



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

COOS BAY NORTH JETTY INTERIM REPAIR

Draft Environmental Assessment



Aerial View of the North and South Jetties at Coos Bay, Oregon

Revised Draft April 2008

ABBREVIATIONS AND ACRONYMS

BLM	Bureau of Land Management
Corps	U.S. Army Corps of Engineers
cy	cubic yard(s)
DMEF	Dredge Material Evaluation Framework
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FR	Federal Register
HRA	habitat restoration area
LNG	liquefied natural gas
MLLW	mean lower low water
NMFS	National Marine Fisheries Service
OC	Oregon Coast
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
PAH	polynuclear aromatic hydrocarbon(s)
PCB	polychlorinated biphenyl
RM	river mile(s)
USFWS	U.S. Fish and Wildlife Service

Metric to English Conversion Factors

To Convert From	To	Multiply by
meters	feet (ft)	3.281
meters	miles (statute)	0.0006214
meters	yards	1.094
kilometers (km)	feet (ft)	3,281
kilometers (km)	miles (statute)	0.6214
meters/second (m/s)	feet/second (ft/s)	3.28

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1. INTRODUCTION

This draft Environmental Assessment (EA) evaluates the environmental effects of an interim repair of the Coos Bay North Jetty. The jetty is part of the U.S. Army Corps of Engineers' (Corps) Coos Bay navigation project, located in Coos County, Oregon (Figure 1). The project includes two rubble-mound jetties, the North and South jetties, that provide a stable entrance channel and minimize the need for maintenance dredging (see cover photo). The jetties also protect the inner harbor from the turbulence associated with ocean waves. The North Jetty was constructed from 1891 through 1898 and is about 9,600 feet long. It is located along the south end of a long, littoral sand spit (North Spit).

Since its construction, various jetty extensions and repair actions have occurred at the North Jetty. The most recent repair actions occurred in 1989 when the jetty trunk was repaired, and in 2002 to repair a breach in the jetty from stations 53+00 to 58+00. This interim repair addresses the minimum design needed to avoid imminent breach of the North Jetty. A major maintenance study is expected to begin within the next 5 years to address the degrading condition of the North Jetty. The study will address a long-term fix that may include a larger jetty footprint, higher crest elevation, longer reach, and larger stone in the root region and other jetty areas. The proposed action described in this EA is only the first step of planned repairs.



Figure 1. Coos Bay Project Location

1.1. Purpose and Need for Action

1.1.1. Purpose

The purpose of the proposed action is to repair three storm-damaged areas on the Coos Bay North Jetty in order to strengthen the jetty structure and extend its functional life.

1.1.2. Need

The North Jetty is battered each winter by storm waves. Over time, jetty stones fall out of place, which results in structural deterioration. Eventually enough damage develops to reduce project effectiveness and structural integrity. If the jetty should breach, then structural deterioration of the jetty proceeds at an increasingly rapid rate. Shoaling of the entrance channel usually accelerates as littoral drift transports sediments through the breach and deposits them in the channel. Also, incoming waves are able to penetrate the jetty and create greater turbulence at the mouth. Wave action would further erode the jetty and enlarge the breach. These consequences would adversely affect commercial and recreational traffic using the Coos Bay entrance channel and harbor area.

2. AFFECTED ENVIRONMENT

2.1. Physical Characteristics

The topography of the lower Coos River area is a combination of rugged mountain terrain, extensive sand dunes adjacent to the ocean, and relatively flat pasture along the river. Coos Bay is a typical drowned river valley estuary on the Oregon Coast. It is relatively shallow with gently sloping sides and a well established deeper channel. During the rise in sea level, which produced the estuary, there was a large increase in sedimentation that produced the broad expanse of tidal flats and marshes. The North Spit was formed from sand deposited by “long shore drift” or ocean currents running parallel to the shore. Coos Bay is the largest estuary on the Oregon Coast excluding the Columbia River. It covers over 12,000 acres of which almost 9,000 acres are tidal flats and marshes. There are some 30 tributaries with the largest being the Coos River draining over 400 square miles. The total drainage area for all tributaries is about 600 square miles (Corps 1994).

Coos Bay tides are of the “mixed, semi-diurnal” type, which means that there are two high and two low tides during each day. There is a marked variation in height between the two high tides and the two low tides. The mean tidal range to mean high water is 7.0 feet above mean lower low water (MLLW) at the Coos Bay entrance and 7.3 feet at the City of Coos Bay. The highest estimated tide is 10.5 feet above MLLW. Extreme low water is estimated to be -3.0 feet below MLLW. Coastal circulation reflects the combined influences of seasonally reversing regional currents and winds, the tides, and other periodic phenomena (Corps 1994). The prevailing wave direction off Coos Bay is from the west. Summer waves approach from the west-northwest and littoral transport of beach sediments is to the south. During the remainder of the year, waves approach from the west and southwest driving littoral transport to the north. Wave heights range from a little over 3 feet during the summer to over 11 feet in winter (Corps 1994).

Water quality in Coos Bay is typical of an industrially developed estuary. Various chemical constituents have been identified and are of concern. Water quality problems are also derived from the shallowness of the bay and low river flow into the bay in summer. Oregon’s 2002 Water Quality Limited Streams Database (<http://www.deq.state.or.us/wq>) lists fecal coliform as a parameter of concern for the lower portion of Coos Bay [river mile (RM) 0 to 7.8]. From RM 7.8 to 12.3, additional parameters of concern for the bay include tributyltin, copper, polynuclear aromatic hydrocarbons (PAHs), chromium (hex), lead, nickel, polychlorinated biphenyl (PCB), and zinc.

Sediment quality data was collected from the Coos Bay federal navigation project in 1980, 1986, 1987, 1989, 1993, 1994, 1995, 1998, and 2004. Seventeen sediment samples were collected along the length of the federal navigation channel in Coos Bay, Isthmus Slough, and Charleston Channel and submitted for testing in September 2004 (Corps 2005). All samples were submitted for physical and chemical analysis. The physical analyses resulted in mean values of 1.6% gravel (shell hash), 69.6% sand, and 28.8% silt/clay, with 4.5% volatile solids. The material was determined to be suitable for unconfined, in-water placement without further characterization.

2.2. Fish and Wildlife

The nearshore area off Coos Bay supports a variety of fish species. Some of these fish are anadromous, spawning in streams and rearing in the estuary and ocean. Anadromous species present include coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), striped bass (*Morone saxatilis*), and sea run cutthroat trout

(*Oncorhynchus clarki clarki*). Marine and estuarine species include sculpin, various flatfish and rockfish species, and ocean perch. A variety of reef fish are found near the Coos Bay jetties. However, the jetties are located in a high-energy area subject to strong tidal and river currents and wave action. These high-energy conditions contribute to continual movement of sediments with both deposition and erosion occurring. This continual disturbance limits biological productivity along the jetty structures themselves.

Essential fish habitat (EFH), as defined by the Magnuson-Stevens Fishery Conservation and Management Act, is present both in Coos Bay and the offshore area. The EFH is present for five coastal pelagic species, numerous Pacific Coast groundfish species, and coho and Chinook salmon.

Intertidal flats support a wide range of benthic invertebrates. For example, polychaetes are found in intertidal flats. Macoma and gaper clams, as well as immature Dungeness crabs (*Cancer magister*), occur in these same intertidal flats. Bottom feeding fish forage over intertidal flats during high tide.

The marine mammal species likely to occur near the North Jetty include harbor seals and sea lions. Pelagic birds are numerous offshore of Coos Bay and include auklets, murrelets, fulmars, phalaropes, and kittiwakes. Briggs and others (1992) found that seabird populations were most densely concentrated over the continental shelf (<600 feet in depth). Cormorants and terns occur in Coos Bay and forage in nearshore Pacific Ocean waters. Shorebirds found on coastal beaches include sanderlings and various species of sandpipers, dunlins, and plovers. The bald eagle (*Haliaeetus leucocephalus*) may use the Coos Bay North Spit for roosting as eagles are occasionally seen foraging on its beaches. Trees suitable for bald eagle nesting are not present in the North Jetty project area. Other bird species present in the area include herons, waterfowl, gulls, and hawks.

2.3. Threatened and Endangered Species

Species listed under the Endangered Species Act (ESA) that may occur in Coos County, Oregon include two fish species and many wildlife species as shown in Table 1.

Coho Salmon. The recent National Marine Fisheries Service (NMFS) listing of Oregon Coast (OC) coho salmon includes all naturally spawned populations of coho salmon in Oregon coastal streams south of the Columbia River and north of Cape Blanco, including the Cow Creek (Oregon Department of Fish and Wildlife (ODFW) stock # 37) coho hatchery program. Coos Bay and River are included as critical habitat for OC coho salmon. Fish spawning surveys conducted by the ODFW have been used to assess the status and trends of coastal coho populations. Annual estimates of Coos River adult coho salmon run size from 1990 to 2006 are shown below (<http://oregonstate.edu/Dept/ODFW/spawn/index.htm>).

