

**QUILLAYUTE NAVIGATION PROJECT  
ENVIRONMENTAL ASSESSMENT 2004 - 2009  
U.S. ARMY CORPS OF ENGINEERS  
SEATTLE DISTRICT  
SEATTLE, WASHINGTON**



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

September 2005

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## **1. INTRODUCTION**

This Environmental Assessment (EA) has been prepared to evaluate the impacts that routine maintenance dredging may have on the estuary that encompasses the Quillayute Navigation Project located at La Push, Washington. This project and town are situated within the boundaries of the Quileute Reservation. Some of the processes that are part of the project potentially affect lands on Olympic National Park Lands at Rialto Beach. This EA will attempt to quantify and qualify any impacts that are directly the result of dredging to the Quillayute Navigational Project. This EA will address the project for current and future maintenance dredging over the next six years and to identify any potential areas that may require emergency repairs if routine maintenance is not accomplished as scheduled.

### **1.2 BACKGROUND**

Maintenance of the project commenced in 1932 and has continued to the present. The project as it currently exists was developed in 1962. The purpose of this maintenance was to protect the navigational channel and the community of La Push. Please see section 2.0 Proposed Action for additional details. Figure 1, shows the project broken into major components and the following synopsis is a historical overview of each component:

- Upper Spit. Review of aerial photographs from 1976 and historical documentation contained in the Final Environmental Impact Statement of 1986 indicates this area consisted of sand, small gravel and sporadic vegetation; in other words a coastal beach habitat. The upper spit breached in 1954 and 1955 and was repaired with sand. During the 1960's large drift logs were cabled together and beach material was relocated to low spots in the upper spit to prevent future breaches. During annual maintenance in the 1960's dredged material from the boat basin (coarse sand and gravel) in the average amount of 50,000 cubic yards (c.y.) was placed on the upper spit as a method of beach nourishment but was insufficient to maintain the spit.

