
Tillamook North Jetty Repairs

Draft Environmental Assessment



**US Army Corps
of Engineers**®
Portland District

July 2021

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1 Introduction

This Draft Environmental Assessment (EA) documents the potential environmental impacts associated with repairs to the north jetty of Tillamook Bay. Tillamook Bay is located on the Oregon Coast near the city of Garibaldi in Tillamook County, Oregon, approximately 47 miles south of the confluence of the Columbia River with the Pacific Ocean (Figure 2-1). It provides a harbor to a water-dependent economy for local communities and the state and is an important biological resource as the third largest bay in Oregon.

The U.S. Army Corps of Engineers, Portland District (the Corps) originally constructed, and currently maintains, the two jetties – both north and the south– at the entrance to Tillamook Bay, which allow for reliable navigation into and out of the bay. The Corps completed a Major Maintenance Report (MMR) in 2003 to document long-term damage to the jetties and to provide a design for necessary repairs. In 2010, some repairs to the north jetty took place, but further repairs to the north jetty are still required to extend the functional life of the structure. Ocean wave conditions over the ebb tidal shoal are hazardous due to remnant jetty stones that lie adjacent to the natural channel.

This Draft EA updates previous National Environmental Policy Act (NEPA) documentation, providing further evaluation of the potential for environmental effects from the repair activities. Previous NEPA documents prepared by the Corps for MMR activities include the following:

- Final Environmental Assessment, Tillamook Major Maintenance Study, Tillamook County, Oregon (USACE 2004)
- Supplement to the Tillamook Major Maintenance Study Environmental Assessment, Tillamook County, Oregon (USACE 2008)

2 Proposed Action

The Proposed Action will repair the north jetty as described in the MMR and supplemental MMR. Repairs would be consistent with the size, character and scope of the original jetty design and utilize land-based stone placement methods. The Proposed Action would repair and protect the structural integrity of the jetty. The Proposed Action for the Tillamook North Jetty is as follows:

North Jetty Repair Activities:

- Critical and routine root repairs
- Approximately 20,000 to 30,000 tons of new rock placed on existing jetty

North Jetty Temporary Construction Features:

- A rock storage and staging area to the east of the jetty
- A staging area in the parking lot to the west of the rock storage area may be needed
- Use and potential modification of existing access road

Post Construction/Site Restoration:

- Removal of temporary construction features
- Restoration of temporary construction sites

Construction start date is planned for 2022, as funding has been secured. Construction materials may be staged up to 1 year in advance, in 2021, of actual jetty repair work, and the repair work would take up to two consecutive construction seasons to finish.

2.1 Purpose and Need

The purpose of the Proposed Action is to restore the structural integrity of the north jetty and improve the function of the navigation channel. This action is needed to prevent further deterioration of the navigation channel. A weakened north jetty will lead to an increase in shoaling at the channel entrance, which allows waves to move further into the navigation channel, increasing boating hazards and further de-stabilizing the inner portions of the jetties.

2.2 Authority

Congress initially authorized the construction of the Tillamook north jetty by the River and Harbor Act of 25 July 1912, and authorized later repairs by the River and Harbor Acts of 2 March 1919, 3 March 1925, 30 June 1948, 3 September 1954, and 27 October 1965. Over time, the Acts authorized the following features:

- 5,700-foot-long north jetty
- 18-foot-deep channel over the ocean bar; as wide as practically and economically possible
- 18-foot-deep by 200-foot-wide channel, from the bay to Miami Cove
- Dredging to 12 feet deep in a small-boat basin and approach at Garibaldi

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The Corps completed the north jetty in 1933. The channel from the entrance to Miami Cove was completed in 1927. Dredging of the small boat basin and approach channel at Garibaldi was completed August 1958. Rehabilitation of the north jetty, started in June 1963, was completed in September 1965 (USACE 1981).

2.3 Location of the Proposed Action

The proposed action is located in Barview, Tillamook County, Oregon.

Tillamook Bay, River Mile 1

Section(s) 18 of Township 1N, Range 10W

Latitude: 45.570409

Longitude: -123.957995

Figure 2-1 Vicinity Map

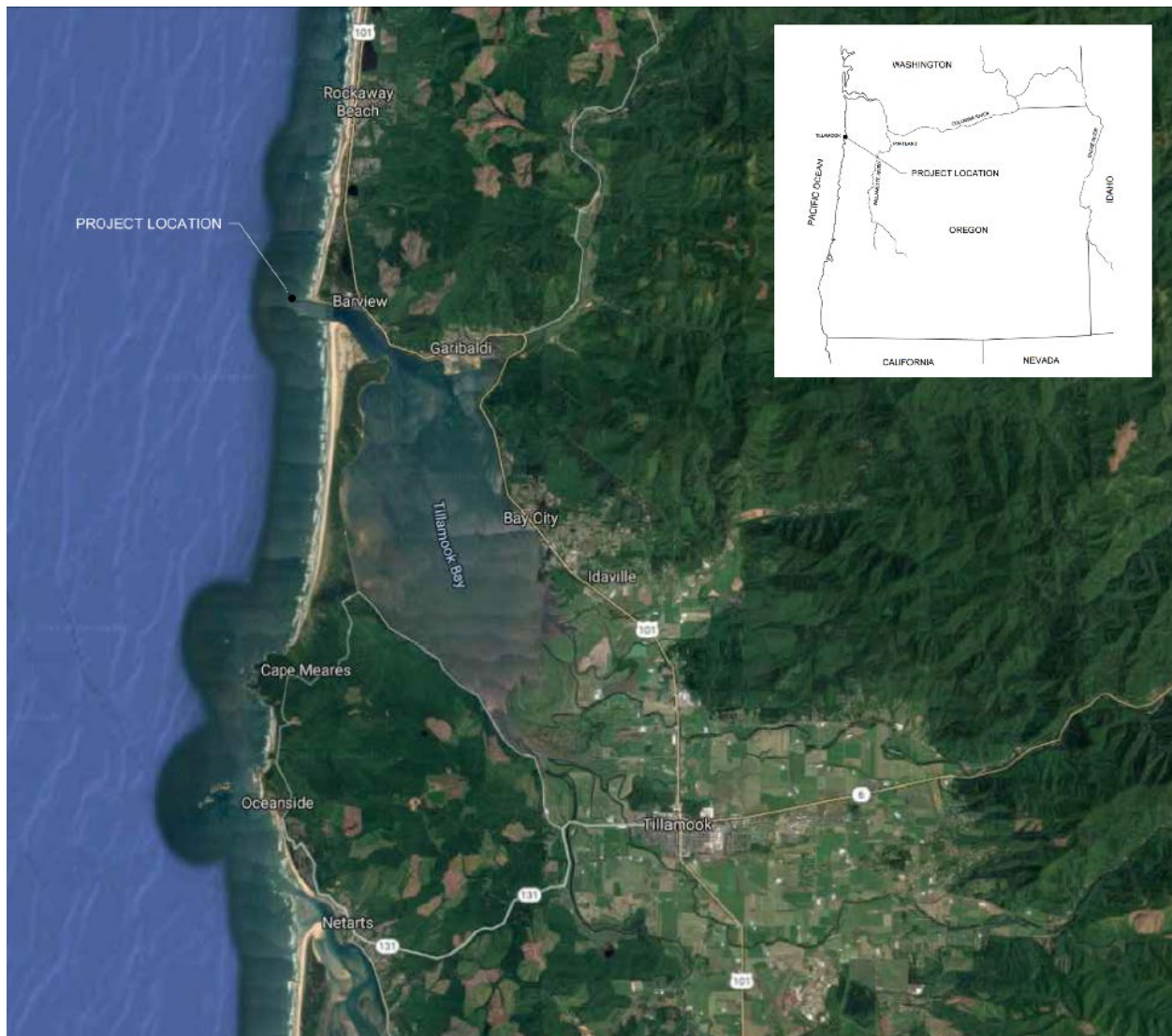


Figure 2-2 Plan View Map of the Proposed Action

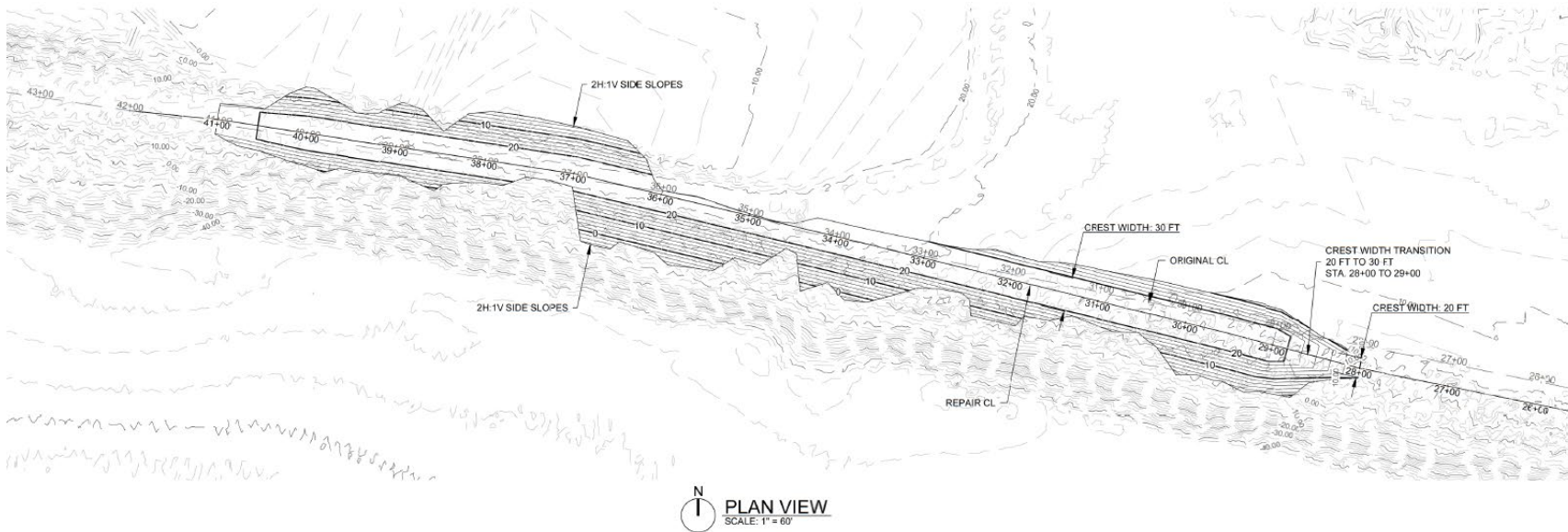


Figure 2-3 Staging Area



3 Alternatives

The action required to maintain the functionality of the jetty design requires repairs described in the preferred alternative. Anything less than the preferred alternative would not meet the purpose and need of the proposed action and therefore only the no action alternative and preferred alternative will be reviewed in this draft EA.

3.1 No Action Alternative

Under the No Action Alternative, the Corps would not perform any planned maintenance or repair work on the north jetty. Annual inspections of the condition of the jetty would continue as funding allows. Without maintenance or repair work at the north jetty, the structural integrity of the jetty will continue to deteriorate. Due to deterioration of the south jetty, the north jetty trunk and root is exposed to waves from the southwest, causing increased wave loading on the north jetty and resulting in continued structural damage. During storm events, extreme wave heights can impinge on the jetty from all directions, with the largest storm waves entering from the southwest and west. Continued decline of the south jetty will allow those storm waves to enter Tillamook Bay and affect the landward half of the north jetty, particularly the vulnerable and damaged jetty root. Deterioration may eventually lead to a breach, thereby undermining the federal investment of both jetties.