1990	1991	1992	1993	1994	1995	1996	1997	1998
2,273	3,813	16,545	15,284	14,685	10,351	12,128	1,127	3,167
1999	2000	2001	2002	2003	2004	2005	2006	
4,945	5,386	43,301	35,688	29,559	24,116	17,048	11,266	

Table 1. ESA-listed Fish and Wildlife Species, Coos County, Oregon

Species	Status & Jurisdiction	Federal Register (FR) Listing	Critical Habitat
Oregon Coast (OC) Coho Salmon <i>Oncorhynchus kisutch</i>	Threatened NMFS	73 FR 7816; 2/11/2008	73 FR 7816; 2/11/2008 Coos Bay/River
Southern Distinct Population Segment (DPS) Green Sturgeon <i>Acipenser medirostris</i>	Threatened NMFS	71 FR 17757; 4/07/2006	None designated
Eastern DPS Steller Sea Lion <i>Eumetopias jubatus</i>	Threatened NMFS	62 FR 24345; 5/05/1997	58 FR 45269; 8/27/1993
Blue Whale <i>Balaenoptera musculus</i>	Endangered NMFS	35 FR 18319; 12/02/1970	None designated
Fin Whale <i>Balaenoptera physalus</i>	Endangered NMFS	35 FR 18319; 12/02/1970	None designated
Sei Whale <i>Balaenoptera borealis</i>	Endangered NMFS	35 FR 18319; 12/02/1970	None designated
Sperm Whale <i>Physeter macrocephalus</i>	Endangered NMFS	35 FR 18319; 12/02/1970	None designated
Humpback Whale <i>Megaptera novaeangliae</i>	Endangered NMFS	35 FR 18319; 12/02/1970	None designated
North Pacific Right Whale <i>Eubalaena glacialis</i>	Endangered NMFS	71 FR 77694; 12/27/2006 (proposed rule)	71 FR 38277; 7/06/2006
Loggerhead Sea Turtle <i>Caretta caretta</i>	Threatened NMFS	43 FR 32800; 7/28/1978	None designated
Green Sea Turtle <i>Chelonia mydas</i>	Threatened NMFS	43 FR 32800; 7/28/1978	63 FR 46693; 9/02/1998
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	Endangered NMFS	35 FR 8491; 6/02/1970	44 FR 1771; 3/23/1979
Olive Ridley Sea Turtle <i>Lepidochelys olivacea</i>	Threatened NMFS	43 FR 32800; 7/28/1978	None designated
Short-tailed Albatross <i>Phoebastria albatrus</i>	Endangered USFWS	65 FR 46643; 7/31/2000	None designated
Brown Pelican <i>Pelecanus occidentalis</i>	Endangered USFWS	35 FR 16047; 10/13/1970	None designated
Marbled Murrelet <i>Brachyramphus marmoratus</i>	Threatened USFWS	57 FR 45328; 10/01/1992	61 FR 26255; 5/24/1996
Western Snowy Plover <i>Charadrius alexandrinus nivosus</i>	Threatened USFWS	58 FR 12864; 3/05/1993	70 FR 56969; 9/29/2005
Northern Spotted Owl <i>Strix occidentalis caurina</i>	Threatened USFWS	55 FR 26114; 6/26/1990	57 FR 1796; 1/15/1992
Western Lily <i>Lilium occidentale</i>	Endangered USFWS	59 FR 42171; 8/17/1994	None designated

NMFS = National Marine Fisheries Service; USFWS = U.S. Fish and Wildlife Service

Figure 2 provides ODFW time frames for coho life-stage activities for the Coos Bay/River to the Millicoma-South Fork Coos River confluence. Coho salmon are primarily present in the navigation channel in the fall/winter as adults migrating upstream and are primarily present in the spring as juvenile yearlings migrating to the ocean. Juvenile rearing is believed to primarily occur in the upper estuary reaches.

Figure 2. Coho Salmon Timing, Coos Bay/River

Life Stage/Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Upstream Adult Migration	■								■	■	■	■
Adult Spawning C1												
Adult Holding									■	■	■	■
Egg Incubation to Fry Emerge C2												
Juvenile Rearing C3			■	■	■	■	■					
Downstream Juvenile Migration		■	■	■	■	■	■	■				

■ Represents periods of coho peak use based on ODFW professional opinion.
 ■ Represents lesser level of coho use based on ODFW professional opinion.
 ■ Represents periods of presence, either with no level of use OR uniformly distributed use.

Based on ODFW professional opinion, 90% of the life-stage activity occurs during the time frame shown as the peak use period.
 Based on ODFW professional opinion, 10% of the life-stage activity occurs during the time frame shown as the lesser use period.
 C1 - Estuary - no spawning. C2 - Estuary - no egg incubation. C3 - Some juvenile rearing use; mostly emigration to ocean.

Source: Coho timing data from ODFW (<http://rainbow.dfw.state.or.us/nrimp/information/timing/index.htm>)

Juvenile coho migrate out of the Coos Bay estuary from February to July with a peak from mid-March to mid-May. They may remain in nearshore waters for several months until later in the summer when they move further offshore and northward to reach major feeding areas offshore of British Columbia and Alaska (Groot and Margolis 1991). Following entry into the ocean, juvenile coho salmon initially occupied surface layers beyond the surf zone. Juvenile coho salmon are likely to expand their nearshore use out to approximately 90 miles offshore and a depth of 300 feet as they grow larger (Groot and Margolis 1991). After their second year in the ocean, adults migrate back south and eventually move upstream to spawning areas in the Coos Bay watershed. They arrive in the Coos Bay area sometime in mid to late summer where they hold and feed in the inshore waters until they migrate in fall to upstream spawning areas.

Green Sturgeon. The threatened Distinct Population Segment (DPS) of green sturgeon includes all green sturgeon that spawn within the Sacramento-San Joaquin rivers. Green sturgeon that spawn to the north, primarily in the Klamath and Rogue rivers, constitute the Northern DPS, which is not federally listed. These two DPSs were established because they were found to be genetically distinct. Israel and others (2004) showed genetic differences between one group of San Pablo Bay and Columbia River fish and a second group of Klamath River and Rogue River fish.

From 2000 to 2004, ODFW conducted a study of coastal streams to examine characteristics of green sturgeon populations in Oregon. Coos Bay was sampled by ODFW from May to June 2004 (Farr and Kern 2004). Gill nets, snorkeling, smallmouth bass stomach contents, and underwater cameras were used to attempt to capture green and white sturgeon. Only one white sturgeon was captured and tagged in the Coos River. No green sturgeon were captured. During the same time period, ODFW submitted 12 tissue samples from adult green sturgeon that were collected by anglers to the University of California at Davis for genetic analysis. No juvenile green sturgeon were captured during this time period. To date, the Coos Bay tissue samples have not been analyzed.

Marine Mammals. The Steller sea lion breeds along the West Coast of North America from California’s Channel Islands to the Kurile Islands and the Okhotsk Sea in the western north Pacific Ocean. They are year-long residents on the Oregon Coast and occur as migrants in the vicinity of the Coos Bay project. Steller sea lions are known to haul out at 10 sites along the Oregon Coast,

including Cape Arago in Coos County. This site is not a rookery area. Steller sea lions forage at river mouths and nearshore areas along the Oregon Coast. Roffe and Mate (1984) determined that proximity to the mouth of a river was the most important factor in determining foraging areas.

The federally listed marine whales all occur as migrants in waters off the Oregon Coast. According to Maser and others (1981), blue whales occur off the Oregon Coast in May and June, as well as August through October. Blue whales typically occur offshore as individuals or in small groups and winter well south of Oregon. Fin whales also winter far south of Oregon and range off the coast during summer. Whaling records indicated that fin whales are harvested off the Oregon Coast from May to September. Sei whales also winter south of Oregon and probably occur in southward migration off the Oregon Coast in late summer and early fall. Sperm whales occur as migrants and some may summer off the Oregon Coast. Sperm whales forage in waters much deeper than those in the vicinity of the Coos Bay North Jetty. Humpback whales primarily occur off the Oregon Coast from April to October with peak numbers from June through August. Green and others (1992) observed 35 humpback whales near Heceta Bank (approximately 15-30 miles off the Oregon Coast in Lincoln and Lane counties) in June 1990. They noted that humpback whales were particularly concentrated in Oregon along the southern edge of Heceta Bank and found this species primarily on the continental shelf and slope. Right whales may occur off the Oregon Coast during winter; summer distribution is in cool waters north of 50 degrees north latitude.

Marine Turtles. The federally listed marine turtles have all been recorded from strandings along the Oregon and Washington coastline since 1982 (Green et al., 1992). The occurrence of sea turtles off the Oregon Coast is associated with the appearance of albacore. Albacore occurrence is strongly associated with the warm waters of the Japanese current that tends to approach the Oregon Coast in late summer.

