QUILLAYUTE NAVIGATION CHANNEL MAINTENANCE
BIOLOGICAL ASSESSMENT
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

US Army Corps
of Engineers®
Seattle District

1. INTRODUCTION

Authority. The Quillayute River Navigation Project was authorized by the River and Harbor Act of July 3, 1930 and modified by the River and Harbor Acts of March 2, 1945 and September 3, 1954. The project calls for:

a. An entrance channel 10 feet deep, varying from 100 to 250 feet wide and a 75 foot wide channel extending about three-quarters of a mile upstream to Smith Slough;
b. A boat basin with a timber-planked training wall with a +16 feet mean lower low water (MLLW) top elevation including a rock toe; and
c. A jetty about 1,200 feet long at a +15 foot MLLW elevation on the east bank and a low dike 1,050 feet long on the west bank protecting the entrance channel.

There is also Federal responsibility to maintain revetments or the ocean spit that separates the basin and the channel from the ocean. Maintenance of the upstream 1,700 feet of the navigation channel is not performed, as it no longer is justified. The project is a harbor of refuge and has the only Coast Guard search and rescue station along 100 miles of coast between Grays Harbor and Neah Bay. The Reservation offers a livelihood for approximately 300 Quileute Tribal members and 50 non-Tribal members, including Coast Guard personnel. The primary commercial activity is fishing and fish processing that generates approximately $4,000,000 in annual income.

2. DESCRIPTION OF PROJECT AREA AND ACTION AREA

The project and action areas are located at the or near the mouth of the Quillayute River, Clallam County, La Push, Washington T28N, R15W, Section 28. The Quillayute River drains a portion of the western slope of the Olympic Mountains in northwestern Washington. It forms the northerly boundary of the Quillayute Indian Reservation, in Clallam County, Washington, and enters the Pacific Ocean at La Push, about 30 nautical miles south of Cape Flattery and entrance of the Strait of Juan de Fuca. It is also 62 nautical miles north of Grays Harbor.

The Quillayute is formed by the confluence of the Soleduck and Bogachiel Rivers, both of which rise in the Olympic Mountains about 20 miles southwest of Port Angeles and flow in a generally westerly direction for a distance of some 40 miles. The Calawah River rises in the same general region and joins the Bogachiel about 7 miles above the latter's junction with the Soleduck.

The Quillayute River flows westerly for about 5 miles from the junction of the Soleduck and Bogachiel. About 4 ½ miles from its source, in Mora, the Dickey River joins it from the north. About half a mile below Mora, the river is deflected southward for the last mile of its 6-mile course by a revetment sandspit that separates it from the ocean. It enters the ocean at the north end of Quillayute Bay, just east of a group of four rocky islands.

The Washington State Department of Ecology (1991) classified the fresh/estuarine water of the Quillayute River as class AA (extraordinary). A side from logging, the upper Quillayute Basin is relatively unaffected by human activities which might affect water quality. Within the marina, boat use and maintenance is the main source of pollutants.

The Quillayute River supports several species of salmon and trout. Chinook salmon is the most important species to the Quileute Tribe. Trout species occasionally present are steelhead and cutthroat trout. The estuary also supports surf smelt and small numbers of many other fish species. Surf smelt live in deep waters and move in to the project area to spawn during May to mid-November (peak time is July-August). Smelt spawn on the high intertidal area of the beach (drift line). According to WDFW, ideal smelt beaches have a grain size of 80 percent 1-8 mm, with a beach slope of 10-15 percent. Consult the referenced EIS for more information.

The area at the jetty consists of large rock in the four to twenty thousand pound class (armor rock). There is potential that some sea life has attached to the existing rock structures i.e., mussels. All of these communities would require evolving to withstand strong and fast currents and storm events. In the benthic intertidal survey of 1981 infaunal organisms occurred at all sites in the river and were most abundant in sloughs.

The action area would also include the community of La Push located on the Quileute Tribal reservation and the Olympic National Park. Both these areas have a significant vehicle usage on their respective paved roads. The Quileute Tribe uses the marina and local shore areas for support of their Tribal fisheries. This is also the location of the only Coast Guard Station between Westport and Neah Bay. The shoreline in this area is basically denuded of vegetation and contains permanent building structures. Olympic National Park (Rialto Beach) is heavily wooded on both sides of the entrance highway until reaching the parking lot at Rialto Beach. Both areas are considered as potential Spotted Owl **(***Strix occidentalis caurina*) and Marbled Murrelet (*Brachyramphus marmoratus*) habitat according to the Washington Department of Fish and Wildlife priority habitats and species database.

