CENWS-PM-PL-ER April 1, 2010

FINDING OF NO SIGNIFICANT IMPACT
and
404 (b) (1) DETERMINATION

NEAH BAY BREAKWATER REPAIR
NEAH BAY, CLALLAM COUNTY, WASHINGTON

INTRODUCTION

The U. S. Army Corps of Engineers, Seattle District (USACE) is proposing to repair 1,500 linear feet of the Neah Bay breakwater under Section 107 of the 1960 Rivers and Harbors Act, as amended. Section 107 authorizes the Secretary of the Army to allocate funds for planning, design, construction, and maintenance of small navigation projects when, in the opinion of the Chief of Engineers, such work is advisable. The project was requested by the Makah Indian Tribe, who represents the project's non-federal interest as a local sponsor.

The River and Harbor Act of June 20, 1938, authorized the construction and maintenance of the Neah Bay breakwater, a rubble mound breakwater approximately 8,000 feet long built between Waadah Island and the mainland. Construction of the breakwater was completed in 1944. The breakwater is necessary to provide relief to the Makah Tribal lands from severe storms that arrive from the west via the ocean entrance of the Strait of Juan de Fuca. This structure also provides protection to the U.S. Coast Guard station at Neah Bay, Washington.

Repairs to the structure were performed in 1949, 1959, 1980, 1998, and 2002. Earlier damages can be attributed to use of undersized armor rock and cross-section geometry for the associated wave environment. Despite these repairs, the breakwater has continued to fail near the center reach due to poor stone interlock in the sections repaired in 1998 and 2002. The existing structure is statically stable but can become unstable when subjected to extreme wave events. Large storm waves can cause sliding/rolling of the seaside armor stone and dislodgement of leeside armor stone. The probability of failure is higher in the center reach of the structure (near the bend) because the water depths are greater, which allows for larger waves to propagate. Sections of the breakwater have lost armor rock; therefore, repairs are needed to prevent further damage. Failure to complete repairs on the breakwater will result in continued damage to the structure. The weakened breakwater is readily overtopped by large waves and its ability to provide protection to the existing marina, tribal village, and Coast Guard station is compromised.

PROJECT LOCATION

The Neah Bay North Breakwater extends for approximately 8,000 linear feet in a roughly east-west direction from Waadah Island to the mainland Makah tribal lands near the town of Neah Bay, Clallam County, Washington.

PROJECT

The 1500 foot repair will consist of re-establishing a 1.5:1 (H:V) slope with a 25-foot crest width per the 1978 USACE design memorandum as well as increasing the size of the armor units to

increase the stability of the structure. This will be accomplished by relocating some existing rock (and adding new core rock as needed) to re-establish the design slope and then capping the core material with a single layer of larger armor units. The armor layer will consist of large armor stone (13-ton median size). Currently, it is estimated that 3,750 tons of smaller riprap per 1,500 lineal feet (2.5 tons per foot) will be needed for this purpose. If necessary, additional smaller rock will be obtained from the Makah Tribe quarry if it is determined to be suitable. The 25-foot wide crest of the repair section will taper to the existing stable outer portions of the breakwater (15 feet wide). This transition is necessary to ensure a stable interface between the new armor units and the existing breakwater. The repairs will consist of re-facing the existing structure down to –7 feet below mean lower low water (MLLW) on the seaward side and down to +5 feet MLLW on the leeward side. The design crest elevation will remain at +18 feet MLLW. All repair work will be within the existing footprint of the breakwater. Rock will be placed using an excavator from the top of the breakwater to ensure greater accuracy of rock placement and reduce the need for shifting and scraping which could increase turbidity.

Best management practices will be implemented during the project, including working during the designated fish window (July 16 to March 1) to minimize impacts to juvenile salmonids, checking equipment for drips and leaks, and having a fuel spill kit on-site at all times.

SUMMARY OF IMPACTS AND COMPLIANCE

A final Environmental Assessment has been prepared pursuant to the National Environmental Policy Act (NEPA) for the proposed action which describes anticipated possible environmental impacts. These impacts are expected to be minor and short-term and include: temporary displacement of birds, mammals, and fish in the immediate vicinity of the project site and short-term impacts to the benthic community that have colonized the breakwater due to the placement of large rock. However, these communities are expected to rebound quickly. Minor and temporary increases in traffic, noise, and air pollution are also expected from heavy equipment and vessel operation.

A Biological Evaluation was prepared and submitted to the National Marine Fisheries Service and U.S. Fish and Wildlife Service in accordance with Section 7 of the Endangered Species Act. The Corps determined the project would *not likely adversely affect* Puget Sound Chinook salmon, Hood Canal summer-run chum salmon, Coastal/Puget Sound bull trout, lower Columbia River Chinook, Puget Sound steelhead, Southern resident killer whale, Steller sea lion, marbled murrelet, and eulachon. A determination of *no effect* was made for humpback whale, blue whale, sei whale, sperm whale, green sturgeon, leatherback sea turtle, loggerhead sea turtle, green sea turtle, and Olive Ridley sea turtle. Letters of concurrence were received from NMFS and USFWS on February 16 and February 18, 2010, respectively. In addition, the Corps determined that the project is *not likely to jeopardize the continued existence* of the proposed Pacific eulachon and is *not likely to adversely affect* Pacific eulachon in the event that it is listed. It should be noted that NMFS determined the project would have *no effect* on Southern resident killer whale and Steller sea lion, and on designated critical habitat for Southern resident killer whale, green sturgeon, and Puget Sound Chinook.

The project will be in compliance with Sections 401 and 404 of the Clean Water Act. A 404 (b)(1) analysis has been prepared and a determination made that this project includes appropriate and practicable steps to minimize adverse impacts to the aquatic ecosystem, and that there is no alternative that would have less impact to the environment but still accomplish the project purpose. A 401 Water Quality Certification has been obtained from the Makah Tribal Council and the Washington Department of Ecology on March 22, 2010 and February 26, 2010, respectively, and all conditions of that certification will be met during construction.

There are no documented properties listed in or eligible for listing in the National Register of Historic Places (NRHP) within the project area of potential effects (APE). The Corps determined that no historic properties would be affected by the proposed work. A letter dated August 25, 2009 was sent to the Makah Tribal Historic Preservation Officer (THPO) requesting concurrence with the Corps determination. A letter from the THPO was received on September 21, 2009 agreeing with the Corps determination that the repair will not have adverse impacts on any cultural properties.

FINDING

Based on the attached environmental documentation, coordination, and analysis conducted by the Corps environmental staff, I have determined that the proposed action will not result in significant adverse environmental impacts. The proposed action is not a major Federal action significantly affecting the quality of the human environment and, therefore, does not require preparation of an environmental impact statement.

27 APRIL 2010
Date

Anthony O. Wright
Colonel, Corps of Engineers
District Commander

FINAL

ENVIRONMENTAL ASSESSMENT

NEAH BAY BREAKWATER REPAIR

NEAH BAY, WASHINGTON

April 1, 2010

U.S. Army Corps of Engineers
Seattle District Office
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Seattle, Washington 98124-3755

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The River and Harbor Act of June 20, 1938, authorized the construction and maintenance of the Neah Bay breakwater, a rubble mound breakwater approximately 8,000 feet long built between Waadah Island and the mainland. Construction of the breakwater was completed in 1944. The breakwater is necessary to provide relief to the Makah Tribal lands from severe storms that arrive from the west via the ocean entrance of the Strait of Juan de Fuca. This structure also provides protection to the U.S. Coast Guard station at Neah Bay, Washington.

2.0 PROJECT DESCRIPTION

2.1 Introduction

The purpose of this document is to address the potential environmental impacts associated with proposed breakwater repair at Neah Bay, Clallam County, Washington by the Seattle District of the U.S. Army Corps of Engineers (USACE). This project proposes to repair damaged sections in the outer breakwater at Neah Bay in order to prevent further unraveling of the armor rock over the winter storm season. Construction is anticipated to begin July 16, 2010 and continue for approximately three months. This Environmental Assessment (EA) is designed to address the effects of these repairs to the outer breakwater on the environmental resources in the project area.

2.2 Project Location

The Neah Bay North Breakwater extends for approximately 8,000 linear feet (LF) in a roughly east-west direction from Waadah Island to the mainland Makah tribal lands near the town of Neah Bay, Clallam County, Washington (Figure 1).

2.3 Project Need

Repairs to the structure were performed in 1949, 1959, 1980, 1998, and 2002. Earlier damages can be attributed to use of undersized armor rock and cross-section geometry for the associated wave environment. Despite these repairs, the breakwater has continued to fail near the center reach (Figure 2) due to poor stone interlock in the sections repaired in 1998 and 2002. The existing structure is statically stable but can become unstable when subjected to extreme wave events. Large storm waves can cause sliding/rolling of the seaside armor stone and dislodgement of leeside armor stone. The probability of failure is higher in the center reach of the structure (near the bend) because the water depths are greater, which allows for larger waves to propagate.

Sections of the breakwater have lost armor rock; therefore, repairs are needed to prevent further damage. Failure to complete repairs on the breakwater will result in continued damage to the structure. The weakened breakwater is readily overtopped by large waves and its ability to provide protection to the existing marina, tribal village, and Coast Guard station is compromised. This project proposes to repair approximately 1,500 (LF) of the breakwater between stations 40+00 and 55+00 (Figure 3).

The proposed repair is constrained by time and budget. Repairs to the breakwater need to occur prior to winter 2010 to avoid further damage to the structure and provide protection to the Tribal lands and marina during the winter months when large waves and winds are most likely to occur.

Figure 1: Project Location

Figure 2: Repair Location

Figure 3: Repair Section with Control Stationing

2.4 Proposed Action

Repairs will consist of re-establishing a 1.5:1 (H:V) slope with a 25-foot crest width per the 1978 design memorandum (USACE 1978) as well as increasing the size of the armor units to increase the stability of the structure. This will be accomplished by relocating some existing rock (and adding new core rock as needed) to re-establish the design slope and then capping the core material with a single layer of larger armor units. The armor layer will consist of large armor stone (13-ton median size), as shown in Figure 4. The 25-foot wide crest of the center repair

section will taper to the existing stable outer portions of the breakwater (15 feet wide). Figure 5 shows the cross section for the repair transition. This transition is necessary to ensure a stable interface between the new armor units and the existing breakwater. The repairs will consist of re-facing the existing structure down to –7 feet below mean lower low water (MLLW) on the seaward side and down to +5 feet MLLW on the leeward side. The design crest elevation will remain at +18 feet MLLW.