Short-tailed Albatross. This pelagic bird nests on islands south of Japan and forages in oceanic waters along the continental shelf and slope regions of the Pacific Ocean. It is unlikely to be in the vicinity of Coos Bay.

Brown Pelican. On February 20, 2008, the USFWS proposed to remove the brown pelican from the federal list of endangered and threatened wildlife due to recovery (73 FR 9407). Brown pelicans typically occur from late spring to mid-fall along the Oregon Coast. This species forages in nearshore waters of the Pacific Ocean and estuarine waters of Oregon bays. Brown pelicans congregate on the jetties, rocks, and sand flats in the project vicinity. Brown pelicans are commonly observed in and around human activities and appear habituated to human activity.

Marbled Murrelet. This near-shore marine bird is most frequently observed within 1.5 miles of shore (Marshall 1988). Marbled murrelets forage just beyond the breaker-line and along the sides of river mouths where greater upwelling and less turbulence occurs. Murrelets forage within the water column and prey items include invertebrates and small fish such as anchovy, herring, and sand lance. Marbled murrelets can be observed in small flocks or as individuals in the ocean and at Coos Bay throughout the year.

Western Snowy Plover. The North Spit is a highly used nesting and wintering area for western snowy plovers and is designated by the USFWS as critical habitat (see summary description below from 70 FR 56969). Use of the North Spit by western snowy plovers increased after construction of Habitat Restoration Areas (HRAs) on the southern portion of the spit (see Section 3.2). Currently the North Spit is the most productive area for these birds in Oregon. The HRAs are maintained by the Bureau of Land Management (BLM) in coordination with the Corps and the USFWS.

Coos Bay North Spit Critical Habitat. This unit is on the western coast of Coos County, Oregon, about 5 miles west of the City of Coos Bay. It is bounded by Coos Bay to the east, the Coos Bay North Jetty to the south, and the Pacific Ocean to the west. The unit is characteristic of a dune-backed beach and interior interdune flats created through dredge material disposal or through habitat restoration. It includes the following features essential to the conservation of the species: Expansive sparsely vegetated interdune flats (for nesting and foraging); areas of sandy beach above and below the high tide line with occasional surf-cast wrack supporting small invertebrates (for nesting and foraging); and close proximity to tidally influenced estuarine areas (for foraging). The most recently documented plovers for this unit include an average of 17 breeding and 3 wintering plovers in 2003. This unit provides habitat capable of supporting 54 breeding plovers under proper management. The unit consists of 278 federally owned acres primarily managed by the BLM. Threats that may require special management in this unit are introduced beachgrass that encroaches on the available nesting and foraging habitat; disturbance from humans, dogs, and off-highway vehicles in important foraging and nesting areas; and predators such as crows and ravens.

Lafferty (2001) found that wintering Western Snowy Plovers reacted to disturbance at distances of 40 meters (~131 feet), compared to 80 meters (~262 feet) for nesting birds, and that probability of disturbance decreased with the distance from the activity. During the 2002-2003 emergency repair action on the Coos Bay North Jetty, plover use of the area before and during frequent truck traffic was concentrated at the 1994 HRA and south spoil area, typically approximately 400 meters (~1,312 feet) from passing haul trucks. On one day of frequent truck traffic, plovers were noted as close as 100 meters (~328 feet) from the road. Very few plovers were noted on the beach during the 2002-2003 repair action (Dorsey 2002 and 2003).

Northern Spotted Owl. Northern spotted owls live in forests characterized by dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops. There is no suitable habitat present in the Coos Bay project vicinity for spotted owls.

Western Lily. The western lily grows up to 5 feet tall and has as many as ten nodding flowers per stem. The flowers are crimson red shading to yellow and green at the base. The yellow and green areas are dotted with purple. It blooms from late June through July. It grows only on the periphery of bogs near the sea, on soils that are poorly drained, and on highly organic soils of sphagnum origin. This lily is currently known from within 4 miles of the coast, extending about 220 miles from near Hauser, Coos County, Oregon to Loleta, Humboldt County, California. This range roughly includes the southern third of the Oregon Coast and the northern 100 miles of the California Coast. No suitable habitat is present in the Coos Bay project area for this extremely rare lily.

2.4. Cultural and Historic Resources

Evidence of several potentially significant properties on the Coos Bay North Spit was found within the archives and pertinent literature. Bands of the Coos Indian tribe lived on the estuary and portions of the North Spit until intrusion by Anglo-Americans in the mid-19th century. There has been a long federal involvement on the spit starting with the wreck of the *Captain Lincoln* in 1852 and the establishment of "Camp Castaway" by the survivors who erected temporary shelters for themselves and the cargo salvaged from their ship. U.S. Army mapping crews followed, and erosion control and channel improvement projects ensued leading to the establishment of project headquarters for the construction of the North Jetty. Facilities for the U.S. Life-Saving Service Station which were converted for the U.S. Navy Radio-compass Station were built on the east side of the North Spit nearly opposite Empire.

2.5. Socioeconomic Resources

Coos Bay, Charleston, and North Bend are known as Oregon's Bay Area and are located on the southern Oregon Coast about 220 miles south of Portland. According to the 2000 Census, Coos Bay had a total population of 15,374 people. Based on the 2000 Census, health care and social assistance was the top occupational field (17.7%) in Coos Bay followed by government (15.6%), retail trade (15.3%), educational services (8.2%), and agriculture, forestry, fishing and hunting (3.6%). The unemployment rate was 9.3%. Coos Bay's per capita income was \$18,158 and the median household income was \$31,212. About 16.5% of the city's population was living below the poverty level.

The Coos Bay offshore area experiences commercial and recreational fishing activity. The major commercial fisheries are for bottom fish, salmon, Dungeness crab, and other shellfish species. Crab fishing occurs from December to September with the majority of the catch occurring early in the season. Bottom fishing by trawl for flatfish, rockfish, and shrimp occurs year-round over the entire offshore area, primarily at depths offshore from the jetties. Commercial and recreational salmon fishing occurs over much of the offshore area.

The following commercial and recreational fishing data for the Coos Bay area was taken from the Socioeconomics Program, Northwest Fisheries Science Center and Alaska Fisheries Science Center (NMFS 2006; <http://www.nwfsc.noaa.gov/research/divisions/sd/communityprofiles/index.cfm>). For commercial fishing in 2000, a total of 250 vessels, all commercially registered, delivered landings to Coos Bay (there were no landings in Charleston). Landings were in the following West Coast fisheries (data shown represents landings in metric tons/value of said landings/number of vessels landing; NA = not available; NMFS 2006): coastal pelagic (NA/NA/2), crab (829.3/\$3,948,153/78), groundfish (4,285.1/\$5,473,938/144), highly migratory species (191.9/\$369,404/46), salmon (222.6/\$808,358/113), shellfish (1.8/\$3,206/7), shrimp (2,978/2,814,650/49), and other species (150.2/\$82,667/47).

Coos Bay residents owned 129 vessels in 2000 that participated in West Coast fisheries, 8 of which participated in the 2003 Groundfish Vessel Buyback Program and 51 that participated in the federal groundfish fishery (NMFS 2006). Charleston residents owned 36 vessels in 2000 that participated in West Coast fisheries, including 23 vessels that participated in the federal groundfish fishery. There were at least two seafood processors operating in Coos Bay in 2000. Species processed included shellfish, various species of groundfish, sablefish, whiting, shrimp, and tuna. There were at least four seafood processors operating in Charleston in 2000. Approximately 281 individuals were employed by these processors, processing an estimated 6,721,831 pounds of fish at a value of \$19,841,262. In 2000 the top three processed products in Charleston in terms of pounds and revenue earned were flounder (2,840,741 pounds/\$10,200,376), crab (1,693,587 pounds/\$4,457,208), and halibut (1,230,700 pounds/\$2,790,900; NMFS 2006).

For recreational fishing, Coos Bay was home to at least one outfitter guide business and two licensed charter vessel businesses in 2003 (NMFS 2006). There are at least two sport fishing businesses currently operating in the community. There are seven sport fishing license vendors in Coos Bay. In 2000, the number of licenses sold by active agents was 6,201 at a value of \$102,897. Charleston had two licensed charter vessel businesses in 2003 and had at least two sport fishing businesses. Charleston has two sport fishing license vendors. For Coos Bay, the 2000 recreational salmonid catch in the ocean boat fishery was 4,078 Chinook and 1,641 coho salmon. The recreational non-salmonid catch was a total of 54,234 fish. The top species landed included black rockfish (*Sebastes melanops*), blue rockfish (*S. mystinus*), canary rockfish (*S. pinniger*), yellowtail rockfish (*S. flavidus*), widow rockfish (*S. entomelas*), yelloweye rockfish (*S. ruberrimus*), and lingcod (*Ophiodon elongatus*).