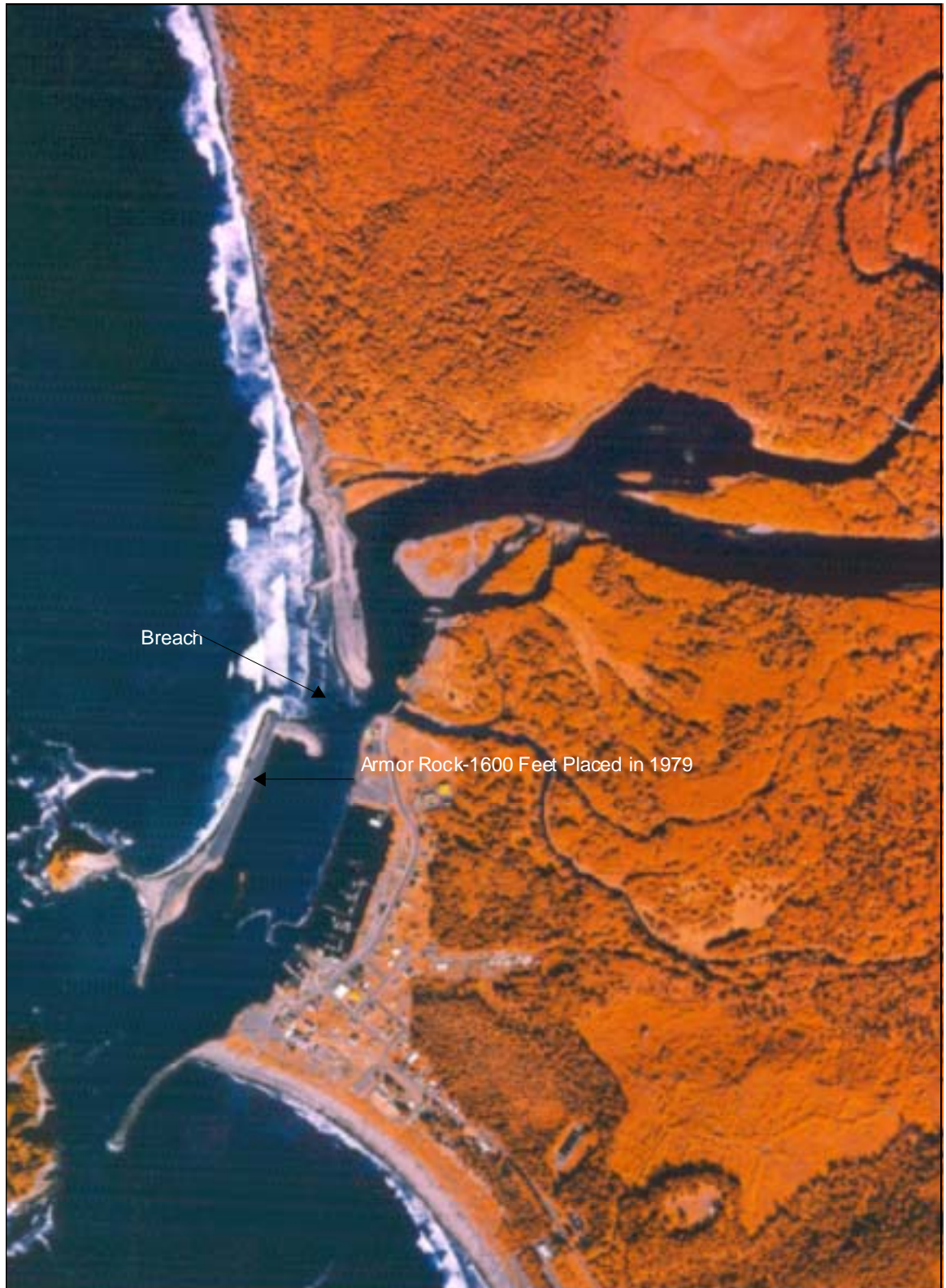


**Figure 1 1976 Aerial Photo Quillayute**

In 1971, 300,000 c.y. of sand, heavy gravel, and cobbles were dredged from the river and deposited on the ocean side of the upper spit. The Corps started a monitoring program to determine the rate of erosion of this material. By September 1974 the spit had lost virtually all of the 300,000 c.y. of material placed in 1971 or a rate of erosion of approximately 100,000 c.y. per year. To reduce the growing expense of repairing the spit in general 50,000 tons of 10 to 1,000 pound rocks were placed along the middle 1,600 feet of the spit. Then in 1978-1979 an additional 90,000 tons of the 10 to 1,000 pound rocks were placed on the spit. This was considered an interim repair that would give an additional 4 to 5 years of protection. In 1982, the Corps added 56,000 tons of spalls and larger armor rock on the spit to extend the protection longer than the estimated 4 or 5 years. Between 1982 and 1996 the Corps placed dredged material on the spit to maintain the portion of the spit that had not been armor rock.

Then on January 16, 1996 along the 1800 foot long natural sand spit located to the north of the area that had been revetted in 1982 an 800 foot breach occurred Figure 2. In August of 1996 205,000 tons of armor rock was placed along a 1900-foot section of the spit to close the breach and bring the revetment to a

height of +20 MLLW. Part of this work also included a permanent launched toe on the riverside to prevent undermining of the revetment by river currents.



**Figure 2. Quillayute Aerial Photo 1996**

- Lower Spit. This portion of the project maintained sufficient height to protect the project until 1976 and December 1979 and again in December 1980 when extreme river discharges eroded much of the spit. Berms were constructed in 1976 and 1980 by removing material from the wide areas of the spit to bring the lower spit to a height sufficient to provide protection to the project. Material from maintenance dredging was placed on the lower spit in February and March 1981 and was partially successful. But the lower spit was still lower than pre-berm conditions. Later in 1981 39,000 tons of armor rock and spalls were placed on the lower spit as the natural lower spit no longer provided protection to the project.
- Jetty. The jetty has functioned well since its authorization to height in 1958. Minor repair has occurred in 1979, 1982, and 2000.
- Boat Basin and Training Wall. The boat basin was constructed in 1957 and was routinely dredged every 10 to 15 years. In 1982 approximately 52,000 CY of material were removed from the basin. The training wall was constructed in 1962-1963 to prevent bedload shoaling of the boat basin.
- Navigation Channel and Disposal Sites. The channel from the boat basin to north end of the jetty is usually dredged every other year. The upstream reach to Smith Slough has not been dredged since 1971 due to very high shoaling rates, which occur in the upstream reaches of the estuary. Along the jetty, the channel is partially self-maintaining with the exception of the entrance to the channel. The average semi-annual dredging volume is approximately 100,000 CY.

