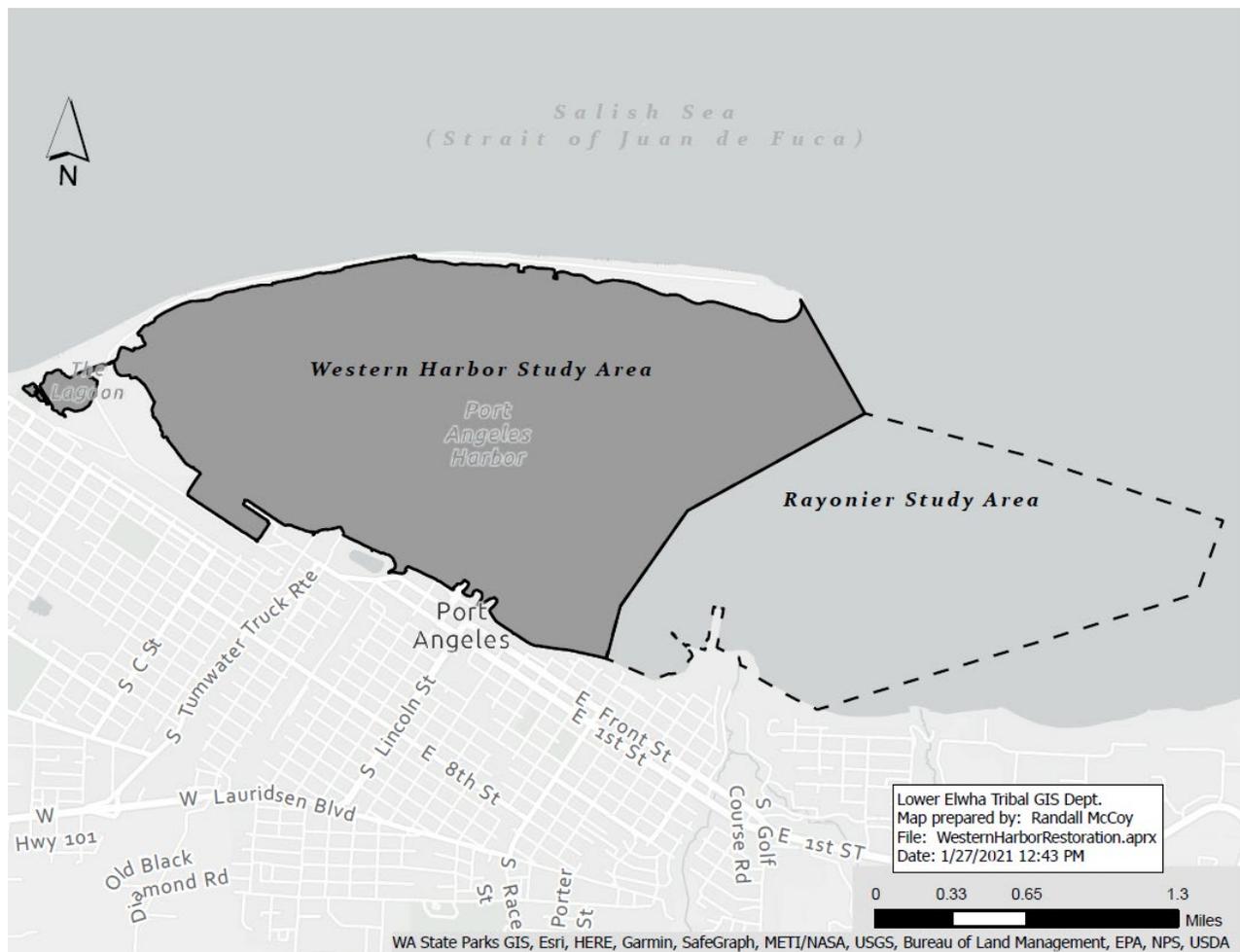
As part of Program evaluation procedures, the Trustees will evaluate each funding action for compliance with local, state, and federal orders, rules, and regulations. Where actions have potential effects that are not considered under the RC PEIS, the Trustees anticipate completion of additional NEPA analysis at the time of funding, to appropriately consider those effects not analyzed under the RC PEIS. Where actions have potential impacts not considered under PROJECTS, project proponents will evaluate ESA impacts through an appropriate consultation with the National Marine Fisheries Service and the US Fish and Wildlife Service (collectively, the Services). Funding actions of the program will occur as part of the public record, with public notification through Trustee resolutions.

1. Introduction

Federal, state, and tribal governments, as Trustees of natural resources, may recover compensation for damages to public trust resources caused by the release of hazardous substances under the authority of the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Industrial and municipal activities surrounding Port Angeles Harbor (the Harbor) have released oils, heavy metals, and organic toxins into the water and sediments of the Harbor. These substances entered into the bodies of organisms living in the Harbor, and spread through the marine food webs, into fish and wildlife that could be consumed by local residents.

Federal, state, and tribal governments formed The Port Angeles Harbor Natural Resource Trustee Council in early 2012, to recover damages from the parties potentially responsible for the release of these hazardous substances through a Natural Resource Damage Assessment (NRDA). For the purpose of evaluating the scale of the injury and pursuing compensation for damages, the Harbor was divided into the Rayonier Study Area, surrounding the historical Rayonier mill at the mouth of Ennis Creek, and the Western Port Angeles Harbor Study Area (the Western Harbor), encompassing the remainder of the Harbor and discussed herein (Figure 1).

Figure 1 – Western Port Angeles Harbor Study Area. The area in which damages were estimated from the release of hazardous substances.



Following a series of analyses and negotiations, the Trustees received a proposal for a cash settlement with

six potentially responsible parties (PRPs) associated with contamination of the Western Harbor. This Final Damage Assessment and Restoration Plan (DARP) describes the process for determining whether that settlement, is sufficient to make the public whole for the injuries to natural resources in the Western Harbor. It describes the Trustees' "preferred alternative" for the use of those cash resources, compared to other alternatives.

The settlement with Western Harbor PRPs will result in the establishment of an ecosystem-based restoration program. The Trustees would use settlement funds to invest in restoration actions to maximize the recovery of those natural resources affected by the release of hazardous substances, based on the understanding of best nearshore ecosystem restoration practices.

This implementation of an ecosystem-based restoration program by the Trustees is a "federal action" subject to regulations under CERCLA and NEPA. The Trustees' actions must be consistent with CERCLA restoration planning, and under NEPA, subjected to a robust and transparent analysis of alternatives and their potential effects on the human environment. To meet these requirements, and to avoid redundant document production, this document briefly summarizes and thereby "incorporates by reference" supporting analyses, including national and regional programmatic systems developed by NOAA Restoration Center, and regional and local ecosystem assessment and planning documents. Additional state-led processes also occurring in the Harbor are discussed in section 1.5.4.

1.1. Background of Site/Incident

Over the past century, many industries have used Port Angeles Harbor, including sawmills and plywood manufacturing, pulp and paper production, marine shipping/transportation, boat building and refurbishing, petroleum bulk fuel facilities, marinas, and commercial fishing. Since the early 1900s, pulp and paper mills have dominated Port Angeles' industrial sector, which commonly discharged treated and untreated mill process effluents into the Harbor. The Trustees identified toxins from wood product manufacturing sources as contaminants of potential concern (COPCs) in marine sediments. These COPCs are discussed in the injury assessment section below, and in the Proposed Estimate of Natural Resource Damages in Port Angeles Harbor (PAHNRT 2014).

The Trustees have identified six (6) parties who are potentially responsible for the release of COPCs: Nippon Paper Industries USA Co., Ltd, Merrill & Ring Inc., Georgia-Pacific LLC, the port of Port Angeles, the city of Port Angeles, and Owens Corning. The PRPs worked as a group to negotiate with the Trustees and they have referred to themselves collectively as the Western Port Angeles Harbor Group (WPAHG). However, the six PRPs are the legal entities that have signed onto the NRDA consent decree. NRDA negotiation occurred on a similar timeline as negotiations between The Washington State Department of Ecology (Ecology) and WPAHG over remediation under the Model Toxics Control Act (MTCA).

East of the Western Harbor study area, at a historical mill site owned by Rayonier Advanced Materials (Rayonier), the Trustees have undertaken a natural resource damage assessment using comparable methods to the Western Harbor. Rayonier has also been identified as a potentially responsible party at Port Angeles Harbor, and has a legacy of historical contaminant releases. The division of the Harbor for NRDA purposes, between the Western Harbor injury and the Rayonier injury assessments, mirrors the division utilized by Ecology in the MTCA cleanup process. Due to the relative separation of the two injury areas, the damage assessment and restoration plans for the Western Harbor and the Rayonier site are being developed separately, while using consistent assessment methods and restoration strategies.

1.2. Purpose and Need

The Trustees are proposing a restoration program that would use a cash damages settlement to implement a series of actions that would compensate the public for the natural resource injuries in Western Port Angeles Harbor. To ensure the public is fully compensated, the Trustees would implement a program consistent with CERCLA requirements and best regional nearshore restoration practices (described in section 3 – Restoration Planning). Through this program, the Trustees will restore, rehabilitate, replace, or acquire the

equivalent of injured natural resources to compensate the public for the incident described above.

This action is needed because natural resources in areas of Port Angeles Harbor have been contaminated over decades of municipal and industrial development and use. This contamination resulted in injury to natural resources and a consequent loss of ecological, commercial, recreational, and cultural services. In the absence of restoration actions funded by PRPs, the public would not be compensated for those service losses.

1.3. Proposed Action

The Trustees proposed to implement a Port Angeles Harbor Restoration Program (the Program). The Program will provide funding for ecosystem-based restoration actions, implemented by local restoration partners. The Trustees will cultivate, solicit, and evaluate opportunities for restoration, and provide funding for actions that benefit natural resources affected by contamination of the Harbor. A Trustee, acting as a restoration agent, may propose projects for funding. This restoration program is described in section 3 – Restoration Planning.

As part of this overall proposed action, the Trustees anticipate that funding decisions will directly result in on-the-ground restoration actions. These actions may have effects on the human environment, or impacts to protected species. The Trustees anticipate that these effects will be similar to those caused by other restoration actions in the Port Angeles Harbor landscape, and the Puget Sound region.

1.4. Summary of Settlement

The Trustees are publishing this Final DARP concurrent with the lodging, in the United States District Court for the Western District of Washington, of two Consent Decrees, which constitute two settlement agreements between the Trustees and the PRPs within the Western Port Angeles Harbor Site. The Consent Decrees require a total of \$9.3 million dollars in payments by the PRPs to the Trustees to compensate the public for damages caused by the releases of hazardous substances over the period of CERCLA authority. These payments will also cover costs incurred by the Trustees over the damage assessment phase (assessment costs totaled \$779,583 as of the fall of 2019, and final assessment costs will be tabulated post-settlement). These payments will also fund Trustee implementation of the Program. Based on the injury assessment and restoration planning described below, that settlement is appropriate to compensate the public for damages to natural resources, based on both the existing evidence of injury and the costs of restoration.

1.5. The Natural Resource Trustees

Natural resource trustees act on behalf of the public to manage, protect, and restore natural resources. Stewardship of the nation's natural resources is shared among several federal agencies, states, and tribal trustees, as explained in CERCLA, 42 U.S.C. § 9607(f). During Natural Resource Damage Assessments under CERCLA, the Trustees assess natural resource damages resulting from hazardous substance releases. The Trustees determine how to restore and compensate the public for such damages, and seek remedy from Potentially Responsible Parties (PRPs), through settlement or PRP-implemented restoration.

The Trustees formed a Trustee Council through a memorandum of agreement, signed by all parties in early 2012. The Port Angeles Harbor Natural Resource Trustees are: the Secretary of the United States Department of Commerce, acting through the National Oceanic and Atmospheric Administration (NOAA); the Secretary of the United States Department of the Interior acting through the US Fish and Wildlife Service (USFWS); the Washington Department of Ecology (Ecology); the Lower Elwha Klallam Tribe (Lower Elwha); the Port Gamble S'Klallam Tribe (Port Gamble); and the Jamestown S'Klallam Tribe (Jamestown). Collectively, pursuant to 42 U.S.C. §9607(f) (CERCLA section 107 (f)) and 40 C.F.R. 300.600 (section 300.600 of the National Contingency Plan), these entities are trustees for all of the natural resources in the environment potentially injured by releases from and into the Harbor.

The Trustees designated Ecology to serve as the Lead Administrative Trustee, which entails maintaining an

administrative record. NOAA and FWS will serve as joint lead agencies under 40 CFR 1501.5 for the NEPA process as both agencies intend to utilize this NEPA analysis to inform their ultimate decision whether to adopt a particular alternative in the DARP.

As recommended under 40 C.F.R. § 1500.2(c), the Trustees are integrating the requirements of NEPA and CERCLA, so that procedures run concurrently. NEPA regulations provide that federal agencies should “integrate 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.”

Consistent with CERCLA requirements, this plan describes the Trustees’ approach to restore, and to compensate the public for, natural resources injured by hazardous substance releases in Port Angeles Harbor. Under NEPA (42 U.S.C. §§ 4321 *et seq.*), this plan analyzes the environmental impacts of the alternatives that the Trustees considered to restore, replace, rehabilitate, and/or acquire the equivalent of the injured natural resources. The Trustees jointly prepared this restoration plan and NEPA document pursuant to their respective authorities and responsibilities. In addition, this plan provides the basis for future project analyses under NEPA and ESA as described in section 1.5.3.

1.5.1. CERCLA Compliance

The Trustees published their Preassessment Screen for the Port Angeles Harbor, Washington (PAS; PAHNRT 2013) in accordance with 43 CFR § 11.23(e). That PAS, incorporated herein by reference, indicated that it would be appropriate to conduct a NRDA in Port Angeles Harbor. A NRDA was pursued in Port Angeles Harbor because 1) a discharge of hazardous substances has occurred; 2) natural resources under federal, state, and tribal trusteeship are likely to have been adversely affected; 3) the quantities and concentrations of hazardous substances are sufficient to cause injury; 4) data sufficient for assessment are available; and 5) planned remedial actions are unlikely to remedy the injury.

The Trustees completed a rapid damage assessment, published as the Proposed Estimate of Natural Resource Damages in Port Angeles Harbor, Port Angeles, Washington (PAHNRT 2014), on May 1, 2014. That damage assessment used existing sediment chemistry data to describe and scale natural resource damages. The Trustees explored several different methods for quantifying damages using a Habitat Equivalency Analysis (HEA), which describes damages in terms of the area of lost habitat services over time, considering the relative services provided to trust resources by different habitat types, and applying a “discount rate” to consider the compounding value of lost services over time.

The Trustees evaluated historical and current habitat functions of Port Angeles Harbor, completed desktop and field surveys, and communicated with landowners to identify potential restoration actions. Several of the Trustees are engaged in ecosystem planning and recovery under federal Endangered Species Act and Clean Water Act mandates, and Trustees consulted these bodies of work in evaluating restoration needs and opportunities.

The Trustees completed an initial estimate of the likely costs of restoration both in the Harbor and in surrounding watersheds. The Trustees communicated these efforts the Western Harbor PRPs, ultimately resulting in a proposed cash settlement.

The Trustees believe that remedial work being negotiated by Ecology will result in “primary restoration”, a level of action necessary to return the Harbor, over time, to baseline conditions (those conditions which would exist in the harbor should the toxic release not have occurred).

The Trustees identified and evaluated alternative approaches to conduct compensatory restoration for interim losses to restore a level of ecosystem services equivalent to those lost through the effects of hazardous substances on natural resources over the period of CERCLA authority. The preferred alternative is presented in section 3.

1.5.2. NEPA Compliance

The National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, *et seq.*, and the Council on

Environmental Quality (CEQ) Regulations guiding its implementation, 40 C.F.R. Parts 1500 through 1508, apply to restoration actions that federal natural resource trustees plan to implement under CERCLA 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. For the proposed restoration actions described in this final restoration plan, NOAA and USFWS are acting as co-lead federal agencies for compliance with NEPA.

NEPA requires the consideration of alternative actions, and the evaluation of these alternatives for potentially significant impacts on the quality of the human environment. Consistent with NEPA, this document describes the purpose and need for action (section 1.2), the affected environment (section 4.3), feasible alternatives (considered in the context of CERCLA restoration planning in section 3), the preferred alternative (section 3.6), and the analysis of the potential environmental consequences of those alternatives (section 4). Public participation is described in section 1.5.5.

1.5.3. Streamlined NEPA and ESA Analysis of Future Funding Actions

During implementation of the Program, the Trustees will provide funding for restoration actions. These funding actions are federal actions with potentially significant effects on the human environment, and require consideration under NEPA. A range of restoration actions, and their potential effects, has previously been considered under NOAA Restoration Center's *Programmatic Environmental Impact Statement for habitat restoration activities implemented throughout the coastal United States* (RC PEIS). To reduce redundant analysis and administrative cost, the Trustees will use the evaluation and findings from the RC PEIS through incorporation by reference and tiering as the likely effects of a range of funded actions are considered.

When the Program identifies an action for funding, that action will be evaluated for consistency with the RC PEIS effects analysis through a process known as NEPA "Inclusion Analysis." The approach is described in Appendix A. If the scope and effects of a funded action or actions are consistent with the RC PEIS, federal trustees will complete NEPA obligations through preparation of an "Inclusion Memo," and no further NEPA analysis will be required. Where funded actions have potential effects that exceed those considered by the RC PEIS, the Trustees will complete a focused Environmental Assessment (EA), not duplicating analysis present within the RC PEIS, to determine if the proposed funding action is likely to cause significant effects. Examples of relevant conditions under which a focused EA would likely be required are described in section 4.4.2.

Most restoration actions targeted by the Program would occur within critical habitats for Threatened and Endangered Species (T&E Species) under the Endangered Species Act (ESA). The NOAA Restoration Center and the USFWS are experienced in implementing restoration programs with potential effects on T&E Species, and have standard methods for designing and implementing restoration in critical habitats. The Programmatic Restoration Opinion for Joint Ecosystem Conservation by The Services (PROJECTS BiOp) evaluates a wide range of restoration activities and provides strategies for minimizing the short-term adverse effects of construction while maximizing the long-term beneficial effects of restoration.

Concurrent with NEPA analysis, the Trustees will evaluate funded actions under the PROJECTS BiOp. If those actions are consistent with the conditions and impacts considered by the PROJECTS BiOp, then the notification and reporting procedures required under the BiOp will complete the analysis of impacts under ESA. However, if a funded action under the restoration program does not fall within the analyses of the PROJECTS BiOp, then the federal trustees will initiate an individual consultation with the Services (National Marine Fisheries Service and USFWS) to complete an evaluation of impacts under section 7 of the ESA.

By using the RC PEIS through incorporation by reference and tiering, and incorporating the PROJECTS BiOp herein, the Trustees reduce redundant and unproductive analyses, and align the implementation of the Program with best national and regional restoration practices.

1.5.4. Other Related Plans and Actions

Model Toxics Control Act (MTCA) - In addition to federal authority under CERCLA, the State of Washington is engaged in a remedial action under the state Model Toxics Control Act (RCW Chapter 70.105D), which includes limited provisions for NRDA. Remedies determined under state leadership, with tribal oversight, will result in primary restoration.

Puget Sound Nearshore Ecosystem Restoration Project – The US Army Corps of Engineers in an agreement with the State of Washington, and technical assistance from federal, state, and local agencies, defined management measures and strategies for restoration of Puget Sound’s nearshore ecosystems. Those principles and analyses form the basis for the restoration program as discussed in section 3.

Shoreline Management Plans – Both the City of Port Angeles and Clallam County have developed conservation and restoration plans under the shoreline management act. These plans classify shoreline segments based on allowable uses, and may provide insight into the range of allowable restoration actions for each relevant shoreline segment. The Trustees will consider this important local plan as they evaluate actions for funding within the Program.

Puget Sound Salmon Recovery Plans – The approved salmon recovery plan, implemented in part by the North Olympic Peninsula Lead Entity through its 4-year work plans, systematically identifies restoration opportunities for enhancement of Puget Sound salmon populations. These species were likely affected by Harbor contamination, are a vital and rare component of the nearshore ecosystem, and so were a focus of the injury assessment. The Trustees will consider recovery planning as they select restoration actions for funding.

Strait of Juan de Fuca Ecosystem Recovery Plan – The Strait of Juan de Fuca Local Integrating Organization, supported by the Puget Sound Partnership, and in collaboration with the Environmental Protection Agency’s National Estuary Program, has identified restoration strategies for the greater Strait of Juan de Fuca, in which Port Angeles Harbor is located. The Trustees will consider the Juan de Fuca plan as it evaluates potential actions to be funded under the Program.

1.5.5. Public Involvement

The Trustees have maintained [a public website](#)¹, with information about Natural Resource Damage Assessment, the identity of the Trustees, Trustee resolutions and documents, and the memorandum forming the trustee panel.

On March 26, 2021, the Trustees released a public review draft of this DARP, concurrent with proposed Consent Decrees described in section 1.4. Trustees and the Department of Justice completed a 30-day public comment period from March 26 through April 26. This comment period was described in a Federal Register Notice (DOJ 2021) announcing the proposed settlement, on both NOAA and Ecology websites for the Port Angeles Case, and in email communications to all interested parties using a mailing list managed by Ecology for harbor cleanup. The Peninsula Daily News, ran two stories describing the proposed action on April 6, and April 9. A web-based public meeting was conducted on the evening of April 7, and advertised both in the aforementioned news stories and using the Ecology email list. Ecology received comments with options for on-line, email or paper submissions.

A total of three comments were submitted and are included in Appendix C. The comments were generally supportive of the proposed alternative, and the trustees could substantively address comments without changing our alternatives analysis, our model for alternatives selection, or our evaluation of potential effects on the human environment.

¹ <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Puget-Sound/Port-Angeles-Harbor/Port-Angeles-Harbor-NRDA>

1.5.6. Administrative Record

This Final Damage Assessment and Restoration Plan (DARP) references a number of documents prepared by and for the Trustees through CERCLA and NEPA processes. These documents, in some cases incorporated by reference into this plan, are part of the [Trustees' Administrative Record](#)², maintained by Ecology in its capacity as the Lead Administrative Trustee.

For more information please contact Connie Groven, site manager/environmental engineer, Connie.groven@ecy.wa.gov, 360-407-6254, Washington State Department of Ecology, 300 Desmond Drive SE, Lacey, Washington, 98503

2. Injury Assessment

In August 2013, the Trustees completed a Preassessment Screen (PAS), which determined that the conditions were present for a damage assessment (PAHNRT 2013). Subsequently, the Trustees compiled available sediment chemistry test results from 2002 to 2013 to describe the extent and degree of contamination present in Harbor sediments. The Trustees conducted a Habitat Equivalency Analysis (HEA) to estimate the scale of likely injuries to natural resource services over time using the currency of Discounted Service Acre Years (DSAYs; NOAA 2000). The Trustees evaluated recently completed and planned restoration actions near the Harbor to estimate the cost of restoration—and thereby the funding necessary to generate an equivalent quantity of habitat services. Based on this assessment the Trustees anticipate that a restoration program implemented under the proposed settlement will restore a quantity of habitat services equivalent to those lost over time due to the release of hazardous substances.