3.2 Repair North Jetty (Preferred Alternative)

3.2.1 Repairs

Areas along the north jetty root that have lost stone require repair in order to meet the design standards. Two damaged areas requiring repair have been identified:

- Critical root repairs are required from Station (STA) 29+50 to 37+00 (750 feet in length).
- Routine root repairs are required from STA 22+00 to 29+50 (750 feet in length).

Approximately 20,000 to 30,000 tons of jetty stone would be placed in the critical and routine root repair areas of the north jetty. The crest width of the jetty trunk would be 30 feet.

3.2.2 Site Preparations

No water-based staging or construction activity is planned for the north jetty repair. Land-based operations include a storage and staging area approximately five acres in size that will be located adjacent to the north jetty root and immediately east of the existing US Coast Guard tower. This area was used for rock storage and staging during the previous repair work in 2010. Some scattered and displaced jetty stones are located throughout the storage area and will be moved to the jetty toe prior to grading of the site. Vegetation removal and grading will be necessary to prepare the site for stone storage. The preliminary storage area and layout are shown in Figure 1-5. Material from the storage area may be used to level and fill the low area along the toe of the jetty to an elevation of +13 feet Mean Lower Low Water (MLLW). A 20-foot wide haul road will be constructed through the center of the storage area. A five-foot wide berm may be built from on-site material and will be placed along the existing jetty root alignment and

along the eastern edge of the storage area to prevent a water tunnel along the low portion of the jetty toe. Mature trees and a wetland are located to the north and east of the storage area and will be protected and avoided with a 50ft marked buffer. Wetland areas near the access road (thus not allowing a 50ft buffer) will be protected with a hardened wetland buffer and silt fence.

3.2.3 Construction Staging

The storage area will be cleared and graded prior to placement of jetty stone. Removed vegetation will be disposed offsite by the contractor. Existing on-site material will be used to grade the storage area. A haul road will be constructed of a base and leveling course to form a trucking loop from the existing road to the east of the site to the existing road north of the site. The parking lot and associated facilities to the west of the storage area will be avoided.

A temporary staging area will be established prior to the start of the project and will be removed upon the completion of delivery operations. A second temporary staging area may be established in the parking lot to the west of the storage area during future jetty activities.

3.2.4 Repair Construction

Stone will be placed on the jetty one at a time using a large excavator or crane situated on top of the jetty. Placement of the stone will range from approximately 500 to 1,000 tons per day. The placement operation will require the construction of a jetty haul road along the jetty crest. Road rock may be placed and spread over the crest of the jetty using a loader or dozer operation. The crane or excavator will place rock via a truck that transports rock from the staging area. The jetty access parking lot, located adjacent to the west of the USCG tower, will be closed during the stone placement operations. A fence will be erected to prohibit public access to the construction area and signs will be posted indicating that public access is not allowed.

3.2.5 Post Construction Restoration

Following the completion of the Proposed Action the rock storage and staging area will be returned to its previous condition. The gravel haul road will be removed, and the area reseeded with regional specific, native seed mixture to avoid the introduction of invasive species.

3.2.6 Construction Timeline/Sequence

Due to safety considerations associated with winter storm events, construction would optimally occur between late spring and early fall, with jetty repair work to occur between July and September. The repair work is expected to occur over at least one 6-month construction season and may take up to two construction seasons to complete. Prior to initiating active construction, materials may be staged up to 1 year in advance. Construction is expected to start in 2022.

3.2.7 Conservation Measures and Best Management Practices

Conservation measures and Best Management Practices (BMPs) for the Proposed Action would be used during construction to avoid and minimize the potential for adverse impacts to physical and biological resources.

3.2.7.1 Upland Work

Conservation measures and BMPs to reduce the environmental footprint and to avoid and

minimize impacts on upland areas would be incorporated in the Proposed Action design and would be implemented during construction. The following conservation measures and BMPs would be implemented during construction in upland areas as needed.

- Staging areas and stockpiles would be sited to avoid impacts to wetlands and habitats identified as having higher ecological value.
- Ground disturbance and removal of native vegetation, especially trees and shrubs, would be kept to a minimum, as feasible.
- Before alteration of the Action Area, the project boundaries would be flagged. Sensitive resource areas, including areas below MHHW, any nearby wetlands, and trees to be protected. Chain-link fencing or something functionally equivalent would encircle much of the construction and staging areas.
- Temporary erosion controls would be in place before any alteration of the site. If necessary, all disturbed areas would be seeded and/or covered with coir fabric at the completion of ground disturbance to provide immediate erosion control. Erosion control materials (e.g., silt fence, straw bales) would remain on-site at all times during active construction and disturbance activities. If needed, these measures would be maintained on-site until permanent ground cover or site landscaping is established, and reasonable likelihood of erosion has passed. When permanent ground cover and landscaping is established, temporary erosion prevention and sediment control measures, pollution control measures, and turbidity monitoring equipment would be removed from the site, unless otherwise directed. (See Appendix B)
- An Erosion, Sedimentation, and Pollution Control (ESPC) Plan would outline facilities and BMPs that would be implemented and installed prior to any ground-disturbing activities on the project site, including mobilization. These erosion controls would prevent pollution caused by surveying or construction operations and ensure sediment-laden water or hazardous or toxic materials do not leave the project site, enter Tillamook Bay, or impact aquatic and terrestrial wildlife. The Corps retains a general 1200-CA permit from the Oregon Department of Environmental Quality (ODEQ). (See Appendix B)
- All noxious and invasive weed populations present in the Action Area would be identified and mapped. Any weed populations that may be impacted or disturbed by construction activities would be treated or contained and weed populations to be avoided would be flagged.
- Training would be provided to construction workers and equipment operators on the identification of weeds to be avoided.
- All construction material sources used for supplies of sand, gravel, rock, and mulch would be certified as weed-free prior to transport or use.
- Certified weed-free straw or fiber roll logs would be used for sediment containment.
- All vehicles would be completely washed (or blown clean using an air compressor) and inspected for weed seeds and plant parts prior to mobilization onto the job site or after entering weed-infested areas of the job site.
- All revegetation materials (i.e., soil components and mulches) would be obtained from non-weed infested sources. Seed procured for the project would be certified as noxious weed-free with a weed content of 0.05 percent or less.
- Site revegetation will use plant materials with a high likelihood of survival, and consist of

regionally native species

3.2.7.2 *In-water/Near water work*

- Prior to the commencement of construction operations, the Corps would coordinate the work schedule with the local port, the U.S. Coast Guard (USCG), and Tillamook County.
- Placement of jetty stone could occur year-round. This is unlikely, however, given winter safety concerns. Winter weather conditions would likely result in most of the work being completed between April 1 and October 15, with work at the more exposed jetty sections likely occurring between June 1 and October 15. Work would extend as long into the fall as possible to maximize the length of the construction period but may be limited due to safety concerns.
- Contractors would not release any trash, garbage, oil, grease, chemicals, or other contaminants into the waterway.
- Water quality will be monitored in accordance with ODEQ requirements. Water turbidity is required to not exceed 10 percent above natural stream turbidities, except where allowed by Oregon Administrative Rules 340-041-0205(2)(c). In areas with coarse-grained sediments, turbidity levels would be monitored via visual observations to identify any adverse detectable change in water quality. In areas where fine-grained sediments are present in levels equal to or greater than 20 percent silts/clays, a turbidimeter is used to quantify change as Nephelometric Turbidity Units.

3.2.7.3 *Emergency Response*

In the event of an emergency response, a Corps Government Quality Assurance Representative will be on-site or available by phone at all times throughout construction. Emergency erosion/pollution control equipment and BMPs will be maintained on-site at all times; Corps staff will conduct inspections and ensure that a supply of sediment control materials (e.g., silt fence, straw bales), hazardous material containment booms, and spill containment booms are available and accessible to facilitate the cleanup of hazardous material spills, if necessary. In the event of spill or leak, appropriate response and reporting requirements will be implemented per state and federal requirements.

3.2.7.4 *Hazardous Material*

A description of any regulated or hazardous products or materials to be used for the Proposed Action, including procedures for inventory, storage, handling, and monitoring, will be kept on-site. Regulated or hazardous products will be appropriately stored according to the manufacturer's directions and regulatory requirements. Fuels or toxic materials associated with equipment will not be stored or transferred near the water, unless in a confined container. Equipment will be fueled and lubricated only in designated refueling areas at least 150 feet away from the MHHW, except in a confined barge or when in-place via the Wiggins fast fuel system, or an equivalent as described below.

3.2.7.5 *Spill Containment and Control*

A description of spill containment and control procedures will be kept on-site, including notification to proper authorities, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, including a supply of sediment control materials, proposed methods for disposal of spilled

materials, and employee training for spill containment. Generators, cranes, and any other stationary power equipment operated within 150 feet MHHW will be maintained as necessary to prevent leaks and spills from entering the water. Vehicles/equipment will be inspected daily for fluid leaks and cleaned as needed before leaving staging and storage area for operation within 150 feet of MHHW. Any leaks discovered will be repaired before the vehicle/equipment resumes service. Equipment used below MHHW will be cleaned before leaving the staging area, as often as necessary to remain grease-free. Additionally, the Corps proposes to use a Wiggins fast fuel system or equivalent (i.e., uses a sealed vehicle tank with automatic shut-off fuel nozzle) to reduce leaks during fueling of cranes and other equipment in-place on the jetties. Spill pans will be mounted under the crane and monitored daily for leaks.

4 Affected Environment and Environmental Consequences

4.1 Aesthetics

4.1.1 Affected Environment

The Tillamook North Jetty currently has a public access parking lot on and near the jetty where the jetty meets the coastline and is accessible by Jetty Rd. The parking area is partially paved and is bare of most vegetation. The staging and work areas for the proposed action are adjacent to Barview Jetty Campground, operated by Tillamook County, that includes natural areas, recreation trails, and beach access for foot traffic. These areas are popular with the public for access to recreational opportunities at and near the jetty, as well as scenic vistas of the coastline

4.1.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative there would be no effects to aesthetics, as no action is taking place.

Alternative 1 Preferred Alternative

Under the Preferred Alternative, there would be minor and temporary effects to aesthetics due to the presence of construction equipment and assorted barrier types. However, the effects to the aesthetics of the area would be isolated and temporary, with the visual disturbance removed once construction is complete and the area restored to its original condition.

Effects from the preferred alternative to aesthetics: No significant effect

4.2 Air quality

4.2.1 Affected Environment

Air quality refers to relative concentrations of pollutants in the ambient air. The Proposed Action Area is located along the northwest coast of Oregon, generally removed from direct sources of air pollution. Some limited industrial sources of pollution exist in the City of Tillamook. Air quality is described in this section in the context of compliance with national air quality standards.

The USEPA sets national air quality standards for six common pollutants (also referred to as criteria pollutants). These standards, known as National Ambient Air Quality Standards (NAAQS), consist of standards for carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM_{2.5} and PM₁₀), and sulfur dioxide. Details on the NAAQS are provided in Table 4-1. The USEPA has separated Oregon into 25 geographic monitoring areas, which are rated hourly based on compliance with the NAAQS. Failure to consistently meet these levels results in the area being designated as a Nonattainment Area. An area can also be designated as a Maintenance Area if it has a history of nonattainment but is now consistently meeting the NAAQS. The Proposed Action Area is not located within a Nonattainment or Maintenance Area.