Since 1978 the following quantities have been dredged from the channel: 1981-27,000 CY were removed and placed on the lower spit; 1984 – 67,000 CY were dredged with 37,000 placed on the central spit and 30,000 CY placed upland just west of Quillayute Street<sup>1</sup> within the town of La Push. In 1981 and 1984, the channel could not be dredged to authorize dimensions due to severe river and ocean conditions, the size of the dredging equipment and the limited winter dredging window. In 1985 about 88,000 CY were hydraulically dredged with 58,000 CY placed on the central area of the spit and 30,000 CY placed on the upland site. More recent maintenance dredging has occurred in September-November 1996, January-February 1997, February-March 1998, and September-November 1999. Prior to the breach the channel was dredged every other year, after the breach it was determined the Corps would have to dredge every year for a while before we could return to pre-breach conditions. By the completion of the 1999-2000 maintenance year material that had been introduced in the channel as a result of the breach had been removed. No dredging occurred in the 2000-2001 season. Dredging again occurred in the 2003-2004-maintenance cycle with 28,832 CY of material removed. There were 5,000 CY of material placed at the

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<sup>1</sup> Name at that time and has since changed to Main Street



upland disposal site and 23,832 CY of material placed on the ocean side of the spit. In October of 2003 (Fiscal Year 2004) 5,000 CY of material were dredged from the mouth of the river and all was placed on the upland designated disposal site.

- **Dike.** In 1986 the dike extending upstream from James Island was in relatively good condition. As of today the dike is in poor condition. Since raising the jetty in 1962 to the authorized height the dike has contributed very little functionally in channelizing river flow and maintaining the channel, mainly because of the low height and the over topping of ocean waves. Future rehabilitation of this feature was not planned based on that synopsis. However, the dike does provide protection to the shoreline between the jetty and the first structure on the riverbank in La Push. Due to the poor condition of the dike a portion of the shoreline near the fish processing facility had to be emergency repaired in 2003 to stop further erosion into a sewer pipeline. Therefore, rehabilitation is planned in the future to bring the dike back to the authorized height for shoreline protection.

### **1.3 Authority and Purpose**

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

The purpose of the project is to provide and maintain depth within the small boat basin at the town of La Push and maintain passage from the boat basin to the Pacific Ocean while maintaining the spit that protects the channel and boat basin. This harbor of refuge has the only Coast Guard search and rescue station along 100 miles of coast between Grays Harbor and Neah Bay. The Quileute Reservation where the project occurs offers livelihood for approximately 300 Quileute Tribal members (fishing) and approximately 50 non-Indians, including Tribal staff, businesses, and Coast Guard personnel.

### **1.4 Project Description**

Specific features of the current project include:

- (1) A small boat basin 1,070 feet long, 313 feet wide and 10 feet deep, with a 1,500 foot timber training wall constructed to elevation +16 feet MLLW along the west side to reduce shoaling inside the boat basin and a timber breakwater at the downstream end to protect against wave attack;
- (2) A rubblemound dike 8 feet above MLLW with a crest width of 14 feet and 1,050 feet in length along the west side of the river between Quillayute Spit and James Island (the dike included four optional rock groins which have not been constructed);
- (3) A navigation channel 100 feet wide and 10 feet deep from deep water opposite James Island up the Quillayute River to the small boat basin (approximately 2,400 feet), then 75 feet wide and 10 feet deep, extending another 1,900 feet further upstream to the mouth of Smith Slough;



- (4) Maintenance of Quillayute Spit, once a naturally occurring spit and now a revetted artificially maintained spit approximately 3,400 feet in length along the west bank of the Quillayute River extending northerly from the dike between James Island and Rock Islands to the Olympic National Park Boundary.

## **2. PROPOSED PROJECT**

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 each dredging cycle which is currently every other year. The work window is between November and March of any given year to avoid surf smelt and migrating salmon in accordance with the Quileute Tribal recommendations. This portion of the EA will address proposed dredging methods of pipeline dredge and clam shell dredging. The main method of dredging is the pipeline dredge, with the majority of the material placed on the ocean side of the spit near its center to enhance surf smelt habitat. During each dredging project up to a maximum 30,000 CY of dredged material (normally 10,000 CY) has been placed at the designated upland disposal site for beneficial use by the Quileute Tribe. The remainder of the dredged material is beneficially placed ocean side to enhance surf smelt habitat. When weather conditions permit, a clamshell dredge is used to dredge the mouth of the Quillayute River if shoaling begins to block or hinder entrance into the channel. Continued maintenance of the dike, jetty, and spit along with maintenance of the navigation channel are all current requirements placed on the Corps to maintain the Quillayute Navigational Channel. Over the next six years proposed maintenance includes dredging of the navigation channel (using current methods). The jetty and spit are in good condition now and should remain in relatively good condition for the next six years.