2.1. Injury Determination

The Trustees completed and published a PAS to determine whether it was appropriate to conduct a natural resource damage assessment pursuant to CERCLA. The PAS, incorporated by reference, determined that all five criteria for conducting a NRDA in the western Port Angeles Harbor were present:

1. A discharge of hazardous substances had occurred, due to the presence of metals, PCBs, PAHs, phenols, and phthalates in sediments above Sediment Management Standard criteria, and the widespread distribution of dioxins above background levels.
2. Federal, state, and tribal trust resources are present in the Harbor, including commercially and culturally important fish and shellfish, including critical nursery habitat, with the presence of hazardous substances verified in fish and shellfish tissue.
3. Sediment sample toxicity is such that trust resources have been adversely affected, demonstrated by levels of toxicity sufficient to cause fishery closures in the Harbor, and known to cause injury in benthic organisms, fish, shellfish, birds, and mammals.
4. Sediment chemistry data are available from a range of sources to describe the extent and nature of those impacts, from eleven sediment studies in the last 20 years, with data available from a state-managed regional toxicology database.
5. Work to date, including proposed remedial work, is not anticipated to result in restoration sufficient to make the public whole after 40 years of accrued damages to trust natural resources.

Following notification of potentially responsible parties and a period of negotiations, the Trustees completed a rapid injury assessment to quantify impacts in the Western Harbor (PAHNRT 2014). These assessed injuries led to a negotiated cash settlement estimated as equivalent to the accrued damages caused by the

² <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Puget-Sound/Port-Angeles-Harbor/Port-Angeles-Harbor-NRDA/NRDA-administrative-record>

release of hazardous substances.

2.1.1. Environmental Setting of the Incident

The environmental setting of the incident is described in the PAS (PAHNRT 2013), and again within the Rapid Injury Assessment (PAHNRT 2014). In addition, in 2012 as required under the state Shoreline Management Act, the geology, land use, and ecological functions and processes of the Harbor landscape are described in detail in the Shoreline Inventory, Characterization and Analysis Report within the City of Port Angeles Shoreline Master Program (The Watershed Company et al. 2012).

Port Angeles Harbor is a natural deep water harbor located on the North Olympic Peninsula and protected from Pacific swells by the 2.5 mile Ediz Hook. The Harbor fronts the City of Port Angeles, and is the site of at least two historical Klallam fishing villages (Tse-whit-zen, at the base of Ediz Hook, and I'e'nis, along Ennis Creek to the east); it is also within the usual and accustomed treaty fish harvest area of the three tribal nations participating as Trustees. Klallam Indians lived on Ediz Hook until as recently as the 1930s, when the federal government relocated them to lands it had acquired for them at the mouth of the Elwha River, roughly eight miles to the west, which formally became the Lower Elwha Reservation in 1968.

The Harbor within the city limits includes four fish-bearing freshwater stream mouths, and the remnants of an uncommon barrier beach lagoon, sometimes referenced to as the Nippon log storage pond, which was once part of an extensive barrier embayment adjacent to the Tse-whit-zen village site (the Lagoon). Ediz Hook is a regionally significant barrier beach spit. The Harbor supports populations of flat fish, forage fish, shellfish, marine mammals and birds, and provides rearing and migration areas for culturally and legally important salmonids, including four populations listed as threatened under the Endangered Species Act: Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), Hood Canal summer chum salmon (*Oncorhynchus keta*), Puget Sound Steelhead trout (*Oncorhynchus mykiss*), and bulltrout (*Salvelinus confluentus*).

The Harbor habitats include deep benthic habitats, beaches, small stream mouth deltas, and the aforementioned barrier embayment lagoon. Shorelines have been extensively filled, and are almost completely armored with rock and sheet pile walls. Historical temperate rainforests have been cut, burned, cleared, and almost completely replaced by commercial, industrial, and residential developments. Streams and waters are commonly in violation of fecal coliform standards. Wood waste from log rafting and wood processing blanket sub-tidal lands with carpets of anoxic material, alien to marine life. Despite these impacts, the Harbor lies within the relatively intact North Olympic Peninsula ecosystem, with extensive use by diverse resident and migratory fish and wildlife species.

2.1.2. Natural Resources and Services Considered

Nearshore habitat provides spawning, rearing and foraging services for a wide range of invertebrates, fish, birds and mammals. A description of the ecology of Port Angeles Harbor is available both in the PAS (PAHNRT 2013), and in the Shoreline Inventory, Characterization and Analysis Report (The Watershed Company et al., 2012). Hazardous substances released into marine waters and sediments may have direct health effects, but also enter the bodies of invertebrates that live in sediments. Creatures eat these contaminated animals, and in this way, toxins enter into food webs. Many of the hazardous substances released into the Harbor, such as heavy metals, dioxins and PCBs, will concentrate in the body of an individual over its lifespan, potentially resulting in lethal and/or sub-lethal effects. The Trustees used the extent and intensity of sediment contamination to infer injury to natural resources and services, with potential effects on the growth, survival, and reproduction of aquatic species and the creatures that forage on aquatic species.

Different habitats have a different potential to provide services. The Trustees' damage assessment used a regionally adopted nearshore habitat value model, developed by the National Marine Fisheries Service (NMFS), and used to define habitat services to juvenile Chinook salmon (Ehinger et al., 2015). Juvenile salmon are a nearshore dependent species that move on and off shore with the tides and show a preference for vegetated shallow water habitats. Many of the species that were likely to be injured by the release of

hazardous substances use the nearshore in a similar manner or forage on juvenile salmon or similar species. In this way, the relative services provided to juvenile salmon by different habitats were used as a surrogate for a wide range of species that co-exist with juvenile salmon and are together adapted to using the complex and productive nearshore zone. Economically important pelagic and groundfish species are also considered by this generalization. Particularly in their juvenile stages, many pelagic and groundfish species use nearshore habitats for refuge and forage. Due to the relative rarity of nearshore habitats, and their conversion in the development of the city of Port Angeles the Trustees considered shallow water nearshore habitats as a key limiting factor in the productivity and biodiversity of the Harbor.

Development of the Harbor degraded natural resources prior to the release of hazardous substances. The Trustees' assessment of damages considers this "baseline" of physical and biological habitat degradation. The Trustees presumed that the least degraded nearshore habitats provide the highest levels of ecological services, and thus have greatest potential for accruing natural resource injuries from contamination—in particular the shallow marine waters less than 20 feet in depth, with no evidence of wood waste degradation, where light penetrates the water column, supporting seaweed meadows. The Trustees presumed that deep subtidal habitats, with simpler structure and lacking primary production, provide fewer services. The Trustees also presumed that where blankets of wood waste have covered the Harbor floor, the least ecological services are provided, and therefore contamination of these habitats have the least potential to injure natural resources. These methods are described in the rapid injury assessment (PAHNRT, 2014).

2.1.3. Contaminants of Concern

The Trustees' rapid injury assessment considered the following hazardous substances: mercury, zinc, cadmium, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), dioxin toxic equivalents (TEQ), 4-methylphenol, and phenol. These hazardous substance releases are associated with a range of public and private activities, including plywood, pulp, and paper manufacturing; marine shipping, boat building and refurbishing; fueling facilities; marinas; commercial fishing; stormwater and sewer discharge; and process wastewater discharge. The extent and distribution of these activities are described in the PAS (PAHNRT 2013).

To estimate damages to natural resources, the Trustees aggregated all recent and available data describing sediment contamination in Port Angeles Harbor within 10 cm of the sediment surface. Surface sediment data were extracted from Ecology's Environmental Information Management System. For each contaminant sample, the Trustees considered whether observed chemistry concentrations were above or below the laboratory analytical detection limit. For those samples below the detection limit, the Trustees set concentration at 0 (zero). To reduce unreliability and uncertainty associated with older data, samples collected prior to 2000 were excluded from the Trustees' analysis. The data utilized in the Trustees' assessment are from the following studies:

- Port Angeles 2002 Rayonier Mill Remedial Investigation I Phase 1
- Port Angeles 2003 City of Port Angeles NPDES
- Port Angeles 2003 Cypress Ediz Hook Smolt NPDES
- PSAMP Spatial Monitoring 2003
- Port Angeles 2005 Nippon Paper Industries Sed Inventory
- Port Angeles 2006 Rayonier Mill Remedial Investigation Phase 2
- Port Angeles 2007 American Gold Seafoods NPDES
- Port Angeles 2008 Baseline DNR Lease 22-077766
- Port Angeles 2008 Ecology Harbor Study
- Port Angeles 2010 NPDES/WWTP Outfall Station 4
- West Port Angeles Harbor 2013 RI/FS Sed/Lab Bioacc

2.1.4. Pathways/Exposures to Natural Resources of Concern

A description of the public and private activities resulting in the release of hazardous substances is provided in the PAS (PAHNRT 2013). The hazardous substances observed in Harbor sediments were used in, or

generated from, economic activities along the Port Angeles shoreline. Combustion and atmospheric distribution of particulates and storm water and process wastewater discharge resulted in the movement of oils, heavy metals, and organic toxins from land-based activities into the water column and marine sediments, or comingled with wood waste. The distribution of hazardous substances corresponds with the locations of historical industrial activities and wastewater discharge sites. Sediment samples contain hazardous substances at concentrations that exceed Washington State standards and Federal guidelines, and are known to cause injury in benthic organisms, fish, shellfish, birds, and other resources. Chemical analysis of fish and shellfish tissue have identified metals, dioxin/furans, PCBs, and PAHs at levels with the potential to cause adverse effects. Based on these findings the Washington State Department of Health initiated a harvest closure for shellfish and issued a health advisory recommending limited consumption of crab from the Harbor, both of which have close contact with marine sediments. The Western Port Angeles Harbor Sediment Cleanup Unit Remedial Investigation/Feasibility Study (Floyd Snider et al., 2020), developed by the Western Harbor PRPs and supervised by Ecology, provides evidence of the movement of hazardous materials from private and public activities into the environment, with impacts to natural resources and ecosystem services.

2.2. Injury Quantification and Services Lost (CERCLA)

Injury quantification results in an estimate of damages from unpermitted releases to Port Angeles Harbor after the enactment of CERCLA in 1980—a period of approximately 40 years. Limited direct evidence of injury (for example, dead or diseased animals) is available to estimate damages. An ecosystem-based HEA was used to estimate the scale of injury. HEA allows Trustees to evaluate equivalence between an estimated injury to natural resources, and the results of restoration actions that restore natural resources.

Injury was estimated only within the Western Harbor Study Area, which excludes adjacent areas being evaluated separately through a cooperative assessment with Rayonier (Figure 1). Methods used by the Trustees to quantify injury between the two assessments are comparable. However, the geographic separation of the two sites on opposite ends of the Harbor and differences in the restoration approach merited the separation of the two processes into separate injury assessment and restoration planning efforts.

Sediment contamination is only observed at sample points. To estimate the likely distribution of contaminants over the whole area of the Harbor, the Trustees interpolated between points using a Geographic Information System (GIS). The Trustees' methods were typical for other regional damage assessments, and resulted in a map of the estimated area of contaminants in the Harbor.

The Trustees then converted concentrations of contaminants in Harbor surface sediments into an estimated percent of natural resource services lost. Trustees based these “service loss models” on observations of how different organisms respond to exposure from contaminants at different concentrations. In general, low contaminant concentrations result in little or no loss of ecological services. As concentrations increase so do the natural resource service losses (expressed as a percentage of services lost).

For this assessment, the Trustees used service loss models developed from two Superfund sites in Puget Sound: Commencement Bay (Wolotira, 2002) and the Lower Duwamish River (NOAA, 2013). These models describe injuries caused by different sediment concentrations of mercury, zinc, cadmium, PCBs, PAHs, 4-methylphenol, and phenol. For PCBs and PAHs, the Trustees also used service loss models for PCBs and PAHs used in a recent NRDA settlement for the St. Lawrence River in Massena, New York (St. Lawrence Trustees, 2013). Finally, the Trustees developed a service loss model for dioxins and used it to calculate injuries associated with this class of contaminant. The dioxin TEQ model is described in more detail in section 2.4 of the Rapid Injury Assessment (PAHNRT, 2014).

The degraded habitat conditions present in the Harbor were also considered when calculating habitat service loss (as discussed briefly in section 2.1.2). Degraded habitat conditions reduce the habitat services prior to contamination. Therefore, contamination of degraded habitats results in lower estimated injuries than if contamination were to occur in high quality habitats. To describe relative habitat value, a juvenile Chinook salmon habitat value model developed by NOAA Fisheries for regulatory analysis was used to estimate the

relative services provided by beaches, kelp meadows, mud flats, or deep subtidal landscapes (Ehinger et al., 2015).

The Trustees combined these analyses to generate a “habit service currency” that roughly describes the scale of injury as a number of Discounted Service Acre Years (or DSAYs, commonly spoken “Dee-Sayes”). This habitat service currency integrates the factors described above to estimate the quantity of habitat services lost over the period of contamination. It considers the area of contamination, the contaminant concentration, and the duration of contamination. This currency also considers the compounding value of damages over time, and discounts the value of future promised restoration by using a 3% discount rate.

By quantifying injury in this way, the loss of services can be compared to the presumed lift in services from a restoration project. These methods include the multiplication of multiple presumptions. Consequently, the results of a HEA analysis are considered, along with Trustee confidence in the weight of available evidence, to determine an appropriate settlement level. Applying the presumptions described above in a rapid assessment with existing evidence, the Trustees conservatively estimated an injury within the Western Harbor as low as 508 DSAYs or as high as 1323 DSAYs.

2.3. Damages Determination

The Trustees completed an assessment of the cost of restoration in the vicinity of Port Angeles Harbor. The assessment suggests that restoration equivalent to Western Harbor injuries could be achieved through a mixture of projects both within the Harbor and in the surrounding landscape. Within Pacific Northwest coastal areas, the annual outmigration of salmonid smolts contributes to coastal food webs, as a wide range of marine fish, birds, and mammals eat out-migrating salmon. Actions within watersheds that increase salmon production not only meet regional tribal and public trust goals, but also may directly benefit food webs impacted by contamination of Port Angeles Harbor.

A diverse set of four restoration projects were used to evaluate the relative costs of restoration: a shoreline restoration on Ediz Hook, estuarine fill removal at Pysht River Estuary (located on the Strait of Juan de Fuca approximately 32 miles west of Port Angeles Harbor), fish passage barrier removal on Ennis Creek, and wood waste capping based on a pilot project, also in the Harbor. The Trustees gathered available cost documentation to estimate the total cost for each of these projects, if they were implemented by the Trustees. These inflation-adjusted estimates included land value, design and engineering costs, trustee oversight costs, construction costs, and long-term stewardship. These costs are therefore conservative compared to actual regional restoration costs under voluntary salmon recovery or Puget Sound recovery programs implemented using grants.

Through negotiations, the Trustees arrived at a final proposed settlement in the form of two Consent Decrees. The city of Port Angeles agreed to a payment of \$800,000. The remaining five Western Harbor PRPs agreed to a payment of \$8.5 million paid jointly by those parties. These payments would reimburse costs borne by federal, state, and tribal Trustees during the assessment period (assessment costs totaled \$779,583 as of the fall of 2019, and final assessment costs will be tabulated post-settlement). Remaining settlement funds, less these final assessment costs, are estimated at approximately \$8.52M. Based on the estimated cost of restoration, the Trustees presume the remaining settlement funds would provide approximately 560 DSAYs of habitat services, well within the range of the three lower estimates presented in our injury assessment, which ranged from 508-589 DSAYs (PAHNRT 2014). This equivalence is based on a restoration project cost estimation that is the average of the three lower cost project types described above (approximately \$15,100 per DSAY for estuary fill removal, fish passage restoration, and wood waste capping). The Trustees considered the absence of systematic animal injury data, the assumptions used in rapidly calculating injury, and the conservative estimate of restoration costs, along with DSAY injury estimates to determine that the proposed settlement is consistent with CERCLA and is likely to restore a level of services equivalent to damages incurred to public trust resources.

3. Restoration Planning

The Trustees have initiated a restoration planning process, to determine how settlement funds would be best used to make the public whole following injuries resulting from the release of hazardous substances in Port Angeles Harbor. This section describes the consideration of alternative restoration strategies, and describes the preference for a Port Angeles Harbor-specific ecosystem-based restoration funding program.

3.1. Restoration Program Requirements and Best Practices

The Trustees recognize several requirements necessary to fulfil their obligations:

- **Equivalence** – Trustees must restore, replace, rehabilitate or acquire the equivalent of natural resources and services potentially injured or destroyed as a result of releases of hazardous substances;
- **Clear Nexus** – Trustees must recover resources with a strong nexus to the injury that necessitated the claim for natural resource damages (in this case, nearshore subtidal sediment contamination in the Western Harbor);
- **Gainful in Excess of Requirements** – NRDA-driven restoration must result in a net gain in natural resources services, with benefits in excess of any local, state, and federal court-ordered or regulatory requirements for ecosystem management;
- **Legal** – Restoration work must comply with all applicable local, state, and federal laws and regulations;

In addition, the Trustees recognize principles of best restoration practice intended to maximize the reliability and effectiveness of restoration within Federal NRDA programs:

- **A Return to Normative Conditions** – Projects result in the habitats and species historically native to the area, and restores functions and processes that sustain habitat functions in addition to habitat structure;
- **Sustainable** - Projects are designed to reliably sustain functions without significant maintenance or intervention;
- **Integrative Planning** – Projects are consistent with local and regional restoration strategies and plans that address limiting factors to fish and wildlife;
- **Permanent Protection** – Recovered habitats are protected in perpetuity from incompatible uses, and under a landowner or manager with sufficient resources to enforce those protections;
- **Long-term Stewardship** – Sufficient resources are provided in a non-wasting stewardship fund to ensure projects are monitored and maintained over the long-term;
- **Monitoring and Management** – Performance criteria and monitoring parameters are established to gauge progress toward full function and inform adaptive management;
- **Public Involvement** – To the extent possible, public input is incorporated into restoration planning, implementation and stewardship.

3.2. Overview of Restoration Planning Processes

Efforts by the Port Angeles Trustees are informed by local and regional restoration planning efforts. The State of Washington and the US Army Corps of Engineers completed an extensive 14-year planning process to evaluate strategies for restoration in the Puget Sound Nearshore, including Port Angeles Harbor. This Puget Sound Nearshore Ecosystem Restoration Project (The Nearshore Project) was supported by an independent and interdisciplinary science team, and proposed a structure for restoration programs, the

desired attributes of a restoration effort, and described the 100-year record of change in Puget Sound shorelines, proposing a restoration approach informed by these landscape conditions. The extensive analysis of the Puget Sound Nearshore ecosystem informs the identification of restoration goals and objectives in section 3.4. Nearshore Project publications are archived on-line by Washington Department of Fish and Wildlife.

The Puget Sound North Olympic Lead Entity (NOPLÉ) is currently implementing a federally-approved salmon recovery plan under the Endangered Species Act, and associated state authorities. A technical review panel generates an annually-revised 4-year work plan, defining the highest priority actions for the recovery of Puget Sound salmonids in the landscape surrounding Port Angeles Harbor. The Strait of Juan de Fuca Local Integrating Organization (Strait LIO) has completed development of a Puget Sound Recovery Plan, selecting from and expanding on regional strategies. This plan defines critical strategies for recovery of ecosystem functions within the Strait of Juan de Fuca. City of Port Angeles Shoreline Master Plan (SMP) evaluated shoreline conditions and identified restoration opportunities across the Port Angeles Harbor landscape.

These four efforts undergird the restoration planning process, will inform project selection, and to the extent that they provide analysis of the Port Angeles Harbor landscape, are incorporated into this analysis by reference. A community of tribal, local government, special district, and non-profit restoration organizations are identifying, designing, and completing restoration actions near Port Angeles Harbor. The Trustees aim to work closely with these related efforts while maintaining a strong nexus to the Port Angeles Harbor injuries described in section 2.

3.3. Potential Restoration Activities

The Trustees anticipate the funding of on-the-ground actions to modify the ecosystem, recover lost ecosystem services, and thereby make the public whole for damages caused by the release of hazardous substances. Restoration actions occur within regulated aquatic landscapes, and may have short-term adverse as well as short and long-term beneficial impacts on the environment.

Special districts, local, state, tribal, or federal governments, and non-governmental organizations have project teams that specialize in restoration. To prepare for restoration, the Trustees may engage in planning, feasibility studies, design engineering, and permitting processes in collaboration with these teams. The Trustees may develop implementation and effectiveness monitoring that triggers additional actions. A restoration program may include fish and wildlife monitoring which involves the examination of live creatures. Environmental education programs and the construction of access or interpretive features may accompany restoration actions.

The Trustees presume that, in addition to the programmatic activities described above, the following on-the-ground actions could reasonably be part of a restoration program to compensate for injuries sustained in Port Angeles Harbor. The terminology used here is consistent with the NOAA Restoration Center's Programmatic Environmental Impact Statement (RC PEIS), which will be referenced later in the NEPA Evaluation and Effects Analysis (section 4):

- **Beach and Dune Restoration** – Restoration of a natural beach profile, particularly in association with barrier estuary or barrier beach systems. This may include restoration of portions of Ediz hook and currently armored shorelines. Regional beach restoration includes removal of structures and debris, revegetation, and placement of appropriately graded fill material to simulate naturally occurring sand-gravel beaches. Pacific Northwest beaches and backshore habitats are influenced by drift wood, either mobile or embedded in the beach profile, and provide habitat for shorebirds, rare plants, and beach spawning forage fish. The Trustees have observed the potential for beach restoration near stream mouths, near the outlet of the Lagoon, and along sections of Ediz Hook.
- **Debris Removal** – Following industrial development and use of the Harbor there are pilings, shoreline armoring, derelict docks and extensive fields of subtidal wood waste from log rafting.

This debris may be removed using onshore or barge based equipment and dredging systems. Of particular interest are abandoned structure(s) near ecologically important features.