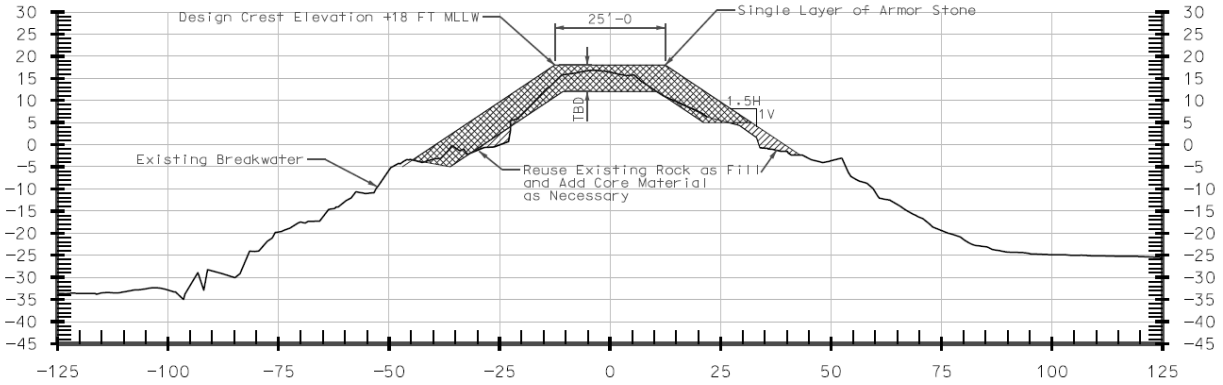

Figure 4: Typical Repair Section

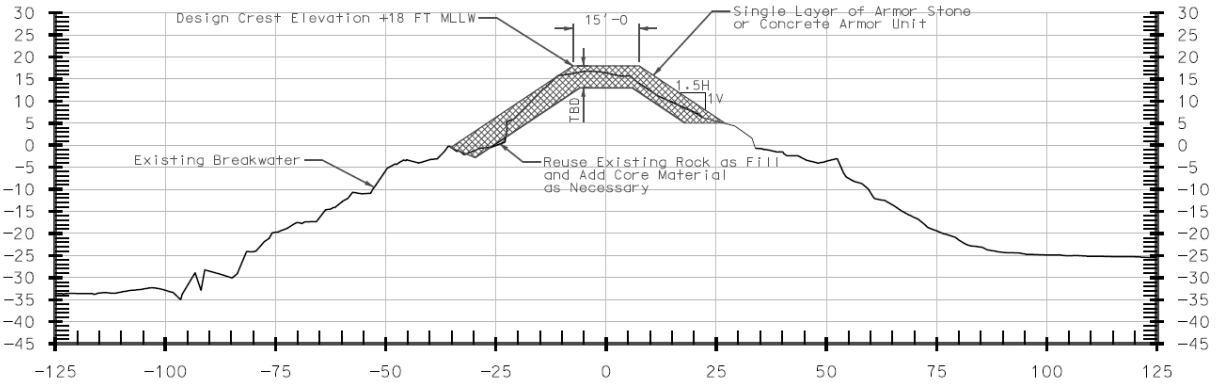

Figure 5: Typical Transition Section

New armor rock will be obtained from two quarries in Thurston and Skagit Counties. Material will be trucked to Aberdeen and Anacortes, respectively, and then barged to Neah Bay. Current estimates indicate that 3,195 large armor rocks will be required to repair 1,500 LF. Existing rock will be reused to the extent possible to rebuild the core of the breakwater and create a stable work platform. A qualified engineer or technician will be present during construction to determine viability of the rock for reuse. Currently, it is estimated that 3,750 tons of smaller rip rap per 1,500 lineal feet (2.5 tons per foot) will be needed for this purpose. If necessary, additional smaller rock to be used in the core of the breakwater will be obtained from the quarries listed above or the Makah Tribe quarry, if it is determined to be suitable.

Based on the length of the breakwater and the location of the damaged sections, the repair work will be a water-based operation. All material transport will be conducted from the leeward side of the breakwater. It is anticipated that the armor units will be brought to the site via supply barge, which will be anchored on the leeward side of the breakwater. The material will be placed using a combination of a barge-mounted crane (also located on the leeward side of the breakwater) and a long-reach track excavator. In order to ensure proper placement of the material, the excavator will be placed onto a temporary bench constructed along the breakwater crest at an elevation of +10 feet MLLW. Once the excavator is in place on the breakwater, the crane will transport fill material and armor units from the rock barge to the temporary construction bench; the excavator will then be used to bring the fill material up to grade and key-in the armor units, working from the construction bench and the barge, as necessary. Any material removed from the breakwater which will be reused will be stockpiled on the breakwater itself or on the barge until reuse.

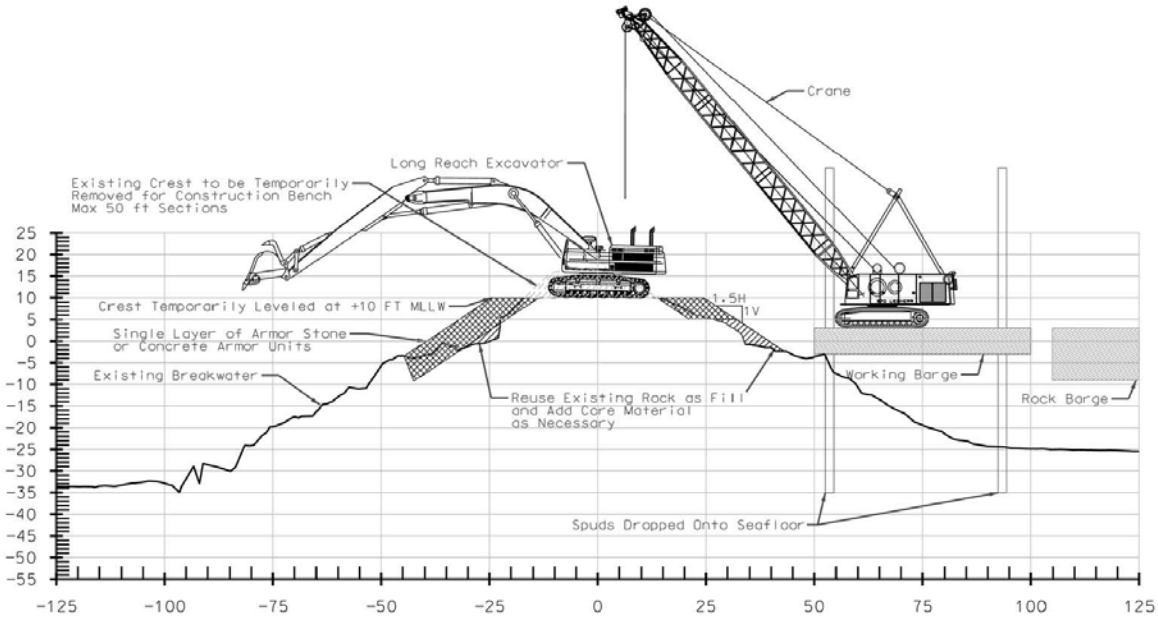

Figure 6: Schematic of Construction Technique

It is anticipated that construction will be limited to approximately 50-foot segments along the breakwater crest to ensure quality control and to reduce potential for storm damage to the unfinished breakwater during construction. This construction method reduces the size of the crane needed to place the material and increases the quality control over the placement of the material, particularly on the seaward side of the structure. Prior repairs were conducted without a crane, using an excavator on a barge rather than on top of the breakwater. This prior method didn't provide for clear view of the seaward side of the breakwater, making it difficult to accurately place rock, resulting in imprecise placement and interlocking of rock.

Staging areas will be required for excess equipment and materials. Locations are shown in Figure 7. Area A is located adjacent to the breakwater and would likely be used for barge loading/unloading or mooring. An existing road is present on the breakwater to that access the area. Area B is an existing upland site that will likely be used for truck and equipment storage. No wetlands or other environmentally sensitive areas will be impacted by staging areas. The final, mutually-agreed locations will be selected after coordinating with the land owners and the Tribe. Work will be conducted between July 16 and October 31. The fish work window extends from July 16 to February 15.

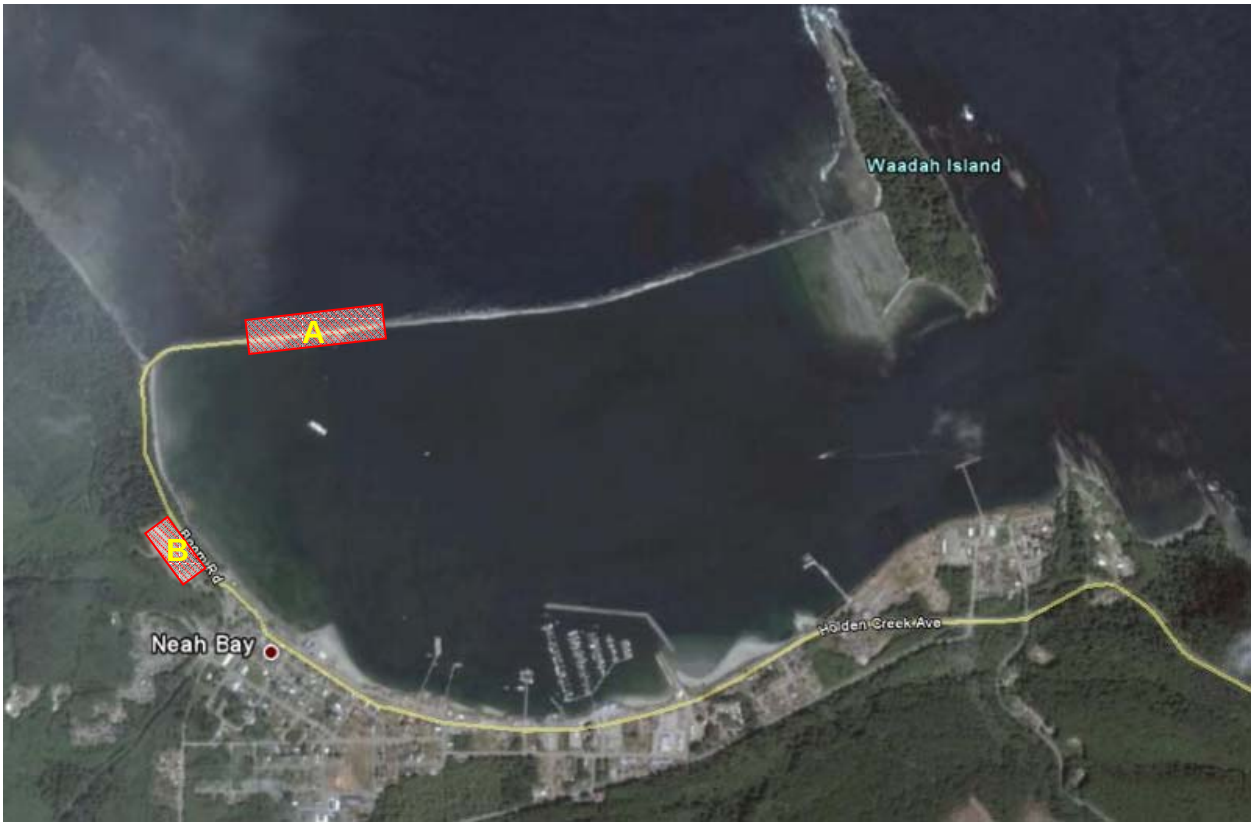

Figure 7: Possible Staging Area

3.0 ALTERNATIVES

3.1 No Action Alternative

Under this alternative no repair work would be completed on the outer breakwater. If repairs to the breakwater are not conducted it is likely that the existing structure will continue to degrade, resulting in continued overtopping and further loss of armor stones; compromising the protection the breakwater affords to the Makah marina, U.S. Coast Guard station, and Town of Neah Bay.