Alternatives were investigated in the FEIS of 1986 and are hereby included as reference. If no action were to occur on the Quillayute River Navigation Project the river would shoal in along with the boat basin making them non-navigable; not only to the Quileute Tribe, boaters in harms way but also to the Coast Guard search and rescue vessels.

## **3.0 EXISTING ENVIRONMENT**

In this section the Corps will present the current conditions of the estuary. This section will evaluate the impacts that are directly related to maintenance of the navigation channel. There maybe some areas that are not a direct effect of maintenance of the navigation channel but are accumulations of outside impacts e.g., logging and land use practices for example. Those areas will be mentioned but the intent of this EA is to attempt to identify specific and or direct impacts to the estuary as a result of maintenance of the navigation channel.

The Corps will base this section on a habitat evaluation study using aerial photographic analysis in 2001 performed by Scientific Applications International Corporation (SAIC), and a comparative analysis of replicated studies also performed by SAIC. Those

replicated studies included fish, crab, benthic and water quality analysis. Photos available for analysis were between the years 1976 and 1999. Although the analysis cannot be considered precise due to different tidal elevations when the photos were taken, the analysis will give a fair representation of the geology of the Quillayute Estuary and the changes that have occurred between 1976 and 1999. The replicated studies will provide the opportunity to compare the studies conducted in support of the FEIS of 1986.

### **3.1 Hydrology**

Review of the hydrological graphs provided by the U.S. Geological Survey from stations located on the Calawah, Bogachiel, Sol Duc, and Dickey Rivers that flow into the Quillayute River does not indicate that maintenance dredging has significantly changed the hydrology of the Quillayute River. However, it is apparent that hydrology has changed as the photos indicate a change in the thalweg location in the river. This change could be from logging and or land use further upstream of the navigation channel or just the natural attempt of the river to change. Plus the loss of material from the spit after protection measures were implemented to prevent future breaching of the spit, may have affected the thalweg.

This change in hydrology created a large island that has been cut away from the landmass just upstream from the harbor; while an island on the northern shore of the River has been significantly decreased in size (Figure 2). The meanders in the Quillayute River upstream of the confluence of the Dickey River have matured, creating more pronounced cut-banks and larger point bar deposits. Estuarine conditions appear to reach further upstream than they did in the 1979-80 study based on salinity values upstream.

### **3.2 Geology**

Along with the above changed conditions in the estuary a recreation area that was located across Smith Slough has closed and the area is returning to a more natural habitat that probably existed prior to that particular development. These events could be a partial explanation of the increase in Broadleaf Mixed Forest by approximately 12.1 acres.

There is an estimated loss of Beach Grass/Shrub of approximately 3.4 acres and a loss of coastal beach of approximately 6.8 acres since 1986. The loss of approximately 2.8 acres of Sand Bars and Flats could also be the result of the change in the thalweg of the Quillayute River.

Dredge material that has been placed on the ocean side of the spit apparently has not increased the size of the beach or any gravel type habitat because of the high level of coastal erosion. The material has replenished the beach during littoral drift to the north to enhance surf-smelt habitat that is located predominately on the Olympic National Park's Rialto Beach. However, this nourishment has not reduced the rate or extent of erosion that is occurring along the beach.

### **3.3 Water Quality**

A yearlong water quality study (no Dredging occurred) was conducted in 2001 and was designed to replicate the water quality studies that were accomplished in 1981 and presented in the 1986 FEIS. Due to the loss and gain of habitat and a change in the thalweg of the river some locations were moved to match as close as possible to the stations utilized in the 1986 FEIS.

DO readings ranged from 4.0 to 18.3 mg/l for the bottom of the water column during high tides and from 6.5 to 13.2 mg/l during low tides. In 1986 the range was 6.8 to 15.0 mg/l for bottom readings during high tides and 0 to 15.0 mg/l during low tides. Surface readings ranged from 6.4 mg/l to 14.4 mg/l during high tides and 6.1 mg/l to 13.5 mg/l during low tides. In 1981 the surface readings ranged from 0 to 14.0 mg/l during low tides and from 8.9 mg/l to 15.0 mg/l during high tides. The middle region ranged from 5.0 mg/l to 23.4 mg/l during low tides and from 4.8 mg/l to 34.9 mg/l during high tides. In 1981 the middle region ranged from 7.2 mg/l to 15.0 mg/l during high tides and 6.0 mg/l to 15.0 mg/l during low tides.