- **Sediment/Materials Placement** – Restoration of intertidal and subtidal substrates may involve placement of materials, either to restore sediment texture to a reference condition, or to recover elevations and cross-sections that support habitat function. Material placement may be used to restore or reconstruct subtidal areas affected by wood waste and/or cross-shore beach and marsh gradients where shoreline development has degraded these habitats. Of particular interest are shallow subtidal areas with wood waste impacts near other features of ecological importance.
- **Fish Passage** – Where transportation networks cross waterways a variety of culverts have been installed that may reduce or block anadromous fish passage. Reduction of access to stream habitats has been associated with declines in Pacific salmon, and improvement of fish passage is a broadly applied restoration strategy. This typically involves design of a stream simulation culvert design consistent with state and federal guidance, isolation of the worksite, removal and replacement of the culvert, and then restoration of the stream corridor through the new road-crossing structure.
- **Invasive Species Control** – Once disturbed, coastal habitats may become dominated by introduced species, which then prevent re-establishment or development of natural vegetation structure and composition. Himalayan blackberry (*Rubus procerus*), reed canarygrass (*Phalaris arundinacea*), Scot's broom (*Cytisus scoparius*), and English ivy (*Hedera helix*) are among a group of species, where control and replacement with native plantings is necessary to recover natural forest structure and functions. Management and restoration of vegetation may include the judicious use of herbicides. Invasive species control would be included as part of coastal forest or dune restoration efforts associated with the restoration of ecologically significant features of the harbor.
- **Native Plantings and Forest Management** – The restoration of coastal forest and wetland vegetation may include new plantings or a succession of plantings, as well as modification of existing vegetation to support development of historical forest structure and composition. This may involve restoration of soils, thinning or gap clearing as well as under-planting of shade-tolerant conifer species and understory vegetation. Coastal forest restoration would be included as feasible as part of the restoration of ecologically significant coastal features.
- **Channel Restoration including Bank Restoration** – Many stream channels have been constrained, simplified, or incised, reducing their habitat value. Stream channel restoration may include placement of woody debris, or broad-scale earthwork to reconstruct a stream corridor and floodplain landscape. This may include, where necessary, structures designed to prevent natural stream migration into the built environment. Stream restoration would be focused on nearby systems that are able to support the sustained recovery of fisheries under ongoing development and climate change.
- **Signage and Access Management** – Restoration actions may include accommodations for passive recreational access, as well as materials to educate visitors. Sites may have fencing to discourage access.
- **Subtidal Planting** – Reestablishment of eelgrass (*Zostera marina*) depends largely on growth of rhizomes, and so transplanting of eelgrass may greatly increase the rate of recovery. These activities may involve use of divers and anchoring of transplants using rebar or other weights. Eelgrass distribution in the harbor is suspected to be constrained in the harbor due to higher turbidity than surrounding waters. Eelgrass restoration may be included as part of substrate restoration efforts, where eelgrass is naturally present, and out-planting materials are readily available.
- **Wetland Restoration** – A broad range of wetland restoration activities may be associated with natural seeps, streams, and storm water flows or in areas with the potential for tidal inundation on or near the shoreline. Wetlands have been extensively destroyed and degraded in Port Angeles Harbor

and in the surrounding landscape. Restoration may involve excavation of material, modification of levees, dikes, gates, or culverts, construction of wetland topography, placement of large wood, and revegetation of complex natural vegetation. Wetland restoration may accompany actions that produce intertidal areas protected from wave energy.

3.4. Restoration Goals and Objectives

Driven by the CERCLA statute, the purpose of restoration is to make the public whole for injuries to natural resources. The public is made whole first by preventing additional injury (cleanup) and then compensating for interim losses of resources and services that occurred prior to cleanup (restoration).

The release of hazardous substances are anticipated to have affected the growth, reproduction, and survival of a wide variety of species. However, development has also dramatically modified the Port Angeles Harbor landscape. Keystone species important to the Port Angeles Harbor ecosystem are threatened with extinction. Puget Sound Chinook salmon, Hood Canal summer chum salmon, Puget Sound bulltrout, and Puget Sound steelhead trout are federally listed under the Endangered Species Act. Shellfish harvest in the Harbor has been curtailed, and there is a health advisory warning against consumption of Dungeness crab.

The practice of restoration presumes that by modifying habitat conditions within an area of work, there will be an increase in habitat functions, a commensurate response among plant and animal populations, and thereby a sustained increase in ecological services and natural resources. This theory of change is not assured. Nearshore ecosystems are particularly dynamic. Waves, currents, and the ebb and flow of tides continuously rework the environment. Declines in freshwater quantity and quality are ongoing due to development and climate change. Improved shoreline conditions may not persist, habitat benefits may not be realized by biota, the restored habitat may not address the needs of target populations, and thus a sustained increase in natural resources may not be achieved.

For these reasons, the legal requirement to compensate for injuries requires equivalence (equal in value, amount, or function), but does not demand that the Trustees simply restore those habitats exposed to hazardous substances. Rather, the Trustees' obligation is to restore habitats that will efficiently and effectively restore equivalent natural resources. Given the broad ecosystem effects of contamination, this suggests that the Trustees would apply an "ecosystem-based approach" to restoration—to evaluate the past and present condition of the Port Angeles Harbor ecosystem, and to carefully select restoration actions that will most reliably restore the natural resources of the Harbor. Such an approach is recommended by the Nearshore Project (Fresh et al 2004), the International Society for Ecological Restoration (McDonald et al 2016), and promulgated among diverse publications by Federal Trustees. "Ecosystem-based approaches" to restoration require an understanding of the natural conditions to which Harbor biota are adapted, and must reference the historical structures and processes that provided higher natural resource functions, goods and services. By observing change from these historical conditions the Trustees better understand the ecological functions that remain, what has been lost, and what might be restored, thus building an empirical basis for setting restoration goals and objectives based on the rigorous observation of specific ecosystems.

The earliest comprehensive historical record of the Harbor shoreline is from the geodetic survey of 1892 (Figure 2). The Harbor was formed by the large barrier beach system of Ediz Hook, which contained in its crook an exceptional barrier lagoon (the Lagoon). The remaining shoreline east of the Lagoon was formed of bluff backed beaches and barrier beach systems, with seven fish-bearing streams (if including Morse Creek to the east). Eelgrass and kelp beds were likely extensive. In 1892 the town of Port Angeles was present with only a small developed waterfront.

Under current conditions, the vast majority of beach shorelines have been stabilized and narrowed with some kind of shoreline armoring (Figure 3). Almost a quarter of a square kilometer of shallow subtidal area has been covered by some kind of dock or overwater structure. The Lagoon has been armored and filled to a fraction of its historical size. Creek deltas are constrained, discharge toxins during storms, and provide decreased freshwater flow over summer due to watershed modification.

Figure 2 - Historical Shoreline Conditions. The US Government completed a geodetic survey in 1892. The historical shoreline (yellow dashed line) shows the extent of shoreline fill after 1892 (black line) and the historic extent of the Lagoon.

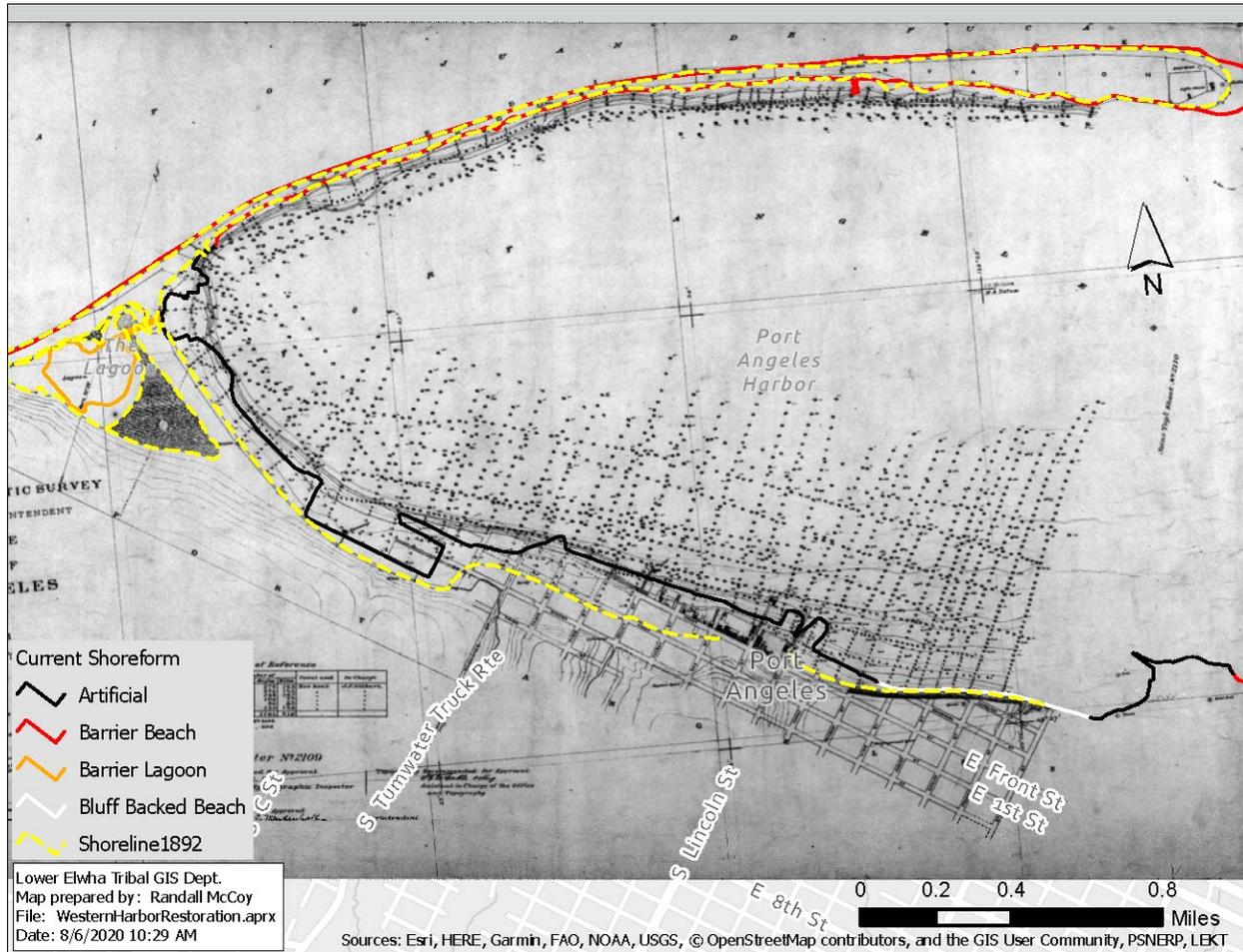
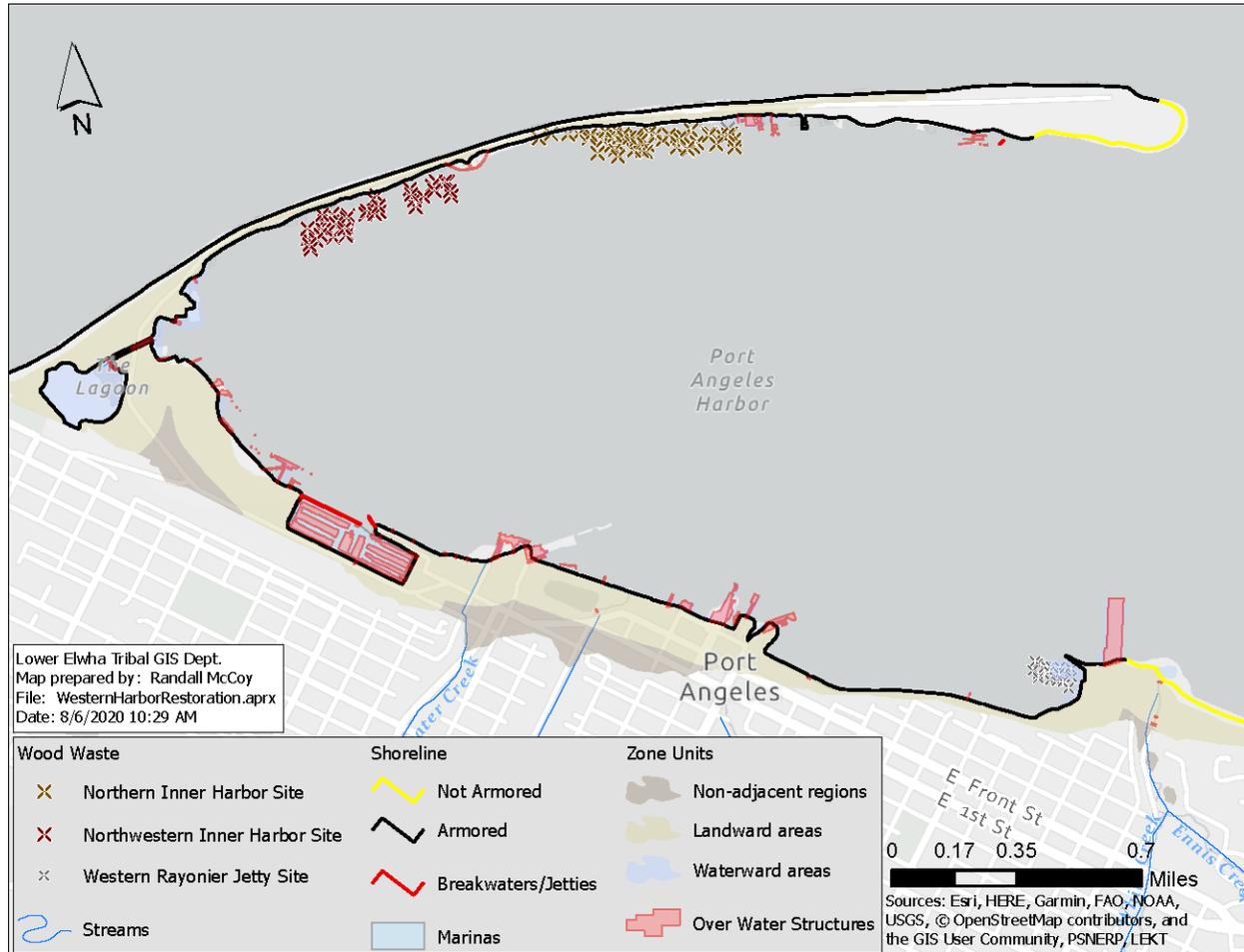


Figure 3- Current Shoreline Conditions. Except for portions of Ediz hook, the entire shoreline is composed of fill with rock or sheet pile armoring. The Lagoon is reduced in size, and many areas are covered by over water structures, some of which are derelict.



The Trustees consulted restoration planning by The Nearshore Project to guide restoration strategy. The Nearshore Project suggests that large-scale restoration of historical ecosystem processes is unlikely at a site with this level of modification and that careful enhancement of critical habitat functions should be considered instead (Cereghino et al., 2012). The Nearshore Project completed an extensive review of literature, guided by an independent science panel. Those science-based principles are summarized in Greiner (2010) and are provided here in bold quotes, and then interpreted by the Trustees as they might apply to the context of Port Angeles Harbor, and used to inform a restoration strategy.

- **“Conserving intact ecosystems is the most effective method to maintain ecosystem functioning”**
 Degradation of the Harbor has been so extensive that only fragmented habitats remain. Remaining habitat is relatively protected under modern regulation. Ecosystem recovery will likely depend on restoration. *Therefore, Trustee actions will focus on restoration to recover and expand on remnant habitats.*
- **“A large-scale restoration plan should apply an ecosystem approach at the landscape level”**
 The Harbor provides protected barrier beach habitats that are uncommon on the Strait of Juan de Fuca. The Lagoon is a regionally rare habitat type with diverse functions. Stream mouths represent a critical terrestrial-marine linkage—small areas with disproportionately high services. *Therefore, Trustee actions will focus on restoration of regionally rare barrier beach, lagoon, and creek mouth habitats.*
- **“Restoring physical processes promotes ecosystem resilience”**

The very existence of the Harbor depends on sediment supply to Ediz Hook. Most historical sediment supply in the Harbor has been lost. *Therefore, Trustee actions will aim to restore natural shoreline erosion and transport of beach sediments to sustain Harbor beaches and Ediz Hook.*

- **“The natural composition and configuration of ecosystems should be restored to promote landscape resiliency” and “Restoring heterogeneity on multiple scales supports a more resilient landscape”**

There has been a dramatic reduction in the area of the Lagoon and its surrounding habitats. Fill has greatly reduced the area of beach, mudflat, and shallow subtidal habitats. The Harbor has almost completely lost its natural cross-shore habitat continuity, where coastal forest becomes bluff or backshore dune, with beaches transitioning to shallow subtidal algae meadows. *Therefore, Trustee actions will aim to increase the area of beach and shallow subtidal habitats, particularly in the Lagoon complex, and restore cross-shore habitat connectivity.*

- **“The surrounding area has significant influence on the success of restoration efforts at a site” and “Landscape connectivity should be restored to reduce fragmentation and facilitate the flow of energy, material, and biota between ecosystems” and “Larger patches generally encompass more ecological components than smaller patches”**

The construction of larger habitat islands (contiguous areas of high habitat function) can build on the relatively few remaining locations where natural habitat processes remain. Natural beach structure is limited to restored beaches on Ediz Hook, and the barrier beach east of Ennis Creek. The Lagoon is a remnant area of tidal flow within a barrier embayment. Remaining creek mouths, particularly Ennis Creek, link watershed flows to the nearshore. Historically continuous shallow water habitats and seaweed meadows that once provided migration and rearing area for a variety of species are now dissected by jetties, fill, and over water structures. *Therefore, Trustee actions will aim to construct large islands of complex habitat connected by continuous shallow water habitats.*

- **“Rare or vulnerable species and habitats should receive high priority to preserve a region’s biodiversity” and “Ecological components that exert disproportionately greater influence on the integrity of an ecosystem should receive special attention”**

Primary productivity in shallow water habitats supports rearing of regionally threatened salmonids and the beach spawning forage fish upon which adult salmon depend. Examples of rare habitats include forested and naturally eroding beach and shallow vegetated subtidal habitats, particularly in the vicinity of stream and the Lagoon mouths. Shallow vegetated subtidal habitats and coastal forest provide detritus critical for supporting nearshore food webs. *Therefore, Trustee actions will aim to increase forage fish and juvenile salmonid populations within the Harbor.*

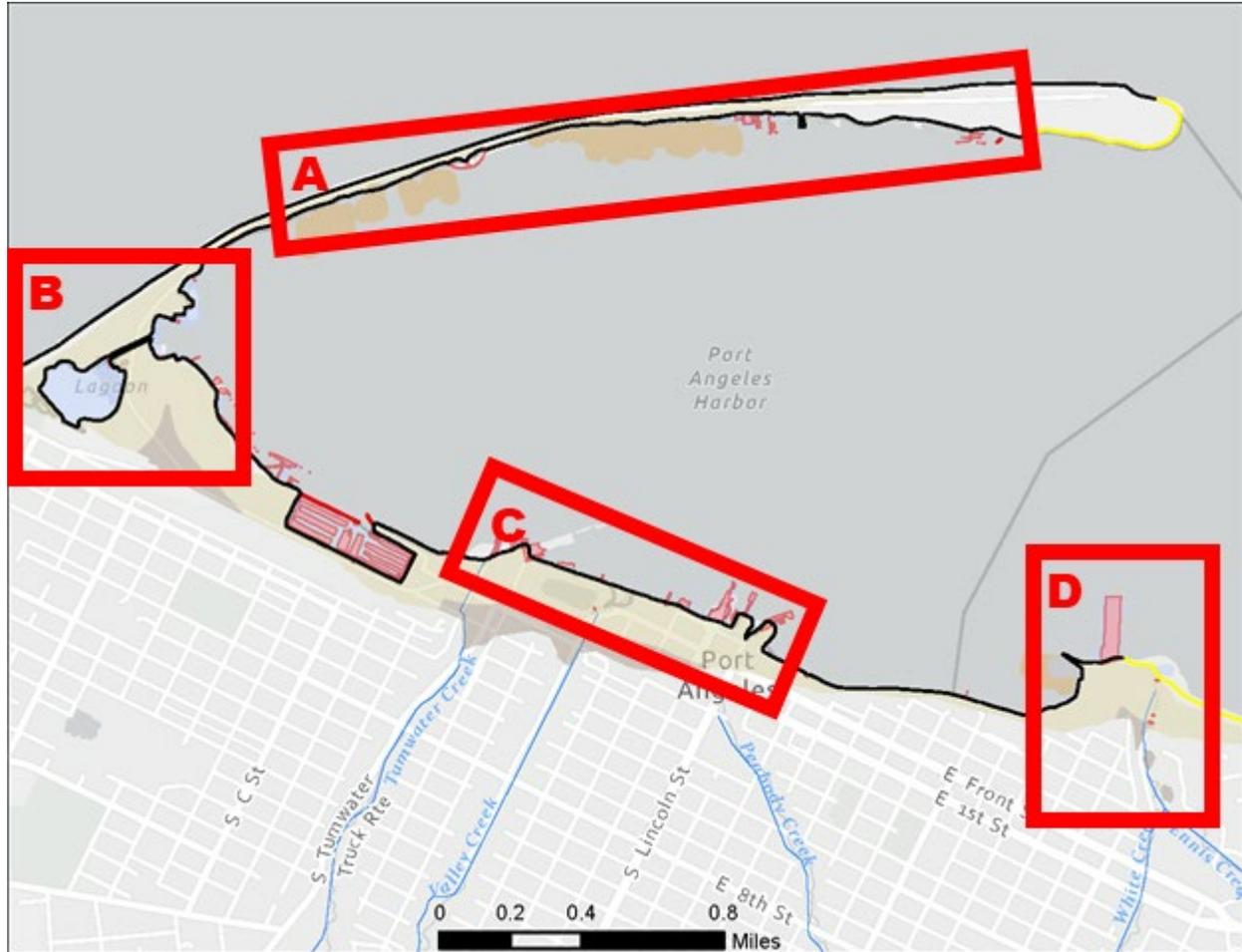
- **“Cumulative impacts must be considered to accurately assess ecosystem degradation and restoration success”**

Continued population growth and stormwater pollution, combined with climate change, indicate continued stress on the Harbor ecosystem. *Therefore, Trustee actions will avoid habitats anticipated to be degraded by future development, or where urbanization strongly affects water quality and quantity.*

Figure 4 describes a range of restoration opportunities present in The Harbor, as described in sections 3.3 and 3.4. These include: A) restoration of beaches and shallow subtidal habitats along the inner edge of Ediz Hook, B) restoration of the extent, quality and connectivity of the lagoon and surrounding shorelines and removal of derelict structures, C) restoration of habitat areas associated with creek mouth estuaries and contiguous shorelines, and D) restoration of the Rayonier mill site and lower Ennis Creek. Restoration of these sites depends on negotiation of land access. Additional opportunities outside the harbor may include projects to recover keystone species that use the harbor or restore physical processes that support the harbor

ecosystem. Restoration is not constrained to those sites identified here, and the scope and scale of restoration will need to be evaluated for each proposed action.

Figure 4– Restoration Opportunities. The Trustees have observed four restoration areas within the harbor that may be consistent with the restoration approach: A) inner Ediz Hook, B) Tse-whit-zen Lagoon, C) downtown creek mouths, and D) the Rayonier Mill site.



3.5. Criteria for Evaluation of Program Alternatives

The Trustees explored a range of restoration options independently and through negotiations with various potentially responsible parties. The Trustees largely presumed that restoration would be necessary to make the public whole for damages, and focused attention on the best approach for implementing restoration given the trajectory of clean-up and NRDA settlement negotiations, the needs of the natural resources of the Harbor, and the current and anticipated future conditions of the Harbor ecosystem.