3.2 Repair the Breakwater – Concrete Armor Alternative

Under this alternative, the Corps would repair approximately 1,500LF of the outer breakwater at Neah Bay using concrete armor units and smaller rock to build the core of the breakwater. These armor units would be prefabricated on-site or at an off site location and transported to Neah Bay.

Construction of the breakwater would occur from the leeward side of the breakwater using a barge, crane, and excavator. The time and cost associated with producing these concrete units far exceeded the timeline and budget for the project. It was estimated that it would take five to seven years to produce the number of concrete units required to repair the proposed 1,500 LF at a cost several times that which is budgeted and available for the project. Therefore this alternative was considered but rejected from further consideration since it doesn't meet the overall project's need of providing repairs before the winter of 2010.

3.3 Repair the Breakwater – Rock Armor Alternative (Preferred Alternative)

Under this alternative, the Corps would repair approximately 1,500 LF of the outer breakwater at Neah Bay using large rock. Currently it is estimated that approximately 3,195 large armor rocks and 3,750 tons of smaller riprap will be placed along the center of the existing breakwater to reinforce the structure. The work will reestablish the breakwater dimensions per the 1978 Corps design memorandum. Construction is proposed to start on July 16, 2010 and is expected to be completed within three months.

4.0 EXISTING ENVIRONMENT

4.1 Tides and Tidal Currents

Tides at Neah Bay are typical of the Pacific coast of North America. Such tides exhibit two unequal highs and lows each day. The Strait of Juan de Fuca is subject to strong, irregular currents and to rip currents off prominent points such as Waadah Island. Tidal currents entering and leaving the harbor at Neah Bay through the entrance channel can exceed ½ knot (0.8 fps); however tidal current measurements conducted by the Corps of Engineers in 1986 indicate that currents in the vicinity of the marina are minimal, and seldom exceed 0.2 fps.

Tidal datums for Neah Bay, as published by the National Ocean Service, are as follows:

DATUM PLANE	ELEVATION REFERRED TO MLLW
Highest Tide (Estimated)	12.00
Mean Higher High Water	7.94
Mean High Water	7.10
Mean (Half) Tide Level	4.33
NGVD	4.41
NAVD88	-0.68
Mean Low Water	1.57
Mean Lower Low Water	0.00
Lowest Tide (Estimated)	-3.80

4.2 Prevailing Winds and Wind Generated Waves

Wind data at Tatoosh Island (approximately six miles west of the project site) indicate a prevailing easterly wind direction in the fall and winter and a westerly direction in the summer. The strongest winds are from the east and northeast, sometimes reaching speeds in excess of 80 miles per hour. The bay entrance is exposed to wind waves from the northeast, and to ocean

swell from the north and northwest. The marina site is located well within the bay, and is exposed to waves from the east and northeast that pass through the entrance, or to waves generated within the bay itself. Waves from the northeast and east can exceed 14 feet in height. According to the Detailed Project Report (DPR) (USACE 1994) for the marina, except for the most protected areas, estimated wave heights vary from 8 feet near the entrance to 5.5 feet immediately east of the marina.

4.3 Substrate

Four distinct habitats have been identified within Neah Bay. Nearshore areas are comprised of mostly sand, while silty sand dominates the overall bay. An area inside the breakwater at the western end consists of thick silt covered by wood chips and debris, and areas farther down the breakwater are dominated by sand and silt. Areas nearer to Waadah Island and seaward of the breakwater consist of sand, rock, and scattered boulders (Simenstad *et al.* 1988).

4.4 Bathymetry

Depths throughout the main basin of Neah Bay stay relatively consistent between 20 and 38 feet. The outer edges, particularly in the southwest corner of the bay, slope gradually down to the depth of the main basin. Along the outer breakwater, depths within the bay quickly drop from 7 to 10 feet to more than 25 feet. The mouth of the bay contains a few spotty plateaus peaking at 14 to 16 feet of depth. Heading east through the mouth of Neah Bay, depths gradually deepen from basin depths to more than 40 feet. The breakwater repair project will not affect the bathymetry of Neah Bay.

4.5 Water Quality

Source waters for the Neah Bay project area include coastal marine waters from the Strait of Juan de Fuca and freshwater from Agency, Halfway, and Village creeks. There are no major sources of pollution within the bay and tidal flushing is considered good (Lawes 2002).

Water quality in the Strait of Juan de Fuca is classified by the State of Washington Department of Ecology and designated as suitable for the following:

- Extraordinary for salmonid and other fish migration, rearing, and spawning
- Extraordinary for clam, oyster, and mussel rearing and spawning
- Extraordinary for crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning
- Shellfish, salmonid, and other fish harvesting
- Wildlife habitat
- Commercial navigation
- Boating
- Aesthetics
- Primary contact recreation

Water quality in the Neah Bay is assigned the following designated use by the Makah Tribal Council:

- Ceremonial and religious use

- Cultural use
- Excellent quality salmon and other fish rearing, migration, and harvesting
- Clam, oyster, and mussel spawning, rearing, and harvesting
- Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) spawning, rearing, and harvesting
- Wildlife habitat
- Primary contact recreation
- Commerce and navigation

Current available data are consistent with these designations. Rensel (2002) indicates that Total Suspended Solids (TSS) levels within Neah Bay consistently average less than 1g/L.

Parkin (2002) and Rensel (2002) found that dissolved oxygen (DO) levels in Neah Bay consistently average between 4.5 to 5.5 mg/L. In July 2003, the Corps conducted a DO study in the northwestern section of Neah Bay to address concerns about DO levels in this region due to woody debris and decaying logs surrounding the site of a historical timber facility. Dissolved oxygen ranged from 3.4 to 11.5 mg/L in this area. Surface values were greater than 10 mg/L. No stations were found to have values of less than 3 mg/L, but 10 stations had points of less than 5mg/L, identifying layers of low DO that are potentially harmful to fish (USACE 2003).

4.6 Biological Resources

4.6.1 Marine Plants

A number of important primary producers including benthic algae, phytoplankton, and marine and estuarine vascular plants are known from the surrounding areas and are representative of regional marine aquatic communities. Among these species are pickle weed (*Salicornia virginica*), eelgrass (*Zostera marina*), green ribbon algae (*Enteromorpha* spp.), red algae (*Tiffaniella synderae*, *Odonthalia floccose*, *Iridaea cordata*), Pacific rock weed (*Fucus distichus*, *F. gardneri*), sea lettuce (*Ulva fenestrata*), sugar wrack (*Laminaria saccharina*), seaside arrowgrass (*Triglochin maritimum*), Pacific laver (*Porphyra perforata*), kelp (*Pterygophora* spp.), winged kelp (*Alaria marginata*), the algae sea sac (*Halosaccion glandiforme*), stipe-less kelp or sea cabbage (*Hedophyllum sessile*), brown seaweeds (*Costaria costata*, *Sargassum muticum*, *Egregia menziesii*), bull kelp (*Nereocystis luetkeana*), and giant kelp (*Macrocystis integrifolia*) (Simenstad *et al*. 1988, van Wagenen 1996).

4.6.2 Neritic Zooplankton

The plankton community in the Neah Bay region benefits from strong tidal and ocean currents which maintain organic nutrients in the water column, keeping them readily available for primary production. The neritic food web in the region includes cladocerans, diatoms (i.e., *Ditylum brightwellii*, *Chaetocerus curvisetus*, *Coscinodiscus* and *Biddulphia* spp.), coccolithophores, dinoflagellates (i.e., *Ceratium fusus*), copepods (*Calanus pacificus*, *Corycaeus anglicus*, *Diosaccus spinatus*, *Acartia longiremis*, *Centropages* spp., *Paracalnus* spp., *Pseudocalanus* spp., *Tisbe* spp., and *Zaus* spp.), gammarids (*Ischyrocerus anguipes*, *Jassa falcata*, *Syncheidium schoemakeri*, *Photis* spp.), amphipod (*Calliopius* spp.), mysids (*Neomysis rayii* and *Holmesiella anomala*)

shrimp, shrimp larvae, crab larvae, polychaete larvae, ostracods (*Euphilomedes* spp.), the larvacean tunicate (*Oikopleura dioica*), and other invertebrates (Cooney 1971, Dumbauld 1985, Simenstad *et al.* 1988). These organisms form a critical link between the producers and the larger consumers, such as finfish (including salmonids) and birds.

4.6.3 MARINE INVERTEBRATES

The composition and function of invertebrate communities are important in structuring the food web. Benthic macro-invertebrate communities of the Pacific Northwest typically assemble into distinct zones that are driven by tolerance to heat and air exposure, and species competition. The local invertebrate community is healthy as a result of relatively stable salinity gradients, strong tidal changes, clean water, sediments and substrate, and an abundance of primary producers. Among the invertebrates known in Neah Bay include the acorn barnacle (*Balanus glandula*), buckshot barnacle (*Cthamalus dalli*), thatched barnacle (*Semibalanus cariosus*), aggregating anemone (*Anthopleura elegantissima*), plumose anemone (*Metridium senile*), large eelgrass isopod (*Idotea resecata*), ochre sea star (*Pisaster ochraceus*), blood star (*Henricia leviuscula*), keyhole limpet (*Diodora aspera*), Sitka periwinkle (*Littorina sitkana*), checkered periwinkle (*L. scutulata*), turban snail (*Calliostoma costatum*), turret snail (*Batillaria zonalis*), the polychaete (*Capitella capitata*), mussels (*Mytilus* spp.), soft-shell clam (*Mya arenaria*), bent-nosed clam (*Macoma nasuta*), Baltic macoma clam (*Macoma balthica*), horse/gaper clams (*Tresus capax*), bivalves (*Transennella tantilla*, *Tellina* spp.), Pacific littleneck clam (*Protothaca staminea*), heart cockle (*Clinocardium nuttalli*), Dungeness crab (*Cancer magister*), graceful crab (*C. gracillis*), red rock crab (*C. productus*), yellow shore crab (*Hemigrapsus oregonensis*), purple shore crab (*H. nudus*), helmet crab (*Telmessus cheiragonus*), shielded-back kelp crab (*Pugettia producta*), porcelain crab (*Petrolisthes eriomerus*), coonstripe shrimp (*Pandalus danae*), spot prawns (*P. platyceros*), ghost shrimp (*Upogebia pugettensis*), and skeleton shrimp (*Caprella californica*) (Cooney 1971, Jeffrey 1976, Simenstad *et al.* 1988, Shaw 1994). Based on numerous accounts of divers observing octopus on breakwaters and jetties throughout the Northwest, including the Neah Bay breakwater, and their attraction to structure, it is likely that giant pacific octopus (*Octopus dolfeini*) and red octopus (*Octopus rubescens*) can be found denning in the crevices between the large rocks of the breakwater.