Although the numbers are a little different than in 1981, generally the DO levels were higher during high tides than at low tides in the estuary. DO levels were generally lower in the boat basin than other areas of the estuary. No impacts from navigational maintenance could be correlated to the DO levels.

There will be a minor and short-term disturbance to water quality during the dredging operation. The river flushes the turbidity out of the estuary rapidly.

### **3.4 Vegetation**

The spit is now void of vegetation since the breach occurred and riprap was placed on the entire length of the spit to stabilize the spit and reduce cost of maintenance. The remaining areas around the project area are mostly urban or residential in nature and have very little vegetation. A mixed forest, consisting mostly of Sitka spruce, alder, and an occasional hemlock, surrounds the eastern side of the town.

The area behind First Beach has seen a major change in recent years. The Tribe has established new beach houses for rental purposes and that has resulted in the loss of a portion of the Sitka spruce community that was located in the area. Most of the natural vegetation has been removed and replaced with decorative shrubs. There is still a transition area between the beach and rental houses but this is smaller in size compared to 1981.

The following is a list of substantial changes in vegetation from 1976 to 1999 based on the aerial photo analysis. The acreage is provided as estimates due to the potential of tidal elevation influence on the measurements taken via the aerial photographs. However, those estimates will provide a working guideline as to the lost or gain of vegetation over this time period.

## Beach Grass/Shrub

This is a narrow zone typically beyond the beach drift logs dominated by dune grass (*Elymus mollis*), yarrow (*Achillea millefolium*), English plantain (*Plantago lanceolata*), tansy ragwort (*Senecio jacobaea*), and oxeye daisy (*Leucanthemum vulgare*). Other species present include goldenrod (*Solidago sp.*), vetch (*Cicia sp.*), hawksbeard (*Crepis sp.*), and everlasting (*Anaphalis margaritacea*). Beach grass/shrub is generally elevated above the beach grassland and the scrub zone appears to be an older successional zone usually on accreting sandy areas. Twinberry (*Lonicera involucrate*), salal (*Gaultheria shallon*), Sitka willow (*Salix sitchensis*) and young red alder (*Alnus rubra*) are common. There appears to be a loss of approximately 3.4 acres of this type habitat mainly beach grass. This partially a result of the placement of riprap on the spit and partially due to the change in the thalweg of the river as noted on Figure 2 and Figure 3.

## Coastal Beach

This habitat group includes the coastal beaches of Rialto Beach and First Beach, consisting of cobbles, gravels, and sand substrate. Coastal beaches are within the storm tide zone and large drift logs dominate the beach. There appears to be a loss of approximately 6.8 acres of coastal beach habitat near Rialto Beach. As depicted in Figure 2 and 3 there is some apparent loss of this type of habitat that was located on the spit but this could be influenced by the tidal differences shown in the aerial photos. This also could be the result of storm activity along this part of the coast. There appears to be no net loss along First Beach.

## Sand Bars and Flats

Bars and flats principally include the sand and gravel bars in the tidal portions of the Quillayute River and predominately unvegetated mud and sand bottoms exposed at low tide. There is approximately a loss of 2.8 acres of this type of habitat. This appears to be a more direct result of the change in the thalweg of the river versus the maintenance and dredging of the project as indicated by the change in the thalweg between Figure 2 and 3.

Other areas that do not pertain to the maintenance of the navigation channel features directly are as follows with their estimated loss or gains in acreage:

**Broadleaf Mixed Forest** with an estimated gain of 12.1 acres;

**Maritime Forest** with an estimated loss of 4.7 acres;

**Sedge Meadow** with an estimated loss of 14.7 acres.

Areas that pertain directly to the maintenance of the navigation channel directly are as follows with their estimated loss or gains in acreage:

**Gravel-cobble bars** with an estimated gain of 3.6 acres;

**Jetties/dike and Rocky habitat** with an estimated gain of 7.6 acres.

### 3.5 Fish

The majority of Chinook were caught between May and September 2002 with the most caught during the month of May. The same species of fish were caught during this study Chinook, Coho, Chum, Sockeye, Steelhead, and Cutthroat.

Reviewing the catch data provide by the Quileute Natural Resource Department, Chinook, Coho, and Steelhead fisheries were impacted by the breach that occurred in 1996. The breach made the Quillayute River apparently un-fishable in areas thus resulting in extremely low numbers for their catch record. Since the repair the catch record has demonstrated a continual climb until 2003 when the numbers dipped again. There are so many different factors that can affect the health and survival of salmon during migration it would be almost impossible to point to one factor that was affecting the health of the salmon population. Availability of food source and or the stomach contents are the best means of looking for potential impacts that dredging could have on the health of the salmon population.