The Trustees compared alternative strategies for developing a robust restoration program suited to the unique context of Port Angeles Harbor. The selection of a program approach must also be consistent with CERCLA regulations (43 CFR Part 11.82). The Trustees considered the restoration planning criteria identified by CERCLA relative to the restoration context of the Harbor to identify the attributes of a successful restoration program:

- **Technical Feasibility** – The Trustees examined factors that might limit Harbor restoration through both desktop analysis, and boat-based surveys. The Trustees compared the observed landscape to other restoration efforts in Puget Sound, and considered strategies and tactics that had successfully resulted in

the restoration of other landscapes. The Trustees considered coastal reforestation, shoreline setbacks, reconstruction of intertidal landscapes through fill, creek mouth restoration, subtidal sediment remediation, cultivation of submerged aquatic vegetation, beach nourishment, fish passage barrier removal, removal of derelict structures, restoration of fish production in freshwater systems, and stormwater remediation. The Trustees observed that the primary limitation to the technical feasibility of restoration within the Harbor would be obtaining land access for restoration actions from property owners and managers within the Harbor. *Therefore, the Trustees prefer a program alternative that allows for obtaining land access within a complex private and public ownership shoreline.*

- **Cost/benefit Analysis** – The Trustees formally considered the costs and relative benefits of four restoration projects in the vicinity of the Harbor, and speculated about other project types where costs were not available. In general, project costs are lower outside the Harbor, where projects are less constrained by municipal land use. Within the Harbor, benefits are more costly because projects compete with industrial and urban shoreline use and must work around existing infrastructure. There may be opportunities to integrate restoration into the urban shoreline that are consistent with the restoration goals and objectives described above; however, those opportunities cannot be assured at the time of settlement. *Therefore, the Trustees prefer a program alternative that allows us to negotiate the most cost effective projects within the Harbor shoreline while allowing flexibility to invest in cost effective work near to the Harbor that provide benefits to Harbor resources, if within-Harbor restoration proves inefficient or ineffective.*
- **Remedial Action and Risk**– Negotiation over the precise scope of remediation is ongoing. The extent and location of Harbor sediment remediation will define a new condition around which restoration can be designed as a complementary action. In addition, the presence of residual contamination, isolated by caps or barriers, creates a landscape of potential risks that will need to be managed during restoration design. *Therefore, the Trustees prefer a program alternative that allows the ability to adjust restoration location and extent to complement the final remedial action.*
- **Natural Recovery** – under the current regulatory regime, the Trustees anticipate some continued recovery and evolution of natural resource function within the Harbor. In addition, the Trustees anticipate a decrease over time in the release of hazardous substances, and the natural attenuation of hazardous substances present in the environment. The Trustees aim to target restoration on those processes, structures, and functions of the ecosystem that are least likely to recover without intervention, and where restoration is not required under existing programs. This approach is considered in the restoration goals and objectives described above.

By integrating: 1) the legal obligations under CERLA, 2) the restoration goals and objectives, and 3) the criteria defined above in response to CERCLA regulations, the Trustees developed the following six criteria to evaluate restoration program alternatives. Through the application of these **alternative evaluation criteria**, the Trustees will be able to systematically discriminate among alternative approaches to restoration program implementation.

1. **Meets NRDA Requirements and Best Practices** – Makes the public whole through sustainable recovery of habitat services, in excess of existing legal requirements, equivalent to and with a strong nexus to the injury.
2. **Implements Cost-Effective Restoration** - The restoration program can efficiently promote and select from among actions based on the degree to which the greatest benefits can be assured at the least cost. This includes the ability to seek restoration of key landscape features.
3. **Flexibly Focused on Port Angeles Harbor** - Allows for development of a portfolio that obtains the most cost-effective improvements in the Harbor through negotiated access to land and also allows for investment in very cost-effective actions outside the Harbor that benefit Harbor natural resources.
4. **Responsive to Remediation Design** - The restoration program can adapt project implementation to

respond to the final extent and character of clean-up efforts.

5. **Ensures Protection and Stewardship** - The restoration program can identify and restore normative primary productivity and sediment supply and transport in the Harbor ecosystem.
6. **Implements Ecosystem-based Restoration** - Implements a program of restoration that responds to the specific needs and opportunities within Port Angeles Harbor, including focus on keystone habitats, development of large connected habitat islands, and improvement of limiting factors for keystone species.

3.6. Identification and Evaluation of Reasonable Restoration Alternatives

The Trustees identified two reasonable alternatives for the implementation of restoration, consistent with the criteria described above. In addition, NEPA and CERCLA regulations require consideration of a no-action alternative. Four alternatives were rejected during the screening process because they did not meet the program evaluation criteria.

3.6.1. Alternatives Considered But Rejected

Four alternative restoration approaches were rejected because the Trustees believe they would be likely to fail to make the public whole, fail to meet the restoration goals and objectives, or are otherwise inconsistent with the requirements of NRDA in the Port Angeles Harbor context:

1. **Focus on Deep Subtidal Wood Waste Restoration** – Clean up actions are unlikely to resolve all wood waste impacts, as some areas of wood waste are not comingled with hazardous substances, and complete wood waste remediation is not typically pursued by Ecology in cleanup. Incorporating additional wood waste restoration as part of the remedial effort would likely offer economic efficiency because contractors would be mobilized and on site doing similar work as part of the cleanup required under MTCA. Because wood waste impacts are considered part of the degraded baseline, work to restore sediments affected by wood waste would be a gainful restoration of historical functions in excess of requirements. Remediation of wood waste would necessarily focus on deep subtidal habitats, where the greatest area of wood waste impacts are located. Opportunities to conduct wood waste remediation were offered to the Trustees as a PRP-led restoration opportunity during settlement negotiations. While subtidal habitat degradation is extensive, a large area of relatively intact subtidal habitat is present in the Harbor. Relatively speaking, coastal forest, beach, estuarine, lagoon and shallow subtidal habitats have been severely damaged and reduced in the area. The restoration goals, based on best regional practices, drive the Trustees to focus on those limited and currently degraded habitats that are most likely to limit natural resource production. By contrast, deep subtidal habitats have the lowest benefit to the keystone species identified in the restoration goals and remain the most abundant habitat type in the Harbor. For these reasons, a program with a restoration focus on subtidal wood waste remediation was rejected, as it was less likely to make the public whole, and did not meet the restoration goals. Shallow subtidal wood waste restoration may be included as part of restoration of a larger habitat island in proximity to high priority habitats or to take advantage of opportunities presented in the final remedial design.
2. **Focus on Economic, Recreational, or Educational Access** - While the contamination of the Harbor has resulted in economic and recreation impacts, a program with a focus on building infrastructure is not consistent with the restoration goals and objectives. The natural resources of the Harbor are severely injured by contamination and by development-driven habitat modification. A number of keystone species, such as Chinook and summer chum salmon, are regionally threatened with extinction. The Trustees think that additional access to natural resources for economic, recreational, or educational purposes is not a factor most likely to be limiting public enjoyment of ecosystem goods and services. By contrast, the degradation of those resources is limiting public access to ecosystem goods and services. Therefore, in the absence of restoration, additional access is unlikely to provide more services. In the absence of a restoration program, a focus on natural resource access is unlikely to make the public whole. Access and education and would not satisfy the restoration goals informed by best regional

practice. Access and education elements may be included as part of restoration actions that meet other criteria.

3. **Focus on Storm Water Remediation** – The Trustees could attempt to improve the natural resources of the Harbor by reducing the impacts of municipal stormwater. The city of Port Angeles delivers transportation system runoff through a municipal separate stormwater sewer system (MS4) under an Ecology permit issued under an EPA National Pollution Discharge Elimination System (NPDES) program. Under this permit, the City is obligated to monitor and improve discharge to protect the natural resources of the state and the nation. Thus, reduction in stormwater impacts may result with or without Trustee participation. Some level of reduction is required. By contrast, there is no equivalent obligation for the City to restore physical habitats of the Harbor. For this reason, a trustee focus on stormwater remediation would be much less likely to make the public whole, or if it were to do so, it would be by relieving the City of its existing legal liabilities. This alternative was rejected because it was unlikely to make the public whole and, based on best regional practices, fails to meet restoration goals. Stormwater remediation may be considered as part of a restoration action where water quality improvements are critical for improving the long-term function of large habitat islands.
4. **Transfer of Settlement Funds to Existing Restoration Funding System** – The Trustees could pass settlement funds and decision authority to an existing restoration funding entity such as the Lead Entity or Local Integrating Organization that would distribute resources among existing projects. A complete transfer of decision authority is not feasible because the Trustees, as assembled, are legally responsible for making the public whole through development of a restoration portfolio that directly responds to Harbor injury caused by the releases of hazardous substances. The Trustees do not have the authority to delegate or defer that responsibility. In addition, existing programs are generally not focused on Harbor restoration due to the relatively high cost of restoration and the constraints of municipal land use. It is likely that if settlement funds were solely managed by a regional restoration entity, a large proportion, if not all funds, might be spent outside the Harbor. For these reasons, some level of trustee oversight in project selection would be necessary to ensure consistency with NRDA objectives and obligations. This development of a Trustee-supervised grant program within an existing regional restoration system is considered as alternative B below.

For the reasons provided above, the Trustees do not think these four program alternatives warrant additional analysis. Elements of these alternatives may be included as part of an ecosystem-based restoration program. However, the Trustees do not think a program with a focus on stormwater, public or private resource access, deep subtidal wood waste restoration, or a transfer of resources to an existing regional restoration system will meet the Trustees' legal requirements for making the public whole.

3.6.2. Alternative A – Trustee-managed Restoration Program (Preferred)

Following cash settlement, the Trustees would develop and manage an ecosystem-based program specifically for recovering the natural resources of Port Angeles Harbor. Trustees would publicize their intent to pursue restoration based on the restoration goals and objectives described above, and would conduct a series of evaluation processes to develop and fund the best available actions for achieving those goals and objectives. A trustee would necessarily serve as the fiscal agent of the Trustee Council, and would either directly implement restoration actions, or enter into agreements with project proponents to implement selected actions. Trustee decisions would be part of the public record. Trustee actions would be consistent with the restoration planning described in section 3. Actions would be adaptive to the ecological and social conditions and opportunities both found and cultivated in the Harbor and surrounding landscapes.

Would a Trustee-managed program meet NRDA requirements and best practices?

The development of a program directed by the Trustees would provide the most direct control of restoration strategy and outcome. A Trustee-managed program would incorporate agency review into Trustee decisions, ensuring that funding decisions would be consistent with CERCLA intent and requirements.

Would a Trustee-managed program be cost-effective?

All funding programs have administrative costs. The Trustees have the shared obligation to maximize the settlement resources applied to on-the-ground restoration. One or more of the trustees would serve as the fiscal agent for the purpose of implementing the Program. That agent would execute contracts and conduct financial transactions on behalf of the Trustees. A trustee-managed program would be organized under a memorandum of agreement that would be developed to govern trustee activities and decisions. Post-settlement trustee activities, including payment of trustee costs, would be part of the public record.

State and federal agency grant programs typically minimize administrative costs through use of volunteer technical peer review and distributing all available funds through a single evaluation process. While a trustee program could employ this approach, a trustee-managed program could develop a more incremental approach that targets specific ecologically-significant restoration opportunities.

This is important because the most effective restoration opportunities in the Harbor are constrained by land use and ownership. For example, restoration of the Lagoon or more complete restoration of the Ennis Creek mouth require access negotiation with private landowners. Effective restoration may therefore require negotiation and judicious incremental application of funds to secure the most effective restoration opportunities in the Harbor. A trustee-managed program would have an advantage over a grant-style program that rapidly disperses funds to those projects that rapidly demonstrate readiness. Trustee management would support incremental development of key restoration opportunities and would not prevent the ultimate expenditure of funds through a grant-style distribution, should that approach be warranted.

Existing regional restoration programs do not have standards in place for the administration of some NRDA goals. Specifically, monitoring and adaptive management programming and long-term stewardship programming are not standardized within the regional salmon recovery or national estuary program systems. Trustees have developed and tested strategies for both monitoring and adaptive management and long-term stewardship within regional NRDA cases. The addition of these program functions reduces the certainty that an existing restoration system would be able to implement a full NRDA program while maintaining a low cost of restoration.

Would a Trustee-managed program be flexibly focused on Port Angeles Harbor?

A Trustee-led program would maximize direct control over the distribution of funds to achieve Harbor restoration. Developing a fund within regional funding systems would still require trustee supervision. Such an approach would potentially create tension between the interest of Trustees in Harbor-focused restoration and the project interests of regional restoration partners that are currently focused outside the Harbor. The development of project selection processes under Alternative B would require negotiation of agreements to focus work on the Harbor nexus. By contrast, a trustee-led program described as Alternative A could still access and support the same restoration actions that would be advanced under Alternative B.

Would a Trustee-managed program be responsive to remediation design?

A Trustee-led program would be very responsive and adaptable to remediation decision-making in Port Angeles Harbor. The Trustees include Ecology – the agency with responsibility for negotiating the cleanup of Port Angeles Harbor – as well as the Lower Elwha Klallam Tribe, which has coordinated with Ecology on an ongoing basis regarding the remediation. A Trustee-led restoration process would thus have direct access to decisions and documents and to professional opinions and analysis related to the cleanup.

This criterion is particularly relevant because the PRPs for both cleanup and restoration purposes are among the most significant shoreline landowners in Port Angeles Harbor. The ability to anticipate and leverage synergy with cleanup actions may provide the best opportunity for effective and efficient restoration in the Harbor.

Would a Trustee-managed program ensure protection and long-term stewardship?

A Trustee-managed program would have direct oversight of project funding decisions by agency legal staff. The Trustees would need to identify a reliable third party to hold easement enforcement rights on restoration sites in order to achieve perpetual protection.

The long-term stewardship model defined under the NOAA Restoration Center long-term stewardship policy requires a non-wasting fund, a fiscal oversight partner, and an on-the-ground stewardship partner. The development of long-term stewardship capacity for Harbor restoration would necessarily require trustee management regardless of the method used to distribute resources for restoration construction.

Would a Trustee-managed program ensure implementation of ecosystem-based restoration?

A framework for ecosystem-based restoration is described in section 3. Given the conditions found in Port Angeles Harbor, there are specific opportunities for restoring important ecosystem components that are primarily limited by the willingness of public and private land managers to integrate ecological function into a degraded shoreline. A Trustee-managed program is best positioned to lead an incremental negotiation to secure land access within the Harbor.

Implementation of a Trustee-managed process does not prevent use of a project solicitation process should such an approach best achieve the results of ecosystem-based restoration in the Harbor. The Trustees include state, federal, and tribal natural resource agencies. These agencies are the primary source of independent scientific capacity within the regional restoration economy. A Trustee-managed program would have direct access to agency resources to inform the design and evaluation of ecosystem-based restoration.

3.6.3. Alternative B – Harbor-Focused Grant Fund in Existing Restoration System

Following a cash settlement, the Trustees could chose to engage an existing regional restoration consortium operating near Port Angeles Harbor to distribute restoration funds. The Strait Local Integrating Organization in collaboration with the Puget Sound Partnership distributes approximately \$100,000 per year to priority projects based on an extensive and locally-developed ecosystem recovery plan spanning the Strait of Juan de Fuca. The North Olympic Peninsula Lead Entity in collaboration with the Washington Recreation and Conservation Office distributes between hundreds of thousands and millions of dollars a year to salmon recovery projects, prioritized under a federally-approved salmon recovery plan. The Trustees would need to negotiate and develop an agreement describing the relationship between the Trustees and the third party. Trustees would need to maintain oversight of the decisions proposed by the third party.

Would a Harbor-focused grant program meet NRDA requirements and best practices?

To ensure implementation of NRDA requirements and best practices, the Trustees would need to develop a contractual instrument that robustly defines those practices in this context, identify a partner with the appropriate capacity, and the oversee implementation by reviewing decisions at key junctures. While this approach is feasible, it would likely result in additional costs that may reduce overall cost-effectiveness.

Would a Harbor-focused grant program be cost-effective?

Grant programs use a public project solicitation, evaluation, selection, contract negotiation, and oversight process to minimize the administrative costs of passing funds to diverse partners to achieve a stated goal. This approach is designed to reduce the costs of distributing financial resources over time. It depends on the right projects being ready for funding at the publication of the solicitation. If the right projects are not available at the time of solicitation, then a grant program would be less effective in achieving recovery of Harbor natural resources.

There are initial costs to develop a grant program in defining values, goals, objectives and evaluation practices and criteria. This up-front institutional investment reduces future costs. If the grant fund is rapidly depleted, these efficiencies are less than if grant making is sustained over time. This settlement would result in a single payment. A grant program based on this settlement would likely result in a single set of payments that will not be sustained. Thus, a grant program may not recover the initial costs of establishment through cost efficiency over time.

In Port Angeles Harbor, restoration of shoreline cross-sections, restoration of creek mouths, and restoration of the Lagoon may only be viable through careful negotiation of landowner relationships and incentives. The processes used in a grant-style distribution do not strongly support this kind of land access negotiation,

as funding decisions are made quickly with the purpose of evaluation to determine the best proposal among work that is ready to implement. A solicitation process may not support the development of the right proposals within the Port Angeles Harbor landscape.

Would a Harbor-focused grant program be flexibly focused on Port Angeles Harbor?

A grant program could include a nexus to Harbor resources as an evaluation criterion either for ranking or qualification of a proposal. The application of a criteria-based peer review system could serve to adjudicate the tension between lower cost and potentially more available projects in the adjacent landscape and the higher cost, more difficult to develop projects within the Harbor proper.

Changing the direction of a grant program implemented by an external party would require negotiation both amongst the Trustees, and then between the Trustees and the program implementer. This adaptation process would increase the costs and likely result in a time lag that may make the overall effort less responsive and adaptive.

Would a Harbor-focused grant program be responsive to remediation design?

The relationship between the Harbor cleanup and a project could be evaluated as part of a grant process. In addition, parties involved in the Harbor cleanup could become project proponents within a grant-style distribution approach. Harbor cleanup processes follow a schedule that is unpredictable and not necessarily aligned with a given grant process. To adequately evaluate a proposal that creates synergy between Harbor cleanup and NRDA restoration would require bringing professional evaluation of remedial risks into the grant process. Those professional sources of knowledge are directly engaged in Trustee processes, so access to knowledge of the cleanup would not necessarily be improved by moving settlement resources into a third-party funding system.

Would a Harbor-focused grant program ensure protection and long-term stewardship?

A grant system could include evaluation and funding mechanisms to ensure site protection and long-term stewardship as part of the funding package. However, there is some evidence from long-term stewardship efforts in Commencement Bay that there are advantages to operating a single stewardship program amongst many sites. Such a programmatic stewardship effort would likely be developed and funded outside of a project funding cycle within a grant program, so development of a grant program external to the Trustees would not necessarily offer any efficiency in achieving protection and stewardship goals.

Would a Harbor-focused grant program ensure implementation of ecosystem-based restoration?

Restoration project development requires a confluence of factors to be present in the landscape, including land access, professional capacity, cash resources, knowledge of the ecosystem, and permission from regulatory agencies. A grant program provides one of these assets (cash resources) while depending on local project developers to provide the all the other enabling conditions. It may take time and effort to develop all these enabling conditions in Port Angeles Harbor. During development of a grant system, there may be a lag between the creation of the grant program as an incentive for project development and the development of more difficult projects in a landscape.

As a network of institutions, the Trustees provide additional capacity to support ecosystem restoration, including professional capacity, knowledge of the ecosystem, direct access to regulatory agencies, and networks that support development of land access. If the Trustees outsourced funding distribution to an external party, these assets may be more difficult to apply to project development.

3.6.4. Alternative C – State-led Remediation Only

Under a no-action alternative, no additional restoration would occur in response to the injury. State-led site remediation would be the primary action on the site. In theory, such remediation would eventually result in a return to baseline conditions. It would be paradoxical to pursue a no-action alternative after having negotiated an NRD settlement agreement with PRPs.

A remediation-only approach would not meet NRDA requirements and best practices, as there would be no

recovery of lost natural resource services to make the public whole. Such an approach would not be “cost effective” since there would be no effect. Due to the extent of degradation, Port Angeles Harbor is not a priority site for recovery of natural resources, and so there would be no focus, flexible or otherwise, on Harbor restoration. There would be no additional resources applied to protection or long-term stewardship; there would be no ecosystem-based restoration program beyond actions implemented by the City under its Shoreline Management Plan or by the port in response to mitigation requirements.

3.7. Conclusion and Rationale for Preferred Alternative

The Trustees believe that a Trustee-led Restoration Program (Alternative A) is the most effective strategy for implementing ecosystem-based restoration in Port Angeles Harbor. For each criterion, the Trustees have described an advantage to a Trustee-managed ecosystem-based restoration program over distribution of settlement funds to an existing regional restoration partner for distribution through a grant-style system. This preference is based on the resources that Trustees bring to enable restoration, and the complex, nimble, and responsive work necessary to develop specific restoration opportunities in the Harbor. It is recognized that a Trustee-led system does not preclude development of partnerships with local project teams, solicitation of restoration opportunities, or rapid criteria-based evaluation among alternative funding opportunities. Trustee decisions will be transparent and public. A trustee-managed restoration program allows for a responsive and nimble posture when negotiating land access, leveraging emergent opportunities during the cleanup process, or during shoreline re-development. In support of this conclusion, a brief consideration of each criterion developed in section 3.5 is provided below.

3.7.1. NRDA Requirements and Best Practices

Under Alternative A, the Trustees would be positioned to evaluate the distribution of settlement funds consistent with CERCLA requirements. These requirements and practices could be achieved under Alternative B, but likely with a reduction in overall cost-effectiveness. For this criterion Trustees prefer Alternative A.

3.7.2. Cost-Effectiveness

Alternative B offers reduced administrative cost through rapidly distributing available funds to ready projects. However, the Trustees anticipate that the process of developing a third-party grant system that considers all NRDA requirements would have a startup cost that reduces these benefits. By contrast, Alternative A provides a more robust opportunity to pursue incrementally the most effective restoration actions in the Harbor while not precluding the rapid distribution provided by alternative B. Alternative C fails to provide restoration benefit. For this criterion, the Trustees prefer Alternative A. To meet fully this criterion the Trustees will need to design effective cost controls into their administration of settlement funds.

3.7.3. Flexible Focus on Port Angeles Harbor

Alternative A supports incremental development of a series of actions in Port Angeles Harbor while not precluding funding for cost effective actions outside the Harbor that benefit Harbor Natural Resources. It provides this function with a minimum of intermediation and cost. For this criterion, the Trustees prefer Alternative A.

3.7.4. Responsive to Remediation Design

Alternative A allows the restoration program direct access to decision-makers in the remedial process and offers a more flexible time schedule for funding decisions. Trustees anticipate that Alternative A may provide opportunities to be responsive to the changing conditions in the Harbor. For this criterion, the Trustees prefer Alternative A.

3.7.5. Ensures Protection and Stewardship

Protection and Stewardship could be provided by either Alternative A or Alternative B. The Trustees anticipate that long-term stewardship would be more efficiently developed as a Harbor-wide program rather

than on an action-by-action basis, so Alternative B would offer no increase in efficiency and may increase costs through Trustee oversight, resulting in a three-way negotiation of protection strategy and stewardship mechanisms. For this criterion, the Trustees prefer Alternative A.

3.7.6. Implements Ecosystem-based Restoration

Ecosystem-based restoration could be achieved under either Alternative A or B. However, Alternative B does not offer specific advantages. Under Alternative A, the direct involvement of Trustees and their agencies provides additional resources that creates an enabling environment for restoration. Based on the evaluation of Port Angeles Harbor, the Trustees believe that cultivation of enabling conditions may be critical for implementing the most effective restoration actions. For this criterion, the Trustees prefer Alternative A.