Table 4-1. National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	Primary and secondary	Rolling 3-month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Primary	1 hour	100 ppb	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Primary and secondary	1 year	53 ppb	Annual Mean
Ozone (O ₃)	Primary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM _{2.5})	Primary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
	Secondary	1 year	15 µg/m ³	annual mean, averaged over 3 years
	Primary and Secondary	24 hours	35 µg/m ³	98 th percentile, averaged over 3 years
Particle Pollution (PM ₁₀)	Primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur dioxide (SO ₂)	Primary	1 hour	75 ppb	99 th percentile of 1-hour daily maximum concentration, averaged over 3 years
	Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

ppm (parts per million), ppb (parts per billion), µg/m³ (microgram per cubic meter).

Source: USEPA 2021a

4.2.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative there would be no effects to air quality, as no action is taking place.

Alternative 1 Preferred Alternative

The Proposed Action would result in the release of criteria pollutants from operation of construction equipment. Dust levels could increase temporarily from construction activities but would not result in substantial increases in regional pollutant levels. Given the windy coastal climate, any increases in dust and emissions are not likely to result in significant adverse effects

on local air quality.

The Corps used the EPA Diesel Emissions Quantifier tool (USEPA, 2021b) to estimate the emissions associated with construction activities. To estimate the maximum level of diesel emissions, we assumed all equipment (i.e., mechanical excavator, crane, and dump trucks) were used simultaneously and continuously for 10 hour days, 5 days a week, for the construction window (approximately June-October). This resulted in estimated emissions of 568lbs of nitrogen oxide (NO_x), 4lbs of particulate matter greater than 2.5 microns (PM_{2.5}), 154lbs of hydrocarbons (HC), 232lbs of carbon monoxide, and 970,000lbs of carbon dioxide (CO₂) annually. The above numbers for diesel emissions are overestimations based on a “worst case” scenario. Even with the wide assumptions, the level of diesel emissions is likely much lower when compared with the emissions from traffic along highway 101 and various marine vessels traveling in and out of the boat basin daily. The Proposed Action represents work that has been undertaken in the past and has not prevented the area from meeting National Ambient Air Quality Standards (NAAQS).

The Proposed Action Area is not located in a Nonattainment or Maintenance Area. Emissions that would occur from construction equipment during and after construction are expected to be short term and minor. All equipment would be required to meet State emission standards, and any low-level noise pollution emitted during proposed activities would be temporary and localized.

Effects from the preferred alternative to air quality: No significant effect

4.3 Aquatic resources/wetlands

4.3.1 Affected Environment

The affected environment includes aquatic habitat and species such as fish, marine mammals, seabirds, and shellfish known to occur or that are likely to occur given the presence of suitable habitat and known distribution in waters around the Proposed Action area. The north jetty along with the associated aquatic habitats at the main navigation channel of Tillamook Bay are located in a high-energy area subject to strong currents, tides, and wave action. These continual disturbances limit biological productivity and use by aquatic species. The main navigation channel likely serves primarily as a migratory pathway into and out of the Tillamook Bay estuary for many salmonids with little preferred habitat for rearing, resting, or feeding.

The proposed action would be located at the entrance channel of Tillamook Bay where marine mammals may be located. Species that may occur in the project vicinity include harbor seals (*Phoca vitulina richardii*), Northern elephant seals (*Mirounga angustirostris*), Steller sea lions (*Eumetopias jubatus*), California sea lions (*Zalophus californianus*), transient killer whales (*Orcinus orca*), and harbor porpoises (*Phocoena phocoena*). However, no pile driving or in-water work that would generate sound levels above ambient conditions is proposed as part of this action. In addition, there are no known pinniped haul-out sites within 100 meters of proposed rock placement on the North jetty so visual disturbance is not anticipated.

Repair of the Tillamook north jetty will require minimal in-water work for placement of stone onto the existing infrastructure. Placement of jetty stone will take place from land and be placed at the toe of the jetty within the original footprint.

Executive Order 11990 for the Protection of Wetlands requires federal agencies to follow avoidance, mitigation, and preservation procedures with public input before implementing construction that has the potential to affect wetlands. Wetlands are present near the access road and staging areas (See Appendix B).

4.3.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, there will be no direct impact of aquatic resources or wetlands. However, without repair, the north jetty could be breached. Breach could increase shoaling and shoreline erosion, changing conditions of the estuary and thus potentially impacting aquatic resources and wetlands in the area.

Alternative 1: Preferred Alternative

Under the preferred alternative, wetlands would be avoided as described in Section 3.2.2, the BMP’s described in Section 3.2.7 would be required to be implemented during construction, and hardened wetland protection barriers would be used along the access road and silt barrier fencing would be used at the buffer zones of the wetland near the staging area (See Appendix B for map). Aquatic resources would be temporarily impacted during construction activities, with impacts to aquatic resources being primarily associated with noise and water quality (see Sections 4.13 and 4.17).

Effects from the preferred alternative to aquatic resources/wetlands: No significant effect

4.4 Invasive species

4.4.1 Affected Environment

The construction and staging areas for the Proposed Action is primarily jetty stone, a paved parking area, gravel, sand, or sparsely vegetated with grass and shrub layers. Due to the high traffic use, the ground is frequently disturbed and commonly bare of vegetation. No equipment will be placed in the water as all placement, materials transportation, and staging will occur from land.

Numerous state and federal agencies including the Oregon Department of Fish and Wildlife (ODFW), Oregon State University (OSU), Oregon Department of Agriculture (ODA), Williams College, U.S. Environmental Protection Agency (EPA), U.S. Geological Survey (USGS), Bureau of Land Management (BLM), and several non-government organizations monitor and prevent the spread of invasive (i.e., non-native) species in Oregon (OCS, 2016). Using the Oregon State Conservancy’s mapping tool, invasive species near the Proposed Action area are listed in Table 4-2.

Table 4-2 Invasive Plant Species List

Common Name	Scientific Name
European Beachgrass	<i>Ammophila arenaria</i>
Scots Broom	<i>Cytisus scoparius</i>

Japanese Knotweed	<i>Fallopia japonica var. japonica</i>
Common Velvet grass	<i>Holcus lanatus</i>
Spotted Cat's-ear	<i>Hypochaeris radicata</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Tansy Ragwort	<i>Senecio jacobaea</i>

4.4.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative there would be no effects involving invasive species as no action is taking place.

Alternative 1 Preferred Alternative

There is a potential to introduce non-native species as material is transported to the staging area and from the equipment used for placement. Under the Preferred Alternative, the measures included in contract specifications and summarized in Section 3.2.7.1 will be implemented to prevent and minimize the potential spread of invasive species.

Effects from the preferred alternative on invasive species prevention: No significant effect

4.5 Fish and wildlife habitat

4.5.1 Affected Environment

Tillamook Bay is a mixture of natural and developed shore and upland areas, reflecting the current land uses in the watershed (rural-residential, commercial-industrial, agricultural, recreation, and commercial forestry). Agricultural lands are dominant east of Tillamook Bay. Natural upland consists of conifer and deciduous forest stands and meadow, marsh, and sandy beach and dune plant communities. The most commercially important and widely distributed tree species in Tillamook Bay is Douglas-fir (*Pseudotsuga menziesii*). Older stands include western-red cedar (*Thuja plicata*), Sitka spruce (*Picea sitchensis*), and western hemlock (*Tsuga heterophylla*). Upland beach and dune communities may be classified as bare sand, grass-forb, or shrub communities. Beachgrass occurs behind most of the bare sandy areas with scotch broom (*Cytisus scoparius*) as the dominant species elsewhere. The greater Tillamook Bay ecosystem includes shoreline areas that provide habitat.

Fishery resources in Tillamook Bay include both migratory and resident species (TBNEP, 1998, 1999). Among the most common estuarine inhabitants are white sturgeon (*Acipenser transmontanus*), northern anchovy (*Engraulis mordax*), surf smelt (*Hypomesus pretiosus*), shiner surfperch (*Cymatogaster aggregata*), Pacific herring (*Clupea pallasii*), English sole (*Parophrys vetulus*), starry flounder (*Platichthys stellatus*), Pacific sandlance (*Ammodytes hexapterus*), and a variety of rockfish. Salmonids found in the estuary include Chinook (*Oncorhynchus tshawytscha*), chum (*Oncorhynchus keta*) and Coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), and cutthroat trout (*Oncorhynchus clarki clarki*). Pacific herring, starry flounder, and English sole prefer the sandy shoreline habitat. Cobble

beaches are inhabited by rockfish, Chinook salmon and surf smelt. Shiner perch and white sturgeon are found in deeper water habitat. Principal shellfish species include oysters, several species of shrimp and clam, and Dungeness crab (*Metacarcinus magister*). Clam digging is very popular on the intertidal flats. Gapers (*Tresus capax*), cockles (*Clinocardium nuttallii*), butter clams (*Saxidomus giganteus*), and littlenecks (*Protothaca staminea*) predominate in the northern portion of Tillamook Bay; softshell clams (*Mya arenaria*) are more numerous in the southern portion (USACE, 2004).

The bay is used intensively by a variety of birds. The shallow mudflats provide a wintering area and migratory stopover for Pacific flyway waterfowl, as well as shorebirds. The bay supports almost 25% of the northern- and central-coast wintering waterfowl population in Oregon, with winter counts of approximately 7,500 waterfowl of 34 species. These include Northern Pintail (*Anas acuta*), Surf Scoter, (*Melanitta perspicillata*) and Bufflehead (*Bucephala albeola*). Western Sandpiper (*Calidris mauri*) numbers range 1,000-3,000 in September, with Least Sandpiper (*Calidris minutilla*) numbers in the low 100s. Black-bellied Plover (*Pluvialis squatarola*), Semipalmated plover (*Charadrius semipalmatus*), Whimbrel (*Numenius phaeopus*), Sanderling (*Calidris alba*), and others are also observed. Great Blue herons (*Ardea herodias*) are year-round residents.

The proposed action area would limit construction and staging activities for the north jetty repair to existing parking areas and roads, previously disturbed staging areas, and on the jetty. Minimal in-water work will take place, with placement of jetty stone occurring from land.

4.5.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, there would be no immediate impacts to fish and wildlife habitat. However, continued deterioration of the north jetty could lead to a breach, resulting in habitat impacts due to shoreline erosion and shoaling.

Alternative 1: Preferred Alternative

Under the preferred alternative, fish and wildlife habitat could be impacted during construction activities. Impacts would be minor and temporary. Due to the high traffic and disturbed nature of the construction and staging areas, the terrestrial habitat impacted is not considered to be of a high quality. Noise disturbances from heavy equipment and construction crews may cause terrestrial species to temporarily move away from construction zones. Mobile wildlife species such as birds may relocate from these temporary disturbance locations to nearby areas during construction. Species with limited mobility, such as small mammals, would not be able to move away quickly from construction but would likely avoid the area to the extent practicable. Small mammals typically do not appear to be adversely affected by road noise (FHWA, 2004). However, general construction noise could temporarily disrupt or mask communication necessary for mating and predator avoidance but would not likely reach thresholds for mortality. These impacts would be temporary and would end once repairs are complete.

For in-water areas, stone placement would result in temporary physical and acoustic disturbances to habitat. However, the disturbed habitat would be replaced with the same materials and conditions currently at the jetty, resulting in temporarily disturbed but not degraded habitat.