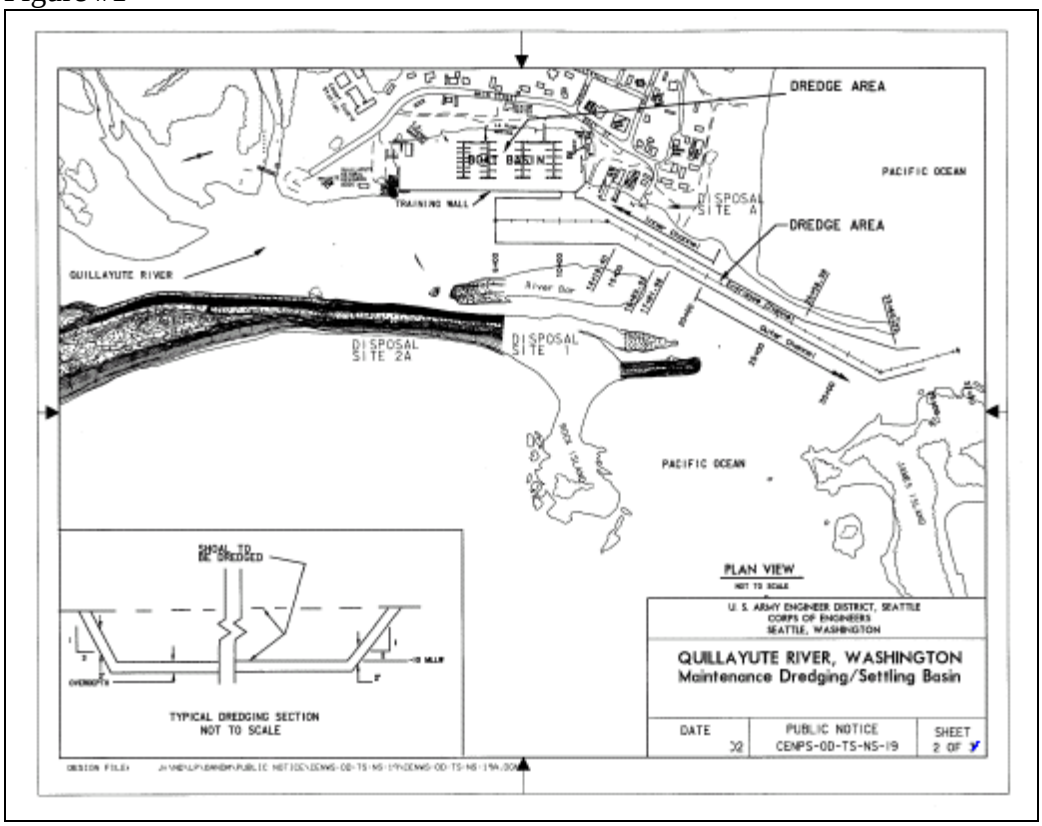
3. PROJECT DESCRIPTION

The proposed project consists of maintenance dredging of approximately 75,000 to 100,000 cubic yards from the entrance and navigation channel and boat basin via pipeline dredge.

Disposal of material from the outer portion of the navigation channel will be desposited at Disposal Site #1. Approximately 10,000 cubic yards of sand, gravel, and cobbles from the outer portion of the channel are proposed to be deposited upland at Site A to provide construction material for Quileute Tribal Projects. Assurances will be received from the

Quileute Tribal Council that the material will not be used to fill wetlands or flood plains. The remaining material will be deposited on the ocean side of the spit to enhance surf smelt habitat and provide stability of the ocean side of the spit.

Figure #1



4. AFFECTED SPECIES

- Spotted Owl **(***Strix occidentalis caurina*)
- Marbled Murrelet (*Brachyramphus marmoratus*)
- Bald Eagles (*Haliaeetus leucocephalus*)
- Brown Pelican (*Pelecanus occidentalis californicus*)
- Humpback Whale (*Megaptera novaeangliae*)
- Blue Whale (*Balaenoptera musculus*)
- Fin Whale (*Balaenoptera physalus*)
- Sei Whale (*Balaenoptera borealis*)
- Sperm Whale (*Physeter macrocephalus*)
- Steller Sea Lion (*Eumetopias jubatus*)
- Leatherback Sea Turtle (*Dermochelys coriacea*)
- Loggerhead Sea Turtle (*Caretta caretta*)
- East Pacific Green Sea Turtle (*Chelonia mydas*)
- Olive Ridley Sea Turtle (*Lelpidochelys olivacea*)

However, there is evidence that some of these species are not likely too regularly occur in the project's action area.

Blue whales may feed on 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). **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 were noted in a 1998 draft recovery plan for this species (Reeves et al. 1998b). **Sei whales** inhabit areas along the continental slope, and rarely enter semi-enclosed marginal seas or gulfs (Reeves et al. 1998b). **Sperm whales**, while more frequently present off the coast of Washington, typically inhabit deep waters and seldom venture close to coastal areas (Barlow et al. 1997). The preferred habitat for all of these whale species is the open ocean, not coastal waters.

Leatherback turtle nesting grounds occur between 40°N and 35°S (Plotkin 1995), so no nesting areas are located in Washington. 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). The nesting areas of **Loggerhead turtles** are also located in the subtropics, though primarily in the western Pacific (NMFS and USFWS 1998b). It is thought that eastern pacific waters may be used as foraging grounds and migratory corridors. However, sightings in the eastern Pacific are generally confined to the summer months off of southern California (NMFS and USFWS 1998b). Primary nesting sites for the **Green turtle** are located in Mexico and the Galapagos Islands, although a resident population is present in San Diego Bay (NMFS and USFWS 1998c). Beach stranding and gillnet captures have been reported off the Washington coast, but is it has been suggested that these individuals were vagrants that strayed northward with El Nino currents (NMFS and USFWS 1998c). No regular occurrences off the coast of Washington were noted in a 1998 draft recovery plan for this species. **Olive Ridley turtles** occur in tropical and warm temperate ocean waters, and eastern pacific population's nest in southern Mexico and northern Costa Rica (NMFS and USFWS 1998d). There is evidence that they undergo regular migrations from breeding areas to feeding areas in the south. However, El Nino events may cause Olive Ridleys to migrate northward, where they "cold stun" once they encounter colder water (NMFS and USFWS 1998d).

Given the distributions of these marine mammals and sea turtles, the Corps believes the proposed project will have **no effect** on these species.

4. DETERMINATION SUMMARY

Below is a table summarizing the status and effect determinations made for each species that would not be affected by the project.