4.6.4 FISH

As a result of the combination of abundant food resources, multiple habitat types and clean environmental conditions within the Neah Bay region, the local fish community is both healthy and diverse. The diversity of fish is demonstrated by Simenstad *et al*. (1988) who documented Pacific herring (*Clupea harengus pallasi*), northern anchovy (*Engraulis mordax*), surf smelt (*Hypomesus pretiosus*), Pacific sandlance (*Ammodytes hexapterus*), tube-snout (*Aulorhynchus flavidus*), Chinook salmon (*Oncorhynchus tshawytscha*), pink salmon (*O. gorbuscha*), chum salmon (*O. keta*), coho salmon (*O. kisutch*), lingcod (*Ophiodon elongatus*), cabezon (*Scorpaenichthys marmoratus*), black rockfish (*Sebastes melanops*), brown rockfish (*S. auriculatus*), copper rockfish (*S. caurinus*), quillback rockfish (*S. maliger*), kelp greenling (*Hexagrammos decagrammus*), striped sea perch (*Embiotoca lateralis*), starry flounder (*Platichthys stellatus*), spotted ratfish (*Hydrolagus*

colliei), sturgeon poacher (*Argonus acipenserinus*), Pacific cod (*Gadus macrocephalus*), Pacific tomcod (*Microgadus proximus*), white sturgeon (*Acipenser transmontanus*), big skate (*Raja binoculata*), English sole (*Parophrys regulus*), Dover sole (*Microstomus pacificus*), rock sole (*Lipidoptsetta bilineata*), sand sole (*Psettichthys melanostictus*), speckled sand dab (*Citharichthys stigmaeus*), various species of sculpin (family Cottidae), stickleback (*Gasterosteus aculeatus*), penpoint gunnel (*Apodichthys flavidus*), and crescent gunnel (*Pholis laeta*), among others. Wolf eels (*Anarrhichtys ocellatus*) have been observed by divers in the crevices between rocks of the breakwater.

4.6.5 MARINE MAMMALS

Twenty-one species of marine mammals are reported to occur in the Strait of Juan de Fuca, with nine occurring regularly. These include the river otter (*Lutra canadensis*), California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), gray whale (*Eschrichtius robustus*), minke whale (*Balaenoptera autorostrata*), killer whale (*Orcinus orca*), harbor porpoise (*Phocoena phocoena*), and Dall's porpoise (*Phocoenoides dalli*). Nearby designated seal/sea lion haulout areas include: Tatoosh Island (approximately six miles west of the project site), a minor haulout site for California and Steller sea lions (Calambokidis *et al*. 1987), Waadah Island (adjacent to the project site), a minor haulout site for California sea lions and harbor seals, and Seal and Sail Rocks (approximately 3.5 miles east of the project site), a minor haulout site for harbor seals (WDFW 2000). Although the protected waters of Neah Bay do not regularly support marine mammals, other than California sea lions feeding on discarded fish remains from the commercial fishing industry, sea otters, harbor seals, and even gray whales are occasionally seen in the bay (Calambokidis *et al*. 1987).

4.6.6 BIRDS

Neah Bay is an important overwintering site for a number of waterfowl, and has been known to support an estimated 50 species of waterfowl (USACE 1994). The more common birds that occur in Neah Bay include scaups, scooters, buffleheads (*Bucephala albeola*), black turnstones (*Arenaria melanocephala*), and various gull species. Important roosting sites include nearby Tatoosh Island and Seal and Sail Rocks, which are utilized by nesting pairs of gulls, cormorants, tufted puffins (*Fratercula cirrhata*), rhinoceros auklet (*Cerorhinca monocerata*), common murres (*Uria aalge*), and storm petrels (*Oceanodroma* spp.) (Wahl *et al.* 1981).

Brown pelican, which was recently delisted by USFWS, may be present in Neah Bay summer and fall, when they are commonly seen flying along the rocks of the breakwaters. They have been noted feeding in Neah Bay during September. Pelicans tend to favor rocky shorelines for perching. The nearest known brown pelican nocturnal roost area is located in Willapa Bay, approximately 120 miles south of Neah Bay.

Bald Eagle

Bald eagle (*Haliaeetus leucocephalus*) populations surrounding Neah Bay have grown significantly in the past several years. Observations show that the eagles utilize trees and

pilings in and around the bay as perch sites (B. Buckingham pers. comm. 2002). There were 117 bald eagle nest trees in Clallam County as of 2001 (Stinson *et al*. 2001). A more current count is not available. In the region surrounding Neah Bay bald eagles are year-round residents. All currently known bald eagle nests are at least ½ mile from the project site (WDFW 2006).

4.7 Threatened and Endangered Species

The following species listed under the Endangered Species Act (ESA) may occur in the project area. Possible effects of the breakwater repair on these species are discussed in Section 5.7.

- Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) Threatened
- Hood Canal summer-run chum salmon (*Oncorhynchus keta*) Threatened
- Coastal/Puget Sound bull trout (*Salvelinus confluentus*) Threatened
- Lower Columbia River Chinook salmon (*Oncorhynchus tshawytscha*) Threatened
- Puget Sound steelhead (*Oncorhynchus mykiss)* Threatened
- Steller sea lion (*Eumetopias jubatus*) Threatened
- Humpback whale (*Megaptera novaeangliae*) Endangered
- Marbled murrelet (*Brachyramphus marmoratus*) Threatened
- Southern Resident killer whale (*Orcinus orca*) Endangered
- Green sturgeon (*Acipenser medirostris*) Threatened
- Blue whale (*Balaenoptera musculus*) Endangered
- Fin whale (*Balaenoptera physalus*) Endangered
- Sei whale (*Balaenoptera borealis*) Endangered
- Sperm whale (*Physeter macrocephalus*) Endangered
- Leatherback sea turtle (*Dermochelys coriacea*) Endangered
- Loggerhead sea turtle (*Caretta caretta*) Threatened
- Green sea turtle (*Chelonia mydas*) Endangered
- Olive Ridley sea turtle (*Lepidochelys olivacea*) Endangered
- Pacific eulachon (*Thaleichthys pacificus*) Threatened

Puget Sound Chinook Salmon

Juvenile Chinook salmon have been found within Neah Bay by Simenstad *et al*. (1988) and SAIC for the USACE (2003). The relatively small size of these fish strongly suggests that they came from local rivers in the vicinity of Neah Bay, such as the Hoko River. Fish coming from central Puget Sound would be much larger than those found by Simenstad *et al*. (1988). Juvenile Chinook from Puget Sound rear in their native river estuaries until ready to migrate to the open ocean and are therefore unlikely to utilize Neah Bay. Puget Sound juvenile Chinook salmon are more likely to migrate through the Straight of Georgia. However, Neah Bay may be used for feeding and refuge, when juveniles migrate through the Strait of Juan de Fuca prior to ocean migration.

In addition, the Strait of Juan de Fuca is a migration route for returning adult Puget Sound Chinook salmon. However, it is likely these fish primarily utilize Neah Bay for short periods of foraging and refuge while migrating to Puget Sound.

The designated critical habitat includes all marine, estuarine and river reaches accessible to Chinook salmon in Puget Sound, which includes the Strait of Juan de Fuca and the areas seaward of the breakwater. The protected waters of Neah Bay are not included in this designation.

Hood Canal Summer-Run Chum Salmon
Juvenile chum salmon have also been found within Neah Bay (Simenstad *et al*. 1988). The relatively small size of these fish strongly suggests that they came from local rivers in the vicinity of Neah Bay, such as the Hoko River, and not Hood Canal. Hood Canal summer-run chum rear in their native river estuaries until ready to migrate to the open ocean and are, therefore, unlikely to be present in Neah Bay. Migration to open ocean is either through the Strait of Georgia or the Strait of Juan de Fuca, however little data exists to determine which is the predominate path. Those fish that do migrate out through the Strait of Juan de Fuca may use Neah Bay for feeding and refuge.

The Strait of Juan de Fuca is one of the migration routes for returning adult Hood Canal summer-run chum salmon. However, it is unlikely that these fish utilize Neah Bay for anything but short periods of foraging and refuge on their way to Hood Canal.

Coastal/Puget Sound Bull Trout
Two anadromous forms of bull trout stocks have been tentatively identified within the Strait of Juan de Fuca; these include the Dungeness/Gray Wolf and Lower Elwha river systems (WDFW 1998). Run timing and spawning timing are unknown for both stocks at this time. There is no information regarding marine residence time or migration patterns for either stock. Bull trout within Puget Sound have been documented to migrate from their native river system to another nearby river system. It is therefore possible that bull trout from the Dungeness/Gray Wolf or Lower Elwha river systems could be found at Neah Bay. However, there is no documentation of migrating anadromous bull trout outside of Puget Sound, and a general lack of information about these stocks. Bull trout presence in Neah Bay is at most sporadic, and likely rare, as there are no major river systems that empty into Neah Bay to attract any migratory bull trout from another system.

Neah Bay is located along one of the migration routes for returning adult bull trout. However, it is unlikely that these fish utilize Neah Bay for anything but short periods of foraging and refuge on their way to Puget Sound or coastal rivers.

Critical habitat for Coastal/Puget Sound bull trout was designated in 2005 and includes the Strait of Juan de Fuca and areas seaward of the breakwater. It does not include the protected waters of Neah Bay.

Lower Columbia River Chinook Salmon
The Lower Columbia River ESU of Chinook salmon encompasses all naturally spawned populations of Chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to the transitional point between Washington and Oregon east of the Hood River and White Salmon River. In addition, it includes seventeen artificial propagation programs in the area.

Recent unpublished research observed juvenile ESA-listed lower Columbia River Chinook salmon using the nearshore environments of western Strait of Juan de Fuca during the summer months (NMFS 2009d). Whether these fish are strays or this is a change in migration pattern is unknown at this time, however as the breakwater repair project is not in the nearshore environment it is unlikely that lower Columbia River Chinook will be present near the construction site.

Puget Sound Steelhead
In the United States, steelhead trout are found along the entire Pacific Coast. Worldwide, steelhead are naturally found in the Western Pacific south through the Kamchatka peninsula.

The Puget Sound steelhead ESU does not include rivers west of the Elwha or the Makah hatchery at Neah Bay. No steelhead were caught in Neah Bay during the 2003 fish surveys conducted by the USACE. Therefore, ESA steelhead that might be found in the project area would likely be adult fish migrating to or from the ocean to natal streams to the east or Puget Sound and likely only be in the project areas for a short amount of time.

Puget Sound steelhead critical habitat has not yet been designated.

Steller Sea Lion
While Steller sea lions are year-round residents in British Columbia, they are generally considered seasonal visitors to Washington State, and do not breed in this area (Calambokidis *et al*. 1987, Calambokidis and Baird 1994). Calambokidis *et al*. (1987) found a hauling out area for this species on Tatoosh Island, approximately 6.5 miles from the Neah Bay marina, confirming what several others had found previously. The maximum number observed hauled out was 68, yet the sea lions have seldom been observed near Neah Bay. In a year-long study, Steller sea lions were observed on 16 occasions in the vicinity of Neah Bay, and only twice in the protected waters behind Waadah Island and the breakwater. According to Calambokidis *et al*. (1987), they were least often encountered near Neah Bay during the summer months (end of April through the end of August). By mid-September, they had arrived at the haul-out area on Tatoosh Island. In the vicinity of Neah Bay, none were observed by Calambokidis *et al*. (1987) during the months of August, September, November, January, February and June.

Humpback Whale
Sightings of humpback whales are uncommon along the coast of Washington, although the National Marine Mammal Laboratory has documented humpbacks in Washington State waters in every month except February, March, and April. Humpbacks probably use Washington waters as a migration corridor (NMFS 1991) although a few animals enter and spend prolonged periods in the Strait of Juan de Fuca (Calambokidis and Steiger 1990, Calambokidis and Baird 1994).

