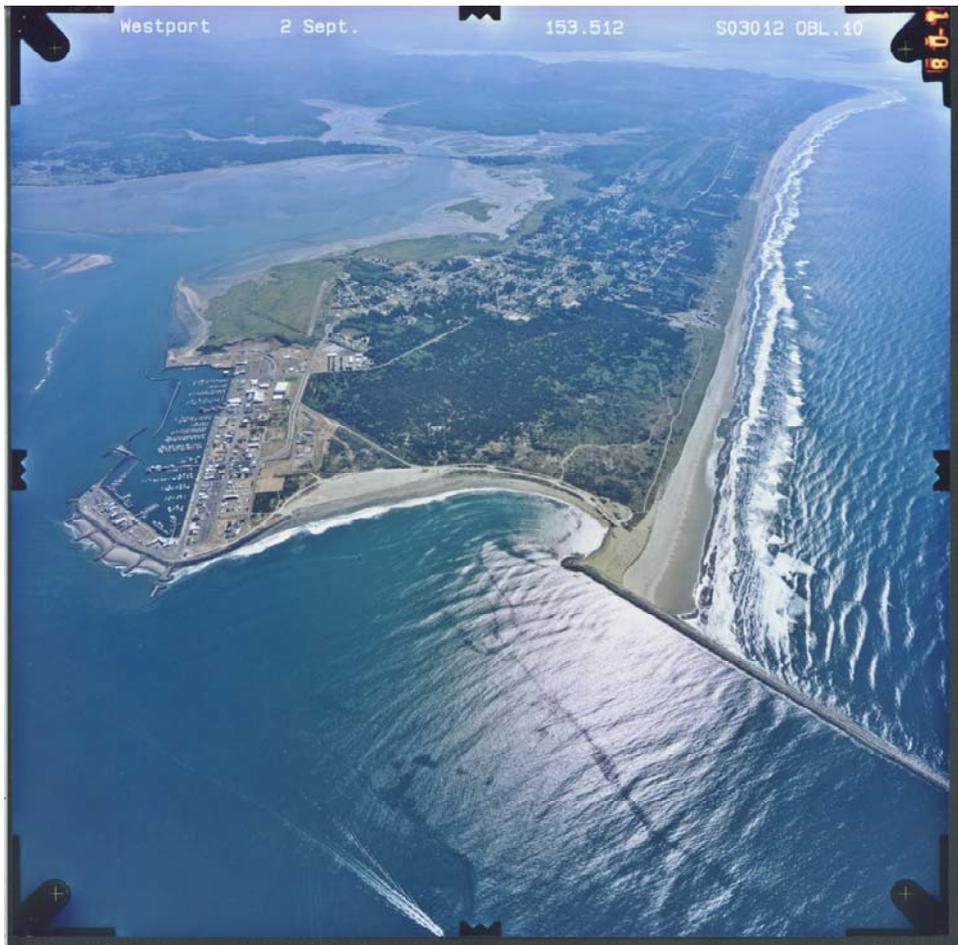


Final Supplemental Environmental Assessment

South Jetty Breach Fill Maintenance

Westport, Grays Harbor County, Washington
December 2004



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

South Jetty Breach Fill Maintenance Westport, Grays Harbor County, Washington December 2004

Final Supplemental Environmental Assessment

Responsible Agency: U.S. Army Corps of Engineers, Seattle District (Corps).

Abstract: This document supplements, and incorporates by reference, the *South Jetty Breach Fill Maintenance Final Environmental Assessment*, prepared in February 2004 by the Corps of Engineers: [South Jetty Breach Fill Maintenance Final Environmental Impact Statement](#) (U.S. Army Corps of Engineers, 2004a). That document evaluated the impacts of placement of approximately 25,000 cubic yards of sand on the south jetty breach fill in February 2004, as well as expected additional placements of sand over the subsequent three to five years.