Table 1. Determination Summary Table

Species	Listing Status	Effect Determination
Blue Whale	Listed Endangered	No Effect
Fin Whale	Listed Endangered	No Effect
Sei Whale	Listed Endangered	No Effect
Sperm Whale	Listed Endangered	No Effect
Leatherback Sea Turtle	Listed Endangered	No Effect
Loggerhead Sea Turtle	Listed Threatened	No Effect
Green Sea Turtle	Listed Threatened	No Effect
Olive Ridley Sea Turtle	Listed Threatened	No Effect

5. METHODS

In-house expertise provided a starting point for this evaluation. In addition, scientific literature was reviewed and local experts were interviewed to provide a basis for the affect determinations. References are named in the text and are listed in Section 11. The NMFS web site http://www.nwr.noaa.gov was used to establish a list of the threatened and endangered species along with the WDFW priority habitat and species database.

6. ENVIRONMENTAL BASELINE AND IMPACTS OF THE PROPOSED PROJECT

The primary potential loss would be to any crustaceans or mollusk that would be attached to the currently positioned rocks on the jetty. By staying within the original footprint the impacts will be minimal at this proposed project. The additional noise associated with large dump trucks will be a short lived, short-term impact with no lasting effects on the environment.

The following evaluation is loosely based upon the NMFS Matrix of Pathways and Indicators (NMFS 1996), which is a set of guidelines designed to facilitate and standardize the determination of effects of projects/actions on listed anadromous salmonids. The NMFS matrix, along with a similar USFWS matrix developed for bull trout, was developed for freshwater environments and is not directly applicable to estuarine and marine waters. The following discussion is therefore organized around a set of modified pathways and indicators. Since numerical criteria for watershed functionality (e.g., between 50 and 57° F = properly functioning water temperature) are currently unavailable for estuarine and marine waters, this evaluation is qualitative rather than quantitative in nature and relies upon the professional judgement of Corps biologists in lieu of measurable physical parameters.

Information on baseline environmental conditions came primarily from two sources: the Comprehensive Environmental Studies (1979-1981) and the Final Environmental Assessment February 1986 produced by the U.S. Army Corps of Engineers, Seattle District.

6.1 Water and Sediment Quality

Water quality in the project area is classified as “extra-ordinary” (AA, highest classification) by the State of Washington, with standards providing a full range of human and environmental uses and allowing a minimum of impact due to human activity or discharges.

The dredging of material from the river bottom of the original design of the navigational channel may result in localized, short-term water quality degradation, particularly with respect to turbidity.

Sediment Quality

Beginning at the mouth of the river the bottom is predominately smooth gravel shifting to sand nearer the shore. There is no heavy industrialization within the community nor upstream of the project site. Therefore the sediment is qualified for open water disposal, upland disposal, and near shore disposal.

The proposed project will result in a localized, temporary increase in turbidity. However, the sub-lethal effects of such an increase on salmonids can largely be avoided through timing restrictions. The turbidity will be mainly a factor when working near the shoreline.

DISSOLVED OXYGEN

Given the relatively small quantities of sediment typically suspended, the short duration of suspension, and dilution during dispersion, the suspension of sediments around the pipeline dredging operation is not likely to lead to appreciable reductions in dissolved oxygen.

Contaminants

Potential point and non-point sources of contaminants in La Push are associated with past and existing land uses adjacent to the estuary. Land uses are residential (housing), commercial, municipal (city outfalls and drains), and industrial (marine vessel moorage and repair, fish processors).

Since these standards are designed to be protective of organisms that come into contact with sediments, concentrations and bio-availability of contaminants in sediments suspended during the maintenance of the navigational channel are expected to be below levels that may cause harm to juvenile or adult salmonids.

Sediments have been cleared by Ecology and EPA for unconfined open water disposal,on shore disposal or near shore nourishment.

6.2 Habitat Conditions

Substrate

Wind generated waves are common in La Push and have a pronounced effect on the suspension and movement of shallow water sediments. The prevailing, and strongest, winds are from the south and southwest, especially during the winter. During the summer, northerly winds of less intensity frequently occur.

Since sedimentation and sediment re-suspension/transport are natural processes in estuaries, this indicator is considered properly functioning.

BATHYMETRY

No shallow subtidal areas will be deepened by this project; maintenance work will affect only the navigational channel, thereby maintaining this indicator.

Current Patterns

Current patterns in La Push have been altered by construction of the jetty and the spit, however there is no research indicating that this change from natural conditions affects estuary biota negatively, positively, or at all. The proposed maintenance of the navigation channel will maintain current conditions for this indicator.

Salinity Gradients and Water Column Stratification

According to the FEIS and the comprehensive environmental studies the jetty and spit have not affected the salinity gradients or water column stratification. Maintenance of the navigation channel will maintain current conditions with respect to this indicator.

Shoreline Condition and Habitat Diversity

Habitat diversity can be classified as not properly functioning in portions of the estuary, and properly functioning in other parts of the estuary. The proposed navigational channel maintenance will not alter the types, quantity, or quality of habitats currently available in La Push. This work will maintain current conditions in the estuary.

6.3 Biota

Salmonids utilize distinctly divergent prey species in La Push and their diets are typically associated with the predominant epibenthic or neritic habitats in which they are found. Juveniles occupying nearshore habitats feed predominately upon epibenthic crustaceans, primarily harpacticoids copepods, cumaceans, and gammarid amphipods. Salmonids in deeper neritic habitats tend to be somewhat larger and feed upon more pelagic prey such as larval fish (particularly northern anchovy) and adult insects. As a general rule,

juvenile salmonids feed upon epibenthic crustaceans upon their initial entry into the estuary and upon some growth convert to neritic zooplankton (Buechner et al. 1981).