Marbled Murrelet
Marbled murrelets are usually found in nearshore marine areas where they feed primarily on small fish and invertebrates (WDFW 1993). While they spend the majority of their time feeding in marine waters, they fly inland up to 52 miles to nest (WDFW 1993). The historic nesting range of marbled murrelets included Cape Flattery, but the current nesting range on the Olympic Peninsula has shrunk to the higher elevations in the Olympic Mountains due to extensive logging

(Klinger 1991, WDW 1993). Wahl *et al*. (1981) projected a nesting population of four pairs of marbled murrelets near Neah Bay, based on census data from 1978 and 1979. Recent sightings of marbled murrelets in the nearby vicinity of Neah Bay are uncommon, as Chapman (1993) did not observe any marbled murrelets during her year-long surveys (1992 and 1993) in the Neah Bay vicinity. During at-sea data collected in 1995 through 1997, Thompson observed murrelet densities were higher during the summer months than in the winter. Contrary to general thought that seabird distributions were remarkably unpredictable in time and space, murrelets appeared to be quite predictably distributed. Thompson determined that higher densities of murrelets occurred closer to the shore (30 to 40 meters from shoreline) and that morning counts were higher than afternoon (Thompson 1999). Most murrelets were observed in the nearshore areas of the Strait of Juan de Fuca and along the western coast, no observations were conducted within the protected waters of Neah Bay.

Southern Resident Killer Whale
Killer whales are most abundant in coastal habitats of temperate waters, especially in the high latitudes. Killer whales are seldom seen in tropical and offshore waters. Critical habitat was designated in November 2006 and includes the Strait of Juan de Fuca but not inside the breakwater of Neah Bay.

In the eastern North Pacific Ocean, three distinct forms, or ecotypes, of killer whales--"residents," "transients," and "offshores"--are recognized (Ford et al., 2000). The Southern Resident killer whale (SRKW) population contains three pods (or stable family-related groups)--J pod, K pod, and L pod--and is considered a stock under the Marine Mammal Protection Act (MMPA). Their range during the spring, summer, and fall includes the inland waterways of Puget Sound, Strait of Juan de Fuca, and Southern Georgia Strait.

Resident killer whales could be present in the Strait of Juan de Fuca during breakwater repair. However, the water depth between Waadah Island and Bahaada Point, at the entrance to Neah Bay, varies between 20 and 30 feet. This depth is thought to restrict whale access to the bay.

Eulachon
Eulachon are a small anadromous fish that migrate into some of the major river systems along the west coast of North America to spawn in the early spring (late February to May). The adult fish spend most of their lives in the nearshore water of the eastern Pacific Ocean and may range from California to Vancouver Island. Between 3 to 5 years in age, adult fish return to freshwater streams to spawn. The closest known estuary which contains a major stock of eulachon is the Fraser River in British Columbia approximately 85 miles northeast.

In 2005, eulachon were documented for the first time in the Elwah River. Eulachon abundance in the Elwha appears much lower than in other northwest rivers with documented eulachon runs. Current theories for fish presence in the Elwha include straying, and reestablishment of a remnant stock. The local historic observations of eulachon in the Elwha (but not other Olympic Peninsula rivers) up until the mid 1970's, combined with the severely degraded habitat of the lower Elwha River, indicate that the Elwha eulachon are a remnant population (Shaffer 2007).

Details of their habits and habitat while in saltwater are unknown. (Wydoski 2003). Eulachon tend to inhabit deeper water, greater than 60 feet, however they can be present in coastal bays during certain phases of their life. During the 2003 fish surveys of Neah Bay, two eulachon were caught out of the over 13,000 forage fish. It can be assumed that adult eulachon may be present throughout nearshore the waters of the Strait of Juan de Fuca, including Neah Bay, although in very low numbers.

Green Sturgeon
Green sturgeon may occur in the western regions of the Strait of Juan de Fuca, and are known to use coastal bays during certain life cycle phases. However green sturgeon tend to be found in deeper water (greater than 120 feet) and therefore are not likely to be present in the shallow waters of the project area.

Blue Whale
Blue whale may feed over the continental shelf off of Washington and Oregon during the summer months; however the species is most abundant off the coast of California (Reeves *et al.* 1998a). The breakwater repair will take place in relatively shallow water, approximately 70 miles from the continental shelf. Therefore, blue whales are not likely to be present in the project area.

North Pacific Fin Whale
North Pacific fin whale concentrations generally form along frontal boundaries or mixing zones between coastal and oceanic waters; no regular occurrences off the coast of Washington or in the Strait of Juan de Fuca were noted in a 1998 draft recovery plan for this species (Reeves *et al.* 1998b). The breakwater repair will take place in shallow water far from areas likely to be frequented by fin whales.

Sei Whale
Sei whales prefer subtropical to subpolar waters on the continental shelf edge and slope worldwide. They are usually observed in deeper waters of oceanic areas far from the coastline (NMFS 2009c). The breakwater repairs will take place in shallow waters near the coastline and therefore it is unlikely that sei whales would be present in the project area.

Sperm Whale
Sperm whales tend to inhabit areas with a water depth of 1968 feet (600 m) or more, and are uncommon in waters less than 984 feet (300 m) deep (NMFS 2009e). They are found year-round in California waters, but they reach peak abundance in California waters from April through mid-June and from the end of August through mid-November. They are less abundant in Washington and Oregon, but have been seen in every season except winter (December to February).

Leatherback Sea Turtle
Leatherbacks have the widest distribution of all turtles, nesting on beaches in the tropics and sub-tropics and foraging into the higher latitude sub-polar region (NMFS 2007). In the Pacific, the range extends from the waters of British Columbia and the Gulf of Alaska down to the waters of Chile and the southern island of New Zealand. While this species may use oceanic areas off the

coast of Washington as foraging grounds during the summer and fall months, aerial surveys indicate that when off the U.S. Pacific coast leatherbacks usually occur in continental slope waters (NMFS and USFWS 1998a), approximately 70 miles from the project site.

Loggerhead Sea Turtle
In the eastern Pacific, loggerhead turtles have been reported as far north as Alaska, and as far south as Chile. In the U.S., occasional sightings are reported from the coasts of Washington and Oregon, but most records are of juveniles off the coast of California (NMFS 2009f). The nesting areas of loggerhead turtles are located in the subtropics, though primarily in the western Pacific (NMFS and USFWS 1998a). It is thought that eastern Pacific waters may be used as foraging grounds and migratory corridors.

Green Sea Turtle
In the eastern North Pacific, green turtles have been sighted from Baja California to southern Alaska, but most commonly occur from San Diego south; a resident foraging population is present in south San Diego Bay (NMFS 2007b). Primary nesting sites are located in Mexico and the Galapagos Islands (NMFS and USFWS 1998b). Beach stranding and gillnet captures have been reported off the Washington coast, but is it has been suggested that these individuals strayed northward with El Nino currents (NMFS and USFWS 1998b). No regular occurrences off the coast of Washington or Strait of Juan de Fuca were noted in a 1998 draft recovery plan for this species. It is highly unlikely that green turtles would be present along the Washington coast or the Strait of Juan de Fuca during the proposed breakwater repair due to the colder water temperatures in this region.

Olive Ridley Sea Turtle
Olive Ridley turtles are primarily a pelagic species, although some have been known to inhabit coastal areas including bays and estuaries. They occur in tropical and temperate ocean waters but have been documented as far north as Alaska (Hodge and Wing 2000). Olive Ridleys are highly migratory and may spend most of their on-breeding life in the oceanic zone (NMFS 2007c). The eastern Pacific population nests in southern Mexico and northern Costa Rica (NMFS and USFWS 1998c). It is highly unlikely that Olive Ridley turtles would be present in the project area due to cold water temperatures and the proximity of the project to the shoreline.

4.8 Cultural Resources

Neah Bay is the tribal center for the Makah Indian Nation and Tribal Reservation, which consists of 27,200 acres of land at the northwest tip of Washington State and is bounded by the Pacific Ocean and the Strait of Juan de Fuca. The Makah were historically a maritime people that used local Western Red Cedar to make canoes and other tools. In the past, five permanent villages made up the Makah community. These villages were Bahaada, Deah (present day Neah Bay), Waatch, Sooes, and Ozette. The two ethnographically reported villages included Bahaada and Deah Village, which was located at the west end of the Bay adjacent to the present-day town of Neah Bay. Bahaada, the larger of the two villages, was located east of the boat harbor near Baadah Point at the mouth of Agency Creek (Trettevick 1999, Makah 2002). Some archeological evidence has been found near the historic site of the Bahaada village, despite landfill, past logging activities, and the old railroad that went through the site. No recorded archeological sites exist within the immediate vicinity of the Neah Bay Marina (Bowechop, pers. comm. 2002).

4.9 Air Quality

Air quality in the vicinity of Neah Bay is regulated by the State of Washington using the Washington Air Quality Advisory (WAQA) tool. There is a real-time monitoring station located within Neah Bay. In general, air quality in the area is considered good, and is only minimally impacted by automobile and boat emissions.

4.10 Noise

Ambient noise levels in the Neah Bay area are well within the Washington State Legislature Revised Code of Washington regulated noise levels. At the project site, natural sources such as wind and surf are the principal sources of sound, with occasional boat and vehicle traffic contributing to noise levels both above and below the water line.

4.11 Recreation

Many tourists frequent the areas surrounding Neah Bay in pursuit of open space and recreation. Recreation occurring near the project site includes hiking, hunting, boating, fishing, crabbing, clam digging, beach combing, bird watching, kite flying, and picnicking.

4.12 Navigation and Transportation

The entrance to Neah Bay is relatively shallow (less than 30 ft in depth) and therefore boat traffic in the Bay is restricted to those vessels able to pass through the channel, primarily commercial and recreational fishing vessels and the Coast Guard rescue boat and associated equipment.

The only road in the project area is Boom Road, which follows the shoreline along the western edge of Neah Bay and terminates at the breakwater. There is no vehicles access to the breakwater.

4.13 Socioeconomics

The Makah Nation's present-day seafaring economy is centered in Neah Bay. While the Makah Tribe is comprised of over 2,300 members, only about half of its members live on the reservation. The population of Neah Bay is comprised of approximately 1,400 to 1,500 tribal and non-tribal people year round (MCRC pers. comm. 2002).

Fishing related activities have historically been the main source of income for the Makah Nation. The Neah Bay Marina harbors over 200 commercial and sport fishing vessels as well as numerous pleasure craft. While fishing is still a major component of income for the area, unemployment is as high as 75% in winter months and 50% in the busy summer months when the majority of sport fishing and tourism occur. The tribal council also employs people in municipal, enforcement, and forestry jobs. Unemployment in the rest of Clallam County averages approximately eight percent. The village and marina support numerous small businesses (MCRC pers. comm. 2002).

The difficult social and economic conditions of the Makah Indian Nation are, in part, due to its remoteness. The Reservation is extremely isolated from other communities within Clallam County, the Olympic Peninsula and Washington State in general. Clallam County's major commercial center and county seat, Port Angeles, is 75 miles from Neah Bay. Seattle is 225 miles away, and Forks, the closest city center, is 60 miles away (Trettevick 1999).