Effects from the preferred alternative to fish and wildlife habitat: No significant effect

4.6 Threatened/Endangered species/critical habitat

4.6.1 Affected Environment

Section 7 of the Endangered Species Act (ESA) requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries, as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species or adversely modify their designated critical habitat. Table 4-2 summarizes ESA-listed species under the jurisdiction of the NOAA Fisheries and the USFWS that may be present near the Proposed Action Area (USFWS, 2021).

Tillamook Bay includes habitat, designated as Essential Fish Habitat (EFH), for various life stages of groundfish, coastal pelagics, and Pacific salmon (NOAA, 2021). The proposed action areas is not a designated critical habitat area for the Western Snowy Plover or any other species of concern.

Construction and staging activities for the north jetty repair will take place on existing parking areas and roads, previously disturbed and degraded staging areas, and on the jetty. Minimal in-water work will take place, with placement of jetty stone occurring from land. All construction and staging areas are heavily trafficked and utilized, resulting in low quality habitat for most species.

Table 4-2. ESA-listed Species' Presence in the Action Area

Species	Status	Federal Register (FR) Listing	Critical Habitat	Presence in the Action Area
Humpback Whale <i>Megaptera novaeangliae</i>	Endangered	35 FR 18319; 12/2/1970	None designated	Absent
Southern Resident Killer Whale <i>Orcinus orca</i>	Endangered	70 FR 69903; 11/18/2005	71 FR 69054; 11/29/2006	Absent
Blue Whale <i>Balaenoptera musculus</i>	Endangered	35 FR 18319; 12/2/1970	None designated	Absent
Fin Whale <i>Balaenoptera physalus</i>	Endangered	35 FR 18319; 12/2/1970	None designated	Absent
Sei Whale <i>Balaenoptera borealis</i>	Endangered	35 FR 18319; 12/2/1970	None designated	Absent
Sperm Whale <i>Physeter macrocephalus</i>	Endangered	35 FR 18319; 12/2/1970	None designated	Absent

Species	Status	Federal Register (FR) Listing	Critical Habitat	Presence in the Action Area
Loggerhead Sea Turtle <i>Caretta caretta</i>	Endangered	43 FR 32800; 7/28/1978	None designated	Nearest nesting is Hawaii. Outside known range; would be considered a transient in the navigation channel.
Green Sea Turtle <i>Chelonia mydas</i>	Threatened	43 FR 32800; 7/28/1978	63 FR 46693; 9/2/1998	Outside known range; would be considered a transient in the navigation channel.
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	Endangered	35 FR 18319; 12/2/1970	77 FR 4170; 1/26/2012	Could be considered a transient in the navigation channel.
Olive (Pacific) Ridley Sea Turtle <i>Lepidochelys olivacea</i>	Threatened	43 FR 32800; 7/28/1978	None designated	Outside known range; would be considered a transient in the navigation channel.
Southern DPS* Green Sturgeon <i>Acipenser medirostris</i>	Threatened	71 FR 17757; 4/7/2006	74 FR 52300; 11/9/2009	No spawning. Could use navigation channel for migration, foraging.
Oregon Coast Coho Salmon <i>Oncorhynchus kisutch</i>	Threatened	76 FR 35755; 6/20/2008	73 FR 7816; 2/11/2008	Could use navigation channel for migration, foraging.
Southern DPS* Pacific Eulachon <i>Thaleichthys pacificus</i>	Threatened	75 FR 13012; 3/8/2010	76 FR 515; 01/05/2011	Unlikely near Action Area; not known from Tillamook Bay or tributaries.
Marbled Murrelet <i>Brachyramphus marmoratus</i>	Threatened	57 FR 45328; 10/1/1992	61 FR 26255; 5/24/1996	No mature forest habitat. Could forage in Action Area.
Northern Spotted Owl <i>Strix occidentalis caurina</i>	Threatened	55 FR 26114; 06/26/1990	57 FR 1796; 01/15/1991	Absent. No mature forest habitat located in Action Area.
Short-tailed Albatross <i>Phoebastria albatrus</i>	Endangered	35 FR 8491; 6/2/1970	None designated	Rare and transient; prefers foraging offshore; highly mobile. No nesting sites.
Western Snowy Plover <i>Charadrius alexandrinus nivosus</i>	Threatened	58 FR 12864; 3/5/1993	70 FR 56969; 9/29/2005	Unsuitable habitat in Action Area, sightings at accreted lands at south jetty. Action area not DCH

* DPS: A Distinct Population Segment (DPS) is a vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. The ESA provides for listing species, subspecies, or distinct population segments of vertebrate species.

Source: USFWS I-Pac list updated 06/09/2021; NOAA Fisheries Northwest Regional Office website last updated 11/05/2015.

4.6.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, no impacts to listed species or their habitat would occur. During storm events the north jetty could potentially lose rock material, which would settle on or near the jetty and channel floor. This degradation generally occurs at a slow rate and is not anticipated to impact ESA-listed terrestrial species, fish, or marine mammals.

Alternative 1: Preferred Alternative

Under the preferred alternative, minor and temporary impacts to applicable threatened or endangered species and/or their habitat may occur.

Oregon Coast Coho salmon

Oregon Coast Coho salmon are found near the north jetty during periods when construction and repair work would be occurring. Some jetty stone placement will occur below the MLLW elevation. Juvenile Coho are highly unlikely to occur in the high-energy environment near the jetty. Adults and out-migrating juveniles would pass through but not forage or rear in habitat adjacent to the jetty; therefore, it is unlikely that they would be harmed during rock placement activities. Water quality impacts from placement of stone would be limited to localized, temporary increases in turbidity. Potential impacts of the jetty repair to Coho salmon and its critical habitat would be minor and temporary.

Southern DPS green sturgeon

Adult and subadult green sturgeon may be present year-round near the jetty. However, green sturgeon are large and mobile bottom feeders that prefer deeper offshore habitat and would be unlikely to be found in shallow water habitats where placement of rock during jetty repair would occur. Given that the green sturgeon is unlikely to be found in proximity to in-water work areas, impacts to this species would be minor and temporary.

Western Snowy plover

Designated critical habitat (DCH) for Western Snowy plover (WSP) occurs on Bayocean Spit south of the South Jetty at the entrance to Tillamook Bay (USFWS, 2012). The DCH has been occupied during the breeding season (March 15th to September 15th) the past six or more years. The northern most extent of the DCH area is near the South Jetty which is more than one-quarter mile from the proposed repairs on the North Jetty, and is also considered unsuitable habitat due to the high amount of vegetation, and no line-of-sight to water. Habitat utilization by WSP generally occurs more than twice that distance and does not occur in line-of-sight of the work proposed at the North Jetty. Since there is no line-of-sight to WSP and distance should dissipate noise from construction, a no effect determination was made to WSP and its DCH from the proposed repairs at the North Jetty (see Section 6.1.8). A site visit with USFWS representative Cheryl Strong resulted in their agreement with this determination. A No effect determination does not require further consultation or coordination with USFWS. The letter of this informal coordination with USFWS will be attached to the final EA.

Effects from the preferred alternative to threatened and endangered species: No significant effects

4.7 Historic properties

4.7.1 Affected Environment

The affected environment for historic properties includes the collective 13.75-acre area of potential effect (APE) for the proposed North Jetty repair work, primarily located along the degrading, 5,700-ft long (6.5-acre) North Jetty rock structure, the ~5.5-acre dune terrace/sandy beach area (which was previously used and modified in 2010 for similar construction/jetty repair work staging) immediately north of the jetty structure, and the adjacent 1.75-acre, unimproved sandy beach parking lot area. Pursuant to the Corps' responsibilities under Section 106 of the National Historic Preservation Act (NHPA), as amended, and 36 CFR Part 800, the proposed repair activities to be conducted on the North Jetty and associated construction/staging activities are collectively considered an undertaking and, therefore, must be evaluated for potential effects on historic properties and cultural resources.

4.7.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative, no action is taking place and, therefore, there would be no construction-related impacts to the North Jetty and no effect on historic properties, nor the historic significance, eligibility or potential eligibility of any such resources for listing in the National Register of Historic Places (NRHP). Therefore, in accordance with 36 CFR 800.3(a)(1), the Corps finds the No Action Alternative would have no potential to cause effects on any identified historic properties and cultural resources within or near the North Jetty repair APE, and no further NHPA considerations are required for this undertaking. However, continued natural impacts on the North Jetty resulting from taking no action could lead to further physical deterioration of the structure, possibly resulting in a breach that could lead to additional environmental impacts and negative effects on the structure's historic integrity.

Alternative 1: Preferred Alternative

Under the Preferred Alternative, inclusion and use of the 13.75-acre North Jetty repair work APE has the potential to cause effects on historic properties and cultural resources that may be present within or immediately near the North Jetty structure. Therefore, the Corps has determined that implementation of the proposed repair work and associated construction staging activities has the potential to cause effects on historic properties. In partial fulfillment of the agency's NHPA compliance obligations, a Corps District Archaeologist conducted a thorough cultural resources assessment of the proposed APE, consisting of evaluations of impacts from previous construction/repair episodes conducted at the North Jetty area, reviews of previous cultural resource records of investigations conducted in the APE and immediate surroundings, and reviews of previous consultations (2008, 2012, 2017) with the Oregon State Historic Preservation Office (SHPO), Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians regarding similar North Jetty repair work and anticipated effects. It was determined that no historic properties, archaeological sites or other cultural resources are present in the highly-disturbed, beach/dune terrace portions of the APE where proposed construction equipment staging/rock storage activities would take place (i.e., activities similar to those that previously took place in the same staging locations used during prior jetty structural repairs conducted in 2010 and earlier); therefore, in accordance with 36 CFR 800.4(d)(1), the Corps has determined the Preferred Alternative activities will result in No

Effect on historic properties for re-use of the proposed construction equipment staging/rock storage locations. The Corps has also determined that, although the North Jetty structure, itself, is eligible for listing in the NRHP under Criterion A for its association with Maritime History and Transportation, the undertaking will result in No Adverse Effect to the North Jetty's NRHP eligibility, in accordance with 36 CFR 800.5(b), because the proposed repairs are intended to enhance protection of the jetty root's structural integrity by closely matching the North Jetty structure's existing alignment/original footprint design, configuration and appearance, as well as improvement of navigation conditions at the nearby channel entrance. Therefore, the overall work included in the Preferred Alternative will result in a finding of No Adverse Effect on historic properties or significant cultural resources. In further compliance with provisions of Section 106 of the NHPA, the Corps consulted the undertaking, cultural resources assessment efforts, recommendations and determinations regarding re-use of the proposed construction equipment staging/rock storage locations and North Jetty structural repair work with the SHPO and affected Tribes in May 2021. The SHPO concurred with the adequacy of the Corps' assessment efforts, determinations and findings of No Effect and No Adverse Effect on historic properties in official correspondences dated June 17, 2021 and June 18, 2021, respectively. No comments or concerns were received from the Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians during the 30-day review and comment period, per 36 CFR Part 800 regulations, which ended on June 21, 2021. Effects from the preferred alternative to historic properties: No significant effect

4.8 Floodplains

4.8.1 Affected Environment

According to the FEMA Flood Map there are no floodplains within the affected environment.

4.8.2 Environmental Consequences of the Alternatives

Under either alternative there would be no impacts to floodplains in the project area since floodplains are not present.