The stomach contents during this study consisted of amphipod (*Anisogammarus sp.*), (*Corophium sp.*), copepoda (*Harpacticoida*), mysidacea (*Neomysis mercedis*), insecta (*Diptera larva*), (*Chironomidae larvae*), isopoda (*Gnorimosphaeroma sp.*), decapoda (*Crangon sp.*), and teleostei (*Teleostei juvenile*). Again there appears to be ample food source for salmon species in the Quillayute River. Further examination of the results indicate there appears to be a shift from ocean-stage Chinook to stream-stage Chinook and this could be a result of the hatchery practices that have occurred over the past 20 years and a direct result of price reduction for salmon, which makes ocean fishery uneconomical.

### 3.6 Smelt

Surf smelt were found to utilize the upper portion of the estuary during the period this study (2002) more so than in the 1979-80 study. This could be attributed to estuarine conditions reaching further upriver in 2002. For the 24-hour surveys in 1979-80, surf smelt were caught in higher densities during mid-high to high tides. In 2002, surf smelt were caught during low mid to low tides. The sampling site for the 24-hour surveys was unique in that during high tides a very shallow sandy bench was covered with water, and during low tides a deep trench in the main body of the river became accessible. This could explain why catches of surf smelt were higher during low tides in 2002. Overall the densities and size distributions were comparable.

### 3.7 Benthic, Epibenthic and Biota

In the 1979-80 survey, numerous taxa were found at stations located on First and Rialto Beach, where in 2002, samples from those areas found almost nothing. It is possible that wave action on these beaches during 2002 was higher than in 1979-80, and either deterred recruitment or wiped out most invertebrates in the intertidal zone. These areas

are known to be highly dynamic, yet would recover quickly, as could have been the case in 1979-80.

Similar to the earlier study, the inner stations of the estuary contained much higher densities of organisms than the outer stations for 2002. Species of amphipod were prevalent within the estuary for both studies, as were *Oligochaete* sp., and several species of polychaetes. Bivalves recruited into the estuary in 2002, while in 1979-80 they were only found at James Island, outside the estuary. There may have been an increase in organic deposition within the estuary over time, which could eventually support recruitment of higher densities of organisms.

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.

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).

### **3.8 Wildlife**

The wildlife species observed in 2002 were fewer than observed in 1979-80 due mainly to only four habitat types observed in 2002 verses six habitat types observed in the 1979-80 study. The Sitka spruce uplands were not a part of this survey since the focus was within the navigation channel and disposal areas and we combined the other habitat area within the four discussed in this EA.

A total of 35 bird species were observed within the four habitat areas (Revetted Beach, Estuary/River, Developed areas, and the sea stacks). Of these habitat types 60 percent of the species was observed in the estuary, 17% was observed at the sea stacks, 20% observed on the revetted beach and 3% in the developed areas. The Peregrine Falcon was removed from the Threatened and Endangered list on August 25, 1999. Although Brown Pelicans were not observed during this survey they have been seen using the marina wall at various times of the year.

Harbor seals (*Phoca vitulina*) were sighted in the estuary in 2002 while none were sighted in the 1979-90 surveys. No other marine mammals were observed. During the survey a raccoon (*Procyon lotor*), Douglas (*Tamiasciurus douglasi*), and black-tailed deer (*Odocoileus hemionus*) were seen while none were observed in the 1979-80 survey. Sea lions although not observed during the survey have been seen by locals and frequent the area on regular basis.

### **3.9 Threatened and Endangered Species**

As in the 1979-80 survey no plants on the Federal list of endangered and threatened wildlife and plants are found in the vicinity of the project. The National Marine Fisheries Service (NMFS) list seven whale species and a sea turtle that can be observed a long Washington Coastal waters. The only species that appears regularly near the mouth of the Quillayute River is the gray whale (*Eschrichtius robustus*).

The bald eagle was the only federally listed species observed during surveys. Bald eagles were commonly observed throughout all of the study area, but the closest bald eagle nest is 2 miles away from the proposed project. Brown Pelicans were not observed but utilize the marina wall as a resting place various times of the year. Marbled murrelets are known to occur in the vicinity, but no suitable habitat occurs within 0.25 miles of the proposed project area. No unusual concentrations of any bird species were seen during the surveys.