This supplement evaluates impacts on Half Moon Bay resources that would be expected if the Corps of Engineers were to take interim breach fill maintenance actions to preserve the status quo by protecting against the risk of breach recurrence in the vicinity of the South Jetty, pending the development of a long term management strategy (LTMS). The document also evaluates new biological information on benthic invertebrate, fish, and bird resources in Half Moon Bay gathered after the February 2004 EA was finalized. Also described are the responsive sand placement actions that would be implemented if conditions indicate that an undue risk of a breach is developing, utilizing two pre-designated triggering criteria. Responsive Action No. 1 would involve placement of sand along the southwest shore of Half Moon Bay above +9.0 feet, MLLW, while Responsive Action No. 2 would involve placement of sand on top of the existing breach fill area south of the South Jetty in response to overtopping.

The project area shoreline and bay are characterized by a high rate of natural disturbance, due to exposure to strong wind and wave action, and large volumes of sediments eroded and deposited in the area. Nevertheless, the bay and shoreline provides usable habitat for fish, benthic invertebrates, and shorebirds. Limited benthic production occurs sporadically, depending on location and tidal elevations, especially at lower intertidal zones. Bottom fish, and probably forage fish, feed on invertebrates present in the project area, but juvenile Chinook salmon are consuming primarily pelagic species as they prepare for their ocean life history. Shorebirds are not found in abundance in the late fall due to regular human activity in the area. Dune grass may be damaged due to sand placement activities but it would be replanted if necessary in the subsequent spring season. Either interim action is for maintenance and would not contribute to cumulative impacts on project area resources.

The Corps has determined that the proposed action is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement.

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1. INTRODUCTION

Pursuant to the National Environmental Policy Act (NEPA), this environmental assessment (EA) supplements the February 2004 [South Jetty Breach Fill Maintenance Final Environmental Assessment](#), which is hereby incorporated by reference. That document evaluated the impacts of placement of approximately 25,000 cubic yards of sand on the south jetty breach fill in February 2004, as well as additional placements of sand over the subsequent three to five years. The purpose of this EA supplement is to: present new biological information on the invertebrate, fish, and bird resources of Half Moon Bay gathered during sampling efforts in late 2003 and throughout 2004; re-evaluate biological impacts of sand placement activities using this new information; explain Corps decision thresholds for determining if future breach fill maintenance actions are necessary and will be implemented; and describe specific actions proposed to maintain the status quo during the 2004-2005 winter storm season, and their effects.

1.1 Background and Need

After winter storms breached the sand spit adjacent to the Grays Harbor south jetty in 1993, there were concerns about the stability of the south jetty structure and potential damages to the navigation channel. In response, the Corps placed about 600,000 cubic yards of sand to close the breach. As described in the February 2004 EA, the Corps has undertaken a number of measures since 1994 to extend the life of the existing breach fill and some of these efforts do show promise for extending the fill life well into the future. However, the integrity of the breach fill may be compromised if ongoing erosion in its southeast sector is allowed to continue or overtopping occurs.

The persistent loss of sediment from the Grays Harbor entrance and adjacent beaches is expected to continue indefinitely. Shoreline erosion in the vicinity of the south jetty could result in the eventual breaching of the landmass adjacent to the south jetty. In order to assess the threat of such a breach to the Federal navigation project and to develop a long-term strategy to maintain and protect Federal navigation project features, the Corps has initiated a study to formulate and assess various management alternatives. This study, the Long Term Management Strategy (LTMS) study, will conclude with a recommendation for how to best ensure the continued operability of navigation project features. Completion of the LTMS study and initiation of recommendation(s) made by the study is expected in 2006.