Effects from the preferred alternative to floodplains: Resource unaffected by action

4.9 Hydrology

4.9.1 Affected Environment

Tillamook Bay is part of a coastal, temperate rainforest ecosystem. The average annual freshwater yield of three of its major tributaries (Wilson, Trask, and Tillamook Rivers) totals 2,203,000 acre-feet. These three rivers drain about 80% of the drainage basin (Corps 1994). Long-term flow data collection does not exist for the Miami, Kilchis, or Tillamook Rivers feeding freshwater into Tillamook Bay. The lower Trask and Wilson Rivers have yearly average flows ranging from approximately 110cfs during the summer low flows to over 2,000cfs during wintertime high flows (ODEQ 2001). During the spring and summer, westerly and northwesterly winds are dry, cool, and stable. In the fall and winter, southeasterly or easterly winds bring moist air that cools and condenses as it moves inland. Precipitation ranges from an annual average of 90 inches along the coast to 200 inches in the uplands of the watershed (USEPA 2007). The wettest month is December, with an average of 14.3 inches of precipitation.

Tillamook Bay experiences the full range of estuarine circulation patterns, from well stratified to well mixed, depending on the season and variations in river discharge. During heavy rain winter months (November through March), the bay is a stratified system while during low precipitation summer months, the bay shifts to a well-mixed estuarine system (Ellis 2002). Salinity ranges from about 32 parts per thousand (ppt) near the ocean entrance to about 15 ppt at the upper (southern) end of the bay near the river mouths (Ellis 2002). Water temperature ranges from about 47 degrees to 66 degrees Fahrenheit over the year. The estuary maintains relatively good levels of dissolved oxygen (DO). Except for some lowland sloughs and tributaries, eutrophication and low DO levels do not appear to be problems for the bay. The bay experiences high levels of bacteria especially after storms and associated agricultural/urban runoff and point source overflow.

4.9.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, the north jetty would continue to deteriorate and could result in changes to the hydrology of the area. Without measures to repair the north jetty, the stability of the mouth of Tillamook Bay and its jetty system would be at risk. A breach would result in exposure and damage to the root of the north jetty. A breach could redistribute the sediment throughout the inlet and cause shoaling in the navigation channel. Previously protected portions of the entrance of the bay would become exposed to increased wave energy, greatly affecting sedimentation and circulation near the inlet.

Alternative 1: Preferred Alternative

Under the preferred alternative the jetty would be repaired and would help to maintain the hydrology of the bay entrance. The preferred alternative benefits navigation and safety and would prevent future shoaling. The volume, residence time and drainage area of the bay would be unchanged in this condition. And therefore, no substantial short or long-term changes to the hydrology of Tillamook Bay are anticipated.

Effects from the preferred alternative to floodplains: Resource unaffected by action

4.10 Land use

4.10.1 Affected Environment

Tillamook Bay and the surrounding area provide many recreational opportunities throughout the year. Primary aquatic activities include fishing, boating, shellfish harvesting, and diving. The cities of Garibaldi and Tillamook support a sport fishing industry comprised of outfitters/guides, charter vessels, sport fishing licensing agents, and other chartered operations that harbor their vessels in the Port of Garibaldi. The Garibaldi Boat Basin Ramp is located at the Garibaldi Port and is open to the public. Recreational shellfish harvesting for crabs and clams is prevalent in Tillamook Bay, with access by both boat and walk-in (ODFW, 2021). Diving is most common from the north jetty. The Barview Jetty County Campground, located just north of the north jetty, has recreation vehicle and tent sites, beach access, bird watching, jetty fishing, surfing, and diving opportunities (Tillamook County, 2015a).

The construction staging area will include the current public parking area for recreational users.

The north jetty repairs will temporarily deny access to this parking area to the public. The transportation of jetty stone to the staging will require use of the public jetty road and could cause temporary traffic delays. During the entirety of construction, the public will be barred from accessing the public parking areas being used for staging areas for project activities.

4.10.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, there would be no changes to land use.

Alternative 1: Preferred Alternative

Under the preferred alternative, land use activities associated with the jetty would be temporarily postponed. However, once repairs are complete, public access would be restored and use of the land would revert back to normal operations.

Effects from the preferred alternative to land use: Resource unaffected by action

4.11 Navigation

4.11.1 Affected Environment

Commercial and recreational vessels are most commonly found in Tillamook Bay between the Port of Garibaldi and the entrance channel. Vessels pass through the entrance channel between Tillamook Bay and the Pacific Ocean. Barges are escorted by tugs and travel up and down the Oregon Coast to transport materials and equipment. The USCG Station Tillamook Bay can restrict the bar to recreational and uninspected passenger vessels under authority 33 CFR Part 177.

4.11.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, the north jetty would continue to deteriorate, and protection of the navigation channel would decline, increasing hazardous conditions for marine vessel traffic in and out of Tillamook Bay.

Alternative 1: Preferred Alternative

Under the preferred alternative, protection for the north side of the navigation channel would be restored to its designed condition, thus maintaining navigability between the Pacific Ocean and Tillamook Bay.

Effects from the preferred alternative to navigation: Resource unaffected by action

4.12 Noise levels

4.12.1 Affected Environment

Sources of ambient in-air sound near the north jetty include wind, waves, and vessels transiting into and from Tillamook Bay, recreational and commercial activities, and road traffic. The Port of Garibaldi is located approximately 2 miles east of the entrance to Tillamook Bay and contains a lumber mill, seafood processing plants, marine repair shops, a commercial and charter fishing

marina, and a public boat launch. The USCG Station Tillamook Bay is also located at the Port of Garibaldi; operations include towing vessels and assisting recreational and commercial boaters throughout the year with five search and rescue boats. The U.S. Highway 101 corridor is adjacent to Tillamook Bay, passing through the coastal cities of Bay City, Garibaldi, and Barview. The nearest residences to the Proposed Action Area are located in Barview, approximately 2,000 feet away from the entrance channel.

4.12.1.1 In-Air Noise

Sound levels are measured in decibels on a logarithmic scale. Sound level meters and monitors utilize a filtering system to approximate the human perception of sound, referred to as A-weighted decibels (dBA). Nearby waterfront activities may create sounds levels in the range of 70 to 90 dBA, mostly peaking at 99 dBA for short durations (77 Federal Register [FR] 59904). These sounds may be produced by heavy trucks, forklifts, marine vessels and tugs, and industrial equipment. During poor weather conditions, vessels may use foghorns that can reach levels of about 95 to 120 dBA (FTA, 2006). U.S. Highway 101 may result in traffic noise of up to 75 dBA, while traffic on local roads reaches about 50 dBA. Wind and waves and nearby recreational and waterfront operations may result in ambient noises near the transportation corridor reaching 90 dBA intermittently.

4.12.1.2 In-Water Noise

Ambient in-water sound near the north jetty in Tillamook Bay and the Pacific Ocean is affected by many factors, including wind and waves, commercial and recreational vessels, resident aquatic animals, nearby land masses and the ocean floor, and currents. A recent study of ambient ocean sound for Oregon's nearshore environment observed maximum and minimum levels of 136 decibels (dB) referenced to a standard pressure level of one micro Pascal (re μPa) and 95 dB re 1 μPa , respectively, with an average level of 113 dB re 1 μPa over a period of 1 year (Haxel et al. 2011). This level could vary given the different recreational and commercial vessels, as follows: up to 150 dB for smaller fishing vessels (Hildebrand 2005), up to 186 dB for large vessels, 81 to 166 dB for empty tugs and barges, and up to 170 dB for loaded tugs and barges (Richardson et al. 1995) within the frequencies between 20 and 5,000 hertz (Hz). Dolphins and toothed whales produce broadband clicks of 125 to 173 dB within frequencies between 1 kilohertz (kHz) and 200 kHz, and humpback whale songs can range between 144 and 174 dB (Discovery of Sound in the Sea 2012).

4.12.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative there would be no impacts to noise levels near the project area.

Alternative 1: Preferred Alternative

Under the preferred alternative there would short term noise impacts during construction due to equipment operations and construction noise. In-air noise during project activities would increase intermittently over the short-term. Construction equipment and overland vehicles could produce sound levels up to 80 dBA (FHWA, 2006). The transport of armor stone from road vehicles to final placement on the jetty could displace present birds by causing flushing, altering flight patterns, or causing other behavioral changes, however, effects are not expected to rise to

the level of harm or harassment. Noise from construction equipment could result in in-air noise levels of around 89 dBA (average), which could take approximately 0.5 miles to attenuate to ambient levels (45 dBA). Traffic noise, from trucks moving equipment and materials along Jetty Rd could take about 500 feet to attenuate to ambient levels.

While many marine mammals, seabirds and fish are susceptible to in-water sound, animals in the proposed action area are already exposed to high background sound levels from ongoing wind and wave activity and nearby commercial and recreational vessels that enter and exit Tillamook Bay. A fishing boat can generate sound levels of 151 dB 1uPa (Greene 1985) and a container ship can produce 177 to 188 dB (McKenna et al. 2012). Minor and temporary disturbances could occur as salmonids or marine mammals, not familiar with the harbor environment, could avoid areas where placement activities were occurring.

All noise impacts would be temporary and cease once repairs are complete.

Effects from the preferred alternative to noise levels: No significant effect

4.13 Socioeconomics

4.13.1 Affected Environment

The cities of Tillamook and Garibaldi are located along the shores of Tillamook Bay. According to the 2020 Census, the population of Tillamook was 5,355 people, a 6.3% increase from the 2010 census. The City of Tillamook Comprehensive Plan (2012) lists Tillamook County Creamery Association, Fred Meyer, and Tillamook County General Hospital as the top three employers in and outside the City of Tillamook. About 61.5% of the labor force was employed and there was a 3.3% unemployment rate. Of the employed population, 19.1% worked in manufacturing, 16.5% in retail trade, 14.7% health care/social assistance, 11.6% in accommodation/food services, 14.8% in government (local, state, or federal), and 6.7% in agriculture/forestry/fishing/hunting. Tillamook's per capita income was \$21,729 and the median household income was \$41,109, according to the 2020 Census. Approximately 15.6% of the population was below the poverty level.

According to the 2020 Census, the total population of Garibaldi was 797 people (up 18 people from 2010). The top three employment sectors in Garibaldi were construction, education/health care/social services, and agriculture/forestry/fishing/hunting. The median household income was \$46,696. Approximately 10.9% of the city's population lived below the poverty level.

4.13.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative, the jetty would continue to deteriorate and degrade the condition of the navigation channel. The ability to safely navigate in and out of Tillamook Bay is a significant contributor to the local employment and economy of the area.

Alternative 1: Preferred Alternative

Under the Preferred Alternative, navigation conditions would be improved.

The Preferred Alternative will not cause substantial changes in population, economics, or other indicators of social well-being, and will not result in a disproportionately high or adverse effect

on minority populations or low-income populations.

The Preferred Alternative has a positive effect on the local fishing industry and other waterfront-based economies (i.e. import and export, water-based tourism, ship, and boat yards, etc.) of the local area and state of Oregon.

Effects from the preferred alternative to socioeconomics: No significant effect

4.14 Environmental justice

4.14.1 Affected Environment

According to the EPA's Environmental Justice Screening Tool, the demographic indicators for the closest census block group (Barview, OR; population: 797) to the proposed action area are as follows: 98% of the population is over the age of 64, 69% of the population is considered low-income. 45% of the population are linguistically isolated, and 21% are people of color.

4.14.2 Environmental Consequences of the Alternatives

Under either alternative, there would be either no changes at the jetty, or the jetty's return to full function as designed. Either alternative would have no impact to any minority/ethnic group or social class near the proposed project area.