3. ALTERNATIVES

3.1. Alternatives Considered

The alternatives considered for repairing the three storm-damaged areas on the Coos Bay North Jetty include an interim repair alternative (proposed action) and a no action alternative. Taking no action is likely to lead to a complete breach through the North Jetty. A breach through the jetty could cause rapid sediment movement through the breach and toward the navigation channel, which would adversely affect commercial and recreational vessels using the entrance channel and harbor area. Consequently, the no action alternative was not selected. The proposed interim repair action focuses on stabilizing and raising the crest elevation of the jetty from stations 53+00 to 61+00, adding more rock to fill in the seaward scalloped area, and adding more rock to fill in the breach area so that deterioration does not continue. There are no other practicable alternatives to the proposed action.

3.2. Proposed Action

Figure 3 shows an overview of the Coos Bay North Jetty and North Spit. The proposed interim repair action for the North Jetty includes three repair areas (Figure 4): (1) jetty overtopping near the 2002 repair area from stations 53+00 to 61+00; (2) seaward scalloped area from stations 62+00 to 64+00; and (3) root jetty breach area near station 45+00. Figures 3 to 5 illustrate the three damage areas. Figure 5 shows the area that is currently being actively overtopped and Figure 6 shows the seaward scalloped area. The first two repair areas have larger consequences if damage is allowed to continue and have been given a higher priority for repair. The lower crest elevation portion of the North Jetty at station 55+00 (repair area 1) has the potential to worsen and risk a complete breach through the jetty. Figure 7 shows a close-up of the root jetty breach area and erosion.

The North Jetty interim repair work will occur over a 4-month period (currently scheduled from September 16, 2008 to March 14, 2009, but could be postponed until September 16, 2009 due to funding). The interim repair will include placement of up to 45,000 tons (~25,000 cubic yards) of 3-20 ton stone from stations 40+00 to 70+00. The majority of the repair of the North Jetty will lie within the existing jetty footprint based on the configuration of the original cross section, previous repair cross sections, and redistribution of jetty rock by wave action (Figures 8 to 10). The crest width of the repaired jetty areas will be 30 feet. Crest elevation will vary from +16 feet to +27 feet MLLW.

The proposed interim repair of the North Jetty addresses the minimum design needed to avoid imminent breach of the jetty. A major maintenance study is expected to begin in the next 5 years to address the degrading condition of the jetty. The study will address a long-term fix that may include a larger jetty footprint, higher crest elevation, longer reach, and larger stone in the root region and other areas of the jetty. Therefore, this is only the first step of planned repairs for the North Jetty.