5.0 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

5.1 Tides and Tidal Currents

5.1.1 NO ACTION ALTERNATIVE

If repairs are not conducted the breakwater will likely continue to degrade and wave action in Neah Bay can be expected to increase. This could result in damage to the Makah Marina, the vessels moored within the marina, and businesses and residences along the shoreline.

5.1.2 REPAIR THE BREAKWATER – ROCK ARMOR ALTERNATIVE

The repairs will reestablish the crest width (25ft) and height (+18ft MLLW) of the breakwater to that which was constructed per the 1978 design (USACE 1978). This will require rearranging existing rock to build a more stable foundation and adding suitable armor rock to protect the breakwater from future damage. No increase in the existing footprint will result from the repairs. Currently the breakwater is readily overtopped by swells which develop in the Strait of Juan de Fuca from the Pacific Ocean resulting in considerable damage to the structure. After repairs this overtopping will continue but the rebuilt breakwater should withstand this wave action without incurring damage. No changes to the tides or tidal currents are anticipated from this alternative.

5.2 Prevailing Winds and Wind Generated Waves

5.2.1 NO ACTION ALTERNATIVE

Prevailing wind and wind generated waves would not be affected by this alternative.

5.2.2 REPAIR THE BREAKWATER – ROCK ARMOR ALTERNATIVE

The repair of the breakwater will be within the original footprint; no rock will be placed outside of the 1978 designed prism nor will the height of the breakwater be increased; therefore no effect to wind or wind generated waves are expected to result from this alternative. This alternative will likely attenuate wind generated waves within the bay.

5.3 Substrate

5.3.1 NO ACTION ALTERNATIVE

If repairs are not conducted the breakwater will continue to unravel, causing armor rock to dislodge and cover the substrate at the base of the breakwater.

5.3.2 REPAIR THE BREAKWATER – ROCK ARMOR ALTERNATIVE

During construction temporary effects to the substrate may occur due to rock rearrangement and placement – areas that were previously covered with dislodged rock may be uncovered. However, as the repairs will not result in a wider footprint, no long term change to the sediment substrate is expected from this alternative.

5.4 Bathymetry

5.4.1 No Action Alternative

Under this alternative, the bathymetry in the immediate vicinity of the breakwater could be affected by continued dislodging of the armor rock, but the overall topography of the project area would be unchanged.

5.4.2 Repair the Breakwater – Rock Armor alternative

Breakwater repairs will not result in any changes to the bathymetry.

5.5 Water Quality

5.5.1 No Action Alternative

Water quality would not be affected by this alternative.

5.5.2 Repair the Breakwater – Rock Armor alternative

Only temporary and slight reduction in water quality would be expected during construction of the breakwater. This is limited to increase in turbidity from construction equipment, rock placement, and small volumes of vessel discharges. However, tidal currents in the project area are great enough to quickly dissipate turbidity and render the effects insignificant.

5.6 Biological Resources

Impacts to Threatened and Endangered species are addressed in Section 5.7.

5.6.1 Marine Plants

5.6.1.1 No Action Alternative

Marine plants would not be affected by this alternative.

5.6.1.2 Repair the Breakwater – Rock Armor Alternative

While it is unlikely that marine plants will be affected while jetty rock is transported to the site, some plants will be affected at the repair sites during rock replacement. Due to rapid recolonization of the new area by various species of algae (e.g. *Ulva* and *Fucus* spp.) this affect would be temporary and site-specific. No eelgrass beds are known to be present in the project area.

5.6.2 Neritic Zooplankton

5.6.2.1 No Action Alternative

Zooplankton communities would not be affected by this alternative.

5.6.2.2 Repair the Breakwater – Rock Armor Alternative

The project will not affect current patterns in Neah Bay, and any alteration in water quality will be minor, temporary, and will be rapidly diminished by the strong currents associated with the Strait. As a result there is no expected change to occur in the abundance or composition of the zooplankton community related to the project.

5.6.3 MARINE INVERTEBRATES

5.6.3.1 No Action Alternative
Marine invertebrates in the area would not be affected by this alternative.

5.6.3.2 Repair the Breakwater – Rock Armor Alternative
It is expected that populations of the benthic community, specifically marine invertebrates, in the immediate vicinity of the construction may be reduced. If octopi are present in the area of repair they may become trapped under the newly placed rock. However, the benthic species are expected to recover shortly after breakwater repair activities are completed. Past investigations completed for dredging work in Gray's Harbor have produced data that indicates that disturbed benthic communities recolonize quickly (SAIC 2005). It is likely that the same results would apply to the breakwater repair activities in Neah Bay. Since new communities will establish quickly at the project site, no long-term loss of biological productivity is expected. Impacts related to the project will be minor, temporary, and localized.

5.6.4 FISH

5.6.4.1 No Action Alternative
The fish community in the area would not be affected by this alternative.

5.6.4.2 Repair the Breakwater – Rock Armor Alternative
Temporary effects on the local fish communities are possible during repair activities from increased suspended sediment and reduced dissolved oxygen. If forage fish are in the vicinity, they are expected to avoid the project site, resulting in a temporary displacement of forage fish from the area. However, the repair project occurs in habitats that are not suited for forage fish; so mortality due to the proposed action is not expected. After the conclusion of the project, these species should return immediately to the project area. Breakwater repair activities will not have an effect on the spawning of forage fish as the repairs will be away from suitable spawning habitat.

Repairs may temporarily displace fish that inhabit the rocky interstitial spaces of the breakwater. If denning fish, such as wolf eel, are present in the repair area, they may become trapped under the newly placed rock. The large rock that will be used to rebuild the outer face or the structure will be similar to existing rock and therefore it is expected that these fish will quickly return to the new sections of the breakwater. No long-term effects to groundfish populations are expected.

Adult salmonids in the area are expected to avoid the construction area. Conducting the repair work in the designated fish window will minimize disturbance to juvenile salmonids that might be present.

5.6.5 MARINE MAMMALS

5.6.5.1 No Action Alternative
Marine mammals would not be affected by this alternative.

5.6.5.2 Repair the Breakwater – Rock Armor Alternative
Seals, sea lions and other marine mammals, as highly mobile animals, will likely stay away from the project area during breakwater repair operations. California sea lions forage in and around the marina for discarded fish remains; however they are not likely to be present around the breakwater as no fish scraps are present. The project area is not a known foraging area for cetaceans due to the shallow water depths, and all known seal and sea lion haul out areas are outside of the project area. Therefore no impacts to marine mammals are expected.

5.6.6 BIRDS

5.6.6.1 No Action Alternative
Birds would not be affected by this alternative.

5.6.6.2 Repair the Breakwater – Rock Armor Alternative
The project area is comprised of rocky material and is not significantly utilized as foraging habitat for the majority of bird species known to inhabit the region. Most shorebirds and other birds will most likely avoid the immediate operational areas during periods of breakwater repair. However, shorebirds that utilize rock habitats, including black turnstones (*Arenaria melanocephala*) and rock sandpiper (*Calidris ptelocnemis*), regularly forage on the outer breakwater during spring and fall migrations, as well as winter. The temporary and very localized effect of this rock work will not have a substantive effect on the local populations of these birds, as they would be expected to avoid the work area and forage along undisturbed portions of the breakwater. As a result, the project will have little or no effect on foraging of regional bird populations.

Bald Eagle
All known eagle nests are at least ½ mile away from the project site. Due to the timing of the proposed project (mid July – late October) any young eagles should be fledged prior to commencement of project work, and therefore no disturbance to nesting eagles is expected. Adult eagles are highly mobile and will likely avoid the construction area. As a result, the project is expected to have little to no effect on the resident bald eagle population in Neah Bay.

5.7 Threatened and Endangered Species

A complete list of the threatened and endangered species that may occur in the Neah Bay area are listed in Section 4.7. This section summarizes the potential impacts to each ESA-listed species and their designated critical habitat, if applicable. A Biological Evaluation (BE) with comprehensive discussions regarding the effects of the breakwater repair on these species and their designated critical habitat was prepared to facilitate consultation under Section 7 of the Endangered Species Act, with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Both Services concluded Section 7 ESA consultation via concurrence letters dated February 16, 2010 (NMFS) and February 18, 2010 (USFWS).

5.7.1 NO ACTION ALTERNATIVE
Under this alternative there would be no effect to listed species.

5.7.2 REPAIR THE BREAKWATER – ROCK ARMOR ALTERNATIVE

Effects to individual listed species under this alternative are discussed below.

Puget Sound Chinook Salmon

Increased turbidity, due to construction, could affect juvenile salmonids occurring in the immediate project area through temporary decreased visibility for foraging activities. However, total suspended solids (TSS) levels sufficient to cause such effects would be very minor and temporary in extent due to local tidal currents. Forage fish in the project area may be temporarily displaced due to construction, briefly reducing prey availability in the area. Migrating adult salmonids are expected to avoid the project area. Juvenile salmonids, if present, are more likely to be influenced by the project as they stay close to the shorelines during migration and feeding. Impact to these fish would be minimized by working within the established work window (July 16 through March 1). Work accomplished within this window would minimize impact to the smallest of juvenile salmon. After July, the relative size of sampled juvenile Chinook, >170 mm fork length, (NMFS, 2002) indicates that they are no longer obligate residents of the shallow nearshore habitat and would avoid the work area without harm. Project construction is anticipated to begin July 16, 2010, and will be completed within three months.

Chinook salmon and their habitats may experience minimal short-term impacts as stated above. Yet, no long-term effect on migration, reproduction, spawning, or feeding habitat is anticipated. The proposed project **may affect, but is not likely to adversely affect** Puget Sound Chinook salmon.

Hood Canal Summer-Run Chum Salmon

It is believed that Hood Canal summer-run chum salmon would only be in the area of Neah Bay for short periods of time (if at all) for foraging, migration, and to seek refuge on their way to Hood Canal and associated rivers. Construction will be done within the designated fish window, and therefore impacts to migrating Hood Canal summer-run chum salmon are expected to be negligible. The proposed project **may affect, but is not likely to adversely affect** Hood Canal summer-run chum salmon.

Coastal/Puget Sound Bull Trout

There is no known bull trout population in or near Neah Bay. Within the eastern Strait of Juan de Fuca, two stocks have been tentatively identified (Dungeness/Gray Wolf and Lower Elwha); run and spawning time are unknown for both stocks. It is possible that bull trout might enter the bay temporarily for foraging or refuge during migration east toward Puget Sound or Olympic Peninsula rivers. However, there would be no effects to spawning habitat from the project and potential effects of any disruptions to feeding or refuge would be temporary and minimal. In addition, the construction will be done within the designated fish window in order to minimize any potential impact to species in the project area. As a result, impacts to migrating anadromous bull trout are expected to be insignificant. The proposed project **may affect, but is not likely to adversely affect** Coastal/Puget Sound bull trout.

Lower Columbia River Chinook Salmon
Columbia River Chinook salmon may occur in the Neah Bay project area but such occurrence is considered unlikely. No work will be conducted in such habitats, increased turbidity is anticipated to be localized and temporary and therefore impacts to Columbia River Chinook, if present, are expected to be insignificant. The proposed project **may affect, but is not likely to adversely affect** Lower Columbia River Chinook salmon.

Puget Sound Steelhead
Puget Sound steelhead would only be in the area of Neah Bay briefly, if at all, for foraging and refuge on their way to or from natal streams east of Neah Bay. Steelhead, if present, would likely be able to avoid the work area. Therefore, impacts to migrating steelhead are expected to be insignificant. The proposed project **may affect, but is not likely to adversely affect** Puget Sound steelhead.