4. NEPA Evaluation and Effects Analysis

Federal trustees must consider effects of their action on the human environment consistent with the National Environmental Policy Act (NEPA). The Trustee Council believes that the affected environments, proposed actions, and their likely impacts of a Port Angeles Harbor restoration program have previously been considered under NOAA Restoration Center’s *Programmatic Environmental Impact Statement for habitat restoration activities implemented throughout the coastal United States* (RC PEIS). This portion of the Final DARP essentially summarizes and documents the consistency of proposed restoration alternatives in Port Angeles Harbor and the surrounding landscape with the analyses of the RC PEIS.

4.1. Requirements for Analysis under NEPA

Under NEPA, federal action agencies must evaluate potential impacts to the environment from their proposed actions and reasonable alternatives. A Trustee decision to fund a restoration action is a federal action. If potential impacts are significant, an environmental impact statement (EIS) may be required; if impacts are either unclear or considered not significant – or if adequate mitigation elements are incorporated into the project – NEPA requirements may be satisfied by preparation of an environmental assessment (EA). Additionally, some types of actions may qualify for a Categorical Exclusion (CE).

NEPA also allows for broad programmatic analyses that subsequently can be used to meet NEPA requirements for project-level actions through incorporation by reference and “tiering” (where a NEPA determination is based in part on evidence assembled in a previous analysis). This process is discussed further below. The NEPA process ensures that the public and decision-makers are fully informed about the potential impacts of the proposed action and its alternatives and allows for meaningful public involvement in the decision-making process.

The Trustees have proposed two alternatives that define different approaches to implementing a restoration program, in addition to a “no-action” alternative. Both alternatives would result in a program to fund restoration activity. The Trustees have not selected specific actions for funding, but anticipate restoration that is consistent with national and regional practices and standards, occurring in a known set of habitats, and following a predictable set of strategies. For these reasons, the effects and impacts of these future restoration actions are relatively predictable. Further, the Trustees expect these actions will be similar between the two alternatives. The practical strategic differences between the two alternatives and the Trustees’ preference for Alternative A are discussed in section 3.7. For the purposes of NEPA analysis, the Trustees will build the analysis by drawing heavily from NOAA’s Restoration Center’s Programmatic Environmental Impact Statement (RC PEIS), as introduced in sections 1.5.2 and 1.5.3, and discussed below.

4.2. Use of the RC PEIS

The NOAA Restoration Center (RC) has distributed \$365 million to over 3,000 restoration actions nationwide over a roughly twenty-year period. Many of these efforts involve similar types of activities with

similar environmental impacts. To increase efficiency in conducting NEPA analyses for a large suite of habitat restoration actions, in 2015 the RC developed the *Programmatic Environmental Impact Statement for habitat restoration activities implemented throughout the coastal United States* (RC PEIS). 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 United States. Specifically, it evaluates typical impacts related to 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. When applicable, these analyses may be incorporated by reference in subsequent NEPA documents, to avoid redundant paperwork and analysis. In general, the actions analyzed in the RC PEIS are those with the potential for a variety of long-term benefits to fisheries and local communities, but which may have largely minor short-term adverse impacts that can be mitigated by best practices.

The RC PEIS defines an approach for determining if an action is consistent with the analyses therein. A trained specialist reviews available information about an action, including local, state, and federal permits, and completes an "Inclusion Analysis" to determine if the scope and impacts of the action are consistent with the RC PEIS or requires additional analysis. National program staff trained in NEPA compliance review that proposed determination. The responsible program official (i.e., the decision-maker for the action being proposed) then reviews staff findings, and makes the appropriate final determination (NOAA documents this determination in an "Inclusion Memo"). This reduces redundant paperwork and analyses that would otherwise be required, draining resources from national restoration efforts.

The Trustees have concluded that the impacts from the restoration alternatives being considered in Port Angeles Harbor are largely the same as the impacts found in other regional and national restoration projects. Therefore, the analyses of the RC PEIS may, and should, be incorporated by reference as part of the analysis of the impacts of the alternatives the Trustees have considered. The Trustees have concluded that the procedures described for Inclusion Analysis within the RC PEIS are sufficient to guide NEPA review of future Trustee funding actions under the restoration program. The inclusion analysis process described in the RC PEIS can be found in Appendix A. The Trustees will make those subsequent reviews available to the public, as part of public trustee deliberations and through trustee resolutions.

There are specific situations found in Port Angeles Harbor where the restoration actions may have impacts that are different from those considered by the RC PEIS. These include the presence of environmental contaminants, the presence of endangered and protected species, and the presence of water-dependent uses that benefit local economies. These potential impacts will be considered during the Inclusion Analysis for each action funded by the Trustees. If a project has potentially significant effects that exceed those described in the RC PEIS or that are not considered in the RC PEIS, then that project would require an individual Environmental Assessment, with its associated public process, focused on the specific potential impacts of that non-conforming project.

The following analysis compares the RC PEIS to the context of the Port Angeles Harbor restoration program being developed by the Trustees.

4.3. Affected Environments

The Affected Environment for Port Angeles Harbor refers to all portions of the Harbor and surrounding areas where restoration may occur. This includes habitats that affect the productivity of species that use the Harbor and may include surrounding river and stream habitats that support migratory animals that use the Harbor. A description of the ecology of Port Angeles Harbor is available in both the Trustees' PAS (PAHNRT 2013), and the city of Port Angeles' Shoreline Inventory, Characterization and Analysis Report

(The Watershed Company et al., 2012).

Depending on the potential for cost-effective restoration, the Trustees may fund projects in the landscape surrounding Port Angeles Harbor, where restoration would directly benefit the natural resources of the Harbor. This may include freshwater habitats in the vicinity of the Harbor along the Strait of Juan de Fuca. Freshwater restoration environments are described further within regional salmon recovery planning documents (for example, Shared Strategy Development Committee, 2007).

The environments that may be affected by restoration in Port Angeles Harbor and its surrounding landscape are generally described in the RC PEIS, including: tidal wetlands, stream and river channels, riparian habitat, submerged aquatic vegetation and marine algae, beaches and dunes, mud or sand flat, subtidal bottom, estuaries, floodplains, and freshwater wetlands. This NEPA Evaluation incorporates by reference the affected environment description of these habitat types within the RC PEIS. For a more detailed discussion of the affected environment in and around these coastal habitats, refer to section 3.0 of the RC PEIS. General descriptions of each of these habitat types are described below, along with more specific descriptions of each habitat types found in the vicinity of Port Angeles Harbor.

4.3.1. Tidal Wetlands

Generally, the RC PEIS describes tidal wetlands as the transitional habitats between terrestrial and aquatic systems where land is covered tidally or seasonally by shallow water or the water table is at or near the surface. Tidal wetlands are important because many marine fish depend on the resources found within tidal wetlands during some portion of their life cycles. They provide numerous services in addition to habitat for fish and invertebrates, including water quality improvements through nutrient cycling, damage prevention by wave attenuation during storms, carbon sequestration and storage, and recreational opportunities through fishing, among others.

Within Port Angeles Harbor and Strait of Juan de Fuca, tidal wetlands occur along more sheltered shorelines, locally described as barrier estuaries, barrier lagoons, and coastal inlets (Shipman, 2008). These locations are extensively used by nearshore rearing salmonids, flatfish and forage fish, shorebirds, and a diversity of biota, including ESA-listed Puget Sound Chinook Salmon, Puget Sound steelhead trout, and Hood Canal summer chum salmon. Restoration efforts in these habitats may include excavation of fill, placement of appropriate substrate, or restoration of tidal flow through modification of culverts, gates, levees and dikes. Restoration of intertidal surfaces may include channel excavation, planting, and/ or invasive species control.

4.3.2. Streams/River Channels

Generally, the RC PEIS describes river channels as the portion of a stream that is usually submerged. Stream and river channels provide freshwater for all biota; transport nutrients for aquatic and terrestrial species; allow for riparian vegetation growth that provides both food and cover; distribute sediments; and can mitigate temperature and water quality changes, making the integrity of river channels important to the viability of the entire surrounding ecosystems and downstream estuaries and oceans.

The area immediately surrounding Port Angeles Harbor includes seven fish-bearing streams. These systems pass complex flows of water, sediment, and woody debris and provide spawning and rearing habitat for anadromous fish, including ESA-listed species. Restoration efforts in these habitats would focus on removal of armoring and replenishment of large wood pieces or jams to restore naturally occurring channel complexity. Additionally, restoration efforts may involve reconstruction of channel sinuosity, where channels have been artificially straightened or constrained. In-channel work may further improve the distribution of floodwaters over floodplains to restore normative habitat forming processes.

4.3.3. Riparian Habitat

Generally, the RC PEIS describes riparian habitat as the land immediately adjacent to a river or stream with trees or shrubs that are maintained by high water tables or seasonal or periodic flooding. Riparian zones allow for water storage, sediment retention, nutrient transport and removal, in addition to habitat functions

like food and resources for fish, invertebrates, and other biota.

The Riparian zones of Port Angeles Harbor and the Strait of Juan de Fuca include uplands and floodplains with immense stands of timber. Although entomologically inaccurate, riparian habitat is also used to describe coastal forests along beaches and embayments, which are unique in structure and composition, affected by salt spray and exposure to wind. Restoration efforts in these habitats would focus on control of invasive species and restoration of naturally occurring forest composition and structure, through planting and vegetation management.

4.3.4. Submerged Aquatic Vegetation

Generally, the RC PEIS describes submerged aquatic vegetation (SAV) as wetland plants that are almost exclusively subtidal, reside in marine salinities, and use the water column for support. They support large numbers of epiphytic organisms, attenuate waves and slow currents, stabilize sediments, increase organic and inorganic matter accumulation, reduce erosion by binding roots to sediments, and provide habitat complexity and food sources for fauna.

The Submerged Aquatic Vegetation of Port Angeles Harbor includes both seaweeds, kelps and, to a lesser degree, eelgrass (*Zostera spp.*) The distribution of SAV is partially driven by substrate texture, with Kelp dominating environments with cobbles or rocky holdfasts, and eelgrass present in sandy habitats (See Mumford 2007). The distribution of eelgrass and kelp has been described through a mixture of large-scale state-led surveys, as well as smaller regional projects, suggesting that eelgrass may be constrained in portions of the Harbor by limited light penetration (Norris & Fraser, 2009). Restoration may involve placement of material to recover historical substrate texture and depths or out-planting of eelgrass, where supported by environmental conditions.

4.3.5. Marine Algae

Generally, the RC PEIS describes marine algae as kelp forests and seaweed that serve as important structural components of nearshore marine environments. They provide nursery and feeding grounds for marine species; sequester carbon from the environment; and can be harvested as foods, medical products, and cosmetics.

In Port Angeles Harbor bull kelp and giant kelp (*Nereocystis* and *Macrocystis spp.*) may form stands that provide a variety of ecosystem services. These stands regenerate on an annual basis. Restoration of these habitats may be a side effect of efforts to develop rocky reef habitat, which could be included as part of a larger ecosystem-based restoration effort.

4.3.6. Beaches and Dunes

Generally, the RC PEIS describes sandy beaches as habitats characterized by sand, coarse sand, and cobbles, with sands that typically “migrate” offshore and onshore seasonally. The sand dunes form when wind and waves push sand above the usual water level where it is trapped by gravel and vegetation, eventually maturing through plant succession to support woodier species and maritime forests. Although sandy beaches and dunes exhibit low species diversity, they can support habitat for large population densities of seabirds, and other species that rely on these habitats.

Most shorelines surrounding Port Angeles Harbor were once eroding bluff-backed beaches, which nourished the regionally significant sand spit called Ediz Hook and associated barrier beaches and embayments. Restoration may involve restoration of sediment supply through removal of armoring or reconstruction of a beach face through a combination of excavation and placement of beach sediment. Within a dune system, additional restoration effort may be expended to place large woody debris, suppress invasive species, or plant and backshore plant community composition and structure.

4.3.7. Mud or Sand Flat

Generally, the RC PEIS describes mud or sand flats as unvegetated level areas. In Port Angeles Harbor and the surrounding landscape, these areas primarily occur below Mean Lower Low Water and develop where

longshore drift, winnowing, or delivery of sediment by rivers and streams result in the deposition of sediments to form large shallow water areas. Restoration of these environments may involve protection or reactivation of sediment supply, or removal of barriers to longshore drift.

4.3.8. Subtidal Bottoms

Generally, the RC PEIS describes subtidal bottoms as hard or soft surfaces on the substrate that occur below the low tide line and are composed of loose fine- to coarse-grained sediment. These habitats, which are usually located adjacent to beaches or other sediment sources, can support a diverse array of fauna depending on the substrate, type of organic matter, and depth. Many fish and infaunal invertebrates occupy soft bottom subtidal habitats, making them valuable recreationally and ecologically. These habitats recycle detritus and excess biomass through the infaunal and epifaunal species supported there, which in turn provide key food sources for fish and other predators.

Subtidal areas of Port Angeles Harbor and the surrounding landscape include rock, sand, and fine textured sediments. The most valuable are shallow water habitats that support primary production from macro-algae and eelgrass. Extensive subtidal areas of the Harbor have been impacted by log rafting, resulting in a rain of bark and woody material producing areas covered by a blanket of debris and bereft of life. Restoration of these environments may involve removal or capping of wood waste, or restoration of rocky structures that support SAV or Marine Algae.

4.3.9. Estuaries

Generally, the RC PEIS describes an estuary as a partially enclosed body of water that serves as a transition between the land and sea, where the ocean mixes with freshwater from rivers, streams, and creeks. They are tidally driven but also sheltered by coastline, marshes, and wetlands. Estuaries are biologically productive and provide numerous services, such as habitat for plants, animals, birds, and fish; carbon sequestration; and nutrient filtration.

In the vicinity of Port Angeles Harbor, rivers and streams from the lowlands and the Olympic Mountains enter the Strait of Juan de Fuca. Stream mouth deltas and embayments are frequent, account for a relatively small portion of habitat area, but provide exceptionally important shallow water habitats associated with freshwater inputs. Due to extensive fill within the Harbor, creek mouths are commonly simplified or empty rapidly into deeper water. Restoration may involve reconstruction of shallow water habitat, either through excavation of fill, or placement of sediment to reconstruct stream delta and marsh habitats. Additional effort may be spent to reestablish native soil and vegetation structure and composition. Within areas where tidal flow has been blocked or constricted, estuary restoration may involve replacement or removal of culverts or removal of dikes and levees.

4.3.10. Floodplains

Generally, the RC PEIS describes floodplains as valley floors adjacent to stream channels that may become inundated during high water. A floodplain includes a floodway out to the width of the 100-year flood zone and is composed of sediments deposited by the stream or river. During floods, sediment, pollution, nutrients, scour and debris can be transported throughout the floodplain, making development within floodplains hazardous.

The vicinity of Port Angeles Harbor includes stream floodplains such as at Morse or Ennis Creeks. Restoration of these environments may include placement of wood or construction of engineered logjams, excavation of fill, removal of dikes and levees, or even extensive earthwork to restore complex floodplain topography. Floodplain restoration is commonly combined with stream channel or wetland restoration.

4.3.11. Freshwater Wetlands

Generally, the RC PEIS describes freshwater wetlands, including marshes associated with groundwater, lakes, streams, or rivers, as critical areas for fish, shellfish, migratory birds, and other wildlife. Wetlands buffer against storm damage, can sequester large amounts of carbon, and improve surface-water quality

through filtration of pollutants.

In the vicinity of Port Angeles Harbor freshwater wetlands occur in river and stream floodplains, on the glacial plateau, or behind barrier beaches. Located along the Pacific flyway, wetlands are particularly important as resting and refuge for migratory waterfowl. Restoration of these systems may involve a wide range of practices, including reconstruction of wetland topography, removal of dikes and levees, suppression of invasive species, and restoration and management of native vegetation structure and composition.

4.4. Evaluation of Alternatives

Both the preferred alternative (Alternative A) and Alternative B would have very similar effects on the human environment (the no-action alternative is considered separately). Both Alternatives A and B would fund restoration actions in Port Angeles Harbor and the surrounding landscape. Both alternatives would fund actions based on an ecosystem-based approach, and attempt to generate the most cost-effective portfolio of projects. As specific restoration actions are identified for funding, the Trustees will complete project-specific analyses using a focused Inclusion Analysis, to determine if the proposed action is consistent with local, state, and federal laws, and the restoration alternatives and impacts analyzed in the RC PEIS.

In section 3.3 a range of restoration actions are described. These actions are consistent with the actions described in the RC PEIS. The restoration effort may include technical assistance (planning, feasibility studies, design and engineering, and permitting; implementation and effectiveness monitoring; and fish and wildlife monitoring); beach and dune restoration; debris removal; sediment/materials placement; fish passage; fish, wildlife, and vegetation management (including invasive species control, forest management, and species enhancement); channel restoration (including bank restoration), signage and access management; subtidal planting; and wetland restoration. The RC PEIS describes these restoration activities in sections 2.2.1; 2.2.2.2; 2.2.2.11.4; 2.2.2.3; 2.2.2.4; 2.2.2.5.1; and 2.2.2.5.2; 2.2.2.8; 2.2.2.9; and 2.2.2.11 respectively. Section 4.3 above describes the environments in which these actions would occur, and these environments are consistent with the environments described in section 3 of the RC PEIS. In these ways, the RC PEIS considers a range of restoration actions and environments, and thereby supports the analysis of the effects of these actions on the human environment.

4.4.1. Consistency with the RC PEIS

To support consistent analysis, the RC PEIS uses specific language to describe diverse effects and impacts. Restoration actions are anticipated to have direct, indirect, and cumulative consequences in the human environment. These impacts may be both adverse and beneficial. Restoration projects may have impacts that are both localized, and which extend beyond the project site. Those impacts may be short-term, long-term, or permanent. Analysis of restoration actions by the PEIS is limited to specific restoration actions, occurring in specific environments, within a limited range of effects.

Section 4.5 of the RC PEIS considers the potential effects of restoration actions on geology and soils, water, air, living coastal and marine resources, threatened and endangered species, cultural and historic resources, land use and recreation, and the socioeconomic environment. The Restoration Center determined that in most cases, restoration actions may have a variety of short-term or long-term minor adverse effects, or even short-term moderate adverse effects, while often generating long-term major beneficial effects. The Restoration Center has consistently and systematically evaluated these diverse and complex impacts through program activities that have distributed \$365 million to over 3000 restoration actions nationwide.

The RC PEIS thereby largely considers the impacts of the actions likely to occur under an ecosystem-based restoration program for Port Angeles Harbor as described for the preferred alternative (Alternative A) or Alternative B. The intensity, duration, and geographic extent of those anticipated effects can be found in section 4.0 of the RC PEIS (Environmental Consequences; also see table 11), and more specifically: in tables 12, 13, 14, and 15 in section 4.5.1 (Technical Assistance); table 16 in section 4.5.2.1 (Beach and Dune Restoration), table 17 in section 4.5.2.2 (Debris Removal); table 18 in section 4.5.2.3 (Fish Passage);

tables 20 and 22 in section 4.5.2.4 (Fish, Wildlife, and Forest Management), tables 23 and 24 in sections 4.5.2.5.1 and 4.5.2.5.2 (Channel Restoration including Bank Restoration), table 11 in sections 4.5.2.8 (Signage and Access Management), table 30 in section 4.5.2.9 (Subtidal Planting); and in tables 33, 34, and 35 in section 4.5.2.11 (Wetland Restoration).

The Trustees have prepared an Inclusion Analysis Memorandum further describing the consistency of this CERCLA-compliant restoration planning document as consistent with the intent and analysis of the RC PEIS. That memorandum follows guidelines defined in the RC PEIS, and is provided in Appendix B.

Finally, the RC PEIS also provides a systematic process for evaluating if a given restoration action falls within this effects analysis. The Inclusion Analysis methods developed within the RC PEIS, and incorporated by reference here, are provided in Appendix A hereto (NOAA RC Project Award and Environmental Compliance Analysis Process), and introduced above in section 4.2. The Inclusion Analysis process was specifically designed to address NOAA restoration activities, including NRDA restoration actions. The Trustees believe that this process is sufficient for subsequent evaluations of anticipated restoration actions that would be funded under the restoration programs described herein. If during these subsequent Inclusion Analysis evaluations it is determined that a proposed restoration project is not consistent with the RC PEIS effects analysis, additional NEPA analyses will be conducted—likely in the form of an EA.

4.4.2. Potential Impacts Not Considered Under the RC PEIS

Due to the unique environment found at Port Angeles Harbor, the Program may ultimately implement projects that have effects that are not considered by the RC PEIS. If there are aspects of the project that are not consistent with those analyses, additional investigation and analysis under NEPA may be required. This could include Categorical Exclusion or a focused Environmental Assessment to determine if the potential effects are “significant.”

Based on the Trustees’ observations, three scenarios are most likely to be encountered during investigation of a Trustee funding action:

1. **Contamination** – Due to the historical industrial activity, soils and sediments in the Harbor and along shorelines may be contaminated with hazardous substances. Earthwork on such a site could result in a release of hazardous substances into the environment. Projects will complete assessments prior to construction to evaluate the possibility of contamination. The RC PEIS does not consider projects where there is substantial uncertainty about the presence, extent, or character of hazardous substances. Such projects will require additional effects analysis under NEPA.
2. **Conflicts with Water-Dependent Use** – Port Angeles Harbor is an active port. Should a project have effects on the ability of the port of Port Angeles to continue water-dependent use, and these effects are inconsistent with existing shoreline planning, those effects may need to be considered as part of an additional NEPA analysis.
3. **Exceptionally Large or Complex Projects** – The RC PEIS does not consider all project types. Within the action descriptions and effects analysis found within the RC PEIS are thresholds of project size or complexity beyond which the effects of projects have not been evaluated. The Trustees’ Inclusion Analysis will identify projects that exceed these thresholds, and where NEPA regulation requires additional analysis.

4.4.3. Evaluation of the No Action Alternative

NEPA regulation requires consideration of a no-action Alternative. Under a no-action scenario, no federal action would be taken to restore natural resources and services that were lost as a result of the release of hazardous substances and oil into Port Angeles Harbor. The no-action alternative does not meet the purpose and need for planning, nor does it result in recovery of any injured resources and services. Natural attenuation and state-led remediation may result in some reduction in the level of contamination in Port Angeles Harbor. However, the No-Action Alternative would not result in compensation for injuries to

natural resources or services over the period of contamination. Under the No-Action Alternative, some habitat recovery may result from other federal actions (such as an ESA-related activities).

The Trustees evaluated the impacts of the no action/natural recovery alternative on geology and soils, water, air, living coastal and marine resources and Essential Fish Habitat, threatened and endangered species, cultural and historic resources, land use and recreation, and socioeconomics. By definition, the no-action alternative lacks physical interaction with the environment. Accordingly, the no-action alternative would cause no direct impacts to any of the elements of the environment listed above. However, if the Trustees undertook no action, the environment would not benefit from the ecological uplift created by active restoration. In addition, existing habitat conditions may decline under climate change and population growth, or as habitat conditions continue to degrade under conditions of degraded natural processes (e.g., interrupted longshore drift, absence of sediment supply, constricted tidal flow, degraded freshwater quantity and quality, etc.).

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

4.4.4. Cumulative Impacts

Cumulative project impacts with both Alternative A and B would not be significant or occur at a regional scale, and are consistent with those described in the RC PEIS (section 4.9, “Cumulative Impacts”). Because the proposed restoration is restoring natural habitat structure and function, the Trustees expect that there will be long-term, minor to moderate positive cumulative effects on the biological and physical health of the project area under the preferred alternative.