Figure 3. Overview of Coos Bay North Jetty and North Spit

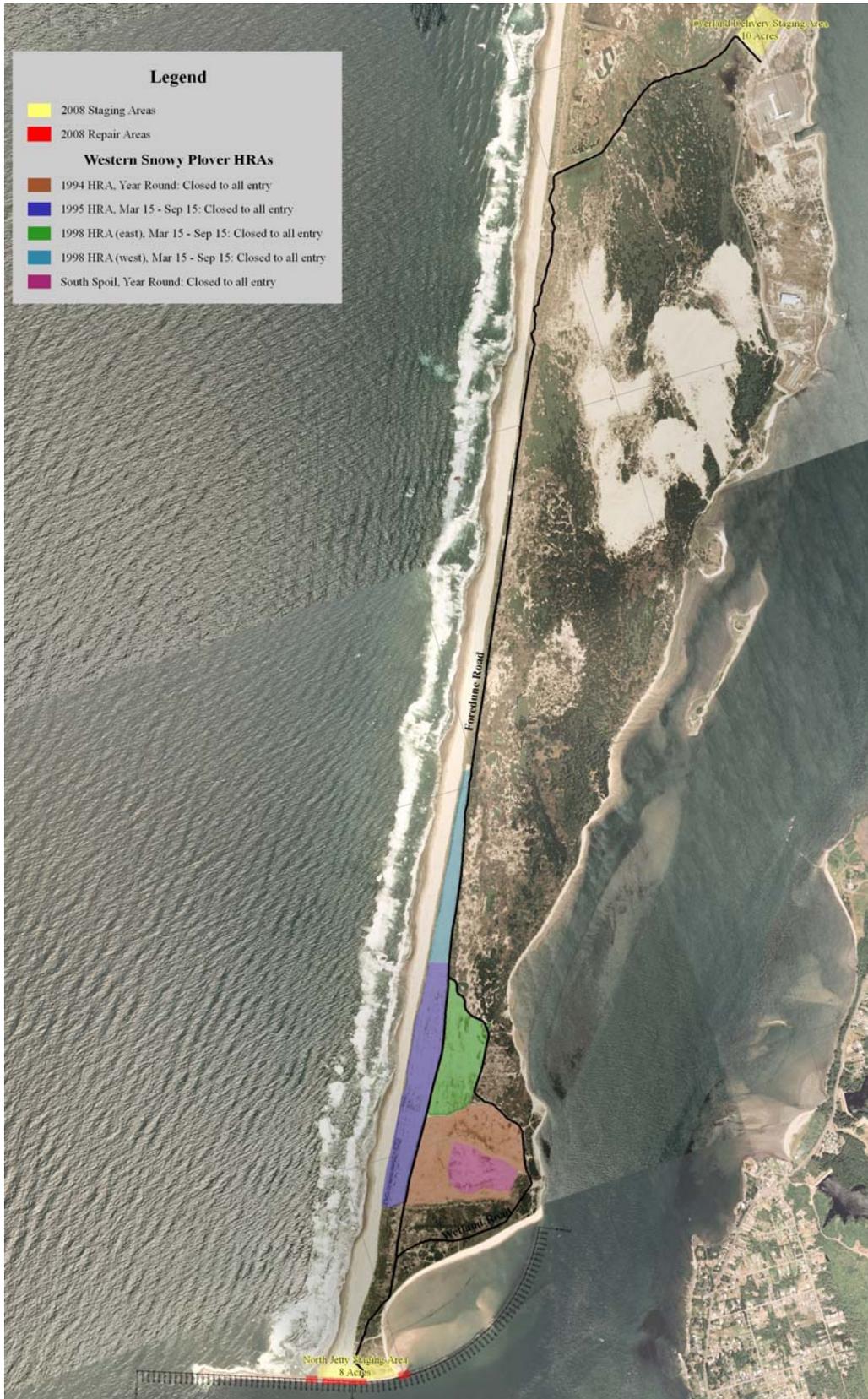


Figure 4. Three Repair Areas and North Jetty Staging Area

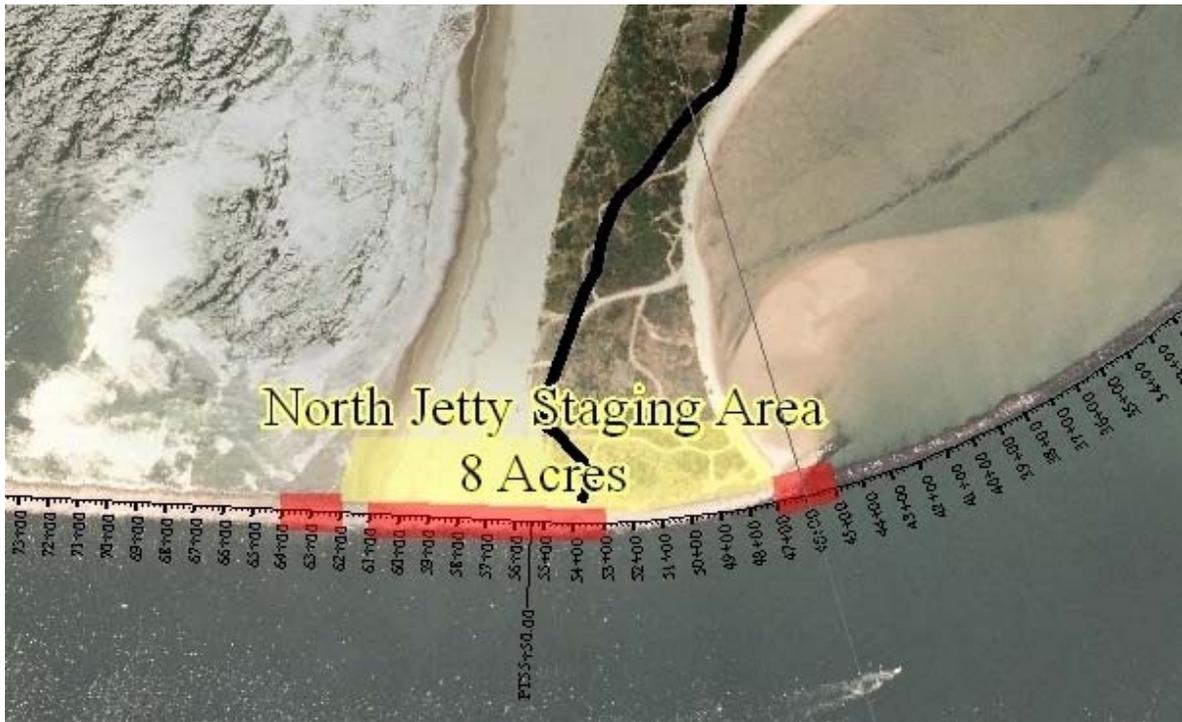


Figure 5. Repair Area 1, Active Jetty Overtopping at Stations 53+00 to 61+00



Figure 6. Repair Area 2, Seaward Scalloped Area at Stations 62+00 to 64+00



Figure 7. Repair Area 3, Root Jetty Breach Area and Erosion on Inner Bay

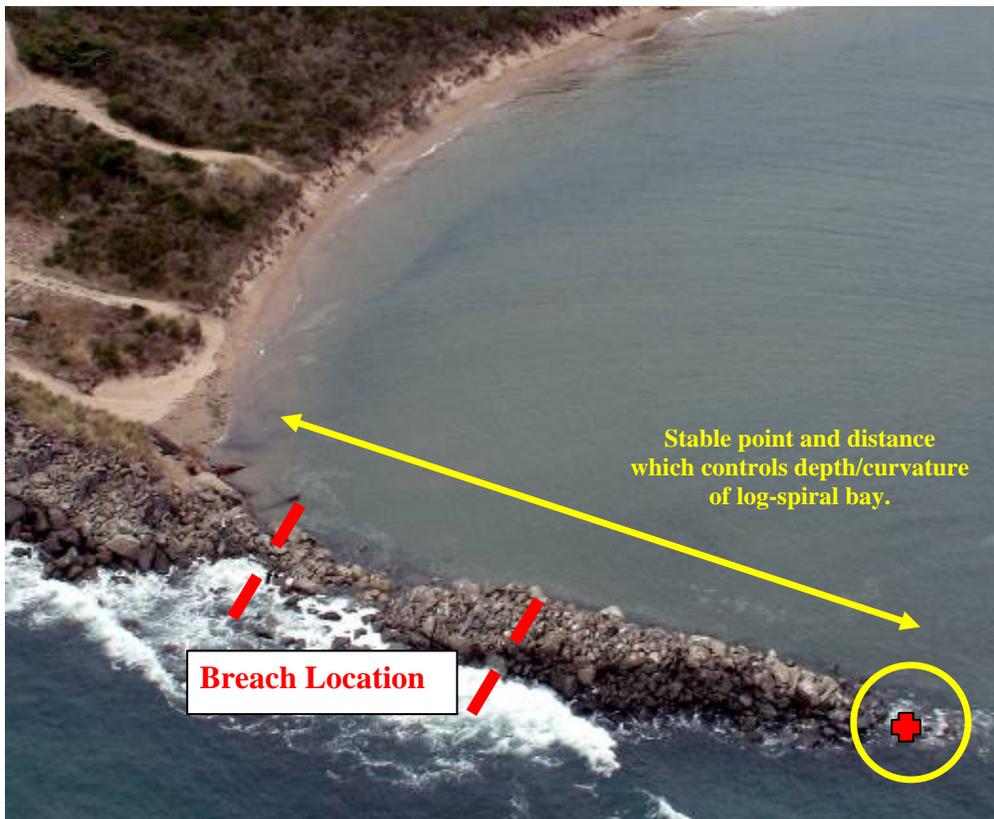


Figure 8. Cross Section for Repair Area 1 (Stations 53+00 to 61+00)

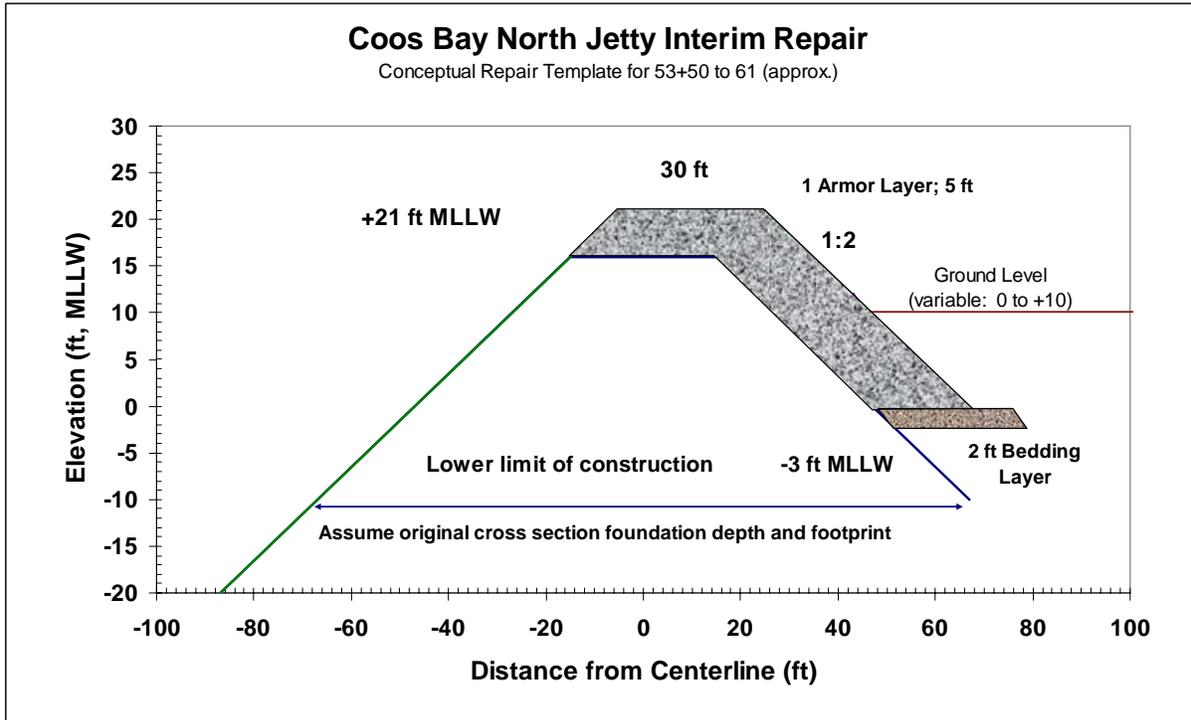


Figure 9. Cross Section for Repair Area 2 (Stations 62+00 to 64+00)

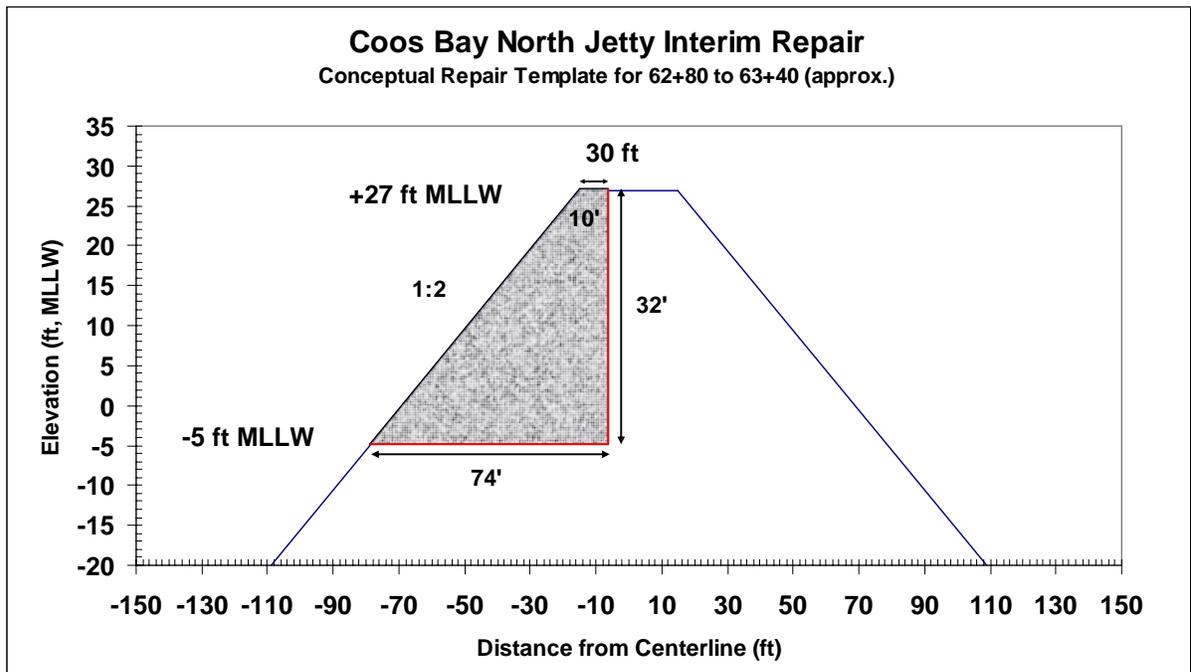
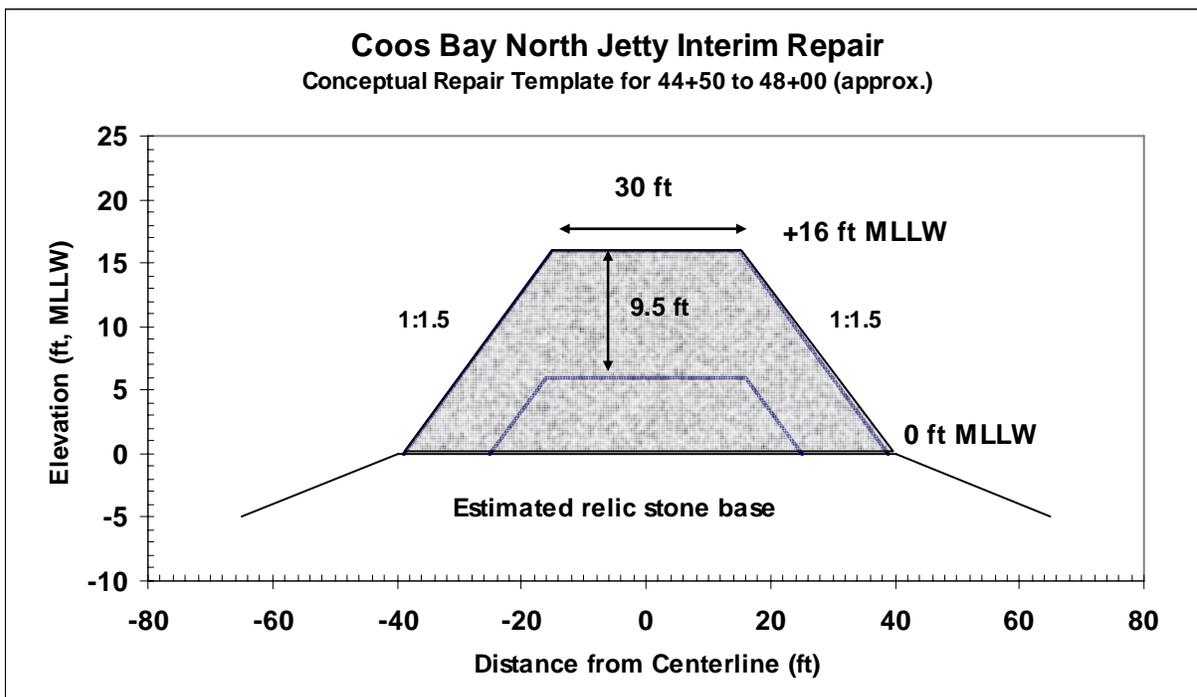