Steller Sea Lion
Steller sea lions are uncommon in Neah Bay and no designated critical habitat occurs in the project area. While Steller sea lions may swim near the project site in the Strait of Juan de Fuca, they are rarely seen in the Neah Bay area (Calambokidis *et al*. 1987). In addition, Steller sea lions are highly mobile and if present would likely avoid the immediate site during repair operations. The construction may have a minor, temporary effect on their foraging and other behavior. The infrequency of species occurrence near Neah Bay, especially during the construction period, suggests that Steller sea lions would only be insignificantly, if at all, affected construction on the breakwater. The Corps determined the proposed project **may affect, but is not likely to adversely affect** Steller sea lion. NMFS, in their concurrence letter, determined **no effect** on Stellar sea lion from the project. .

Humpback Whale
The preferred habitat for humpback whales is the open ocean, rather than the more shallow estuaries and bays. Consequently, these species are not expected to be directly or indirectly affected by breakwater repair operations within the Neah Bay area. The proposed project is expected to have **no effect** on humpback whale.

Marbled Murrelet
Effects to marbled murrelets are anticipated to be insignificant due to the highly localized and temporary nature of the breakwater repair project and the relatively unlikely occurrence of the species in the project area. In addition, frequent vessel traffic is not known to adversely affect the populations of these birds that may occur in the Neah Bay area. Any murrelets near the project should be able to easily avoid the site during construction of the breakwater repair, and will be able to locate similar nearby habitat to utilize as foraging areas. The proposed project **may affect, but is not likely to adversely affect** marbled murrelet.

Southern Resident Killer Whale
There is a possibility of killer whales being present in the Strait of Juan de Fuca during the breakwater repair; however the passage into Neah Bay between Waadah Island and

Bahaada Point is thought to be too shallow to allow whale passage into the interior of the bay. If present, it is likely that killer whales would avoid the construction activity.

The repairs will result in temporary increases in noise caused by heavy equipment operation in the project area. All heavy machinery will be working above the water line. Noise increases below the water will be limited to rock scraping and placement. No pile driving will occur during this project.

The project will have no permanent effect on killer whale critical habitat or the habitat of the salmon species that are a primary constituent of the whale's diet. As a result any impact to killer whale during the construction is expected to be temporary and negligible. The Corps determined the proposed project **may affect, but is not likely to adversely affect** Southern Resident killer whale. NMFS, in their concurrence letter determined **no effect** on killer whale from the project.

Eulachon
There is no known eulachon population in or near Neah Bay; however it is possible that adult eulachon might enter the bay temporarily for foraging or refuge during migration east toward inland rivers for spawning. The infrequency of species occurrence near Neah Bay, especially during the construction period, suggests that eulachon would only be insignificantly, if at all, affected construction on the breakwater. The proposed project **may affect, but is not likely to adversely affect** eulachon.

Green Sturgeon
It is highly unlikely that green sturgeon would be present near the project area due to the shallow water depths. However, if sturgeon were present it is likely they would avoid the project area and therefore it is anticipated that the project will have **no effect** green sturgeon.

Blue Whale
It is highly unlikely that blue whales would be present in the project area due to water depths and distance from their preferred feeding grounds. Therefore it is anticipated that the project will have **no effect** on blue whales.

North Pacific Fin Whale
As the breakwater repair will take place in shallow water far from areas likely to be frequented by fin whales, **no effect** to this species is anticipated from breakwater activities.

Sei Whale
As sei whales are usually observed in deeper waters of oceanic areas far from the coastline and breakwater repairs will take place in shallow waters near the coastline, it is unlikely that sei whales would be present in the project area. Therefore it is anticipated breakwater reapris will have **no effect** on sei whales.

Sperm Whale

Sperm whales may be present off the coast of Washington during repairs but are uncommonly found in shallow waters. As the breakwater repair project will take place exclusively in shallow water, **no effect** to sperm whales is anticipated.

Leatherback Sea Turtle
While this species may be present off the coast of Washington during the summer and fall months, it is unlikely to be observed in the project area as the breakwater is approximately 70 miles from the continental shelf, where leatherbacks are typically observed. Therefore, **no effect** to leatherback sea turtles is anticipated from the breakwater repair project.

Loggerhead Sea Turtle
While it is possible loggerhead sea turtles maybe be present off the coast of Washington, it is considered unlikely as most observations have occurred off the coast of California. **No effect** to loggerhead turtles is anticipated.
Green Sea Turtle
It is highly unlikely that green turtles would be present along the Washington coast or the Strait of Juan de Fuca during the proposed breakwater repair and therefore **no effect** to the species is anticipated.

Olive Ridley Sea Turtle
As Olive Ridley turtles are primarily a pelagic species, it is unlikely that they would be present near the breakwater repair project. In addition, they are highly mobile and would likely avoid the project area if present and therefore **no effect** to the species is expected to occur from the construction.

5.8 Cultural Resources

5.8.1 No Action Alternative
Cultural resources will not be affected by this alternative.

5.8.2 Repair the Breakwater – Rock Armor alternative
The USACE research suggests there is a low probability for the project to cause effects to these types of historic properties, for the following reasons:

a. Prior Disturbance. In order to be eligible under Criterion D, a pre-Contact archaeological site must be datable and exhibit both stratigraphic integrity and a sufficient quantity of archaeological materials. Stratigraphic integrity, whether vertical or horizontal, can be suggested by the presence of intact features and/or activity areas, or the presence of a limited range of projectile point styles or other temporally diagnostic artifact types. Historic archaeological sites must retain integrity and have the potential to provide information beyond that which is available in written documentation or oral histories.

Activities related to the proposed breakwater project are limited to areas where past natural disturbance was so severe as to preclude the existence of intact cultural deposits. The project area of potential effects (APE) lies within an area subject to erosional forces.

The Corps has determined there is very little potential for intact prehistoric of early historic archaeological deposits within the project APE.

b. Absence of recorded historic properties. The Corps conducted an ethno-historic investigation of the project area to determine potential effects of the proposed maintenance work on cultural and religious sites of importance to the Makah people. Research included a search of the Department of Archeology and Historic Preservation (DAHP) Electronic Historic Sites Inventory Database, archival research and consultation with the Makah Tribal Historic Preservation Officer (THPO). The result of this investigation was the determination that the project is unlikely to have an adverse effect on intact pre-contact cultural deposits should any exist within the project APE. Although a number of cultural resources sites are documented within the general vicinity of the project, they are outside of the project APE, as defined. There are no previously recorded pre-Contact or early historic archaeological sites within the project APE.

c. The breakwater is not historic. The Breakwater was authorized in 1938 and constructed in 1944. The structure has been repaired several times since the original construction date; the most recent repair (initiated in 1976, completed in 1981) involved the rehabilitation of 4,000 feet of the breakwater (Corps 2005). The Corps has determined that these repairs have so impacted the integrity of integrity of location, design, setting, materials, workmanship, feeling or association that the breakwater can no long be considered a historic structure. The breakwater is, therefore, no longer eligible for listing on the National Register.

The undertaking as described in this document has very little potential to affect historic properties and the breakwater itself is not eligible for listing due the extent and nature of recent repairs. The Corps received concurrence from THPO in a letter dated September 21, 2009 with a finding of "No historic properties affected" for the proposed Neah Bay Breakwater Repair project.

5.9 Air Quality

5.9.1 No Action Alternative

Air quality will not be affected by this alternative.

5.9.2 Repair the Breakwater – Rock Armor alternative

During the breakwater repair project, there will be a temporary and localized reduction in air quality due to emissions from operating equipment. These emissions are not expected to cause adverse health effects or result in violation of applicable air quality standards. Therefore, impacts will not be significant.

5.10 Noise

5.10.1 No Action Alternative

Noise levels will not be affected by this alternative.

5.10.2 Repair the Breakwater – Rock Armor alternative

Ambient noise levels will temporarily increase due to operation of breakwater repair equipment during construction. Noise type will shift from natural sources, such as wind and surf, to equipment noise. No pile driving will occur during the repairs. No heavy equipment will be operated below the water line. The only anticipated noise below water is from the placement/rearrangement of rocks and boat motors. Effects on birds, wildlife, and humans will be temporary and localized, and will occur during hours which are designated by the Tribe for work in a residential area. Applicable noise ordinances will not be violated.

5.11 Recreation

5.11.1 No Action Alternative

If the breakwater is not repaired it may incur further damage, which could result in a loss of protection for the marina and Tribal lands from winter storms. This may reduce the recreational opportunity for boats moored at the Marina.

5.11.2 Repair the Breakwater – Rock Armor alternative

Repairing the breakwater will enable it to continue to provide harbor protection from adverse weather conditions, and ensure continued protection to recreational boating and shoreline activities

5.12 Navigation and Transportation

5.12.1 No Action Alternative

If the breakwater is not repaired, it may incur further damage, which could result in loss of protection for boats moored in the marina and the Coast Guard station. No impact to vehicular traffic would result from this alternative.

5.12.2 Repair the Breakwater – Rock Armor Alternative

Repairs to the breakwater will enable it to continue to provide protection to the marina and Coast Guard station. No impact to vessel traffic is expected during construction as the construction barges will be anchored adjacent to the breakwater which is an area not frequented by commercial or recreational boats.

Vehicle traffic is not anticipated to be impacted from the repairs. Traffic on Boom Road is limited to local residents and is very minimal.

5.13 Socioeconomics

5.13.1 No Action Alternative

If the breakwater is not repaired it may incur further damage, which could result in a loss of protection for the marina and Tribal lands from winter storms and adversely impact the commercial and sports fishing industry.

5.13.2 REPAIR THE BREAKWATER – ROCK ARMOR ALTERNATIVE

A large percentage of the tribe's income is derived from fishing related activities. Therefore, the repair of the breakwater will help maintain the protection of the commercial and sports fishing operations based in Neah Bay.

6.0 UNAVOIDABLE ADVERSE IMPACTS

The unavoidable adverse impacts of the proposed repairs to the outer breakwater include temporary stress and displacement of forage fish, displacement and potential mortality to octopi and wolf eels, temporary depression of benthic invertebrate populations in the project area, temporary water and air quality impacts, and noise disturbance to humans, birds, and marine mammals that may be present in the project area during construction. Given the temporary, localized and discountable nature of these impacts, the effects are not considered significant.

7.0 AVOIDANCE AND MINIMIZATION OF EFFECTS

Adverse impacts would be avoided and minimized by using Best Management Practices (BMPs). For the breakwater repair project these would include:

- Constructing the proposed project during established in-water work window (July 16 – March 1)
- Rock will be placed using an excavator from the top of the breakwater. This will ensure greater accuracy of rock placement and reduce the need for shifting and scraping which could increase turbidity.
- Appropriate sized equipment for the project would be utilized including excavators, bulldozers and barges.
- All equipment would be cleaned prior to in-water construction work.
- Biodegradable hydraulic fluids would be used in machinery where appropriate.
- Refueling would not occur near the shoreline or, if refueling near the breakwater is necessary automatic shutoff valves will be utilized to avoid spills.
- Construction equipment shall be regularly checked for drips or leaks.
- At least one fuel spill kit with absorbent pads would be onsite at all times.