There may be long-term adverse impacts to the physical and biological resources of the project area were the no action alternative selected because the restoration would not occur. Injured natural resources would not return to baseline and the public would not be compensated for interim losses to those resources. However, relative to the magnitude of adverse ecological impacts that currently exist in the affected area, the adverse cumulative impacts of the no action alternative are also not expected to be significant.

4.5. NEPA Determination

The Trustees have determined that the affected environment, activities, and impacts anticipated under the either the preferred alternative (Alternative A) and Alternative B generally fall within the scope of the project descriptions and analyses contained in the RC PEIS sections referenced above. This determination is further documented in the program-level NEPA Inclusion Analysis provided in Appendix B.

As specific restoration actions are identified for funding, the Trustees will conduct project-specific environmental reviews, using a focused Inclusion Analysis, to determine if the scope and impacts of each action are consistent with the RC PEIS. As with all restoration actions, there is the potential for projects to exceed the programmatic analysis, and the Trustees think that the Inclusion Analysis procedures described in Appendix A will effectively identify those actions. Furthermore, for actions that exceed programmatic analysis, additional NEPA analyses and agency and public review may be warranted. The public was invited to provide feedback on the Trustees’ proposed action and alternatives and the analysis conducted in the Damage Assessment and Restoration Plan.

5. Compliance with Other Laws and Regulations

This section identifies and reviews applicable laws and regulations, in addition to CERCLA and NEPA, that may govern restoration actions funded by the Trustee Council. Restoration at Port Angeles will need to comply with federal, state, tribal, and local laws and regulations. There are permitting requirements associated with many of these laws and regulations. The Trustee Council will include review provisions with all funding actions. During this review period, the federal trustees will complete project-specific

NEPA review to ensure projects are consistent with this analysis and the RC PEIS. As part of that review process, the Trustees will verify compliance with applicable federal state and local laws and regulations as described below.

5.1. Federal Laws

Compliance with federal law will be assured through review of project-specific documents. The Puget Sound region has extensive experience with large-scale restoration in federally-regulated aquatic ecosystems. The Trustees anticipate that project proponents will enter their project information into the Washington Department of Fish and Wildlife Aquatic Protection Permitting System (APPS). This service will generate a draft Joint Aquatic Resources Permit Application (JARPA) that the project proponent will complete and subsequently route to applicable state and federal regulators including the US Army Corps of Engineers (USACE). The USACE, in coordination with the Trustees, will ensure federal compliance as part of their review procedures. After issuance of all permits, the Trustees will verify the completion of all federal compliance requirements during their project-specific NEPA review, including consistency with the NEPA analysis described in this Final DARP.

5.1.1. Endangered Species Act (ESA)

The ESA provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The Act is administered jointly by NMFS and the USFWS (The Services). Section 7 of the Act requires that federal agencies consult with The Services if their action may affect endangered and threatened species or destroy or adversely modify designated critical habitat. The section 7 consultation process is designed to prevent or mitigate any “take” of federally-listed threatened or endangered species or adverse modification of their habitats. All trustee-funded projects will complete any required consultations prior to implementation. Qualifying projects will be considered under the PROJECTS BiOp described in section 1.6.3.

5.1.2. Magnuson-Stevens Fishery Conservation and Management Act (MSA)

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires consultation for federal agency actions that may adversely affect Essential Fish Habitat (EFH), which is defined to include “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity” (62 Fed. Reg. 66551, § 600.10 Definitions). NMFS, under section 305(b)(4) of the Act, is required to provide advisory conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. MSA Consultations are typically combined with ESA section 7 consultations to address both ESA and MSA. Qualifying projects will be considered under the PROJECTS BiOp described in section 1.6.3. which includes evaluation of impacts to EFH.

5.1.3. Marine Mammal Protection Act (MMPA)

The Marine Mammal Protect Act prohibits the “take” of marine mammals in US waters and by US citizens on the high seas. NMFS is required to provide permits where exceptions are made to the MMPA. For each trustee-funded project, and where applicable, the Trustees will consult with NMFS about the potential for incidental “take” of species protected under the MMPA to determine if permits need to be obtained.

5.1.4. Coastal Zone Management Act (CZMA)

The Coastal Zone Management Act (CZMA) preserves, protects, develops, and where possible restores or enhances resources of the nation’s coastal zones. During JARPA review, Ecology will evaluate each project for consistency with the Coastal Zone Management Program. Trustees will verify that project designs have received a coastal zone consistency determination during final project-specific NEPA review.

5.1.5. National Historic Preservation Act (NHPA)

The National Historic Preservation Act (NHPA) has the goal of establishing historical and cultural preservation programs within states and tribal governments in order to preserve historic and archeological

sites. Section 106 of the NHPA requires that federal agencies identify and assess the effects its actions may have on historic buildings and cultural resources before action occurs. Project proponents funded by the Trustees will complete a site-specific cultural resources evaluation during design. The federal trustees will consult the appropriate State and Tribal Historic Preservation Officers when cultural resource(s) may be affected by a trustee-funded action. Trustees will verify that project implementation will be consistent with NHPA during final project-specific NEPA review.

5.1.6. Clean Water Act/Rivers and Harbors Act (CWA/RHA)

The Clean Water Act (CWA), 33 U.S.C. §1251 is the principal law governing pollution control and water quality of the nation's waterways. It requires the establishment of guidelines and standards to control the direct or indirect discharge of pollutants to waters of the United States. Discharges of *any* material into navigable waters are regulated under sections 401 and 404 of the CWA. The US Army Corps of Engineers (USACE) has the primary responsibility for administering the section 404 permit program. Under section 401, projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards and receive state water quality certification. Projects funded by the Trustees will be required to obtain authorization from the USACE under section 404 of the CWA.

The Rivers and Harbors Act, 33 USC 401, et seq. regulates the development and use of navigable waterways within the United States. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters. It gives the US Army Corps of Engineers the authority to regulate discharges of fill and other materials into such waters. Actions that require section 404 Clean Water Act permits may also require permits under section 10 of this Act.

Most funded projects are likely to occur within waters of the US. Project proponents will seek regulatory review by USACE during project design. The Trustees will verify compliance with CWA and RHA during a final project-specific NEPA review.

5.1.7. Fish and Wildlife Coordination Act (FWCA)

The Fish and Wildlife Coordination Act (FWCA) requires USFWS and NMFS to consult with other state and federal agencies in a broad range of situations to help conserve fish and wildlife populations and habitats in cases where federal actions affect natural water bodies. The federal trustees work in close coordination with state and federal resource agencies through all aspects of the Port Angeles NRDA process, including restoration project selection.

5.1.8. Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act prohibits the "take" (including killing, capturing, selling, trading, and transport) of protected migratory bird species. It is implemented by the USFWS and is meant to ensure the sustainability of populations of protected migratory bird species based on international conservation treaties that the US entered into with Canada, Mexico, Japan, and Russia. USFWS serves as a federal trustee on the Port Angeles Trustee Council. If protected migratory bird species may be affected by funded restoration projects the Trustees will confirm that the project proponent has appropriately consulted and complied with guidance from USFWS during the project-specific NEPA review.

5.1.9. Clean Air Act (CAA)

The Clean Air Act (CAA) regulates air emissions through the US Environmental Protection Agency (EPA) and National Ambient Air Quality Standards (NAAQS). Implementation of restoration projects within the preferred alternative will abide by the CAA standards. The Trustees do not anticipate direct consultation with EPA, but rather a project-specific consideration of effects under the State Environmental Policy Act (SEPA) by the state action agency, and adherence to construction management standards and practices promulgated by state and local authorities.

5.2. Executive Orders, Memoranda, and Guidelines

In addition to the regulatory programs described above, during evaluation for funding and again during project-specific NEPA review, Trustees will consider consistency with executive orders, memoranda and guidelines.

5.2.1. Executive Order 11988: Floodplain Management

This order, issued by President Carter on May 24, 1977, requires each federal agency to provide opportunity for early public review of any plans or proposals for actions in floodplains, in accordance with section 2(b) of Executive Order 11514, as amended, including the development of procedures to accomplish this objective. Ecology, a state trustee on the Port Angeles Harbor Trustee Council, regulates floodplains in the State of Washington. Floodplain effects are specifically considered in both state and local procedures and memorialized by SEPA documentation.

5.2.2. Executive Order 11990: Wetland Management

This order, issued by President Carter on May 24, 1977, requires each agency to provide opportunity for early public review of any plans or proposals for new construction in wetlands, in accordance with section 2(b) of Executive Order 11514, as amended, including the development of procedures to accomplish this objective. Change in wetland area and function is subject to review by federal, state, and local regulatory agencies. The Trustees may fund actions that restore wetland area or function and will provide opportunities for early public review.

5.2.3. Executive Order 12898: Environmental Justice, as amended

This order, issued by President Clinton On February 11, 1994, requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. EPA and the Council on Environmental Quality (CEQ) have emphasized the importance of incorporating environmental justice review in the analyses conducted by federal agencies under NEPA and of developing mitigation measures that avoid disproportionate environmental effects on minority and low-income populations.

The Trustees do not anticipate any disproportionate adverse impacts on human health or environmental effects of funded restoration projects on minority or low-income populations, and conclude that these projects will be beneficial to these communities. Funded projects are anticipated to enhance natural resources promised to sovereign tribal nations under federal treaty.

5.2.4. Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment.

This memorandum, implemented in 2015, states the importance of mitigating adverse impacts to land, water, wildlife, and other ecological resources. It emphasizes the need for clear and consistent approaches to avoid and minimize adverse impacts and provide for compensatory mitigation. The settlement and restoration program is anticipated to be consistent with this memorandum and related guidance. This DARP uses methods that are consistent within the Port Angeles Harbor NRDA and applies standard practices and methods used regionally in the quantification of natural resource damages.

5.2.5. Information Quality Guidelines issued Pursuant to Public Law 106-554.

Information disseminated by federal agencies to the public after October 1, 2002, is subject to information quality guidelines developed by each agency pursuant to section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of such information (e.g., the objectivity, utility, and integrity of such information). This document is an information product covered by the information quality guidelines established by NOAA and DOI for this purpose. The information collected herein complies with applicable guidelines.

5.2.6. Executive Order 11514 (35 Fed. Reg. 4247) – Protection and Enhancement of

Environmental Quality

This Executive Order directs federal agencies to monitor, evaluate, and control their activities in order to protect and enhance the quality of the nation's environment; to inform and seek the views of the public about these activities; to share data gathered on existing or potential environmental problems or control methods; and to cooperate with other governmental agencies. This document is the product of intergovernmental cooperation and will protect and enhance the environment. The restoration planning process has and continues to provide the public with information about the restoration efforts.

5.2.7. Executive Order 13007 – Indian Sacred Sites, and Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments

Executive Order 13007 describes federal policy for accommodating sacred Indian sites. This Executive Order requires federal agencies with statutory or administrative responsibility for managing federal lands to: 1) accommodate access to and ceremonial use of Indian sacred sites by Indian religions practitioners; 2) avoid adversely affecting the physical integrity of such sacred sites; and 3) maintain the confidentiality of these sacred sites. Executive Order 13175 exists to: 1) promote regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications; 2) strengthen the United States government-to-government relationships with Indian tribes; and 3) reduce the imposition of unfounded mandates upon Indian tribes. Three federally recognized tribal nations with usual and accustomed use of the Harbor protected by federal treaty are represented on the Port Angeles Trustee Council. As part of the planning process for individual projects, the Trustees are aware of specific sacred sites within the Harbor and are coordinating closely with federally-recognized Indian tribes.

5.2.8. Executive Order 12962 (60 Fed. Reg. 30,769) – Recreational Fisheries.

This Executive Order directs federal agencies to, among other things, foster and promote restoration that benefits and supports viable, healthy, and sustainable recreational fisheries. Settlement-funded restoration actions are anticipated to benefit recreational fish species and their prey.

5.2.9. Executive Order 13112 (64 Fed. Reg. 6,183) – Invasive Species

The purpose of Executive Order 13112 is to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause. The Trustees will evaluate the degree to which a funded project presents a risk of invasive species introduction during project-specific review. Funded projects are required to follow best management practices to avoid such introduction. The Trustees will implement a monitoring and adaptive management strategy to reduce the risk of spreading invasive species as described in section 6.

5.3. Compliance with State and Local Laws

5.3.1. Model Toxics Control Act (MTCA)

MTCA is Washington State's toxic clean-up law, is the state equivalent of the federal Superfund program, and is managed by the Department of Ecology. The statewide regulations establish cleanup standards and requirements for managing contaminated sites. Ecology is a participant in the NRDA process as a member of the Port Angeles Harbor Trustee Council. Western Port Angeles Harbor and the former Rayonier Mill are state-led cleanup sites. The former Rayonier Mill cleanup is subject to participation by the Lower Elwha Klallam Tribe based on a set of agreements under which EPA deferred its cleanup role to Ecology. The Trustees will integrate compliance with the Model Toxics Control Act within their project evaluation and decision-making process.

5.3.2. State Environmental Policy Act (SEPA)

State Environmental Policy Act (SEPA), Chapter 43.21C RCW and Chapter 197-11 WAC. SEPA sets forth the state's policy for protection and preservation of the natural environment. Local jurisdictions must also implement the policies and procedures of SEPA. Each project will undergo a public comment period under

SEPA requirements and the SEPA analysis and determination. Any public comment period, as appropriate, will become a part of the administrative record for each project.

5.3.3. Hydraulic Projects Approval (HPA)

Washington State law (RCW 77.55) requires people planning projects in or near state waters to acquire a Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW). This includes most marine and fresh waters. An HPA ensures that construction is done in a manner that protects fish and their aquatic habitats. Project proponents will apply for an HPA during project permitting, and the Trustees will verify compliance during project-specific NEPA review.

5.3.4. Local Ordinances

A range of regulatory authorities are delegated by the state to local jurisdictions including the City of Port Angeles and Clallam County. During project design, a project proponent will complete consultations with relevant local authorities as part of the JARPA review process. In some cases, local permit review may be reduced for projects qualifying for a fishery enhancement exemption. The Trustees will verify compliance with local regulations prior to construction as part of project-specific NEPA review. The Trustees anticipate projects within the City of Port Angeles may need to consider the following requirements:

City of Port Angeles Wetlands Permit - Wetlands of Port Angeles are protected along with surrounding land referred to as a wetland buffer. A permit is required to operate within the wetland buffer, which is designated based on the size, quality, and characteristics of the wetland. All trustee-funded projects will consult with the City of Port Angeles as necessary to obtain a permit if operating within a wetland or wetland buffer.

City of Port Angeles Environmentally Sensitive Areas - Environmentally Sensitive Areas, such as streams and floodplains, hazardous slopes, habitat for priority species, or frequently flooded areas, are all protected by the City of Port Angeles. Development proposals in these areas require project review and may necessitate a permit. Restoration projects within the preferred alternative will apply for permits if operating within an Environmentally Sensitive Area.

City of Port Angeles Shoreline Master Program – Development projects in shoreline areas are categorized and need permits based on a city-managed land use plan. Projects within 200 feet upland of the Ordinary High Water Mark on marine waters must be consistent with Shoreline Master Program policies and regulations (Chapter 15.08 PAMC).

City of Port Angeles Clearing, Grading, Filling and Drainage Permit – The city of Port Angeles requires permits for projects that propose excavation, grading, clearing, filling, tree-cutting, or large land disturbances of 7000 square feet or more.

6. Monitoring and Adaptive Management Planning

The Trustees have developed a restoration funding program based on an ecosystem-based framework to benefit natural resources injured by the releases of hazardous substances into Port Angeles Harbor by six potentially responsible parties. This funding program is based on an estimate of the costs of restoration as described in section 2.3, which includes costs for project evaluation, long-term stewardship, and trustee oversight, in addition to design and construction. The Trustees will implement three monitoring and management efforts to ensure the effectiveness of this restoration program.

6.1. Trustee Program Monitoring

The Trustees have agreed to a cash settlement based on an estimate of the cost of restoration. The Trustees' overall restoration costs include costs to support trustee oversight. The Trustees will develop a MOU that allows for clear delegation of responsibility, efficient reporting and oversight, careful monitoring of all trustee costs, and the judicious use of quantitative monitoring that supports the Trustees' assumptions for

restoration program efficiency. Trustee financial performance in implementation of the restoration program will be part of the administrative record.

6.2. Project-Specific Adaptive Management

As part of project design for each funded action, the Trustees will develop and publish an adaptive management strategy. That strategy will allow the Trustees to determine if a project is meeting the goals, objectives, and target attributes developed during restoration design. Each restoration site will be designed, installed, and managed towards a defined target state, based on reference conditions found on one or more fully functioning native ecosystems. Each project will undergo a performance period, where the Trustees will use monitoring and management to maximize the performance of the project site.

Project-specific monitoring will consider the stressors anticipated to affect the restoration site, the recovery of physical and biological attributes and components, and the recovery of physical and biological processes and functions. A suite of indicators will be developed to determine if the project is on a trajectory that ensures recovery of ecosystem functions, goods, and services. The Trustees will focus on indicators that guide management and allow for early adjustment of restoration treatments. Monitoring design will consider the most cost-effective method of making useful observations. The frequency and intensity of observations will be designed to achieve restoration outcomes.

For example, were the Trustees to complete a shoreline planting, monitoring would begin during construction, because soil conditions are critical for recovery of native vegetation, and are best remedied during construction. Observation during the establishment period would include frequent qualitative observation of stress and survival, rather than quantitative observation of vegetative cover. This is because cover estimates are an expensive and imprecise method of observing planting success during initial years and consumes resources that could be applied to project management. By contrast, timely observation of stress can result in improved management that increases performance at lower cost.

6.3. Integrated Monitoring, Stewardship and Maintenance

The Trustees expect to identify a local restoration partner who can provide monitoring, stewardship, and management services. The integration of these services allows for more cost-effective and rapid management response on active restoration sites. Should restoration funding result in work on multiple sites, the Trustees anticipate that all NRDA restoration activities within Port Angeles Harbor may benefit from integrated monitoring, stewardship, and maintenance from a local actor or team of actors in the vicinity of Port Angeles Harbor.

The Trustees will develop a long-term stewardship effort to support funded actions. The Trustees will tailor the long-term stewardship mechanisms to match the project type and ensure project performance over a planned project service life. Project sites will be encumbered with a legal instrument that protects against land use incompatible with restoration. The Trustees will develop a durable financial instrument, such as an investment account held by a fiscal trustee, with annual disbursements to a local restoration agent to monitor site conditions and guide restoration sites towards target conditions, in collaboration with local communities.

7. List of Preparers, Agencies, and Persons Consulted

The Following individuals were involved in development of this Damage Assessment and Restoration Plan.

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Appendix A – RC PEIS Inclusion Analysis Methods

The following NOAA RC Project Award and Environmental Compliance Analysis Process is an excerpt from the NOAA Restoration Center programmatic environmental impact statement (2015).

Appendix A. NOAA RC Project Award and Environmental Compliance Analysis Process

1. NOAA CRP and Related Grants Award Process

The NOAA RC has a number of ways to implement the restoration activities outlined in the alternatives presented in this PEIS. NOAA staff is available and can provide technical assistance to prospective project applicants, existing restoration partners, or other government agencies. On-the-ground coastal and riparian restoration activities can be implemented via competitive or non-competitive grants and cooperative agreements, competitive or non-competitive contracts, or strategic partnerships with external organizations. The majority of the NOAA RC's current and historic project portfolio has been implemented via cooperative agreements, sub-awards under cooperative agreements with funded partners, and less often, through grants and contracts.

Funding decisions of individual restoration actions are made primarily, as mentioned above, through competitive cooperative agreement, grant and contracting processes and public solicitations. During this process reviewers assess each application using published evaluation criteria specific to the given competition. The criteria may vary between competitions but are based on restoration priorities and strategies determined by the agency (NOAA) and the NOAA RC. Priorities may be as general as agency-wide planning focus areas (such as those provided in Annual Guidance Memoranda¹⁰), line office-level prioritization, or other restoration priorities.

Project information including information needed to complete NEPA review is generally gathered through a proposal process. For cooperative agreements awarded by NOAA, the process is as follows:

- The NOAA RC announces a Federal Funding Opportunity, which includes requirements for information pertaining to NEPA compliance¹¹.
- Applicant organizations prepare and submit proposal applications.
- Once the NOAA RC receives all applications and the deadline for submission of applications has expired, the NOAA RC evaluates each application based on the standard criteria for NOAA competitive grant programs. Standard criteria may evolve over time depending on the priorities of a given solicitation; however, the general categories (including importance and applicability of the proposal, technical and scientific merit, overall qualifications of the applicants, project costs, and community involvement considerations) typically remain intact. The technical and scientific merit section specifically references the adequacy of the information submitted to ensure NEPA compliance.
- The NOAA RC decides on a suite of projects to recommend for funding, based on the scores from the proposal evaluation.

¹⁰ Annual Guidance Memoranda aim to focus agency attention on near-term execution challenges and a balanced implementation of NOAA's strategy across mission areas given our mandates, stakeholder priorities, and the fiscal outlook.

¹¹ Federal Funding Opportunities are published on Grants.gov and prior examples are on file with the CRP.

- The local NOAA RC staff document site-specific project information and impacts and determine the mechanism to ensure NEPA compliance for each recommended project, including whether a project has adverse effects beyond the scope of those analyzed here, including significant adverse impacts, and will require an individual NEPA document. The process is described in Section 3 of this appendix, below.
- A final funding decision is made by the NOAA Grants Management Division after the review process described here is complete.
- In accordance with the Department of Commerce Standard Terms and Conditions, the Grants Officer may apply special award conditions that withhold funds from the award recipient until NEPA review is complete. In these instances, NOAA RC staff first document NEPA compliance for the action of awarding the funds and any initial activities the grantee needs to do to obtain further environmental data, and then completes a second “phase” of review to determine the potential significance of on the ground activities, once data is in hand. The NOAA RC documents and ensures compliance with permits or consultation as needed with special award conditions and a description included in the decision document prepared for the Administrative Record.

Some NOAA RC projects are funded through the federal acquisition process, under a contract. In those instances, formal Notices to Proceed on work are not issued until NOAA staff confirm that NEPA review and any necessary consultations with NMFS or USFWS have been completed, and all permits are in hand.

2. *DARRP Process*

The NOAA RC intends to follow a similar NEPA process as described above to address DARRP projects that fit within the descriptions of restoration actions and related impacts analyzed in this PEIS. The DARRP restores natural resources after oil spills, releases of hazardous substances, and other physical impacts, such as ship groundings on coral reefs. After damage occurs, the Restoration Center engages in restoration actions including emergency restoration, restoration planning, primary restoration, compensatory restoration, and long-term stewardship. This PEIS can be applied to DARRP actions, including:

- When NEPA analysis is required to implement emergency restoration actions (prior to issuance of a final restoration plan);
- When NEPA analysis is required for any part of the planning process itself;
- When a draft restoration plan is completed, the proposed projects can be evaluated against this PEIS. If the project activities and impacts are described within the PEIS, then the final restoration plan will tier to this PEIS, and no additional NEPA analysis is needed; and
- When a final restoration plan is completed, there are instances in which some proposed actions are lacking detail required to complete NEPA analysis and/or the analysis of impacts changes prior to implementation. The restoration plan will clarify the individual actions that will not be implemented until details are developed and NEPA analysis is completed. In these instances, this PEIS could be tiered to complete the NEPA analysis, or, as needed, additional NEPA analysis (outside of this PEIS) may be required.