This indicator will not be disturbed in areas outside the navigational channel but will be disturbed within the channel during the navigational channel maintenance.

Epibenthic and Benthic Invertebrates

A study of the abundance and distribution of the benthic intertidal organisms was conducted by the Corps of Engineers in July 1980. Twenty-one sites were sampled, located on ocean beaches and in the stable substrate, the green algae (*Enteromorpha linza*) was common. The greatest number of epibenthic taxa was found on the boulders comprising the dike. The greatest densities of infaunal organisms were found in mud-slough sediments and in the cobble-gravel habitat on the river deposit in the estuary. The predominant species in these areas were amphipods and oligochaetes, while amphipods and nemertean worms were the most abundant taxa on the outer coast beaches. In the bay between James and Rock Islands, oligochaetes, and flabelliferan isopods; also, bivalve mollusks were found here exclusively.

No previously undisturbed areas will be impacted by the maintenance operations. This indicator will have a short-term disturbance to the epibenthic taxa believed to be associated with the boulders of the navigational channel (although not studied).

Neritic Zooplankton

This lack of information and research is partly due the technical difficulties (representative sampling, need for *in situ* work, the subtlety of anticipated effects, and the differentiation of those effects from other anthropogenic effects) associated with studying this type of impact (Segar 1990).

There is insufficient information available to determine if the baseline condition for this indicator is functioning properly.

Forage Fish

The studies of 1981 indicate that lance and surf smelt use the estuary. There was no quantitative or qualitative studies accomplished on the availability of forage fish (herring, lance, and smelt) within the estuary.

Navigational Channel maintenance is not expected to have an effect on the spawning of the forage fish community. After the conclusion of the project, these species should return immediately.

6.4 BALD EAGLE

The Washington State bald eagle population was listed as threatened under the Endangered Species Act of 1973, as amended (64 FR 16397), in February 1978. Since DDT was banned in 1972, bald eagle populations have rebounded. The bald eagle was proposed for de-listing in July 1999.

The bald eagle is found only in North America and ranges over much of the continent, from the northern reaches of Alaska and Canada to northern Mexico. Bald eagles in Washington State are most commonly found along lakes, rivers, marshes, or other wetland areas west of the Cascades, with an occasional occurrence along major rivers in eastern Washington.

Bald eagles nest between early January and mid-August. The characteristic features of bald eagle breeding habitat are nest sites, perch trees, and available prey. Bald eagles primarily nest in uneven-aged, multi-storied stands with old-growth components. Factors such as tree height, diameter, tree species, position on the surrounding topography, distance from water, and distance from disturbance also influence nest selection. Bald eagles normally lay two to three eggs once a year, which hatch after about 35 days. Snags, trees with exposed lateral branches, or trees with dead tops are often present in nesting territories and are critical to eagle perching, movement to and from the nest, and as points of defense of their territory.

The bald eagle wintering season extends from October 31 through March 31. Food is recognized as the essential habitat requirement affecting winter numbers and distribution of bald eagles. Other wintering habitat considerations are communal night roosts and perches. Generally the largest, tallest, and more decadent stands of trees on slopes with northerly exposures are used for roosting; eagles tend to roost in older trees with broken crowns and open branching (WDFW 1998). Bald eagles select perches on the basis of exposure, and proximity to food sources. Trees are preferred over other types of perches, which may include pilings, fence posts, powerline poles, the ground, rock outcrops, and logs (Steenhof 1978).

Known Occurrences in the Project Vicinity

Bald eagle nests are located within 5 miles of the project but further than two miles from the actual project location. The few eagles that have been seen in the area were either at high altitude or further south and north of the actual project location. This could be due to relatively small estuary associated with the Quillayute River.

Effects of the Action

Activities would occur during the nesting season. However, the nest are located in excess of two miles from the project location (confirmed with WDFW GIS priority habitat species layers) construction activities would not directly disrupt eagle nesting and rearing of young. No communal night roosts or perch trees would be affected, as none are present near the site.

Foraging bald eagles may be displaced by the noise of heavy equipment, but the availability of prey will not be significantly disrupted by project construction. Eagles would be somewhat accustomed to high levels of human activity in and near the project site. Eagles tend to tolerate more disturbances at feeding sites than in roosting areas (Steenhof 1978).

Determination of Effect

The Corps believes this project **is not likely to adversely affect** the bald eagle. This determination is based on the lack of nests and communal night roosts in the immediate vicinity of the project location. This project would have no effects on bald eagle foraging, nesting, or roosting habitat.

6.5 BROWN PELICAN

In 1970 the brown pelican was listed as an endangered species under Endangered Species Conservation Act of 1969. This species is currently listed as endangered under the Endangered Species Act of 1973, as amended.

The California brown pelican is the Pacific coast form of a more widespread species. The breeding distribution of the subspecies ranges from southern California southward to Mexico. Between breeding seasons, the subspecies may range as far north as Vancouver Island (Gress and Anderson 1983). Post-breeding dispersal patterns depend largely on oceanographic conditions that influence prey availability. During the summer, brown pelicans migrate northward from their breeding range in central California to feed. The primary northward movement occurs in July, however the migration is “irregular and prolonged” (Bent 1964). They return south in the spring for nesting season, though juveniles may remain in the northern feeding grounds for several weeks after the adults have left. Peak egg laying generally occurs in March and April.