Prior to completion of the LTMS study, there is a tangible risk that, without further preventative action, continued erosion in the vicinity of the south jetty could produce another breach. Pending completion and review of the data collection and breach analysis efforts presently underway, there is uncertainty regarding the degree of risk of another breach occurring, as well as the nature and scope of any resultant impacts on the navigation project. In view of this uncertainty, the Corps plans to take action to preserve the status quo and protect against a breach recurrence until a definitive evaluation of the connection between another breach and the Federal interest in maintaining existing navigation project features is complete.

1.2 *Project Purpose*

The purpose of the proposed work is to preserve the status quo, by protecting against an undue risk of the recurrence of a breach in the vicinity of the South Jetty. If conditions indicate that an undue risk of a breach is developing, one or both of two sand placement actions would be implemented to nourish the area(s) adjacent to the south jetty. This is needed to protect the south jetty and navigation channel from damage which could be caused in the event of another breach. Preventative maintenance of the breach fill is a much more cost-effective strategy to maintain the status quo than after-the-fact emergency repairs, and requires a relatively small quantity of material to restore the height and width of the fill area. Proactive action could prevent more costly and voluminous replacement if a breach were allowed to develop.

1.3 *Location*

The project area is located in Westhaven State Park, Westport, Grays Harbor County, Washington (T16N, R12W, Section 1). The location of the proposed work is shown on the vicinity and location maps in Figure 1.

1.4 *Authority*

The Grays Harbor and Chehalis River Project, including maintenance of the Federal navigation channel and the South Jetty, is authorized by the River and Harbor Act of August 30, 1935 (House Document 53, 73rd Congress, 2nd Session) and the Water Resources Development Act of November 17, 1986 (Public Law 99-662). The proposed work is within the Grays Harbor and Chehalis River Project operations and maintenance (O&M) authority because its intent is to protect navigation features, including the south jetty and navigation channel. This is a proper use of O&M funds because, until a definitive determination can be made of any connection between a breach and the Federal interest in maintaining navigation facilities, the Corps acknowledges uncertainty in the degree of risk of a breach, as well as in the nature and scope of any impacts of the navigation project as a result of such a breach. In view of this uncertainty, the Corps will take action to preserve the status quo by protecting against the risk of a breach recurrence.