8.0 NATIVE AMERICAN TREATY RIGHTS

The proposed project has been coordinated with and is supported by the Makah Indian Tribe. The Tribe agrees the proposed project is not likely to interfere with the Makah Nations treaty fishing rights set forth in the Treaty of Neah Bay, 1855 (NWIFC 2002).

9.0 CUMULATIVE IMPACTS

Cumulative impacts are those changes to the physical, biological, and socioeconomic environments, which would result from the effects of a proposed action when added to other past, ongoing, and reasonably foreseeable actions, regardless of what agency of government or person undertakes such other actions. Past actions at Neah Bay have resulted in considerable alteration of shoreline habitat, including changes in the littoral processes and wave patterns within the bay by the construction of the breakwater and armoring of almost the entire southern shore of the bay with riprap revetment. The geographic scope for this cumulative impact analysis

is the waters of Neah Bay and the Strait of Juan de Fuca and the community of Neah Bay and surrounding lands.

The construction of the breakwater in 1944 likely had considerable adverse impacts to the Neah Bay and the surrounding marine ecosystem. The authorized project was built explicitly to alter the natural processes in the area, specifically to minimize the impacts of tides, currents, large waves, and storms to the community and waters of Neah Bay. The breakwater has changed the littoral processes within the Bay and altered the biological structure of the marine and nearshore communities in the area. However, the local environment has, over time, adapted to the existence of the breakwater. The breakwater is now a component of the Neah Bay marine environment and has allowed the Makah Tribe to develop a marina and associated fishing industry. A large percentage of the tribe's income is derived from fishing related activities. The repair of the breakwater will help maintain the protection of the commercial and sports fishing operations based in Neah Bay. Without this proposed project, the breakwater will continue to exist in Neah Bay, but not provide the full function and protection intended by its original authorization. It also will continue to degrade, altering the existing habitat over time as progressive storms/waves break it apart.

Possible future work in Neah Bay by the USCAE is pending. The Makah Tribal Council submitted a letter of inquiry to the USACE in April 2009, requesting the Corps analyze the feasibility of maintenance dredging at the mouth of Neah Bay under Section 107 of the River and Harbors Act. In addition, the USACE has made a request for funds to analyze the potential benefit of moving the existing outfall just east of the marina farther out into the bay to reduce the need for future maintenance dredging of the fish gap.

The Corps is not aware of any proposed non-federal projects in the vicinity of Neah Bay that could have environmental impacts. Proposals for development or other projects that could have such impacts are limited by the sparsely developed nature of the surrounding area, and the lack of major commercial facilities or residential areas.

In conclusion, the proposed Neah Bay breakwater maintenance repair project will not have significant cumulative environmental impacts with other federal or non-federal projects. The significance of potential environmental effects is determined on the basis of their context and intensity. The marine habitats of Neah Bay, as they currently exist, are relatively healthy. Repairs to the breakwater structure will not result in substantial or long-term differences to environment as similar materials will be used to rebuild the structure, best management construction practices will be employed, and the structure will remain within its existing footprint. The construction itself will result in only site-specific and temporary impacts which are not anticipated to have lasting affect to the surrounding environment or it inhabitants. Organisms within the project footprint that may experience mortality due to construction are expected to rebound to pre-construction population levels quickly.

10.0 COORDINATION

Development and design of this project has been coordinated with involvement by the following agencies and entities:

- State of Washington Department of Fish and Wildlife (WDFW)
- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- Washington Department of Ecology (Ecology)
- Washington Department of Natural Resources (WDNR)
- Washington State Historic Preservation Office (SHPO)
- Makah Tribal Council
- Makah Tribal Historic Preservation Officer

The draft EA was posted for public notice and comments from March 1 to April 1, 2010. No comments were received.

11.0 ENVIRONMENTAL COMPLIANCE

11.1 National Environmental Policy Act

This Environmental Assessment (EA), prepared March 1, 2010, is intended to achieve NEPA compliance for the proposed project. As required by NEPA, this EA describes existing environmental conditions at the project site, the proposed action and alternatives, potential environmental impacts of the proposed project, and mitigation measures to minimize environmental impacts.

11.2 Endangered Species Act of 1973 as amended (PL 93-205)

In accordance with Section 7(a)(2) of the Endangered Species act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must identify and evaluate any threatened and endangered species, and their critical habitat, that may be affected by an action proposed by that agency. The Biological Evaluation (BE) for the project (USACE 2009) comprises the USACE evaluation of the proposed action's potential effects on threatened and endangered species. The BE determined that the proposed work is not likely to adversely affect endangered or threatened species or their critical habitats designated under the Act. Formal consultation under Section 7 of the Act is not required. Concurrence from the Services was received on February 18, 2010 from USFWS and on February 16, 2010 from NMFS.

11.3 Clean Water Act

Section 404 of the Clean Water Act authorized a permit program for the disposal of dredged or fill material into waters of the United States, and defined conditions which must be met by Federal projects before they may make such discharges. The Corps of Engineers retains primary responsibility for this permit program. The USACE does not issue itself a permit under the program it administers, but rather demonstrates compliance with the substantive requirements of the Act through preparation of a 404(b)(1) evaluation.

The Corps prepared a 404(b)(1) evaluation to document findings regarding this project pursuant to Section 404 of the Act as well as Section 10 of the Rivers and Harbors Act of 1899. These documents can be found in Appendix C.

Section 401 of the Act requires federal agencies to comply with EPA, state, or tribal water quality standards. EPA has delegated Section 401 to the Washington Department of Ecology. This work requires a WQC from the Washington Department of Ecology for compliance with Section 401 of the Clean Water Act for work below MLLW. A letter, dated February 26, 2010, was received from Ecology concurring with the Corps' determination that this project is analogous to a Nationwide Permit 3 (Maintenance) and therefore no individual 401 permit will be required. A Makah Tribal Water Quality was received on March 16, 2010.

11.4 Coastal Zone Management Act (16 USC 1456 et. seq.)

The Coastal Zone Management Act (CZMA) of 1972 as amended (15 CFR 923) requires Federal agencies to carry out their activities in a manner, which is consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Zone Management Program. The proposed action will restore an existing breakwater to a state comparable to its original condition. Repair work will not extend beyond the footprint of the original project, and will not cause substantial adverse effects to shore resources or the environment. After review of the CZMA and the Clallam County Shoreline Master Program, an ambiguity of jurisdiction became obvious as it relates to this project. The breakwater is located adjacent to Tribal land and therefore is not subject to CZMA jurisdiction, however, the Environmental Protection Agency (EPA) has not granted the Makah Tribe jurisdiction below MLLW. After analysis of these issues and the project, the Corps believes this proposal is consistent to the maximum extent practicable.

11.5 National Historic Preservation Act (16 U.S.C. 470)

The National Historic Preservation Act (16 USC 470) requires that the effects of proposed federal undertakings on sites, buildings structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. The Neah Bay Breakwater Repair project is Federal undertaking of the type which might affect historic properties. As such it is subject to the Section 106 process. The USACE, in order to comply with Section 106 of the NHPA has initiated historic properties studies for the proposed project. The APE for the project was defined as the breakwater area, access roads, and staging areas. There are no recorded properties listed in, or eligible for listing in the National Register of Historic Places (NRHP) within the project area of potential effects (APE).

For Section 106 undertakings on tribal land, Section 106 requires consultation with the Tribal Historic Preservation Officer in lieu of the SHPO. The USACEs must also request tribal concurrence with determinations of eligibility. In 2002, the USACE consulted with Ms. Janine Bowechop, the Makah THPO, regarding 2002 maintenance dredging in the Neah Bay Marina. According to Ms. Bowechop, no recorded archeological sites exist within the immediate vicinity of the Neah Bay Marina (Bowechop, pers. comm. 2002). The Corps initiated consultation with the Makah THPO and the Washington State Historic Preservation Officer for the 2010 project and received concurrence with a finding of "No Historic Properties Affected" from THPO on September 21, 2009. SHPO concurrence was not received within the 30-day window and therefore concurrence is assumed.

11.6 Fish and Wildlife Coordination Act (16 U.S.C. 661)

The Fish and Wildlife Coordination Act (16 U.S.C. 661) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. USACE's consultation with USFWS regarding this project satisfies the requirements of this Act. A Fish and Wildlife Coordination Act Report is not required for repair work.

11.7 Essential Fish Habitat

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act of 1976 and the 1996 Sustainable Fisheries Act (SFA), an evaluation of possible impacts to EFH is necessary for federal actions. In the project area, groundfish, coastal pelagic species, and salmonids are evaluated for EFH. A list of designated EFH species is available in Appendix A.

An EFH evaluation was completed during Section 7 ESA consultation with NMFS. NMFS determined the Corps' proposed conservation measures that are included as part of the project are adequate to avoid, minimize, or otherwise offset potential adverse effects to the EFH of those species which designated EFH in the Neah Bay area.

11.8 Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d)

The BGEPA prohibits the taking, possession or commerce of bald and golden eagles, except under certain circumstances. Amendments in 1972 added to penalties for violations of the act or related regulations.

No take of either bald or golden eagles is likely during the breakwater repair. There are known nests just over a half mile away from the project site, however the work will occur after fledging of juveniles (if present) is likely to have occurred and therefore disturbance to eagles is considered unlikely.

11.9 Executive Order 12898, Environmental Justice

Executive Order 12898 directs every federal agency to identify and address disproportionately high and adverse human health or environmental affects of agency programs and activities on minority and low-income populations.

The potentially affected community does include a minority and/or low-income population. MCRC (personal comm. 2002) reported that, while the Makah Tribe is comprised of over 2,300 members, less than 50% of its members live on the reservation. The entire year round population of Neah Bay is only between 1,400 to 1,500 tribal and non-tribal people. In addition, census data from 1999 and 2000 indicates that the median household income for Clallam County has consistently been between 29% and 36% lower than the average income for Washington State. More than 12% of Clallam County's population had income below the poverty level in 1998 (U.S. Census Bureau 2001 and CCEDC 2002).

The project does not involve the siting of a facility that will discharge pollutants or contaminants, so no human health effects would occur. Maintenance of these facilities would not affect property values in the area, or socially stigmatize local residents or businesses in any way. No interference with local Native American Nation's treaty rights would result from the proposed project; construction activities would not physically interfere with fishing, or impact fishery resources.

Coordination has occurred with the Makah Indian Tribe and efforts have been made to incorporate local concerns. Breakwater repair operations will not have an adverse effect on minority and low-income populations, conversely the project is expected to benefit the economy of the Neah Bay community. Since no significant or adverse effects are anticipated to result from the project, it has been determined that no disproportional impacts would occur.

12.0 CONCLUSIONS

Based on the above analysis, the proposed 2010 Neah Bay Breakwater Repair project at Neah Bay, Washington is not a major Federal action significantly affecting the quality of the human environment and therefore does not require preparation of an environmental impact statement.

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APPENDIX A

ESA Section 7 Concurrence

APPENDIX B

NHPA Section 106 Concurrence

APPENDIX C

Clean Water Act 404b(1) Analysis

APPENDIX D

Clean Water Act 401 Certification

APPENDIX E

Coastal Zone Consistency Determination