Pelicans eat fish species generally considered unimportant commercially, such as menhaden, herring, sheepshead, pigfish, mullet, grass minnows, topminnows silversides, and occasionally prawns. Feeding occurs primarily in shallow estuarine waters with the birds seldom venturing more than 20 miles out to sea except to take advantage of especially good fishing conditions. Sand spits, offshore sandbars, and rock areas such as jetties are used extensively as daily loafing and/or nocturnal roost areas.

In the late 19th and early 20th centuries, pelicans were hunted for their feathers, which were used to adorn women's clothing and hats. Following World War I, fishermen believed pelicans were decimating catches and slaughtered the birds by the thousands. During the late 1960s and early 1970s, the West Coast brown pelican population experienced widespread pollutant-related reproductive failures. Since DDT was banned in 1972, pelicans have made a steady comeback. Brown pelicans are sensitive to human disturbance during some stages of their life cycle. The greatest impact occurs during the early stages of breeding (Gress and Anderson 1983).

Known Occurrences in the Project Vicinity

The brown pelican may be present in Quillayute area from June through March, when they are commonly seen flying along the shore. Although pelicans tend to favor rocky shorelines for perching, they have been noticed in November perched on the retaining wall for the marina. The nearest brown pelican nocturnal roost area is located in or near Willapa Bay.

Effects of the Action

Brown pelicans will be in California nesting for a portion of year; these months correspond to the most sensitive portion of the pelican life cycle. During the remaining months, they can be expected to be feeding in the area. The proposed project will have no permanent effects on the brown pelican food base, although some localized, temporary dislocations of prey items and therefore disruption to foraging could be expected to result from benthic disturbance and the noise of heavy equipment. It is thought that effects of disturbance on non-breeding pelicans are not as significant as effects of similar disturbances during the breeding season. Pelicans are thought to be more flexible in their response to disturbance when not breeding, since they are not held to a relatively limited geographic area as they are during the breeding season (Gress and Anderson 1983). No perching spots or night roost areas would be affected by the construction activities.

Determination of Effect

The proposed project is **not likely to adversely affect** the brown pelican since potential effects would occur during the non-breeding season and would be relatively localized in relation to this species' foraging range. In addition, pelicans are accustomed to human activity in the area.

6.6 MARBLED MURRELET

The marbled murrelet was listed as a threatened species under the Endangered Species Act of 1973, as amended in October 1992. Primary causes of population decline include the loss of nesting habitat, and direct mortality from gillnets fisheries and oil spills.

The subspecies occurring in North America ranges from Alaska's Aleutian Archipelago to central California. Marbled murrelets forage in the near-shore marine environment and nest in inland old-growth coniferous forests of at least seven acres in size. Marbled murrelets nest in low-elevation forests with multi-layered canopies; they select large trees with horizontal branches of at least seven inches in diameter and heavy moss growth. Of 95 murrelet nests in North America during 1995, nine were located in Washington. April 1 through September 15 is considered nesting season; however in Washington, marbled murrelets generally nest between May 26 and August 27 (USFWS 1999). Adults feeding

young fly between terrestrial nest sites and ocean feeding areas primarily during the dawn and dusk hours.

Marbled murrelets spend most of their lives in the marine environment, where they forage in areas 0.3 to 2 km from shore. Murrelets often aggregate near localized food sources, resulting in a clumped distribution. Prey species include herring, sand lance, anchovy, osmerids, seaperch, sardines, rockfish, capelin, smelt, as well as euphasiids, mysids, and gammarid amphipods. Marbled murrelets also aggregate, loaf, preen, and exhibit wing-stretching behaviors on the water.

Although marine habitat is critical to marbled murrelet survival, USFWS' primary concern with respect to declining marbled murrelet populations is loss of terrestrial nesting habitat. In the marine environment, USFWS is primarily concerned with direct mortality from gillnets and spills of oil and other pollutants (USFWS 1996).

Known Occurrences in the Project Vicinity

Marine observations of murrelets during the nesting season generally correspond to the presence of large blocks of nesting habitat. Studies have found that during the nesting season murrelets are more numerous along Washington's northern coast and less abundant along the southern coast. This distribution appears to be correlated with proximity to old growth forest, the distribution of rocky shoreline versus sandy shoreline, and the abundance of kelp and prey items (USFWS 1996). Murrelets, therefore, would not be expected to forage regularly in the project vicinity during the nesting season. Since the project will have no impact on forest habitat due to the location and type of project this is would support a no effect determination on critical habitat for the marbled murrelet.

Effects of the Action

Maintenance dredging activities would have no effect on murrelet nests, nesting habitat, or nesting season foraging behaviors. However, construction activities would occur in and adjacent to foraging habitat. Therefore, some disturbance to prey items and foraging behaviors during the rest of the year could be expected. Noise levels are a concern, as trucks and other large equipment will produce noise above ambient levels. USFWS guidance suggests that noise above ambient levels be considered to potentially disturb marbled murrelets when it occurs within 0.25 mile of suitable foraging habitat (USFWS 1996).

The effects of human disturbance on murrelets at sea is not well documented, but they apparently habituate to heavy levels of boat traffic (Strachan et al. 1995). In addition, marbled murrelets are relatively opportunistic foragers; they have a flexibility in prey choice which likely enables them to respond to changes in prey abundance and location (USFWS 1996). This indicates that if murrelets are present in the immediate vicinity of construction activities and they are if disturbed while foraging, they would likely move without significant injury.