Figure 10. Cross Section for Repair Area 3 (Stations 44+50 to 48+00)



Two stockpile/staging areas will be used during construction activities. The overland staging area is a 10-acre cleared parking area on the North Spit located about 7 miles north of the jetty on BLM property (see yellow area at the top of Figure 3 and Figure 11). The Foredune Road runs from the North Jetty to the overland staging area, which was used during the 2002 emergency repair action for rock transfer and handling. The second stockpile/staging area is located adjacent to the North Jetty repair area (see Figure 4). This 8-acre site is above ordinary high water and is mostly clear of vegetation.

The contractor may truck stone directly from the quarry to the overland staging area for storage. The stone trucking operation will consist of transporting stones by highway trucks to North Spit Road and offloading at the overland staging area. The stone will be unloaded, sorted, and transported by truck from the overland staging area to the work area. Travel from the overland staging area will be along the Foredune Road for the remaining 7 miles to the North Jetty staging and stockpile area. Stone will be stored and placed on the jetty from this area.

Figure 11. Overland Staging Area on Coos Bay North Spit



At the south end of the North Spit near the jetty, the Foredune Road is located on Corps property and consists of loose sand with small areas of hard-packed rock. The road continues north on the spit and passes through snowy plover habitat that was first created in cooperation with the Port of Coos Bay in 1994. The 1994 HRA and the eastern portion of the 1998 HRA are located to the east, and the 1995 HRA and the western portion of the 1998 HRA are located to the west of the road (Figure 12). Maintaining the road with a tractor and drag box will be necessary prior to and during the transport of the stone with off-highway trucks. This road will not be widened into the adjacent snowy plover HRA. Also, the contractor will not be allowed to use the Foredune Road during snowy plover habitat nesting season (March 15 to September 15). Contractor access will only be allowed from September 16 to March 14. The overland staging area will be closed to the public from August 21, 2008 and the Foredune Road will be closed from September 16, 2008 until completion of the project or at the latest March 15, 2009. A temporary construction entrance will be provided to the overland staging area from North Spit Road, located adjacent to the east of the overland staging area, will allow trucks to enter the overland staging area without impacting public use of the Foredune Road prior to the road closure on September 16, 2008.

As a safety measure, the public will be prohibited from accessing the staging areas, jetty, and the Foredune Road for the duration of the rock hauling operation and construction. This closure is necessary to guarantee the safety of the public and contractors during construction activities. Other sand roads and horse trails on the North Spit will remain open during construction activities. The beach will remain open to all uses but access will be restricted to foot traffic accessing the beach from the north of the project. Signs will be placed along the fordune crest at access points over the length of the Fordune Road to alert the public to the construction activities and limit access. The Corps will restrict public access to the southern portion of the North Spit by placing temporary signs and fencing at the Corps' property line.

Two to five off-road trucks will likely be hauling the repair materials of stone and road rock. Construction equipment will be mobilized to the overland staging area, assembled, and walked into the site. A scale and scale house will be located in the overland staging area. Fueling, repair equipment, and contractor personnel will require access to the Foredune Road for the duration of the contract. Fueling for most equipment will occur in the overland staging area. Fueling of the rock placement equipment will occur off the jetty within the adjacent staging area. The contractor will likely use a pickup truck with fuel transfer tank to take fuel to the crane for refueling. Some equipment types have capacity for fuel reserve for more than one day.

The armor stone will be placed on the jetty one at a time using a large excavator or crane situated on top of the jetty. In repair area 1 (stations 53+00 to 61+00) some excavation into the sand will be required along the north side of the jetty cross section in order to construct a stable foundation for the new stone. Placement of the jetty stone will range from approximately 500 to 1,000 tons per day. The placement operation would require the construction of a jetty haul road along the jetty crest within the proposed work area limits for the jetty. The crane or excavator would place armor rock via a truck that transports rock from the North Jetty staging area. The crane or excavator would advance along the top of the jetty via the haul road as the work is completed. Road rock may be placed and spread over the crest of the jetty using a loader or dozer operation. The contractor may have a limited need to walk the equipment on the sand adjacent to the jetty for access.

The topography of any disturbed areas will be returned to their pre-existing condition upon completion of construction. Coordination with the BLM and Oregon Division of State Lands will be conducted to assure restoration efforts are to the satisfaction of all parties.

Figure 12. Snowy Plover Habitat Restoration Areas on Coos Bay North Spit



Western Snowy Plover HRAs

- 1994 HRA, Year Round: Closed to all entry
- 1995 HRA, Mar 15 - Sep 15: Closed to all entry
- 1998 HRA (east), Mar 15 - Sep 15: Closed to all entry
- 1998 HRA (west), Mar 15 - Sep 15: Closed to all entry
- South Spoil, Year Round: Closed to all entry

4. ENVIRONMENTAL CONSEQUENCES

4.1. Physical Characteristics

Repair of the North Jetty will reduce the likelihood of an increase in wave action or shoaling within the Coos Bay entrance channel. Preventing a jetty breach from developing will protect the structural integrity of the jetty and will maintain safe conditions for commercial and recreational vessels using the entrance channel and harbor.

4.2. Fish and Aquatic Species

All repair work at the North Jetty will occur between September 16 and March 14. Adult OC coho salmon, steelhead, and Chinook salmon may be entering Coos Bay from the ocean during construction of the proposed action (juveniles will not be in the area). Adult salmonids will be migrating through the area to spawning streams in the upper watershed. Adults are not expected to spend extended amounts of time in the vicinity of the North Jetty and could avoid areas of disturbance. The proposed action is not likely to have an adverse affect on adult salmonids or their habitat for the following reasons:

- All in-water repair work will occur within the existing footprint of the North Jetty.
- Working from the north side of the jetty away from the channel, rocks would be taken from trucks and placed on the jetty with a crane. No heavy equipment will enter the water.
- Rock will be dropped at no greater height than 1 foot.
- Most of the rock placed will be above MLLW.

In addition, the proposed action is not expected to affect EFH for groundfish species, Chinook salmon, and coho salmon for the reasons shown above. The proposed action also is not expected to affect EFH for coastal pelagic species; the high energy environment of the North Jetty would not provide suitable EFH for these species.