### **3.10 Cultural and Native American Concerns**

There are no changes known at this time with cultural resources.

### **3.11 Land Use**

The biggest change in land use is the recreational area that was located across Smith slough does not exist anymore and the land is reverting back to a more natural habitat. Additional structures have been built within the Tribal property but no structures have been built that would interfere with Tribal fisheries.

### **3.12 Air Quality and Noise**

There have been no significant changes that would affect air quality or noise levels with the study area.



The same short-term and minor impact of noise and air quality will occur during the dredging operation. There is no change from previous years of dredging. The additional noise associated with dredging will be a short-lived short term impact with no lasting effects to the environment.

### **3.13 Transportation**

No significant changes have occurred in the area of transportation that could or would effect the transportation of this area.

### **3.14 Socio-Economic**

The biggest change was the development of new houses or apartments that are open to the public for rental purposes. This would generate income to the Tribe. Fishing is still the main source of revenue for the Tribe.

### **3.15 Recreation**

Fishing is still the main recreation in the project area. There are opportunities to walk on beaches in the area and observe migratory birds. Recreational boating would be predominately for fishing as the entrance to the safety of the marina is still hazardous and takes substantial skills in seamanship to enter this area. Cabins are available for tourist to rent for all the above-mentioned reasons including vacations.

### **3.16 Aesthetics**

The area along the oceanfront has changed to include cabins that are for rental purposes. The aesthetics of a natural area behind the beach has changed to rental cabins. Beach or sand areas that were located on the spit have now become a rocky habitat due to the hardening of the spit to protect the area from the spit breaching and damaging the marina. During low tide the spit has a large beach area that is exposed and usable only during low tides.

## **4.0 Unavoidable Adverse Effects**

The only known unavoidable adverse effect of the maintenance of the Federally Authorized navigation project was the placement of riprap along the entire length of the spit in 1996. This was required to stabilize the spit to prevent breaching in the future and to reduce the cost of maintenance of the project; this actions was addressed in a 1996 EA.

## **5.0 Irreversible and Irretrievable Commitments of Resources**

No federal resources will be irreversibly and irretrievably committed to the projects until the EA is finalized and the Finding of No Significant Impact has been signed.

## 6.0 Cumulative Impacts

Between 1932 and 1979 the jetty was constructed, boat basin and training wall, dike and numerous methods of anchoring drift logs to the upper spit to prevent breaching was accomplished. All of these construction activities have had permanent impacts to the estuary, mainly in the reduction of area for the benthic community to exist. Some of the construction activities may have had an impact on the thalweg of the river but none of the activities are conclusive with the exception of loss of habitat for benthic communities by building the jetty and dike. However, as the results of the comparison between the 1979-80 study and the study conducted by SAIC 2001 there is a populist benthic community that exists today.

Although the morphology of the Quillayute system has changed dramatically since the 1979-80 study (SAIC 2001), there is no solid evidence that maintenance of the navigation channel has directly affected the estuary with the exception of the gain in rocky habitat. River deposits have changed sides of the river, deep holes have developed that used to be riffles, new side channels have been developed, and sand habitats have developed further down river. These changes can dictate habitat utilization by all species of fish, crab, and benthic invertebrates, and algae.

Consistent with the fact that coastal erosion occurs all along the Washington Coast, the project area has experienced an estimated loss of 6.8 acres of beach habitat loss of 3.4 acres of beach grass habitat and an estimated loss of 2.8 acres of sandbar sandbar and flats. There has also been an approximate gain of 7.6 acres of Jetties/dikes and rocky habitat due to the placing of riprap on the spit in 1996 to stabilize that structure. Although the study in comparison to the 1979-80 studies would indicate there is no impact directly to fisheries there could be indirect impacts to the avian, mammalian, and fisheries populations within the estuary. Those impacts as discussed earlier could be from land use practices such as logging and encroachment or development into riparian areas further upstream from the Quileute Reservation. Those impacts could have changed the thalweg of the river and caused the meandering or loss of landmass that contained habitat for avian, mammalian, and fishery species.

The current or known future activities in the project vicinity are the continued maintenance dredging of the Federal Navigation Channel and the potential repair of the dike. This repair of the dike will be addressed in a future EA if the proposed project is funded. No other known Tribal, state or federal actions are in the foreseeable future other those activities mentioned above.