Determination of Effect

The proposed project is **not likely to adversely affect** the marbled murrelet since the project will have no effect on nests or nesting habitat. Any disruption to foraging activities and the murrelet prey base are expected to be minor, and would be highly localized relative to this species' foraging range.

6.7 HUMPBACK WHALE

In 1970 the humpback whale was listed as an endangered species under Endangered Species Conservation Act of 1969. The humpback is currently listed as endangered under the Endangered Species Act of 1973, as amended.

Humpbacks are a highly migratory species. Two types of migrations are distinguished: within-season movements through a portion of the summer range, presumably to find or follow concentrations of prey, and long-distance migrations between summering and wintering areas (NMFS 1991). The summer range of humpbacks extends from subtropical waters to the arctic and the species winters in tropical waters, where mating and calving occur. During the summer, North Pacific humpbacks feed in coastal areas; greatest numbers generally occur off the Aleutian Islands and California coast. The primary prey item of humpback whales is euphausiids, but they also feed on schooling fish such as anchovies, herring, sand lance, capelin, sardines, cod, and juvenile salmonids (Nitta and Naughton 1989). When not migrating, they occur very close to shore. Humpbacks visit coastal and inside waters more often than other large whale species, with the exception of the gray whale. At one time humpbacks were one of the most frequently sighted whales in Washington's inside waters.

Barlow (1994) identified four relatively separate migratory populations in the North Pacific: the coastal California/Oregon/Washington-Mexico stock, the Mexico offshore island stock, the central North Pacific stock (Hawaii/Alaska), and the western North Pacific (Japan) stock. The coastal California/Oregon/Washington-Mexico stock ranges from Costa Rica to southern British Columbia, but is most common in coastal waters off California in the summer/fall and Mexico in the winter/spring (Barlow et al. 1997). In 1996, the minimum population estimate for this population was 563; the coastal California/Oregon/Washington-Mexico stock appears to be increasing in abundance (Barlow et al. 1997).

In 1965, the International Whaling Commission banned the commercial harvest of humpback whales in the North Pacific. Current threats to humpback populations include entanglement in offshore drift gillnets and ship strikes. It is thought that increasing levels of Anthropogenic noise in the world's oceans may also impact whales, particularly

baleen whales like the humpback that may communicate using low frequency sound (Barlow et al. 1997). Based on whaling statistics, the pre-1905 humpback population in the North Pacific can be estimated at 15,000. By 1966, this population was reduced to approximately 1,200. The North Pacific population is now thought to exceed 3,000 (Barlow 1994).

Known Occurrences in the Project Vicinity

Based on aerial and shipboard surveys between 1975 and 1994, humpbacks are the second most abundant (after the gray whale) large whale off of Washington and Oregon (Barlow et al. 1997). The summer distribution of humpbacks is linked to local distribution of prey, which is driven by physical oceanographic conditions; factors such as upwelling and converging currents, which are characteristic of fjords, channels, continental shelves, offshore banks, and the edges of continental shelves, affect the abundance and availability of prey items (NMFS 1991).

Effects of the Action

Potential effects to humpbacks as a result of the proposed work largely relate to possible sound disturbance caused by pumping of material via the pipeline dredge.

Whale responses to sound disturbance may include avoidance, startle, annoyance, and slowed rate of travel (Calambokidis et al. 1987). Short-term impacts of any sound disturbance related to construction activities would likely result in displacement of animals rather than injury. The potential for long-term or indirect impacts of the proposed project to humpbacks is minimal to non-existent.

Determination of Effect

The proposed project is **not likely to adversely affect** the humpback whale since the potential for significant sound disturbance or impacts to water quality and prey abundance are minimal.

6.8 STELLAR SEA LION

The Steller sea lion was listed as a threatened species under the Endangered Species Act of 1973, as amended in November 1990. In 1997, the North Pacific's population of Steller sea lions was separated into two distinct stocks, one of which was reclassified as endangered. The status of the eastern stock, which includes the population inhabiting the waters of the Washington coast, remains unchanged.

The present range of the Steller sea lion extends from northern Japan, through the Bering Sea and Aleutian Islands, along Alaska's southern coast, and south to California. The centers of abundance and distribution lie in the Gulf and Alaska and Aleutian Islands. Steller sea lions are not known to migrate, but they do disperse widely during portions of

the year other than the breeding season. Most information on the distribution of Steller sea lions has been collected during summer months, so their distribution during late fall and winter is poorly known (Steller Sea Lion Recovery Team 1992).

When not on land Steller sea lions are generally seen inshore, less than 5 miles from the coast. Steller sea lion foraging patterns vary depending upon age, season, and reproductive status, as well as the distribution and availability of prey. Foraging patterns of females during the winter months vary considerably; individuals travel an average of 133 km and dive an average of 5.3 hours per day. The vast majority of feeding dives occurs to a depth of 100 m. The diet of Washington's Steller sea lions is not well known; primary prey items may include cod, pollock, rockfishes, herring, and smelt (Gearin and Jeffries 1996). They appear to be largely opportunistic feeders.

Two types of terrestrial habitats are utilized by Stellar sea lions: rookeries are areas where adults congregate for breeding and pupping, and haul-outs are areas used for rest and socializing. Sites used as rookeries during the breeding season may be used as haul-outs during the remainder of the year. Steller sea lions haul-out on offshore islands, reefs, and rocks, while rookeries generally occur on beaches. Preferred rookeries and haul-out areas are located in relatively remote areas where access by humans and mammalian predators is difficult; locations are specific and change little from year to year (Steller Sea Lion Recovery Team 1992).