There exists the possibility that road rock placed on top of the jetty to allow movement of heavy equipment could cause small amounts of turbidity when washed out of the jetty by wave action. The jetty is within a high wave energy environment and washout of smaller fill material will likely occur but will be rapidly dispersed. Clean material will be used and any washout of this material is not likely to adversely affect fish and other aquatic species.

Operation of heavy equipment requires use of fuel, lubricants, etc that can kill or injure aquatic organisms if spilled into the water. The Corps will require the Contractor to provide a spill prevention plan that will include measures to minimize the potential for spills and to respond quickly to spills should they occur. Because preventative measures and response measures will be required, it is unlikely that spills would affect fish and other aquatic organisms because of the low chance of occurrence.

It is unknown if the threatened southern DPS of green sturgeon occurs in Coos Bay. However, green sturgeon would be expected to occur in the more tranquil estuary proper than in the vicinity of the North Jetty. Also, since all in-water repair work will occur within the existing footprint of the North Jetty, and most of the rock placed will be above MLLW, the proposed action is not expected to affect green sturgeon.

4.3. Wildlife Species

The proposed action may temporarily displace migratory birds. Impacts of construction at the Coos Bay North Jetty and hauling of rock to the jetty could temporarily displace birds by causing flushing, altering flight patterns, or causing other behavioral changes; however, it is not expected that any effects would rise to the level of harm or harassment. Trees suitable for bald eagle nesting are not present in the North Jetty project area.

The contractor will not be allowed to use the Foredune Road during snowy plover habitat nesting season (March 15 to September 15). Thus, vehicle use and transport of heavy equipment will occur on the Foredune Road that traverses the HRAs during the non-nesting season for western snowy plovers when the gates that prevent use of this area are open to public transportation. Temporary physical disturbance to movement pathways will occur in the form of creation of sand berms with grading of the Foredune Road through the HRAs but overland movement of juvenile plovers only occurs during the nesting season. As these berms could adversely affect movement of young plovers, topography will be restored to pre-project conditions in the vicinity of the HRAs. As no permanent physical disturbance of habitat will occur and temporary disturbance via berm creation will be limited to the non-nesting season, the proposed action is not likely to adversely affect western snowy plovers.

Marine mammal species are not likely to be affected by the proposed action. The Coos Bay North Jetty is not a haul out and/or rookery site for Steller sea lions. It is unlikely that Steller sea lions or harbor seals would be impacted because the jetty repair is confined to a limited area. The marine whale species occur as migrants in the Pacific Ocean off the Oregon Coast and are expected to be much farther from shore than the action area.

The occurrence of marine turtles off the Oregon Coast is associated with the appearance of albacore. Albacore occurrence is strongly associated with the warm waters of the Japanese current that tends to approach the Oregon Coast in late summer and generally occurs 30 to 60+ miles offshore from the Oregon Coast. Consequently, these marine turtle species do not typically occur close to the Oregon shore and are not likely to be affected by the proposed action.

4.4. Wetlands

No wetlands will be affected by the proposed interim repair action.

4.5. Cultural and Historic Resources

Archival searches of the Oregon State Historic Preservation Office records for the area of the North Jetty repair project and adjacent properties were conducted in November 2007. Cultural resources pedestrian survey and limited subsurface testing (12 shovel probes) of the project area was performed by Bert Rader, RPA, Portland District Archaeologist, on November 24 and December 20-22, 2007.

The North Jetty itself is a historic property, a significant engineering achievement utilizing a trestle and tramway for construction that was completed in 1894 by the Corps. However, only a few truncated pilings of the original trestle/tram are extant along portions of the jetty and there have been several altering episodes of repair. This lack of integrity makes the North Jetty structure ineligible for the National Register of Historic Places. The surfaces adjacent to the existing jetty were formed by accretion following construction of the jetty.

An Oregon Archaeological Survey Form dated October 25, 1951, describes a Kus Indian camp with a 0.5-mile surface expression of scattered projectile points and scrapers along the beach on the east side

of the North Spit. Designated as site 35CS27, the site limits in the file show that the site is over a mile long (NE-SW) and its southern boundary is approximately two-tenths of a mile north of the North Jetty. Survey and eight shovel probes failed to produce any evidence of this site. The site form indicates that this site was described to the site form preparer by a third party who had collected artifacts there. The site filer notes that he did not make a site visit to confirm conditions due to inclement weather and inability to hire a boat. It seems a strong possibility that the site described on the form for 35CS27 is actually the Native American village and cemetery site described in the literature and on a hand notated U.S. Geological Survey map at the State Historic Preservation Office archives, but otherwise unrecorded, that lies approximately 2 miles north of the North Jetty on property held by the BLM. Most of the area marked as potentially being the site area for 35CS27 appears to consist of land accreted since the construction of the North Jetty based on examination of historic maps and photographs. No archeological materials were observed in the unimproved roads that traverse the area and shovel probe in the area were negative, showing only undifferentiated sand.

There are other references in the archives for historic properties on the North Spit referring to Indian villages (the 1826 writing of Hudson's Bay Company fur trapper Alexander McLeod, the first white man known to have come to Coos Bay), Camp Castaway, a 19th century shipwreck on the Pacific side of the spit, and several other shipwrecks, but these lie outside the area of potential effect for the proposed action.

An early 20th century wooden hulled ship was uncovered on BLM property by heavy winter storms on the Pacific side of the North Spit near the mean high water line. This ship is well ocean-side of the haul roads for the proposed action; the proposed action should not affect any ongoing efforts to study that wreck.

A cultural resources survey and testing report outlining the findings of the investigation and making a *determination of no effect* on historic properties eligible for the National Register of Historic Places for the proposed action has been sent to the Oregon State Historic Preservation Office for concurrence. Periodic monitoring of the haul roads may be required.

4.6. Socio-economic Resources

Interim repair of the Coos Bay North Jetty is necessary to maintain navigation access to harbor facilities. This will maintain existing socioeconomic systems in the local area and will allow for increased economic return to commercial and recreational interests. The proposed action will not cause changes in population, economics, or other indicators of social well being. The proposed action also will not result in a disproportionately high or adverse effect on minority populations or low-income populations.

As a safety measure, the public will be prohibited from accessing the North Jetty, the staging areas, and the Foredund Road for the duration of the rock hauling operation and construction. Closure of the overland staging area and Foredund Road will impact recreational activities at the North Spit by limiting access to the beach and to some upland areas of the North Spit. This closure is necessary to guarantee the safety of the public and contractors during construction activities. Other sand roads and horse trails on the North Spit will remain open during construction activities. The beach will remain open to all uses but access will be restricted to foot traffic accessing the beach from the north of the project. Signs will be placed along the foredund crest at access points over the length of the Fordune Road to alert the public to the construction activities and limit access. The Corps will restrict public access to the southern portion of the North Spit by placing temporary signs and fencing at the Corps' property line.

4.7. Air Quality/Noise/Light

There would be a small, localized reduction in air quality during construction at the North Jetty due to emissions from construction equipment. There also would be localized increases in noise levels from construction equipment. These impacts would be minor and temporary in nature, and would cease once construction is completed. The proposed action will not affect natural light conditions.

4.8. Cumulative Effects

Cumulative effects are defined as, “The impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 Code of Federal Regulations Section 1508.7). Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

A future federal long-term fix for the Coos Bay North Jetty is reasonably certain to occur and may include a larger jetty footprint, higher crest elevation, longer reach, and larger stone in the root region and other areas of the jetty. A separate impact assessment will be done for this future action; however, the cumulative effects to the North Jetty project area are not expected to be significant.

The Port of Coos Bay has the following projects that are reasonably certain to occur in the Coos Bay area.

Charleston Marina Master Plan. This 5-year master plan was approved by the Port Commission on May 17, 2007. The plan was adopted by the Port for the development and management of Port-owned property including the Charleston Marina, the Charleston Marina RV Park, and the Charleston Shipyard. These properties are located on the south side of the federal navigation channel and southeast of the North Jetty, approximately 3,600 feet from the proposed action and out of the proposed action’s area of impact.

Weyerhaeuser Property Purchase. This agreement with the Port of Coos Bay will purchase approximately 1,300 acres of land on the North Spit for industrial development. The southwestern portion of the Weyerhaeuser property is located adjacent to the north of the Foredune Road and north and west of the overland staging area. Even prior to this agreement this property was zoned for industrial and marine industrial development and cumulative effects from this project are not expected.

Section 203 Channel Modification. This proposed project to modify the Coos Bay navigation channel from the entrance at the Pacific Ocean to the railroad bridge located at approximately RM 9.2. The channel would be deepened and widened to accommodate large container vessels and a turning basin would be added for vessel maneuvering. Initial and maintenance dredging of the channel and inlet, and possible modifications to the jetties would be part of the Federal proposed action. An EIS will be completed for this project that will address its impacts to the area. Since it is likely that this project will have a major effect on the north jetty by rebuilding or relocating it, it will not have a cumulative effect on this project.