Effects from the preferred alternative to environmental justice: Resource unaffected by action

4.15 Tribal trust resources

4.15.1 Affected Environment

The affected environment for Tribal trust resources includes the collective 13.75-acre APE for the proposed North Jetty repair work, primarily located along the degrading, 5,700-ft long (6.5-acre) North Jetty rock structure, the ~5.5-acre dune terrace/sandy beach area (which was previously used and modified in 2010 for similar construction/jetty repair work staging) immediately north of the jetty structure, and the adjacent 1.75-acre, unimproved sandy beach parking lot area. Refer to Section 4.7.1 above.

4.15.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative, no action is taking place and, therefore, there would be no construction-related impacts to the North Jetty surroundings and no effect on Tribal trust resources or related interests (if any are present). On April 7, 2017, the Corps initiated NHPA-Section 106 consultations regarding the project with the Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians via official correspondence; on September 25, 2017, the Corps extended an invitation via official correspondence to the Confederated Tribes of the Grand Ronde Community of Oregon to initiate government-to-government consultation on the project. No comments or concerns, nor acknowledgement or acceptance of the Corps' government-to-government consultation offer, were received from the Tribes. Follow-up NHPA-Section 106 consultations regarding the project, the Corps' cultural resources assessment efforts, determinations of effect and requests for any additional comments and concerns were again sent to the Confederated Tribes of the

Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians via official correspondence dated May 18, 2021. No subsequent comments or concerns about possible impacts to Tribal trust resources and interests have been received to date. Therefore, the Corps finds the No Action Alternative would have no potential to cause effects on any identified Tribal trust resources within or near the North Jetty repair APE, and no further government-to-government and NHPA-Section 106 considerations are required for this undertaking.

Alternative 1: Preferred Alternative

Under the Preferred Alternative, inclusion and use of the 13.75-acre North Jetty repair work APE has the potential to cause effects on Tribal trust resources, historic properties and other cultural resources that may be present within or immediately near the North Jetty structure. As noted, the Corps initiated NHPA-Section 106 consultations regarding the project with the Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians via official correspondence on April 7, 2017; the Corps also extended an invitation via official correspondence on September 25, 2017 to the Confederated Tribes of the Grand Ronde Community of Oregon to initiate government-to-government consultation on the project. No comments or concerns, nor acknowledgement or acceptance of the Corps' government-to-government consultation offer, were received from the Tribes. Follow-up NHPA-Section 106 consultations regarding the project, the Corps' cultural resources assessment efforts, determinations of effect and requests for any additional comments and concerns were again sent to the Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians via official correspondence dated May 18, 2021. No subsequent comments or concerns about possible impacts to Tribal trust resources or interests have been received to date. Therefore, the Corps has determined that no Tribal lands, trust resources, interests or rights will be affected by the undertaking, and the Preferred Alternative activities will result in No Effect on any Tribal trust resources within or near the North Jetty repair APE, and no further government-to-government considerations are required for this undertaking.

Effects from the preferred alternative to tribal trust resources: Resource unaffected by action

4.16 Water quality

4.16.1 Affected Environment

Water quality in the Proposed Action Area is monitored by the ODEQ Ambient Water Quality Monitoring Program and the Oregon Beach Monitoring Program. According to the ODEQ, Tillamook Bay is water quality limited under the Clean Water Act (CWA), impaired by bacteria and temperature parameters. These impairments affect the beneficial uses of shellfish growing, salmonid fish rearing, anadromous fish passage, and recreational use in the Tillamook Bay watershed (ODEQ 2010). The ODEQ prepared a Total Maximum Daily Load (TMDL) analysis for the Tillamook Bay watershed (ODEQ 2001) that was approved by the United States Environmental Protection Agency (USEPA) on July 31, 2001. With a TMDL, Tillamook Bay was removed from Oregon's Section 303(d) list of impaired water bodies.

ODEQ's online Water Quality Assessment Database and 303(d) List provide the current water quality status of the state's water bodies. The five major rivers (Tillamook, Trask, Wilson, Kilchis, and Miami Rivers) comprising the Tillamook Bay watershed show no change in status between 2004/2006 data and the latest USEPA-approved 2010 data (USACE 2015).

In 1994, National Estuary Program (NEP) designated Tillamook Bay as one of the 28 national “Estuaries of National Significance” under Section 320 of the 1987 CWA Amendments. The Tillamook Estuaries Partnership (TEP) was created to carry out the NEP’s goals of conservation and restoration of Tillamook County’s estuaries and watersheds. TEP’s 2010 Tillamook Bay Watershed Health Report identified water quality improvements due to restoration, BMPs, and education efforts within the watershed (TEP 2010). Areas of improvements included bacteria levels, sedimentation, native fish and shellfish populations, in-stream and riparian habitat, and tidal wetland restoration. More improvement is needed in dissolved oxygen (DO) concentrations, stream temperatures, and freshwater wetland restoration.

Repair of the Tillamook north jetty requires minimal in-water work for placement of stone onto the existing infrastructure. Placement of jetty stone will take place from land and be placed at the toe of the jetty within the original footprint.

4.16.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative there would be no impacts to water quality near the project area.

Alternative 1: Preferred Alternative

Under the preferred alternative there would be temporary and minor increases to water turbidity during stone placement. Impacts would be localized and short term with water quality returning to normal levels within 24 hours after activity ceases. Turbidity monitoring will take place during placement activity in accordance with BMP’s and ODEQ guidance. Small increases in turbidity from construction activities on the jetty would likely occur on a nearly daily basis but would be of limited extent and duration, as rock placement would involve clean fill of large, individual boulders with a majority of the placement actions occurring above MLLW. Placement operations can increase the risk of pollutants entering the water from equipment. A reduction in water quality from any leak or spill from equipment is another short-term potential adverse impact. However, compliance with operational BMPs and spill prevention measures for equipment would be strictly adhered to, which reduces the probability and magnitude of a leak or spill. Wave and current conditions near the Proposed Action Area naturally contribute to higher background turbidity levels; and such conditions also preclude the effective use of isolating measures to minimize turbidity. In order to further minimize impacts to water quality, the BMP’s from section 3.2.7.2 would be adhered to, in order to maintain ODEQ water quality standards during construction.

Effects from the preferred alternative to water quality: No significant effect

4.17 Climate change

4.17.1 Affected Environment

Climate is governed by incoming solar radiation and the greenhouse effect. The greenhouse effect is the result of certain naturally occurring, atmospheric gases absorbing long-wave radiation emitted from the earth. Absorption of this long-wave radiation in the atmosphere, as opposed to being transmitted into space, warms the earth. Greenhouse gases (GHGs) include

(in order of importance to the greenhouse effect) water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Human (anthropogenic) activities such as the burning of fossil fuels (i.e., adding more GHGs to the atmosphere) and clearing of forests (i.e., removing a natural sink for carbon dioxide) have intensified the natural greenhouse effect, causing global climate change. Carbon dioxide emissions from the burning of fossil fuels are the most substantial source of anthropogenic GHG emissions. Global atmospheric concentrations of carbon dioxide have risen over 100 parts per million (ppm) since their pre-industrial (1750) value of 280 ppm (OCCRI, 2010).

Natural factors, which include solar variation and volcanic activity, also contribute to climate change. However, strong scientific evidence suggests that these factors alone do not fully explain the observed accelerated global warming of the past few decades (OCCRI 2010). Current climate conditions such as relative sea level rise (SLR), changing patterns of storms, variable wave heights, and altered El Nino events are already being experienced within the Action Area (Ruggiero et al. 2017).

Erosive impacts to the shoreline have been experienced in Tillamook County throughout the long-term record but have shown an increased variability and greater magnitude from 1960-2002 (Ruggiero et al. 2017). Ruggiero et al. attribute these impacts to coastal areas to climate variability and in particular sea level and wave height changes. The Tillamook north jetty has been exposed to a changing climate and the variability in ocean and air patterns associated with that change. Continued SLR at the north jetty could contribute to erosion and structure damage by allowing waves to propagate over deeper waters and reach higher elevations. Therefore, SLR could cause future erosion at the north jetty which could increase the need for repairs to the Tillamook Bay jetty system. Repairing the north jetty

4.17.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the No Action Alternative there would be no impacts that could contribute to climate change near the project area.

Alternative 1: Preferred Alternative

Under the preferred alternative there would be temporary nominal increases in greenhouse gas levels in the atmosphere (most notably carbon dioxide) during construction due to equipment emissions. The increase in emissions would be localized, not substantial on a global scale, and would cease once construction is complete. Since greenhouse gas emissions from the construction equipment is expected to be minimal (see Section 4.2), no substantial adverse impacts to sea level rise are anticipated under the preferred alternative. However, continued global warming has a direct correlation to sea level rise (SLR) (USACE, 2019a). Increased SLR in the future would contribute to erosion and structure damage by allowing waves to propagate over deeper waters and reach higher elevations (USACE, 2019b). Therefore, if SLR continues, it is likely to cause erosion at the mouth of Tillamook Bay and could increase deterioration and the need for repairs to the Tillamook Jetty. No substantial impacts to climate change are anticipated under the preferred alternative, but climate change could have potential effects to the jetty if global temperatures and sea levels continue to rise.

Effects from the preferred alternative to climate change: No significant effect

4.18 Safety

4.18.1 Affected Environment

The jetties at Tillamook Bay provide a stabilized entrance for vessels going in and out of local ports. Navigation through the channel can be hazardous during certain ocean conditions, at times causing the USCG to restrict entrance for smaller vessels until conditions improve.

4.18.2 Environmental Consequences of the Alternatives

No Action Alternative

Under the no action alternative, the north jetty would continue to deteriorate, and protection for marine vessel traffic in and out of Tillamook Bay would decline.

Alternative 1: Preferred Alternative

Under the preferred alternative, protection for the north side of the navigation channel would be restored to its designed condition, thus providing safer conditions for marine traffic between the Pacific Ocean and Tillamook Bay.

Effects from the preferred alternative to safety: Resource unaffected by action

5 Agencies Consulted and Interested Parties

A Public Notice was issued for this EA, posted on the Portland District website, and sent to the following federal, state, tribal, and other interested parties:

- Confederated Tribes of the Grand Ronde Community of Oregon (Grand Ronde)
- Confederated Tribes of Siletz Indians (Siletz)
- Oregon State Historic Preservation Office (SHPO)
- The Port of Garibaldi

The Grand Ronde, Siletz and SHPO were sent official NHPA-Section 106 consultation letters with detailed descriptions of the undertaking, determinations of effect and recommendations on April 7, 2017 and May 18, 2021. Per 36 CFR Part 800 regulations, all consultation partners were provided a 30-day review and comment period for each consultation effort. SHPO concurred with the adequacy of the Corps' assessment efforts, determinations and findings of No Effect and No Adverse Effect on historic properties in official correspondences dated June 17, 2021 and June 18, 2021, respectively. No comments or concerns were received from the Grand Ronde and Siletz during the 2017 and 2021 consultation efforts, with the most-recent consultation 30-day review and comment period having ended on June 21, 2021.

The Corps made a No Effects determination for listed threatened and endangered species and under NOAA Fisheries (NMFS) jurisdiction. The Corps confirmed with the US Fish and Wildlife Service under Section 7 of the Endangered Species Act for a No Effects determination to USFWS species, including the threatened Snowy Plover. No further consultation is required in the event of a No Effects determination.

6 Compliance with Other Environmental and Cultural Resources Laws, Executive Orders

The following sections demonstrate compliance with all relevant environmental and cultural laws for the proposed action outside of the NEPA compliance.