# 1999



**Figure 3. 1999 Aerial Photo**

## **7.0 Recommendations**

Based on the review of the two studies one in 1979-80 and the most recent study of 1999-2002, the Corps has determined that no long term impacts to the environment were caused by maintenance dredging the Federal Navigation Project. It is also recommended that continued maintenance of the Federal Navigation Channel continue over the next 5 years with the present methodology of dredging. Clamshell dredge is to be used in the entrance and pipeline dredge used in the boat basin.

## **8.0 Coordination**

Coordination occurred with the Quileute Tribe, U.S. Fish and Wildlife Service, Environmental Protection Agency, NOAA Fisheries, and the Washington Department of Fish and Wildlife. This coordination is documented in this Environmental Assessment as follows.

## **9.0 Environmental Compliance**

## **9.1 National Environmental Policy Act**

This Environmental Assessment, prepared October 2005, is a compilation of environmental information on the project related to Quillayute River Navigation Project. A biological assessment was prepared and coordinated with state, federal, and local agencies and is incorporated in this final environmental assessment.

## **9.2 Endangered Species Act Section 7 Consultation**

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species. A letter of concurrence to our findings of not likely to adversely affect was received from NOAA Fisheries dated October 19, 2004 for the Steller sea lion and humpback whale. Concurrence to our findings of not likely to adversely affect was received from U.S. Fish and Wildlife Service dated December 22, 2004 for the bald eagle, brown pelican, and marbled murrelet. The project is therefore in full compliance with the ESA.

## **9.3 Clean Water Act Compliance**

A 404(b)(1) evaluation, which demonstrates compliance with the substantive requirements of the CWA, is required for work involving discharge of fill material into the waters of the United States. A 404 (B)(1) evaluation has been prepared for this project and the Corps received a 401 water quality certification on September 7, 2005 (Enclosure A).

## **9.4 Coastal Zone Management Act (CZMA) Consistency Determination (16 USC 1456 et. seq.)**

The Federal Navigation Project is located entirely on the Quileute Reservation and dredging will not result in any significant impacts to the State's coastal resources and although not required the Corps will be in compliance with the Washington Coastal Zone Management Program. The Quileute Tribe has a Coastal Zone Management Program that was developed in 1980, updated in 1993, and is consistent with the state's Coastal Zone Management Act; the Corps will be in compliance with the Quileute CZMA.

## **9.4 Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (16 USC 470) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. This goal is accomplished through Corps funding of U.S. Fish and Wildlife Service habitat surveys evaluating the likely impacts of proposed actions, which provide the basis for recommendations for

avoiding or minimizing such impacts. A Fish and Wildlife Coordination Act Report is not required for maintenance work. However, a Fish and Wildlife Coordination Act Report will be requested for the development of the mitigation site if required as part of this process.

### **9.5 National Historic Preservation Act**

The National Historic Preservation Act (16 USC 470) requires that the effects of proposed undertakings or actions on properties (such as archaeological sites, buildings, structures, or objects) included or eligible for the National Register of Historic Places must be considered. Historic Preservation Officers (HPO) for affected States and Tribes and the Advisory Council on Historic Preservation (ACHP) must be afforded an opportunity to comment on the undertaking, and the agency also must consult with affected Indian tribes. This action was accomplished for the 1986 EIS and since the project has not changed there will be no need to re-consult for the routine maintenance of the navigational channel.

### **9.6 Executive Order 12898, Environmental Justice**

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

The potentially affected community does include a minority and/or low-income population.

The project does not involve the sighting of a facility that will discharge pollutants or contaminants, so no human health effects would occur. Maintenance of this structure would not negatively 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 (based on negotiations with the Quileute Tribe), or impact fishery resources.

Since no health and few adverse effects will occur from the project, the Corps has determined the overall project benefits the local economy and has determined that no disproportional impacts would occur.

## **10.0 Conclusion**

Based on the above analysis, this project 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. No other impacts from the maintenance of the Federal Navigation Channel can be directly associated with the project.

## **11.1 Comments Received**

The Environmental Protection Agency was the only ones to respond to this environmental assessment with a request to be part of the working group.

*Corps Response: The EPA along with USFWS, NPS, WDFW in conjunction with the Quileute Tribe will all be part of the working group.*

## **11.0 References**

Quillayute River Navigation Project Final Environmental Impact Statement 1986

Wildlife Surveys Quillayute Navigational Project 2002

Fish, Crab, and Benthic Studies Quillayute Navigation Project 2003

Water Quality Study Quillayute Navigational Project 2001

Habitat evaluation Quillayute Navigational Project 2001