- There are occasions where a programmatic restoration plan identifies categories of projects that would be suitable for the restoration requirements in a given case but does not select specific projects. The programmatic restoration plan will clarify that individual actions will be selected and implemented subsequently and will be subject to completion of a NEPA analysis. In these instances, this PEIS could be tiered to complete the NEPA analysis, or, as needed, additional NEPA analysis (outside of this PEIS) may be required.

3. Process for Determining Required Level of NEPA Analysis

A process to analyze project-specific impacts and create an administrative record for projects included under the PEIS analysis will be implemented by the NOAA RC. In order to avoid duplication of effort, when other offices, divisions, and programs outside the NOAA RC fund projects of similar scale and type as those described in the PEIS, they may choose to use the PEIS as the basis for their NEPA review, as appropriate, in accordance with the policies and procedures applicable to that office.

Documentation

Projects determined to meet the project and impact descriptions in this PEIS, and which need no further NEPA analysis, will be documented in the RC Program Record. The Program Record will include a checklist, a memorandum, and/or other electronic files for each project, approved by the RPM or designee. Program Record documents will:

- Help determine whether the activities of a project and its actual impacts do or do not exceed those that are described in this PEIS, including any additional considerations for those complex project types that are most likely to fall outside the PEIS analysis, identified in Table 10.
- For projects that are not fully described, including those which will result in significant adverse impacts, the document informs the tiering process by bringing to the forefront those activities and impacts not covered by this programmatic EIS.
- Record the total number of actions covered by this programmatic EIS, which can be used to monitor the validity and currency of the analysis, ensuring an appropriate lifespan for the document.

The final format of the Program Record may be paper or electronic, and may contain checklists, memoranda, and/or spreadsheets and databases, but will include the following content.

- I. Identifying Project Information
- II. Other Federal Partners and their Level of NEPA Review
- III. Description of Project and Scope of Activities for Analysis
 - a. Project activity and site description
 - b. Is the full project being analyzed, or does the current analysis only cover the impact of planning and design, so that information can be gathered for a later full analysis?
- IV. Project Impact Analysis
 - a. Core Questions- To be addressed for all restoration activities

- i. Are the activities to be carried out under this project fully described in Section 2.2 of the NOAA RC PEIS? [A “No” response indicates a project falls outside the PEIS analysis.]
 - ii. Are the impacts that are likely to result from this project fully described in Section 4.5.2 of the NOAA RC PEIS?
 1. Will the project have significant impacts? [A “Yes” response indicates a project falls outside the PEIS analysis.]
 2. Does the level of adverse impact from the restoration activity exceed that described in Table 11 of the NOAA RC PEIS? [A “Yes” response indicates a project falls outside the PEIS analysis.]
 - iii. Describe the project impacts to resources (including beneficial impacts) and any mitigating measures being implemented.
 - iv. Describe any potential cumulative impacts that may result from past, present or reasonably foreseeable future actions (beneficial or negative).
 - v. Describe the opportunities for public outreach and/or comment that have taken place to this point. Are any future opportunities for public input anticipated?
 - vi. Have any public comments raised issues of scientific controversy? Please describe.
 - vii. Describe the most common positive and negative public comments on issues other than scientific controversy described above.
- b. Supplemental Questions- To be addressed based on project type
- i. Beach and Dune Restoration
 1. Describe the volume of sediment being moved and the length of the beach/dune being restored. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?
 2. Describe the impacts to the borrow location and any impacts caused by the borrow material. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?
 - ii. Debris Removal
 1. Are contaminants or other hazardous materials being removed from the environment? If so, how are they being disposed of?
 - iii. Dam and Culvert Removal, Modification, or Replacement
 1. 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.
 2. Will the restored river channel be in the same location as the original channel? Please describe any changes.
 3. Are there contaminated sediments behind the dam? Describe the disposal method (i.e., will these be released downstream or taken off-site)?
 4. Describe the anticipated changes to the flood zone.
 - iv. Technical and Nature-like Fishways

1. Describe the amount and type of sediment in the reservoir behind the dam. Compare it to the stream's usual sediment load.
 2. Will the restored river channel be in the same location as the original channel? Please describe any changes.
 3. Are there contaminated sediments behind the dam? Describe the disposal method (i.e., will these be released downstream or taken off-site)?
 4. Describe the anticipated changes to the flood zone.
 - v. Prescribed Burns and Forest Management
 1. Describe the size of the burn to be conducted. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?
 2. Describe the natural fire regime of the ecosystem and how the planned burn matches that regime.
 - vi. Species Enhancement
 1. Describe the precautions taken to prevent the release of disease or invasive species.
 - vii. Artificial Reef Restoration
 1. Describe the artificial reef materials being deployed. How is it consistent with the types and impacts of the artificial reefs presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?
 - viii. Levee and Culvert Removal, Modification and Set-back
 1. Describe the extent and the height of the levee/culvert targeted in the restoration project. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?
 - ix. Conservation Transactions
 1. Is the land or water right acquisition being implemented as a result of eminent domain or some other court-ordered expropriation?
 2. Describe the anticipated owner and funds being used to purchase the land or water transaction.
- V. NEPA Recommendations to RPM or Designee
- a. The action is completely covered by the impact analysis within the NOAA RC PEIS.
 - b. At this time funding will be limited to those portions of the action and impacts analyzed in the NOAA RC PEIS. [For funding feasibility and design.]
 - c. The action or its impacts are not covered by the analysis within the PEIS.
 - i. The project action or impacts are not described but are not significant. A tiered EA will be written.
 - ii. The project impacts are significant, and an EIS will be written.

The administrative record for projects that fall under recommendation V.c. will follow NAO 216-6 and the Office of Habitat Conservation Quality Assurance Plan (QAP).

Agency Review and Public Notification

As described in the National Marine Fisheries Service Policy Directive 30-131: Delegation of Authority for Completing NEPA Documents, the NOAA RC will consult with the NMFS NEPA Coordinator regarding the level of NEPA analysis for any federal action. This includes all projects determined by the NOAA RC to fall under the analysis within this PEIS. When offices outside NMFS use this PEIS as the basis of their analysis, they will follow relevant policies for NEPA consultation and concurrence, and are requested to notify the NOAA RC so that the RC may track the total number and types of actions covered under the PEIS in the RC Program Record. The public will be notified of the projects that the NOAA RC determines to be included under the PEIS analysis on the NOAA RC website.

Projects where the action or impacts are not described, or that have significant adverse impacts, will result in an individual NEPA document and the agency review and public involvement procedures for those documents will follow NAO 216-6 and the Office of Habitat Conservation Quality Assurance Plan (QAP).

Appendix B – Inclusion Analysis for Final DARP

The following form is an inclusion analysis, consistent with the NOAA Restoration Center programmatic environmental impact statement (2015). This analysis describes how this restoration plan is consistent with the NOAA Restoration Center programmatic environmental impact statement (2015), and does not require additional analysis under the National Environmental Policy Act (NEPA). Funding actions completed under the Program will require project-specific NEPA analysis as described in this plan.

NOAA Restoration Center NEPA Inclusion Analysis

Award Number

I. IDENTIFYING PROJECT INFORMATION

Project Name Western Port Angeles Harbor - Final Damage Assessment and Restoration Plan		Project State WA
Project Proponent / Applicant The Port Angeles Harbor Natural Resource Trustees, including NOAA and DOI		Project Contact Paul Cereghino

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	N/A

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

The Port Angeles Harbor Natural Resource Trustees, including NOAA and DOI, propose to implement the Port Angeles Harbor Restoration Program (Program). The Program will provide funding for ecosystem-based restoration actions, implemented by local restoration partners. The Trustees will cultivate, solicit and evaluate opportunities for restoration, and provide funding for actions that benefit natural resources that have been affected by contamination in the harbor. A Trustee, acting as a restoration agent, may propose projects for funding. As part of this overall proposed action the Trustees anticipate that funding decisions will directly result in on-the-ground restoration actions.

The Inclusion Analysis provides a general program-level analysis of potential impacts from a suite of potential restoration actions envisioned by the Trustees as part of the Port Angeles Harbor Restoration Program. As project-specific actions are identified for funding, they will be subsequently evaluated with a more focused Inclusion Analysis to determine consistency with the RC PEIS. If during these subsequent NEPA evaluations it is determined that a proposed restoration project is not consistent with the RC PEIS effects analysis or has impacts exceeding those described in the RC PEIS, additional NEPA analyses will be conducted—likely in the form of an EA, which would be subject to public review.

The project is fully described in the Final Damage Assessment and Restoration Plan (DARP).

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

The proposed action (preferred alternative) is "Trustee-managed Restoration Program". The Trustees anticipate the funding of on-the-ground actions, and supporting technical assistance activities (planning, feasibility studies, design engineering and permitting processes; implementation and effectiveness monitoring; fish and wildlife monitoring; and environmental education), to modify the ecosystem, recover lost ecosystem services, and thereby make the public whole for damages caused by the release of hazardous substances. The following on-the-ground actions could reasonably be part of a restoration program to compensate for injuries sustained in Western Port Angeles Harbor: Beach and Dune Restoration; Debris Removal; Sediment/Materials Placement; Fish Passage; Invasive Species Control; Native Plantings and Forest Management; Channel Restoration including Bank Restoration; Signage and Access Management; Subtidal Planting; and Wetlands Restoration.

A non-preferred alternative, "Harbor-Focused Grant Fund in Existing Restoration System", and a no-action alternative are described in the Final DARP. With no-action, no additional active restoration or recovery of lost natural resources would occur.

Check the types of activities being conducted in this project:

Technical Assistance		
<input checked="" type="checkbox"/> Implementation and Effectiveness Monitoring	<input checked="" 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 checked="" type="checkbox"/> Feasibility Studies <input checked="" type="checkbox"/> Permitting and Consultations <input checked="" type="checkbox"/> Engineering and Design <input type="checkbox"/> Other (enter here)

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

Conservation Transactions		
<input type="checkbox"/> Land Acquisition	<input type="checkbox"/> Water Transactions	<input type="checkbox"/> Restoration/Conservation Banking

IV. PROJECT IMPACT ANALYSIS

Core Questions	
1. Are the activities 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 impacts 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.

This Inclusion Analysis provides a general program-level analysis of Alternatives A and B, including the on-the-ground restoration activities and supporting technical assistance that the Trustees envision for those alternatives, as discussed in the Draft DARP. As project-specific restoration actions are identified for funding as part of the "Trustee-managed Restoration Program" (preferred alternative), a more focused and detailed environmental review and Inclusion Analysis will be conducted for each proposed action, as needed.

The Consent Decree defines a single \$9.3 million dollar payment, to compensate the public for damages caused by the alleged releases of hazardous substances in Western Port Angeles Harbor over the period of CERCLA authority. This payment will also compensate the public for costs incurred by the Trustees over the damage assessment phase, and will fund Trustee implementation of the Program.

1. Alternative A ("Trustee-managed Restoration Program") and Alternative B ("Harbor-Focused Grant Fund in Existing Restoration System") -- Both the preferred alternative (Alternative A) and Alternative B (non-preferred) would have very similar effects on the human environment (the no action alternative is considered separately). Both Alternatives A and B would fund restoration actions in Western Port Angeles Harbor and the surrounding landscape. Both alternatives would fund actions based on an ecosystem-based approach, and attempt to generate the most cost-effective portfolio of projects. As such, the impacts analysis summarized below applies to both alternatives.

The on-the-ground restoration effort anticipated under both alternatives may include beach and dune restoration; debris removal; sediment/materials placement; fish passage; fish, wildlife, and vegetation management; channel restoration and bank restoration; signage and access management; subtidal planting; and wetland restoration. Project impacts can be found in section 4.0 of the RC PEIS (Environmental Consequences), and more specifically, in section 4.5.2.1 and Table 16 (Beach and Dune Restoration), in section 4.5.2.2 and Table 17 (Debris Removal), in section (Sediment/materials Placement) in section 4.5.2.3 and Table 18 (Fish Passage), in section 4.5.2.4 and Tables 20 and 22 (Fish, Wildlife, and Forest Management), in sections 4.5.2.5.1 and 4.5.2.5.2 and Tables 23 and 24 (Channel Restoration and Bank Restoration), in sections 4.5.2.8 and Table 11 (Signage and Access Management), in section 4.5.2.9 and Table 30 (Subtidal Planting) and in section 4.5.2.11 and Tables 33, 34, and 35 (Wetland Restoration). With both alternatives, the Trustees may engage in "technical assistance" activities to support on-the-ground restoration activities. Technical assistance may include planning, feasibility studies, design engineering and permitting processes; implementation and effectiveness monitoring; fish and wildlife monitoring; and environmental education programs and construction of access or interpretive features that accompany restoration actions. Potential impacts are summarized below and are also provided in section 4.5 (Environmental Consequences) and Table 11 in the RC PEIS

-- On-the-Ground Restoration

Core Questions (continued)

Beach and Dune Restoration:

Beach and dune restoration could have direct, long-term, moderate beneficial impacts on geology and soils that would be localized. These activities could have direct, long-term, major beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have indirect, short-term, minor beneficial impacts on land use and recreation that would be localized. These activities could have direct and indirect long-term, moderate beneficial impacts on socioeconomics that would be localized. These activities could have direct, short-term, moderate adverse impacts on geology and soils, water, air that would be localized. These activities could have direct, short-term, minor adverse impacts on living coastal and marine resources and EFH beyond the project site. These activities could have direct and indirect, short-term, minor adverse impacts on threatened and endangered species beyond the project site. These activities could have direct and indirect, long-term, minor adverse and beneficial impacts on socioeconomics that would be localized.

Debris Removal:

Debris removal could have direct, long-term, minor, beneficial impacts on geology and soils that would be localized. These activities could have direct, long-term, moderate, beneficial impacts on water that would be localized. These activities could have indirect, long-term, moderate, beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, long-term, minor beneficial impacts on land use and recreation and direct, short-term and long-term, minor beneficial impacts to socioeconomics that would be localized. These activities could have direct, short-term, minor adverse impacts on air beyond the project site. These activities could have direct, short-term, minor impacts on living coastal and marine resources and EFH and cultural and historic resources that would be localized. These activities could have direct and indirect, short-term, moderate adverse impacts on threatened and endangered species beyond the project site.

Fish Passage:

Dam and culvert removal, modification, or replacement projects could have direct and indirect, long-term, moderate beneficial impacts on geology and soils beyond the project site. These activities could have direct, long-term, moderate beneficial impacts on water beyond the project site. These activities could have direct, long-term, major beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, permanent, major beneficial impacts on cultural and historic resources that would be localized. These activities could have direct, long-term, moderate beneficial impacts on land use and recreation beyond the project site. These activities could have indirect, long-term, moderate beneficial impacts on socioeconomics that would be localized. These activities could have direct and indirect, short-term and long-term, minor and moderate adverse impacts on geology and soils that would be localized. These activities could have direct, short-term, minor adverse impacts on water and air beyond the project site. These activities could have direct and indirect, short-term, moderate adverse impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, long-term, moderate adverse impacts on cultural and historic resources that would be localized. These activities could have direct, long-term, minor adverse impacts on land use and recreation beyond the project site.

Invasive Species Control:

Invasive species control activities could have direct, long-term, moderate beneficial impacts on geology and soils that would be localized. These activities could have direct, long-term, moderate beneficial impacts on air beyond the project site. These activities could have direct, long-term, major beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, short-term, moderate adverse impacts on geology and soils, air, and land use and recreation that would be localized. These activities could have direct, short-term, moderate adverse impacts on water beyond the project site. These activities could have direct, short-term, moderate adverse impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site.

Forest Management/Native Species Enhancement:

Native species enhancement and plantings as part of a forest management strategy could have direct, long-term, moderate beneficial impacts on geology and soils that would be localized. These activities could have direct and indirect, long-term, moderate beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, short-term, moderate adverse impacts on geology and soils that would be localized. These activities could have direct and indirect, short-term, moderate adverse impacts on water that would be localized. These activities could have direct, short-term, minor adverse impacts on air beyond the project site. These activities could have direct, short-term, minor adverse impacts on living coastal and marine resources and EFH, threatened and endangered species, cultural and historic resources, and socioeconomics that would be localized. These activities could have direct, short-term, moderate adverse impacts on land use and recreation beyond the project site.

Channel Restoration:

Channel restoration activities could have direct, long-term, moderate beneficial impacts on living coastal and marine resources and EFH, threatened and endangered species, and land use and recreation beyond the project site. These activities could have indirect, short-term and long-term, minor and moderate beneficial impacts on socioeconomics that would be localized. These activities could have direct, short-term, minor adverse impacts on geology and soils that would be localized. These activities could have direct, short-term, minor adverse impacts on water, air, and land use and recreation beyond the project site. These activities could have direct and indirect, short-term, minor and moderate adverse impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct and indirect, short-term and long-term, minor adverse impacts on cultural and historic resources that would be localized.

Bank Restoration:

Bank restoration activities could have indirect, long-term, moderate beneficial impacts on water beyond the project site. These activities could have direct, long-term, moderate beneficial impacts on living coastal and marine resources and EFH, threatened and endangered species, and land use and recreation beyond the project site. These activities could have indirect short-term and long-term, minor and moderate beneficial impacts on socioeconomics that would be localized. These activities could have direct, short-term, minor adverse impacts on geology and soils that would be localized. These activities could have direct, short-term, minor adverse impacts on water and land use and recreation beyond the project site. These activities could have direct, short-term, minor adverse impacts on air that would be localized. These activities could have direct and indirect, short-term, minor and moderate adverse impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct and indirect, short-term and long-term, minor adverse impacts on cultural and historic resources that would be localized.

Signage and Access Management:

Signage and access management activities could cause direct, long-term, moderate beneficial impacts on geology and soils and water that would be localized. These activities could cause direct, long-term, moderate beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could cause direct, short-term, minor adverse impacts on geology and soils, water, and air that would be localized. These activities could cause direct and indirect, short-term, minor adverse impacts on threatened and endangered species that would be localized. These activities could cause direct and indirect, long-term, minor adverse impacts on land use and recreation that would be localized.

Subtidal Planting (Submerged Aquatic Vegetation):

Subtidal plantings could cause indirect, long-term, minor beneficial impacts on geology and soils, water, and socioeconomics that would be localized. These activities could have indirect, long-term, minor and moderate beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, long-term, minor and moderate beneficial impacts on land use and recreation that would be localized. These activities could have direct, short-term, minor adverse impacts on geology and soils and water that would be localized. These activities could have direct, short-term, minor and moderate adverse impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, long-term, minor adverse impacts on cultural and historic resources that would be localized.

Wetlands Restoration and Shoreline Stabilization (includes Sediment/Materials Placement):

Levee and culvert removal, modification, and set-back associated with wetlands restoration could have direct, long-term, major beneficial impacts on water beyond the project site. These activities could have indirect, long-term, moderate beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct, short-term, minor adverse impacts on geology and soils and water that would be localized. These activities could have direct, short-term, minor adverse impacts on air beyond the project site. These activities could have direct and indirect, short-term, moderate adverse impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have indirect, long-term, minor adverse impacts on cultural and historic resources and land use and recreation that would be localized.

Wetland restoration and shoreline stabilization techniques, including sediment removal and sediment/materials placement, could have indirect, long-term, moderate beneficial impacts on water beyond the project site. These activities could have direct, short-term and long-term, moderate beneficial impacts on living coastal and marine resources and EFH beyond the project site and direct, long-term, moderate beneficial impacts on threatened and endangered species beyond the project site. These activities could have indirect, permanent, minor beneficial impacts on land use and recreation beyond the project site. These activities could have indirect, short-term, minor beneficial impacts on socioeconomics beyond the project site. These activities could have direct, short-term, minor adverse impacts on geology and soils and water that would be localized. These activities could have

direct, short-term, minor adverse impacts on air beyond the project site. These activities could have indirect, short-term, minor and moderate adverse impacts on living coastal and marine resources and EFH beyond the project site. These activities could have direct and indirect, short-term, minor and moderate adverse impacts on threatened and endangered species beyond the project site. These activities could have indirect, long-term, minor adverse impacts on cultural and historic resources and land use and economics that would be localized.

Wetland planting associated with wetlands restoration could have indirect, long-term, moderate beneficial impacts on water beyond the project site. These activities could have direct, long-term, moderate beneficial impacts on living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have indirect, permanent, minor beneficial impacts on land use and recreation beyond the project site. These activities could have indirect, short-term, minor beneficial impacts on socioeconomics beyond the project site. These activities could have direct, short-term, minor adverse impacts on geology and soils, water, living coastal and marine resources and EFH and threatened and endangered species, and land use and recreation that would be localized. These activities could have indirect, long-term, minor adverse impacts on cultural and historic resources that would be localized.

-- Technical Assistance

Planning, Feasibility Studies, Design Engineering, and Permitting:

Project planning, feasibility studies, design engineering studies, and permitting activities could cause indirect, long-term, minor beneficial impacts to water, cultural and historic resources, land use and recreation, and socioeconomics beyond the project site. These activities could cause direct, short-term, minor adverse impacts to geology and soils and air that would be localized. These activities could cause direct, short-term, minor adverse impacts to living coastal and marine resources and EFH and threatened and endangered species beyond the project site.

Implementation and Effectiveness Monitoring:

Restoration monitoring could have indirect, long-term, major beneficial impacts on geology and soils, water, and living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct and indirect, long-term, minor beneficial impacts on land use and recreation and socioeconomics beyond the project site. These activities could have direct, short-term, minor adverse impacts on geology and soils, water, air, living coastal and marine resources and EFH, and cultural and historic resources that would be localized. These activities could have direct and indirect, short-term, minor adverse impacts on threatened and endangered species that would be localized.

Fish and Wildlife Monitoring:

Fish and wildlife monitoring could have indirect, long-term, major beneficial impacts on geology and soils, water, and living coastal and marine resources and EFH and threatened and endangered species beyond the project site. These activities could have direct and indirect, long-term, minor beneficial impacts on land use and recreation and socioeconomics beyond the project site. These activities could have direct, short-term, minor adverse impacts on geology and soils, water, air, and living coastal and marine resources and EFH that would be localized. These activities could have direct and indirect, short-term, minor adverse impacts on threatened and endangered species that would be localized. These activities could have indirect, short-term, minor adverse impacts on cultural and historic resources that would be localized. These activities could have direct, short-term, minor adverse impacts on land use and recreation that would be localized.

Environmental Education:

Environmental education activities could have direct, long-term, minor beneficial impacts on geology and soils and socioeconomics beyond the project site. These activities could have direct and indirect, long-term, minor beneficial impacts on water, living coastal and marine resources and EFH, threatened and endangered species beyond the project site. These activities could have indirect, long-term, minor beneficial impacts on cultural and historic resources and land use and recreation beyond the project site. These activities could have direct, long-term, minor and localized adverse impacts on air.