6.1 Compliance with Environmental & Cultural Resource Laws

6.1.1 Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa-470mm

Finding: The proposed action does not require disturbance or removal of archaeological resources, subsurface archaeological investigations or permitting for such activities. Therefore, this Act is *not applicable* to this action.

6.1.2 Bald and Golden Eagle Protection Act of 1940, 16 U.S.C. §668 et seq.

Finding: U.S. Fish and Wildlife Service, National Bald Eagle Management Guidelines (May 2007) and the U.S. Army Corps of Engineers eGIS Information Portal were aids in evaluating project impacts to bald eagles and known nest locations. The proposed action would have no impact to preferred nesting, rearing, or foraging habitat, and no 'take' of bald or golden eagles because no known nesting sites are near the construction area, which is also currently a heavily trafficked area by people. Therefore, the Act is not applicable to the proposed action.

6.1.3 Clean Air Act (CAA) of 1970, 42 U.S.C. §7401 et seq.

Finding: The proposed action would not create or result in any exceedances of State and Federal emission standards (See Section 4.2). Therefore, the proposed action is *in compliance* with this Act.

6.1.4 Clean Water Act (CWA) of 1972, 33 U.S.C. §1251 et seq.

The following sections of the CWA apply to the action: Section 402

Finding: The proposed action falls under Nationwide Permit 3: Maintenance and is a Section 10 project. As such NWP 3 projects that are Section 10 do not require further review by the Oregon Department of Environmental Quality for an individual 401 Water Quality Certificate.

The current scope does not include a staging area that will exceed the one-acre threshold for disturbance of non-paved areas, therefore a Section 402 Permit is not required.

The activities on the jetty structure are exempt under Section 404(f)(1) of the CWA as maintenance of structures. The project would not result in any discharge of dredged or fill material below the ordinary high-water mark or the mean high high-water line that is not consistent with the size, character, and scope of the previously constructed jetty.

6.1.5 Coastal Zone Management Act (CZMA) of 1972, 6 U.S.C. §1451 et seq.

Finding: The proposed action is in the coastal zone for the state of Oregon. This zone is described by the Oregon State Government as extending from Washington to California, seaward to the extent of three nautical miles, and inland to the crest of the coastal mountain range [except to the downstream end of Puget Island on the Columbia River, to Scottsburg on the Umpqua River, and to Agness on the Rogue River]. The project area was compared to the map found here OR CZMA and was determined to be within the coastal zone range. The Oregon Department of Land Conservation and Development (DLCD) has extended advance concurrence of Nationwide Permit 3 maintenance projects and does not require a CZMA determination letter to be reviewed. Therefore, the proposed action is *in compliance* with this Act

6.1.6 Columbia River Gorge National Scenic Area Act of 1986, 16 U.S.C. §§ 544–544p

Finding: The proposed action is located outside of the Columbia River Gorge National Scenic Area (CRGNSA) and would have no potential to impact the CRGNSA. Therefore, the Act is *not applicable* to the proposed action.

6.1.7 Comprehensive Environmental Response, Compensation and Liability Act – Superfund (CERCLA) of 1980, 42 U.S.C. §9601 et seq.

Finding: The proposed action is not located within the boundaries of a known cleanup site as identified by the EPA, the State of Oregon or the State of Washington, and is not part of the National Priority List. Therefore, the Act is *not applicable* to the proposed action.

6.1.8 Endangered Species Act (ESA) of 1973, 16 U.S.C. §1531 et seq.

The current ESA USFWS Species List and NMFS Species List were reviewed for Tillamook County, Oregon.

Table 7-1: Species listed by status, listing citation, and applicable rules

Species	Scientific Name	Where Listed	Status	Listing citations & applicable rules
<u>Western Snowy Plover</u>	<i>Charadrius nivosus nivosus</i>	58 FR 12864	Threatened	50 CFR 17
<u>Southern DPS green sturgeon</u>	<i>Acipenser medirostris</i>	71 FR 17757	Threatened	50 CFR 223
<u>Oregon Coast Coho salmon</u>	<i>Oncorhynchus kisutch</i>	79 FR 20802	Threatened	50 CFR 223 50 CFR 224

Finding: Western Snowy plover are present more than one-half mile from the proposed project area at the North Jetty. The distance from the North Jetty and the presence of the South Jetty creates a sight block where there is no line-of-sight to WSP and their

habitat. Noise from the proposed construction activities to WSP would be dissipated by water noise and the long distance from the work area to WSP. Due to the above factors, the Corps has determined that there will be *no effect* to WSP or its Designated Critical Habitat from the proposed repairs at the North Jetty, and therefore consultation with FWS for the WSP is not required under Section 7 of the ESA. However, during informal communications, USFWS concurred in the Corps' No Effect determination (the letter of this informal coordination with USFWS will be attached to the final EA).

On January 9, 2020, the Corps sent notification to NMFS of our intent to cover proposed Tillamook Bay Jetty Maintenance and Repairs under the existing SLOPES IV In-water and over-water structures biological opinion (NMFS No. 2011/05585). The notification included proposed repairs to both the Tillamook North and South Jetties, that latter of which may require the construction of a temporary material offload facility. On January 15, 2020, NMFS concurred with the use of SLOPES IV for proposed jetty repairs. NMFS also concurred that placing rock on jetties could occur all year and did not specify the need to increase potential "take" estimates because jetty rocks would be lowered one at a time slowly. Applicable design criteria and measures are considered non-discretionary and would be incorporated into contract specifications. However, no pile-driving or dredging is proposed as part of the Tillamook North Jetty repair action, thus many of these conditions are not applicable.

Based upon review of the ESA species lists, designated critical habitat, and the action area, the Corps has determined *no effect* to species USFWS jurisdiction, and received SLOPES concurrence for species under NMFS jurisdiction. Therefore, the proposed action is *in compliance* with this Act

6.1.9 Farmland Protection Policy Act (FPPA) of 1994, 7 U.S.C. §4201 et seq.

Finding: The proposed action does not involve farmland. Therefore, this Act is *not applicable* to the proposed action.

6.1.10 Fish and Wildlife Coordination Act (FWCA) of 1958, 16 U.S.C. §661 et seq.

Finding: The proposed action is not a water-resource development project, nor would it impound, divert, deepen, control, or modify a body of water. Therefore, this Act is *not applicable* to the proposed action.

6.1.11 Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, 16 U.S.C. §1801 et seq.

Finding: The Corps has made a no effect determination to Essential Fish Habitat (EFH) for the Oregon Coast Coho and the Southern DPS green sturgeon. An assessment of EFH and potential effects was included as part of the NMFS SLOPES IV BiOp. The Proposed Action would adhere to all BMPs and conservation measures in the BiOp to minimize potential effects to EFH. The Proposed Action complies with this Act. Therefore, the proposed action will be *in compliance* with this Act.

6.1.12 Marine Mammal Protection Act (MMPA) of 1972, 16 U.S.C. §1361 et seq.

Finding: The proposed action would be located in the entrance channel of Tillamook

Bay where marine mammals may be located. However, no pile driving or in-water work that would generate sound levels above ambient conditions is proposed as part of this action. In addition, there are no known pinniped haul-out sites within 100 meters of proposed rock placement on the North jetty so visual disturbance is not anticipated. On February 23, 2021, NMFS Protected Resources Division concurred that take of marine mammals was unlikely as a result of this work. Therefore, the proposed action is *in compliance* with this Act.

6.1.13 Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, 16 U.S.C. §1431 et seq.

Finding: The proposed action does not involve in-water disposal of materials into the ocean. Therefore, this Act is *not applicable* to the proposed action

6.1.14 Migratory Bird Treaty Act (MBTA) of 1918, 16 U.S.C. §703 et seq.

Finding: The proposed action will not result in the taking of any migratory birds. Therefore, this Act is *not applicable* to the proposed action.

6.1.15 National Historic Preservation Act (NHPA) of 1966, 54 U.S.C. § 300101 et seq.

Finding: Pursuant to its responsibilities under Section 106 of the NHPA, 36 CFR § 800.3 (c), 36 CFR § 800.3(f)(2), 36 CFR § 800.4(a)(1) and 36 CFR § 800.4(b), the Corps has reviewed the undertaking for purposes of Section 106 of the NHPA and has determined that there will be no historic properties affected pursuant to 36 CFR § 800.4(d)(1) for re-use of the proposed construction equipment staging/rock storage locations. The Corps has also determined the North Jetty structure, itself, is eligible for listing in the National Register of Historic Places (NRHP) under Criterion A for its association with Maritime History and Transportation, and, pursuant to 36 CFR § 800.5(b), the proposed construction/structural repair work will result in no adverse effect to the North Jetty's NRHP eligibility, and the overall work will result in a finding of no adverse effect on historic properties or significant cultural resources. In further compliance with provisions of Section 106 of the NHPA, the Corps consulted the undertaking, cultural resources assessment efforts, recommendations, and determinations regarding re-use of the proposed construction equipment staging/rock storage locations and North Jetty structural repair work with the SHPO and affected Tribes in May 2021. The SHPO concurred with the adequacy of the Corps' assessment efforts, determinations and findings of no effect and no adverse effect on historic properties in official correspondences dated June 17, 2021 and June 18, 2021, respectively. No comments or concerns were received from the Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians during the 30-day review and comment period, per 36 CFR Part 800 regulations, which ended on June 21, 2021. Therefore, the proposed action is in compliance with the Act.

6.1.16 Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, 25 U.S.C. §3001 et seq.

Finding: The proposed action is not expected to have any impact on any NAGPRA items, locations, or resources. In the unlikely event that human remains, archaeological

deposits or cultural items are discovered during any ground-disturbing activities associated with the Tillamook North Jetty Repairs, all work must cease in the immediate area of discovery and a Corps-Portland District archaeologist must be notified immediately. The Corps will comply with procedures outlined in 36 CFR 800.13, the current version of the Portland District *Inadvertent Discovery Plan* and provisions of NAGPRA as applicable. Therefore, the proposed action is *in compliance* with the Act.

6.1.17 Resource Conservation and Recovery Act (RCRA) of 1976, 42 U.S.C. §6912 et seq.

Finding: The proposed action would require all project activities to follow Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and EM 385-1-1 standards, as well as 29 CFR § 1926.62, all applicable state, or local ordinances pertaining to the proper removal, handling, and disposal of any hazardous or solid waste generated. Therefore, the proposed action is *in compliance* with this Act.

6.1.18 Rivers and Harbors Act (RHA) of 1899, 33 U.S.C. §401-418

The following sections of the RHA apply to the action: Section 10

Finding: The proposed action would occur at the mouth of the Tillamook River (Tillamook Bay). Section 10 of the RHA would apply to Tillamook Bay from River Mile 0 to River Mile 5. The proposed action would protect the navigability of the river through the repair of the protective jetty structure that provides safe passage for marine vessels traveling to and from the ocean into port and upriver. Therefore, the proposed action is *in compliance* with this Act.

6.1.19 Safe Drinking Water Act of 1996 (SDWA), 42 U.S.C. §300(f) et seq.

Finding: The proposed action will not endanger underground aquifers and will not result in any effects on the public drinking water supply. Therefore, the proposed action is *in compliance* with this Act.

6.1.20 Wild and Scenic Rivers Act (WSRA) of 1968, 16 U.S.C. §§1271-1287

Finding: The proposed action has no potential to impact a designated Wild and Scenic River because it is not located within or near a designated Wild and Scenic River nor will it result in effects to the outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values. Therefore, the Act is *not applicable* to the proposed action.