During the past 30 years, Steller sea lion populations have suffered a dramatic decline. Numbers in the rookeries of central/southern California, the central Berring Sea, and in the core Alaskan ranges have all decreased substantially. A number of natural and anthropogenic factors have been hypothesized as contributing to these declines, but a primary cause has not been definitively identified. It is generally thought that a nutritional deficiency resulting from a lack of abundance or availability of suitable prey is involved (Steller Sea Lion Recovery Team 1992). Major shifts in the abundance of fish in the Berring Sea over the past several decades are well documented (WDFW 1993). The Alaska pollock and Atka mackerel fisheries have specifically been implicated in decreasing the availability of prey. A similar decline has not been documented in the region from southeast Alaska through Oregon, where Steller sea lion numbers appeared to have remained stable (Steller Sea Lion Recovery Team 1992).

Known Occurrences in the Project Vicinity

Steller sea lions may be observed along the Washington coast year round, but they are most abundant during March-April and August-November, and least abundant during breeding season in May-July (Gearin and Jeffries 1996). No breeding rookeries have been identified in Washington waters; however, in 1992 a single pup was born on Carroll Island (WDFW 1993).

The majority of Washington's haul-out sites are located along the northern outer coast. Major haul-out sites are concentrated at large rock complexes including Tatoosh Island, Cape Alva, Carroll Island, Split/Willoughby rocks, and the Columbia River South Jetty

(Gearin and Jeffries 1996). According to the WDFW Seal and Sea Lion Houlout Sites in Washington (2000) there are none located within or near the project location.

Effects of the Action

Given the lack of rookery and haul-out areas near Quillayute River, when in the vicinity Steller sea lions are likely on foraging expeditions. Maintenance dredging activities will have no effect on breeding habitat or behavior, and are unlikely to affect the Steller sea lion prey base. Construction activities would occur in an area with substantial human activity on both the waterward and landward sides of the shoreline.
Additional noise from the operation of heavy equipment may have an effect on foraging opportunities but highly unlikely given the location of the project.

Short-term impacts of any sound disturbance related to construction activities would likely result in displacement of animals rather than injury. The potential for long-term or indirect impacts of the proposed project to Steller sea lions is minimal to non-existent.

Determination of Effect

The Corps believes this project is **not likely to adversely affect** the Steller sea lion since there are no haul out sites within the project vicinity and breeding does not occur in this part of Washington State.

7 INTERRELATED AND INTERDEPENDENT ACTIONS

The interrelated action associated with the proposed navigation channel maintenance is the maintenance of the jetties that form the mouth of the Quillayute River.

8 CUMULATIVE EFFECTS

The cumulative effects of other maintenance dredging projects on salmon and other protected species are expected to be similar to those described above, that is, very minimal. Corps issued permits for the non-federal projects will include all fish closure windows as conservation measures to reduce potential impacts to listed species.

9 CONSERVATION MEASURES

Work will occur after July 14, 2001 to allow for juvenile salmonid migration to occur without interruption.

All work will remain within the authorized footprint of the original project. No other conservation measures would be required for the proposed project.

10 ESSENTIAL FISH HABITAT

Public Law 104-267, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Act, which regulates fishing in US waters, to establish new requirements for "Essential Fish Habitat" (EFH) descriptions in federal Fishery Management Plans (FMPs) and to require federal agencies to consult with the National Marine Fisheries Service (NMFS) on activities that would adversely effect EFH (PSMFC 2000). The Pacific States Fishery Management Council amended the Pacific Groundfish Fishery Management Plan and the Coastal Pelagic Species Management Plan (1998a, 1998b) to designate waters and substrate necessary for spawning, breeding, feeding, and growth of commercially important fish species.

The marine extent of groundfish and coastal pelagic EFH includes those waters from the nearshore and tidal submerged environments within Washington, Oregon, and California state territorial waters out to the exclusive economic zone (370.4 km) offshore between the Canadian border to the north and the Mexican border to the south.

There are seven composite EFH's: estuarine, rocky shelf, non-rocky shelf, canyon, continental shelf/basin, neritic and oceanic habitats. USACE maintenance dredging occurs exclusively over sandy to gravel bottoms within the Snohomish Navigation Channel and therefore potential impacts would fall under the estuarine composite EFH.

The primary effects of dredging and disposal on benthic organisms include removal or disturbance of habitat, smothering of organisms at the disposal site, and turbidity that may interfere with feeding and respiration of benthic invertebrates. Dredging will temporarily reduce the populations of the benthic community and prey species at the project site. Although research indicates the loss of a potential food source could result in a loss of salmonid and/or groundfish presence, there were no studies accomplished to support this theory. Since new communities will eventually be established in the dredging areas, no long-term loss of biological productivity is expected. Benthic and epibenthic prey species will be temporarily displaced, but are expected to recover shortly (within one year) after dredging activities are completed. However, these species tend to recolonize quickly once the disturbance ends. Given the history of the sediment load within this estuary, rapid re-colonization, and adherence to fish windows (February 15-July 15), the determination on the benthic community is likely to adversely affect EFH for salmonids, groundfish and other finfish.

- Disposal operations and material effects would be in conformance with approved disposal site management standards.

- Dredging would be carried out in compliance with permits issued by the responsible regulatory agencies. These permits may include additional conditions to protect water quality.

- Material will be used to enhance surf smelt habitat on Realto Beach.

The Corp believes the above mentioned guide lines will offset any potential impacts to EFH.

11 REFERENCES

Barlow, J. 1994. *Recent information on the status of large whales in California waters*. NOAA Technical Memo. NOAA-TM-NMFS-SWFSC-203.