North Spit Barge Slip. The North Spit Barge Slip, Oregon Gateway, Railroad Bridge Phase 2, and TransPacific Realignment projects are related to the Section 203 Channel Modification project. The North Spit Barge Slip project is located at the Southport Forest Products property on the North Spit, near the overland staging area. According to the Port of Coos Bay, the slip will be reconfigured to

accommodate ocean-going cargo barges and will have access to rail and road. These impacts will not have a cumulative effect on the jetty repair action.

LNG Terminal/Oregon Gateway. The LNG Terminal project is a proposal to construct a liquefied natural gas (LNG) terminal in Coos Bay, at approximately RM 8 that would include marine and upland development. The Oregon Gateway project is a proposed partnering of the Port of Coos Bay and Jordan Cove Energy to construct a two-berth waterway adjacent to the federal navigation channel to accommodate an LNG tanker berth and a single berth for a cargo facility at the same location. No cumulative effect is expected for the jetty repair from this action.

Railroad Bridge Phase 2/TransPacific Realignment. The Railroad Bridge project is the second phase of a rehabilitation of the Coos Bay railroad bridge. Phase I was completed in 2005 and included repair and replacement of steel members. Phase II will include additional repair and replacement of steel members and application of a protective coating. The TransPacific Realignment is a project to move the TransPacific Parkway following completion of the North Spit Rail Spur. No cumulative effect is expected on the jetty repair from this action.

In addition to the Port of Coos Bay's current projects, two shipwrecks on the North Spit are in the North Jetty project area and may limit the public's access to the North Spit. In February 2008, the George L. Olson, a wooden-hulled lumber ship, was uncovered by winter storms in sand dunes approximately two miles north of the North Jetty. The boat has attracted a large number of sightseers who are visiting the wreckage via the North Spit and the Foredune Road. Because snowy plover beach access restrictions are in affect from March 15 to September 15, access to the shipwreck is limited to foot traffic from the wet sand portions of the beach. Visitors are accessing the beach from the Federal Aviation Administration tower or driving to the North Jetty and then walking back north to the wreckage. Access to the portion of the Foredune Road located on Corps' property will be restricted during the proposed action. If the ship is still visible by that time, these restrictions will impact public access to the wreckage.

A second shipwreck, the New Carissa, is located approximately 2.7 miles north of the North Jetty. The New Carissa ran aground in February 1999, and portions of the ship have been removed. The stern is scheduled for removal during May-June 2008 and may take 3 months to complete. According to the Oregon Department of State Lands website (oregonstatelands.us/DSL/LW/docs/fact_sheet.pdf), a marine salvage company will remove the wreckage by October 1, 2008. Public access to the North Spit, including travel on the Foredune Road, will be impacted by the removal operation. A temporary bypass road east of the staging area will be constructed to minimize impact. The proposed interim jetty repair could begin as early as September 16, 2008 **and may use the temporary Foredune Road bypass around the removal operation.** If the removal of the New Carissa is completed by October 1, 2008, the two projects may overlap by 2 weeks, which will impact public access to the North Spit.

5. COORDINATION

This draft Environmental Assessment will be issued for a 30-day public review period. Review comments will be requested from federal and state agencies, as well as various interested parties. The document will be sent to the following agencies and groups:

U.S. Coast Guard
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
National Marine Fisheries Service
Bureau of Land Management

Oregon Department of Fish and Wildlife
Oregon Department of State Lands
Oregon Department of Environmental Quality
Oregon Department of Land Conservation and Development
Oregon State Historic Preservation Office

Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians
Port of Coos Bay
Coos County Planning Department
City of Coos Bay
Coos Bay Pilots Association

6. COMPLIANCE WITH LAWS AND REGULATIONS

6.1. Clean Air Act

This Act established a comprehensive program for improving and maintaining air quality throughout the United States. Its goals are achieved through permitting of stationary sources, restricting the emission of toxic substances from stationary and mobile sources, and establishing National Ambient Air Quality Standards. Title IV of the Act includes provisions for complying with noise pollution standards. There would be a temporary and localized reduction in air quality during construction of the proposed action due to emissions from construction equipment. There also would be temporary and localized increases in noise levels from construction equipment. These impacts would be minor and intermittent in nature, and would cease once construction is completed.

6.2. Clean Water Act

This Act requires certification from state or interstate water control agencies that a proposed water resources project is in compliance with established effluent limitations and water quality standards. The proposed action will be in compliance with the Clean Water Act via public review of the Environmental Assessment, and with the issuance of a Section 401 Water Quality Certification from the Oregon Department of Environmental Quality.

6.3. Coastal Zone Management Act

This Act requires federal agencies to comply with the federal consistency requirement of the Coastal Zone Management Act. A consistency determination has been prepared and provided to the Oregon Department of Land Conservation and Development for concurrence.

6.4. Endangered Species Act

In accordance with Section 7(a)(2) of this Act, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species. Information on federally listed species and designated critical habitat is presented in this EA. Two Biological Assessments were prepared for the proposed action; one to address federally listed species under the jurisdiction of the NMFS and the other to address federally listed species under the jurisdiction of the USFWS. The Biological Assessments were provided to the respective agencies for their review and consultation. The Services will issue Biological Opinions that will likely set forth terms and conditions to minimize impacts of the proposed action.

6.5. Fish and Wildlife Coordination Act

This Act states that federal agencies involved in water resource development are to consult with the USFWS concerning proposed actions or plans. The proposed action has been coordinated with the USFWS in accordance with the Act.

6.6. Magnuson-Stevens Fishery Conservation and Management Act

The Sustainable Fisheries Act of 1996 amended the Magnuson-Stevens Act establishing requirements for essential fish habitat (EFH) for commercially important fish. Pursuant to the Magnuson-Stevens Act, an EFH consultation is necessary for the proposed action. Essential fish habitat is defined by the Act as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Pacific Ocean offshore of Coos Bay is designated as EFH for various groundfish and coastal pelagic and salmon species. An EFH assessment under the Magnuson-Stevens Act was provided as part of the Biological Assessment submitted to the NMFS for the proposed action. The assessment concluded that the proposed action would have no effect on EFH for groundfish, coastal pelagic species, and salmon species.

6.7. Marine Mammal Protection Act

This Act prohibits the take or harassment of marine mammals. As discussed in Section 4.3 of the EA, no impacts are expected to marine mammals from the proposed action.

6.8. Migratory Bird Treaty Act and Migratory Bird Conservation Act

These acts require that migratory birds not be harmed or harassed. Under the Migratory Bird Treaty Act, “migratory birds” essentially include all birds native to the U.S. and the Act pertains to any time of the year, not just during migration. The Migratory Bird Conservation Act aims to protect game birds. The proposed action may temporarily displace migratory birds. Impacts of construction at the Coos Bay North Jetty and haul of rock to the jetty could temporarily displace birds by causing flushing, altering flight patterns, or causing other behavioral changes; however, it is not expected that any effects would rise to the level of harm or harassment.

6.9. Natural Historic Preservation Act

Section 106 of this Act requires that federally assisted or federally permitted projects account for the potential effects on sites, districts, buildings, structures, or objects that are included in or eligible for inclusion in the National Register of Historic Places. This project is being conducted in an area that is highly erosive and has previously been disturbed by jetty construction and repair. There are no recorded historic properties within the immediate project area. The proposed action will be coordinated with the Oregon State Historic Preservation Office in order to obtain a Section 106 Evaluation in accordance with the Act.

6.10. Native American Graves Protection and Repatriation Act

This Act provides for the protection of Native American (and Native Hawaiian) cultural items, established ownership and control of Native American cultural items, human remains, and associated funerary objects to Native Americans. It also establishes requirements for the treatment of Native American human remains and sacred or cultural objects found on federal land. This Act also provides for the protection, inventory, and repatriation of Native American cultural items, human remains, and associated funerary objects. There are no recorded historic properties within the immediate project area and the probability of locating human remains in this area is low. However, if human remains are discovered during construction, the Corps and/or the contractor will be responsible for following all requirements of the Act.

6.11. Environmental Justice

Executive Order 12898 requires federal agencies to consider and minimize potential impacts on subsistence, low-income, or minority communities. The goal is to ensure that no person or group of people should shoulder a disproportionate share of the negative environmental impacts resulting from the execution of this country's domestic and foreign policy programs. The proposed action is not expected to disproportionately affect low income and/or minority populations and is in compliance with Executive Order 12898.

6.12. Executive Order 11988, Floodplain Management

The proposed action would have no effect on floodplains.

6.13. Executive Order 11990, Protection of Wetlands

The proposed action would have no effect on wetlands.

6.14. Prime and Unique Farmlands

The proposed action would have no effect on farmlands.

6.15. Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act

There is no indication that any hazardous, toxic, and radioactive wastes are at or in the vicinity of the Coos Bay North Jetty. Any presence of these types of wastes would be responded to within the requirements of the law and Corps' regulations and guidelines.

7. LITERATURE CITED

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