6.2 Compliance with Environmental and Cultural Resource Executive Orders

6.2.1 Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971

Finding: The project will not demolish, degrade, significantly alter, or sell/transfer any historic property or cultural environment included in, or eligible for inclusion in, the National Register of Historic Places. No sites, structures, or objects of historical, architectural, archaeological, or cultural significance will be adversely impacted by the proposed activities. Therefore, the proposed action is *in compliance* with this Order.

6.2.2 Executive Order 11988, Floodplain Management, 24 May 1977

Finding: The proposed action would not result in a modification to the current floodplain conditions, nor would it encourage further development of the floodplain. Therefore, the proposed action is *in compliance* with the Order.

6.2.3 Executive Order 11990, Protection of Wetlands, 24 May 1977

Finding: The entirety of the proposed action work will take place on existing infrastructure and developed areas. No fill or work in wetlands will take place. BMP's will be implemented to protect wetlands near the construction, staging, and road access areas including the use of 50ft construction buffers and temporary hardened barriers and silt fencing where a distance buffer is not feasible. The proposed action will have *no effect* on wetlands in the vicinity of the project area. Therefore, the proposed action is *in compliance* with this Order.

6.2.4 Executive Order 12114, Environmental effects abroad of major Federal actions, 04 January 1979

Finding: The proposed action is not a major Federal action nor would it have any significant effects to the environment of nations abroad. Therefore, the Order is *not applicable* to the proposed action.

6.2.5 Executive Order 12898, Environmental Justice, 11 February 1994

Finding: The proposed action would not affect subsistence, low-income or minority communities. There would be no changes in population, economics, or other indicators of social well-being within the short- or long-term future due to the proposed action. Therefore, the proposed action is *in compliance with* the Order.

6.2.6 Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 6 November 2000

Finding: The proposed action does not trigger the need for government-to-government consultation, as no policy decisions with Tribal implications will be made. However, the Corps is currently consulting and coordinating the undertaking, and the agency's determinations of effect on historic properties and other cultural resources, with affected Tribes (i.e., the Confederated Tribes of the Grand Ronde Community of Oregon and Confederated Tribes of Siletz Indians) in compliance with NHPA regulations and 36 CFR Part 800 (as amended). Therefore, the proposed action is *in compliance* with the Order.

6.2.7 Executive Order 13186, Migratory Birds, 10 January 2001

Finding: The proposed action does not involve activities where there would be take of migratory birds or disturbance of their habitat. All construction activities will take place on current recreational parking areas and existing infrastructure and is not considered suitable habitat for migratory birds. Therefore, the Order is *not applicable* to the proposed action.

6.2.8 Executive Order 13287, Preserve America, 3 March 2003

Finding: The proposed action does not propose, nor will it result in any significant changes or adverse effects, to any eligible or potentially eligible historic properties, structures or cultural resources located within the project area and immediate vicinity. Therefore, the proposed action is *in compliance* with this Order.

6.2.9 Executive Order 13751, Safeguarding the Nation from the Impacts of Invasive Species, 5 December 2016

Finding: The proposed action would have no potential to introduce, establish, or spread invasive species because associated activities require the reseedling of disturbed areas with a regional native seed mixture. Therefore, the proposed action would be *in compliance* with the Order.

7 Treaty Responsibilities

7.1 Tribal Trust and Treaty Responsibilities

Government-to-government consultation was conducted with the following Federally recognized Tribe(s): N/A

Finding: An invitation for government-to-government consultation on the proposed action was extended by the Corps to the Confederated Tribes of the Grand Ronde Community of Oregon via official correspondence on September 25, 2017, but no subsequent comments or concerns about the project, nor potential impacts on Tribal trust or treaty responsibilities, have been received to date. The Tribes have not expressed interest in participating in government-to-government consultation regarding the project, nor implications on Tribal trust or treaty responsibilities. Therefore, the proposed action is in compliance with Tribal trust and treaty responsibilities.

7.2 Foreign Nations

Finding: The proposed action will not impact the interests or sovereignty of any foreign nations because the proposed activities associated with the undertaking will take place on federal (i.e., Corps) property located near Tillamook, Tillamook County, Oregon, in the United States of America.

8 References

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9 Appendices

Appendix A. Conditions of Environmental Compliance

Endangered Species Act (ESA) Section 7

- **NMFS Consultation**

The Proposed Action has been approved for implementation under an existing NMFS programmatic Biological Opinion (BiOp) - SLOPES IV In-water Over-water Structures, NMFS No. 2011/05585. The full document, which includes design criteria for all actions authorized or carried out under the BiOp, can be found here:

https://www.nwp.usace.army.mil/Portals/24/docs/regulatory/NMFS/2012_04-05_SLOPES_IV_inwater_overwater_201105585.pdf. The SLOPES IV BiOp includes the following Reasonable and Prudent Measures, and associated Terms and Conditions, to minimize potential effects to ESA-listed species under NMFS jurisdiction.

Reasonable and Prudent Measures

The following measures are necessary and appropriate to minimize the impact of incidental take of listed species from the proposed action.

The Corps shall:

1. Implement appropriate design criteria for each activity or attach them as required conditions of a permit.
2. Ensure completion of a monitoring and reporting program to confirm that the take exemption for the proposed action is not exceeded, and that the terms and conditions in this incidental take statement are effective in minimizing incidental take.

Terms and Conditions

The measures described below are non-discretionary, and must be undertaken by the Corps or, if an applicant is involved, must become binding conditions of any permit or grant issued to the applicant. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require an applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) will likely lapse.

1. To implement reasonable and prudent measure #1 (proposed design criteria), the Corps shall ensure that:
 - a. Every action authorization or completed under this opinion will be administered by the Corps consistent with design criteria 1 through 10.
 - b. For each action with a general construction element, the Corps will apply design criteria 1 through 10 and 11 through 27 as enforceable permit conditions or as final project specifications.
 - c. For specific types of in-water or over-water actions, the Corps will apply design criteria 28 through 36, as appropriate, as enforceable conditions or as final project specifications.

- d. Additional excluded areas for dock placement includes any area within 1,000 feet of a tributary that supports a run of ESA listed anadromous species.
 - e. Residential piers leading to ramps and floats are not wider than 8 feet.
 - f. Within 10 days of completing a capture and release as part of an action completed under the SLOPES IV In-water Over-water Structures programmatic opinion the applicant or, for Corps civil works actions, the Corps, must submit a complete a Salvage Reporting Form, or its equivalent, with the following information to NMFS at slopes.nwr@noaa.gov.
2. To implement reasonable and prudent measure #2 (monitoring and reporting), the Corps shall ensure that:
 - a. The Corps' Regulatory and Civil Works Branches will each submit a monitoring report to NMFS by February 15 each year that describes the Corps' implementation of the SLOPES IV program under the terms of this opinion. The report will include an assessment of overall program activity, a map showing the location and type of each action authorized and carried out under this opinion, and any other data or analyses the Corps deems necessary or helpful to assess habitat trends because of actions authorized under this opinion, and to assess the need for reinitiation¹¹.
 - b. The Corps' Regulatory and Civil Works Branches will each attend an annual coordination meeting with NMFS by March 31 each year to discuss the annual monitoring report and any actions that will improve conservation under this opinion, or make the program more efficient or more accountable.

Essential Fish Habitat Conservation Recommendations

1. As appropriate to each action issued a regulatory permit under this opinion, NMFS recommends that the Corps include the project design criteria for administration, construction, and types of actions as enforceable permit conditions, except #1 (confirm ESA-listed fish presence), #6 (salvage notice), and #20 (fish capture and release).

The numbers in the above recommendation refer to design criteria listed under Section 1.3.1 of the SLOPES IV BiOp. The full list of Proposed Design Criteria and associated measures are listed under Section 1.3.1 of the SLOPES IV BiOp). While many would not be applicable to proposed Tillamook North Jetty Repairs, the following measures would be integrated into the proposed action.

5. Site access. The Corps will retain the right of reasonable access to the site of actions authorized under this opinion to monitor the use and effectiveness of permit conditions.

6. Salvage notice. The Corps will include the following notice as part of each permit issued using this opinion and, for actions completed by the Corps, provide the notice in writing to the action supervisor.

If a sick, injured, or dead specimen of a threatened or endangered species is found during construction and within the action area, the finder must notify NMFS' Office of Law Enforcement at 503-231-6240 or 206-526-6133. The finder must take care in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility for carrying out

instructions provided by the Office of Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

7. Action completion report. The Corps will submit an action completion report (Appendix B) for each action carried out by the Corps, and require the applicant to submit an action completion report for each action authorized by the Corps, to NMFS within 60 days of completing all work below ordinary high water. A completed fish salvage reporting form (Appendix C) is also required for any action that involves fish capture and removal.

8. Site restoration or compensatory mitigation report. The Corps will submit a site restoration or compensatory mitigation report (Appendix D) for each project carried out by the Corps, and require the applicant to submit a report for each such action authorized by the Corps, to NMFS by December 31 of the year that the Corps approves that the site restoration or compensatory mitigation is complete.

11. Pollution and erosion control. Any action that will require earthwork and may increase soil erosion and cause runoff with visible sediment into surface water, or that will require the use of materials that are hazardous or toxic to aquatic life (such as motor fuel, oil, or drilling fluid), must have a pollution and erosion control plan that is developed and carried out by the applicant, and commensurate with the scale of the action.

a. The plan must include practices to minimize erosion and sedimentation associated with all aspects of the project (e.g., staging areas, stockpiles, grading); to prevent construction debris from dropping or otherwise entering any stream or waterbody; and to prevent and control hazardous material spills.

b. During construction, erosion controls and streams must be monitored and maintained daily during the rainy season and weekly during the dry season as necessary to ensure controls are properly functioning.

c. If monitoring shows that the erosion controls are ineffective at preventing visible sediment discharge, the project must stop to evaluate erosion control measures. Repairs, replacements, or the installation of additional erosion control measures must be completed before the project resumes.

d. Proper maintenance includes removal of sediment and debris from erosion controls like silt fences or hay bales once it has reached on-third of the exposed height of the control

15. Preconstruction activity. Before alteration of the action area, flag the boundaries of clearing limits associated with site access and construction to minimize soil and vegetation disturbance, and ensure that all temporary erosion controls are in place and functional.

16. Site preparation. During site preparation, conserve native materials for restoration, including large wood, vegetation, topsoil, and channel materials (gravel, cobble, and boulders) displaced by construction. Whenever practical, leave native materials where they are found and in areas to be cleared, clip vegetation at ground level to retain root mass and encourage reestablishment of native vegetation. Building and related structures may not be constructed inside the riparian management area.

17. Heavy equipment. Heavy equipment will be selected and operated as necessary to

minimize adverse effects on the environment (e.g., minimally-sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils); and all vehicles and other heavy equipment will be used as follows:

- a. Stored, fueled, and maintained in a vehicle staging area placed 150 feet or more from any waterbody, or in an isolated hard zone such as a paved parking lot.
- b. Inspected daily for fluid leaks before leaving the vehicle staging area for operation within 50 feet of any waterbody.
- c. Steam-cleaned before operation below ordinary high water, and as often as necessary during operation to remain free of all external oil, grease, mud, seeds, organisms, and other visible contaminants.
- d. Generators, cranes and any other stationary equipment operated within 150 feet of any waterbody will be maintained and protected as necessary to prevent leaks and spills from entering the water.

Appendix B. Erosion Control Site Plan Map