2. No Action -- The no action alternative, which is premised on natural recovery, is further described and analyzed in the Final DARP for Western Port Angeles Harbor. 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 and the public would not be made whole. In addition, existing habitat conditions may decline under climate change and population growth, or as habitat conditions continue to degrade under conditions of degraded natural processes (interrupted longshore drift, absence of sediment supply, constricted tidal flow, degraded freshwater quantity and quality, etc.).

NEPA Inclusion Analysis

<p>5. Describe any potential cumulative impacts that may result from past, present or reasonably foreseeable future actions (beneficial or adverse). Cumulative project impacts would not be significant or occur at a regional scale, and are consistent with those described in the RC PEIS (section 4.9, "Cumulative Impacts"). Because the proposed restoration is restoring natural habitat structure and function, the Trustees expect that there will be long-term, minor to moderate positive cumulative effects on the biological and physical health of the project area under the preferred alternative.</p> <p>There may be long-term adverse impacts to the physical and biological resources of the project area were the no action alternative selected because the restoration would not occur. However, relative to the magnitude of adverse ecological impacts that currently exist in the affected area, the adverse cumulative impacts of the no action alternative are also not expected to be significant.</p>
<p>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? The Draft DARP, including the draft Inclusion Analysis, was made available to the public for 30-day review and comment period beginning March 26, 2001. Three public submittals representing approximately 11 comments were received. Comments were generally supportive of the DARP and the proposed restoration activities. As project-specific restoration actions are identified for funding under the Program, a more focused and detailed NEPA evaluation/Inclusion Analysis will be conducted for each proposed action, which will be made available to the public.</p>
<p>7. Have any public comments raised issues of scientific/environmental controversy? Please describe.</p> <p>No comments raising issues of scientific/environmental controversy have been received by the Trustees to date, including during the public comment period for the Draft DARP.</p>
<p>8. Describe the most common positive and negative public comments on issues other than scientific controversy described above in Question 7. The proposed restoration activities are similar to those that have been occurring throughout the Pacific coast region for many years, and the public has generally been very supportive of spending restoration funding (including CERCLA case settlement funds) on on-the-ground restoration projects, especially those associated with restoring natural resources and services lost. Public comments received on the Draft DARP and related Inclusion Analysis were generally positive and in support of using settlement funds to implement restoration activities that will compensate the public for natural resource injuries sustained in Western Port Angeles Harbor. All public comments, and the Trustees' response to those comments, have been summarized and appended in the Final DARP.</p>
<p>Beach and Dune Restoration</p>
<p>Describe the volume of sediment being moved and the length of the beach/dune being restored. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?</p> <p>Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding</p>
<p>Describe the impacts to the borrow location and any impacts caused by the borrow material. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?</p> <p>Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding</p>
<p>Debris Removal</p>
<p>Are contaminants or other hazardous materials being removed from the environment? If so, how are they being disposed of?</p> <p>Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding</p>
<p>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)</p>
<p>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.</p> <p>Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding</p>

NOAA Restoration Center NEPA Inclusion Analysis

Supplemental Questions (continued)

Will the restored river channel be in the same location as the original channel? Please describe any changes.

Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding

Are there contaminated sediments behind the dam? Describe the disposal method (i.e., will these be released downstream or taken off-site?).

n/a

Describe the anticipated changes to the flood zone.

Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding

Prescribed Burns and Forest Management

Describe the size of the burn to be conducted. How is it appropriate to the level of analysis presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?

n/a

Describe the natural fire regime of the ecosystem and how the planned burn matches that regime.

n/a

Species Enhancement

Describe the precautions taken to prevent the release of disease or invasive species. How is it consistent with the types and impacts of species enhancement presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?

Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding

Levee and Culvert Removal, Modification and Set-back

Describe the extent and the height of the levee/culvert targeted in the restoration project. How is it consistent with the types and impacts of affected resources presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2?

Will be addressed in a more focused project-specific NEPA review and Inclusion Analysis as individual projects are identified for funding

See following page for NEPA Determination

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

CEREGHINO.PAUL.RAPHAEL
L.1380898370

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CEREGHINO.PAUL.RAPHAEL.1380898370
Date: 2021.05.11 13:33:09 -07'00'

Date Signed

May 11, 2021

Appendix C – Public Comments and Response

The Port Angeles Harbor Trustees conducted a public comment period from March 25, 2021 to April 26, 2021, as described in section 1.5.5. We are grateful for the time commenters took to review our work and provide their insight and encouragement. All comments are presented in the table below with a response. Single comments, which contained multiple parts, were divided for the purpose of providing a coherent response.

Comment (emphasis added)	Trustee Response
<p>CONNOR 4/12/2021</p> <p>The DARP makes a convincing case that Alternative A – Trustee-managed Restoration Program is the most cost-effective way to proceed. Formation of the Trustee Council fits within standard guidance for NRDA. The Trustee Council members have demonstrated their capability of repairing a site impacted by wood mill activities in Discovery Bay. Trustee Council members have demonstrated their capability of improving salmon spawning in Elwha watershed. These systems are much less urbanized than Western Port Angeles Harbor, so the choice of projects will be modified, but the Council Members have demonstrated that they can put together and manage good teams. The weakness of the Trustee Council structure is the absence of Port Angeles city or Clallam County planning participation. Much of the discussion presumes watershed areas far beyond the jurisdiction of Council Members, which will likely impede the success of some of the proposed ideas discussed in the DARP.</p>	<p>RESPONSE</p> <p>We agree that close consultation with local jurisdictions will be important in identifying and evaluating restoration alternatives. In addition to local general purpose governments, we look forward to working with tribal governments, special districts such as the port of Port Angeles, and restoration NGOs, that may also be well positioned to advance specific on-the-ground actions.</p> <p>In section 4.4.2 we identify the port specifically as critical to NEPA analysis of project effects on water dependent use.</p> <p>We identify “Integrative planning” and “public involvement” as a principle of best practice in section 3.1 and consider the City and Port as institutions that represent the public</p> <p>In section 1.5.4 we specifically identify Port and City planning processes as “related plans and actions”.</p> <p>In section 3.6.2 the trustees identify that “the most effective restoration opportunities in the Harbor are constrained by land use and ownership” and describe an adaptive strategy in section 3.7.</p>
<p>CONNOR 4/12/2021</p> <p>Given that repairing the NRDA damage would be hard to demonstrate and that the Trustee Council has proven capabilities in improving resources relevant to Western Port Angeles Harbor, the most effective public compensation for lost natural resources would be to select from a list of capabilities of the Trustee Council Members. Presumably, this approach was taken by the Council in determining its negotiating stance with the parties in its development of a cost proposal. In its Proposed Estimate of Natural Resource Damages in Port Angeles Harbor https://apps.ecology.wa.gov/publications/documen</p>	<p>RESPONSE</p> <p>We understand this comment to mean that given the nature of the injury and evidence that Trustees would best serve the public by implementing general ecosystem restoration activities. By contrast, we understand that the commenter would discourage additional effort to investigate specific contaminant endpoints and reverse those specific damages.</p> <p>The Trustees agree, and in section 3.6.2 propose an “ecosystem-based program” that is consistent with this suggestion.</p> <p>NOAA and USFWS both operate regional and national</p>

Comment (emphasis added)	Trustee Response
<p>ts/1609142.pdf) a national modeling strategy was used to calculate DSAYs and damage. The uncertainties in such model estimates are admittedly quite large as demonstrated by the use of a slightly different model from the St. Lawrence River that produced an impact estimate that differed by a factor of three. While sediment habitat degradation by wood debris and the presence of selected metals and organic contaminants above SMS criteria appear to be the critical stressors” (Table 6-1), very little sediment toxicity is seen with amphipods or polychaetes. No biological or ecological data were presented to demonstrate measurable damage to western harbor marine life. As a result, targeted activities to repair “damage” that would allow measurable improvements are unlikely because the baseline has not been quantified. NRDA legislation allows the Trustee Council Members to pursue to restore, replace, or acquire the equivalent of those natural resources injured (e.g. Port Gardner, https://casedocuments.darrp.noaa.gov/northwest/port_gardner/pdf/PortGardner-Final-DARP-ED2016.pdf).</p>	<p>restoration funding and restoration technical assistance programs. Ecology both funds restoration, and works as part of a large Puget Sound-wide recovery effort. Tribal trustees each have effective in-house restoration programs with a track record of developing, designing and building restoration projects. We anticipate using approaches and methods for implementing restoration that leverage existing Trustee capabilities as suggested.</p>
<p>CONNOR 4/12/2021</p> <p>The seven restoration goals developed by the Nearshore Project (Cereghino et al., 2012) that serve as the principles for the project are well-founded, but their value given the constrained funding stream must be considered. For instance, to apply Goal 3 of “restoring physical processes” to improve the sediment budget necessary for providing hundreds of millions of tons to the shore with the uncertainty of coastal process response to sea level rise seems far beyond what this DARP could accomplish.</p>	<p>RESPONSE</p> <p>We agree that projects should be selected that provide ecological benefits under observed and anticipated conditions. Current sediment sources and potential conceptual impacts of sea level rise will be considered when evaluating the costs and benefits of proposed work. We think the criteria described in section 3.5 which consider technical feasibility, consideration of cost/benefit, long-term protection, and an ecosystem-based approach to restoring natural resources provide a strong basis for guiding Trustee decisions.</p>
<p>CONNOR 4/12/2021</p> <p>The damages to Western Port Angeles Harbor reported by DOE indicate that “marine vegetation and benthos are the receptor groups most at risk from current environmental conditions (p. 80 in in Port Angeles Harbor Port Angeles Harbor Sediment Characterization Study https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Puget-Sound/Port-Angeles-Harbor) thus suggesting that highest priority be put on projects in Area A. These shallow subtidal habitats along the inner edge of Ediz Hook offer other benefits that increase the probability of successful DARP projects—park ownership that could ease permitting and public acceptance, ease of equipment access from land and sea, and the presence of “rare or vulnerable species” (Nearshore Project Goal 6). Importantly, Area A is</p>	<p>RESPONSE</p> <p>We agree with your assessment of the likely advantages of work along the inside of Ediz Hook. The Lower Elwha Klallam Tribe has already initiated restoration actions in this shoreline reach. Alternative restoration actions will need to compete with these advantages by better meeting restoration goals and objectives described in section 3.4. Our ecosystem service quantification methods described in sections 2.2 and 2.3 consider both the immediacy and duration of benefits.</p>

Comment (emphasis added)	Trustee Response
<p>likely to be the easiest location to accomplish projects in a timely fashion. While DSAY impacts are mostly driven by wood covering the bottom, activities to remove or cover that material would probably have more impacts than simply letting it recover naturally. Placing boulders for rocky habitat or seeding eelgrass in shallow areas are proven, implementable projects.</p>	
<p>CONNOR 4/12/2021</p> <p>Areas C and D should have the lowest priority for projects. The stretch along the waterfront is marked by a number of overwhelming risk factors (active railroad/bike trail, future nearshore development, future watershed development) as developed by the Nearshore Project that preclude cost-effective successes. In addition, the jurisdictional governance issues faced by the Council Members also ranks this area low. As the Rayonnier project proceeds, there may be some joint actions available but their long delay makes them low priorities.</p>	<p>RESPONSE</p> <p>The Trustees generally agree with this assessment of risk in Area C. We also recognize the unique ecosystem services in the nearshore provided by streams and stream mouths. We believe our proposed consideration of cost/benefit, the best practice of site protection, and ecosystem-based approach described in section 3.4 will incorporate these valid concerns into our decision process. In evaluating opportunities present at the Rayonier Mill Site (Area D) our habitat service quantification method considers the impacts of project delay on potential benefits, which will be weighted against the potential for leveraging large-scale restoration at a fish-bearing stream mouth, if afforded by cleanup or NRDA outcomes at the site.</p>
<p>CONNOR 4/12/2021</p> <p>Area B, particularly the lagoon, affords a number of risks and possible benefits. Property maps on the web suggest it is entirely owned by the paper plant and receives treated wastewater. The creekmouth and nearby shoreline is heavily industrialized, but this issue can be overcome. In California, my agency built a horizontal levee wetlands system to address water quality, bird habitat, and sea level rise on a similar industrialized site in San Francisco Bay (https://oroloma.org/horizontal-levee-is-thriving/) for about \$1 million per acre. The design and construction took about a year: the permitting and negotiation with neighbors took 2 years. The spiritual and cultural value of the Tse-whit-zen site, the uniqueness of the lagoon as a local habitat, and its accessibility make lagoon projects an attractive option, but only if the Council Members can easily solve the ownership and permitting issues. There are certainly wetland opportunities at the site.</p>	<p>RESPONSE</p> <p>We appreciate the assessment and example, and agree that the Tse-whit-zen site has attributes that would make quickly passing over its historical and ecological value negligent from a public trust perspective.</p>
<p>CONNOR 4/12/2021</p> <p>The public would also be best served by the Trustee Council formally limiting administrative overhead for the overall project (e.g.,10% and nothing for the Federal and State partners) and pursuing a rapid response. A tight administrative commitment would demonstrate the Council’s commitment to the cost-effectiveness of Alternative A and also create an incentive for speedy decision-making. With NRDA’s inflation factor a ten year delay reduces program value</p>	<p>RESPONSE</p> <p>Throughout ecosystem service valuation methods described in sections 2.2 and 2.3, the trustees demonstrate our concern that deferred restoration results in less accrued ecosystem services. In addition, in section 3.7.2 we identify benefits in rapid distribution of funds into projects. However, in section 3.7.6 and more broadly in section 3.4, we identify the potential importance of pursuing important opportunities, and that these opportunities may require “cultivation of enabling</p>

Comment (emphasis added)	Trustee Response
<p>by one-third. The Council should propose their draft projects this summer. An excess of process has costs to the public benefits.</p>	<p>conditions.” As described in section 6.1, the trustees will develop a MOU specific to restoration program implementation, and will consider strategies for minimizing administrative overhead and maintaining transparency during program implementation. That MOU will be a matter of public record, and we expect that will more fully demonstrate Trustee interest in transparency and accountability.</p>
<p>SCHANFALD 4/20/2021</p> <p>The Olympic Environmental Council, a federally recognized non-profit covering environmental issues on the North Olympic Peninsula of WA State, submits the following comment about the western Port Angeles Harbor DARP.</p> <p>After reading the DARP and joining the NOAA-Klallam Tribe-Ecology webinar, we are pleased that this stage has been reached and have no recommended changes to offer. The presentation was very well done; very clear. We look forward to the next stage — suggested cleanup sites and types of restoration.</p>	<p>The Trustees appreciate your confidence and support.</p>
<p>MANTOOTH – 4/20/2021</p> <p>As co-founder of Friends of Ennis Creek, that stream has been the main focus of my attention, but I greatly appreciate the work that’s been done related to the Port Angeles Western Harbor and hope it is a harbinger for similar actions in the area particularly impacted by the Rayonier mill.</p> <p>The speakers at the virtual session all seemed well informed and sincerely committed to making sure as much as possible is done to resolve problems in a prioritized way. They gave me confidence the trustees and others who will follow through will spend funds collected from polluters for maximum benefit to the environment.</p> <p>I was especially pleased about the recognition that streams entering the harbor will continue to add pollution unless the cleanliness of their waters is addressed. This obviously will require collaboration with those responsible for making sure septic systems and other sources of pollution are in compliance and monitored regularly.</p>	<p>The Trustees appreciate your confidence and support. We are also concerned about stormwater impacts on public trust resources, and look forward to completing NRDA for the remainder of the harbor.</p>

Comment by M Connor

Comments on Western Port Angeles Harbor Draft Damage Assessment and Restoration Plan (DARP)

1. **The DARP makes a convincing case that Alternative A – Trustee-managed Restoration Program is the most cost-effective way to proceed.** Formation of the Trustee Council fits within standard guidance for NRDA's. The Trustee Council members have demonstrated their capability of repairing a site impacted by wood mill activities in Discovery Bay. Trustee Council members have demonstrated their capability of improving salmon spawning in Elwha watershed. These systems are much less urbanized than Western Port Angeles Harbor, so the choice of projects will be modified, but the Council Members have demonstrated that they can put together and manage good teams. The weakness of the Trustee Council structure is the absence of Port Angeles city or Clallam County planning participation. Much of the discussion presumes watershed areas far beyond the jurisdiction of Council Members, which will likely impede the success of some of the proposed ideas discussed in the DARP.
2. **Given that repairing the NRDA damage would be hard to demonstrate and that the Trustee Council has proven capabilities in improving resources relevant to Western Port Angeles Harbor, the most effective public compensation for lost natural resources would be to select from a list of capabilities of the Trustee Council Members.** Presumably, this approach was taken by the Council in determining its negotiating stance with the parties in its development of a cost proposal. In its Proposed Estimate of Natural Resource Damages in Port Angeles Harbor (<https://apps.ecology.wa.gov/publications/documents/1609142.pdf>) a national modeling strategy was used to calculate DSAYs and damage. The uncertainties in such model estimates are admittedly quite large as demonstrated by the use of a slightly different model from the St. Lawrence River that produced an impact estimate that differed by a factor of three. While sediment habitat degradation by wood debris and the presence of selected metals and organic contaminants above SMS criteria appear to be the critical stressors" (Table 6-1), very little sediment toxicity is seen with amphipods or polychaetes. No biological or ecological data were presented to demonstrate measurable damage to western harbor marine life. As a result, targeted activities to repair "damage" that would allow measurable improvements are unlikely because the baseline has not been quantified. NRDA legislation allows the Trustee Council Members to pursue to restore, replace, or acquire the equivalent of those natural resources injured (e.g. Port Gardner, https://casedocuments.darrp.noaa.gov/northwest/port_gardner/pdf/PortGardner-Final-DARP-ED2016.pdf).
3. **The seven restoration goals developed by the Nearshore Project (Cereghino et al., 2012) that serve as the principles for the project are well-founded, but their value given the constrained funding stream must be considered.** For instance, to apply Goal 3 of "restoring physical processes" to improve the sediment budget necessary for providing hundreds of millions of tons to the shore with the uncertainty of coastal process response to sea level rise seems far beyond what this DARP could accomplish.
4. The damages to Western Port Angeles Harbor reported by DOE indicate that "marine vegetation and benthos are the receptor groups most at risk from current environmental conditions (p. 80 in in Port Angeles Harbor Port Angeles Harbor Sediment Characterization Study <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Puget-Sound/Port-Angeles-Harbor>) thus suggesting that highest priority be put on projects in Area A. These shallow subtidal habitats along the inner edge of Ediz Hook offer other benefits

that increase the probability of successful DARP projects—park ownership that could ease permitting and public acceptance, ease of equipment access from land and sea, and the presence of “rare or vulnerable species” (Nearshore Project Goal 6). Importantly, Area A is likely to be the easiest location to accomplish projects in a timely fashion. While DSAY impacts are mostly driven by wood covering the bottom, activities to remove or cover that material would probably have more impacts than simply letting it recover naturally. Placing boulders for rocky habitat or seeding eelgrass in shallow areas are proven, implementable projects.

5. **Areas C and D should have the lowest priority for projects.** The stretch along the waterfront is marked by a number of overwhelming risk factors (active railroad/bike trail, future nearshore development, future watershed development) as developed by the Nearshore Project that preclude cost-effective successes. In addition, the jurisdictional governance issues faced by the Council Members also ranks this area low. As the Rayonnier project proceeds, there may be some joint actions available but their long delay makes them low priorities.
6. **Area B, particularly the lagoon, affords a number of risks and possible benefits.** Property maps on the web suggest it is entirely owned by the paper plant and receives treated wastewater. The creekmouth and nearby shoreline is heavily industrialized, but this issue can be overcome. In California, my agency built a horizontal levee wetlands system to address water quality, bird habitat, and sea level rise on a similar industrialized site in San Francisco Bay (<https://oroloma.org/horizontal-levee-is-thriving/>) for about \$1 million per acre. The design and construction took about a year: the permitting and negotiation with neighbors took 2 years. The spiritual and cultural value of the Tse-whit-zen site, the uniqueness of the lagoon as a local habitat, and its accessibility make lagoon projects an attractive option, but only if the Council Members can easily solve the ownership and permitting issues. There are certainly wetland opportunities at the site.
7. **The public would also be best served by the Trustee Council formally limiting administrative overhead for the overall project (e.g., 10% and nothing for the Federal and State partners) and pursuing a rapid response.** A tight administrative commitment would demonstrate the Council’s commitment to the cost-effectiveness of Alternative A and also create an incentive for speedy decision-making. With NRDA’s inflation factor a ten year delay reduces program value by one-third. The Council should propose their draft projects this summer. An excess of process has costs to the public benefits.

My stakeholder role. I am a frequent Peninsula tourist and recent retiree hoping to relocate. My expertise is mostly wetlands (WHOI Ph.D.), sediments (Boston Harbor Clean-up chief scientist), water quality (SFEI GM and NEAQ VP), and coastal management (founding EPA staffer for three NE NEPs and EPA consultant to John Armstrong when he started PSEP at EPA10).

Sincerely,

Michael Stewart Connor, Ph.D.

Comment by Olympic Environmental Council

From: OEC <occ@olympus.net>
Sent: Monday, April 12, 2021 3:28 PM
To: Groven, Connie (ECY) <cgro461@ECY.WA.GOV>
Subject: OEC Comments on western Port Angeles Harbor DARP

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the attachment or the link**

Connie Groven, P.E.
Acting Unit Supervisor/Cleanup Project Manager
Department of Ecology
Southwest Regional Office/Toxics Cleanup Program
Olympia WA 98504

The Olympic Environmental Council, a federally recognized non-profit covering environmental issues on the North Olympic Peninsula of WA State, submits the following comment about the western Port Angeles Harbor DARP.

After reading the DARP and joining the NOAA-Klallam Tribe-Ecology webinar, we are pleased that this stage has been reached and have no recommended changes to offer. The presentation was very well done; very clear. We look forward to the next stage — suggested cleanup sites and types of restoration.

Thank you,

Darlene Schanfald
Olympic Environmental Council
Project Coordinator,
Rayonier Mill-Port Angeles Harbor Hazardous Waste Cleanup Project
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Sequim WA 98382
1-360-681-7565

Comment by R Mantooth

From: Robbie Mantooth <ennis@olympen.com>
Date: April 20, 2021 at 7:53:37 PM MST
To: pubcomment-ees.enrd@usdoj.gov
Cc: "Groven, Connie (ECY)" <cgro461@ecy.wa.gov>
Subject: Western Harbor comments

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As co-founder of Friends of Ennis Creek, that stream has been the main focus of my attention, but I greatly appreciate the work that's been done related to the Port Angeles Western Harbor and hope it is a harbinger for similar actions in the area particularly impacted by the Rayonier mill.

The speakers at the virtual session all seemed well informed and sincerely committed to making sure as much as possible is done to resolve problems in a prioritized way. They gave me confidence the trustees and others who will follow through will spend funds collected from polluters for maximum benefit to the environment.

I was especially pleased about the recognition that streams entering the harbor will continue to add pollution unless the cleanliness of their waters is addressed. This obviously will require collaboration with those responsible for making sure septic systems and other sources of pollution are in compliance and monitored regularly.

Thank you for the opportunity to comment.

Robbie Mantooth
2238 E. Lindberg Rd.
Port Angeles, WA 98362
360-808-3139

Sent from [Mail](#) for Windows 10