Barlow, J., K.A. Forney, P.S. Hill, R.L. Brownell, Jr., J.V. Carretta, D.P. DeMaster, F. Julian, M.S. Lowry, T. Ragen, and R.R. Reeves. 1997. *U.S. Pacific Marine Mammal Stock Assessments: 1996.* NOAA-TM-NMFS-SWFSC-248. <http://swfsc.ucsd.edu/sars/SAR96.htm>.

Bent, A.C. 1964. *Life Histories of North American Petrels and Pelicans and their Allies.* Dover Publication, Inc., New York.

Calambokidis, J., G.H. Steiger, and J.C. Cubbage. 1987. Marine mammals in the southwestern Strait of Juan de Fuca: Natural history and potential impacts of harbor development in Neah Bay. Final report for Contract No. DACW67-85-M-0046 from Corps of Engineers, Seattle, Washington.

Gearin and Jeffries. 1996. *Steller sea lion research in Washington state.* Unpublished report Jones & Stokes Associates, Inc., Bellevue, WA.

Gress, F., and D.W. Anderson. 1983. *The California Brown Pelican Recovery Plan.* U.S. Fish and Wildlife Service, Portland, OR.

Jeffries, S.J., P.J. Gearin, H.R. Huber, D.L. Saul, and D.A. Pruett. 2000. Atlas of Seal and Sea Lion Haulout Sites in Washington. Washington Department of Fish and Widlife, Wildlife Science Division, 600 Capitol Way North, Olympia WA. Pp. 150.

National Marine Fisheries Service. 1991. *Recovery Plan for the Humpback Whale (Megaptera novaeangliae).* Prepared by the Humpback Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, MD. <http://www.nmfs.gov/prot_res/PDF_docs/ humpbkrp.pdf>

National Marine Fisheries Service. 1991. *Recovery Plan for the Humpback Whale (Megaptera novaeangliae).* Prepared by the Humpback Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, MD. <http://www.nmfs.gov/prot_res/PDF_docs/

humpbkrp.pdf>

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998a. *Recovery Plan for U.S. Pacific coast populations of the Leatherback Turtle (Dermochelys coriacea).* National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998b. *Recovery Plan for U.S. Pacific coast populations of the Loggerhead Turtle (Caretta caretta).* National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998c. *Recovery Plan for U.S. Pacific Populations of the Olive Ridley Turtle (Lepidochelys olivacea).* National Marine Fisheries Service, Silver Spring, MD.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998d. *Recovery Plan for U.S. Pacific Populations of the East Pacific Green Turtle (Chelonia mydas).* National Marine Fisheries Service, Silver Spring, MD.

Nitta, E.T., and J.J. Naughton. 1989. *Species Profiles: Life Histories and Environmental Requirements of Coastal Vertebrates and Invertebrates, Pacific Ocean Region; Report 2, Humpback Whale, Megaptera Novaeangliae.* Technical Report EL-89-10. National Marine Fisheries Service, Southwest Region, Honolulu, Hawaii. Prepared for the U.S. Army Corps of Engineers.

Plotkin, P.T. 1995. *National Marine Fisheries Service and U.S. Fish and Wildlife Service Status Review for Sea Turtles Listed Under the Endangered Species Act of 1973.* National Marine Fisheries Service, Silver Spring. MD.

Reeves, R.R., G.K. Silber, and P.M. Payne. 1998a. *Recovery Plan for the Blue Whale (Balaenoptera Musculus).* Report for the Office of Protected Resources, National Marine Fisheries Service, Silver Spring Maryland.

Reeves, R.R., P.J. Clapham, R.L. Brownell, Jr., and G.K. Silber. 1998b. *Draft Recovery Plan for the Fin Whale (Balaenoptera Physalus) and Sei Whale (Balaenoptera Borealis).* Report for the Office of Protected Resources, National Marine Fisheries Service, Silver Spring Maryland.

Steenhof, K. 1978. *Management of Wintering Bald Eagles*. U.S. Fish and Wildlife Service Biological Report (FWS/OBS-78-79).

Steller Sea Lion Recovery Team. 1992. *Recovery Plan for the Steller Sea Lion (Eumetopias jubatus).* Report for the Office of Protected Resources, National Marine Fisheries Service, Silver Spring Maryland.

Strachan, G., M. McAllister, and C.J. Ralph. 1995. "Marbled Murrelet At-Sea and Foraging Behavior." Pp. 247-254 *in* Ralph, C.J., G.L. Hunt, Jr., M.G. Raphael, and J.F.

Platt (eds.), *Ecology and Conservation of the Marbled Murrelet*, U.S. Forest Service Pacific Southwest Research Station General Technical Report PSW-GTR-152, Albany, CA.

U.S. Fish and Wildlife Service. 24 May 1996. *Final Designation of Critical Habitat for the Marbled Murrelet.* Federal Register 61(102): 26256.

U.S. Fish and Wildlife Service. 1999. *Section 7 Consultations on the Marbled Murrelet.* Proceedings of the Biological Assessment Preparation and Review Workshop, U.S. Fish and Wildlife Service, Western Washington Office, March 1999.

Washington Department of Wildlife. 1993. *Status of the Steller (Northern) Sea Lion (Eumetopias jubatus) in Washington*. Unpublished Report, Washington Department of Wildlife, Olympia, WA.

Washington Department of Fish and Wildlife. 1998. *Ecology of Bald Eagles in Western Washington with an Emphasis on the Effects of Human Activity*. Olympia, WA: Washington Department of Fish and Wildlife, Wildlife Research Division.