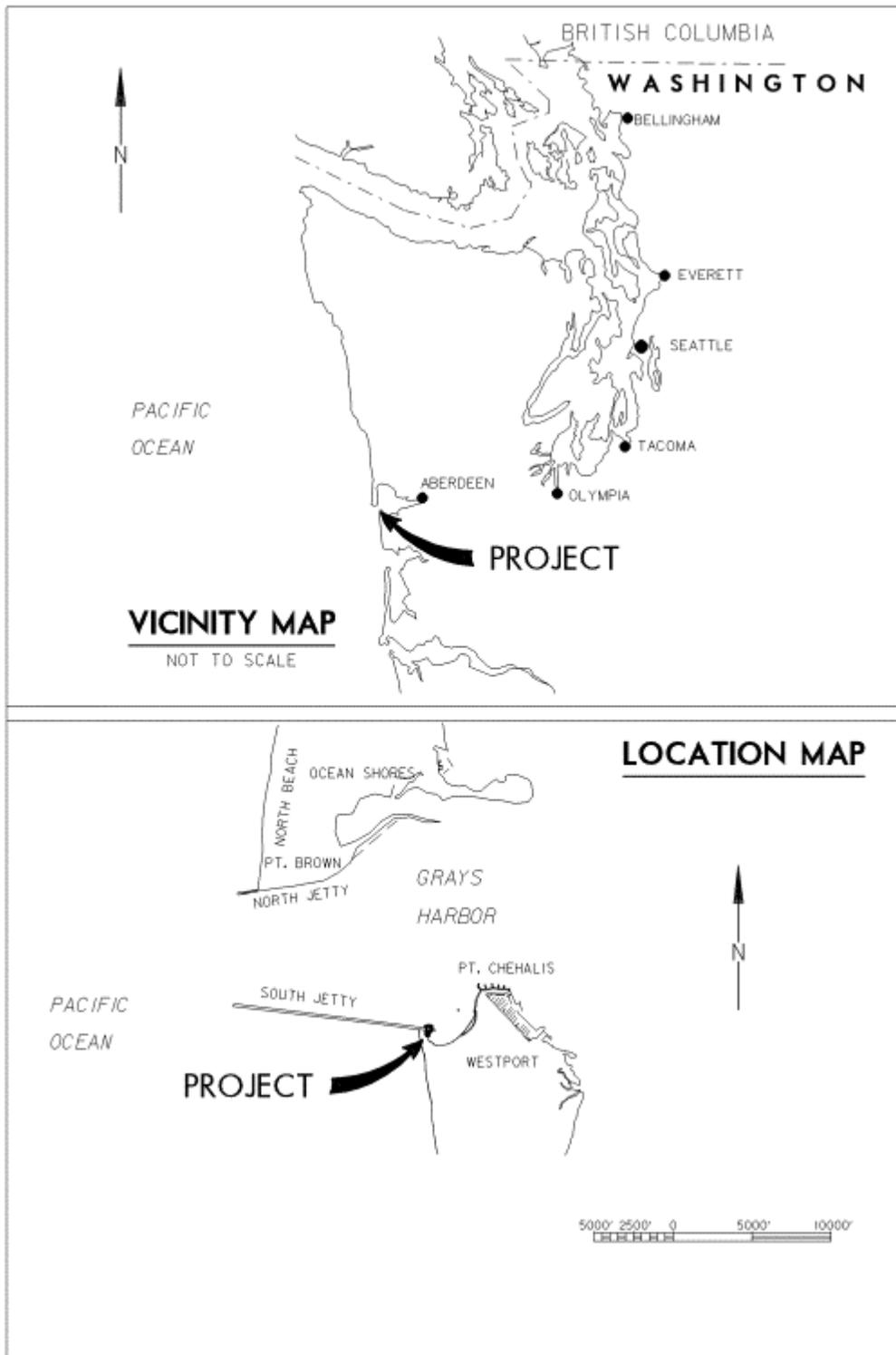
1.5 *Previous documents*

Additional information on the history of Grays Harbor and Chehalis River Navigation Project engineering structures, erosion in the project area, and the natural resources of Grays Harbor can be found in previous Corps documents. The following documents are incorporated here by reference, and are available for inspection at the Seattle District office. Complete bibliographic information for these documents can be found in the reference section of this assessment.

- [South Jetty Breach Fill Maintenance Final Environmental Assessment](#) (February 2004)
- [South Jetty Sediment Processes Study, Grays Harbor Washington: Evaluation of Engineering Structures and Maintenance Measures](#) (April 2003)
- Half Moon Bay Transition Gravel and Cobble Placement Final Environmental Assessment (November 2003), rescinded December 15, 2003
- Design Analysis (Revised), Grays Harbor, Washington FY 1999 South Jetty Repair (September 1999)

- Long Term Maintenance of the South Jetty at Grays Harbor, Washington, Evaluation Report (June 1997)
- Point Chehalis Revetment Extension Project, Westport, Washington, Interagency Mitigation Agreement (October 1998)
- Review of Long-Term Maintenance Plans for the South Jetty, Grays Harbor, Washington; Report by a Special Subcommittee of the Committee on Tidal Hydraulics and Coastal Engineering Research Board (1995)
- [South Jetty Breach Fill Final Environmental Assessment](#) (April 2002)
- South Jetty Repair Final Environmental Assessment (July 1999)
- [Final Environmental Assessment: Fiscal Years 2001-2006 Maintenance Dredging and Disposal, Grays Harbor and Chehalis River Navigation Project, Grays Harbor County, Washington](#) (April 2001)
- [Programmatic Biological Evaluation: Fiscal Years 2001-2006 Maintenance Dredging and Disposal, Grays Harbor and Chehalis River Navigation Project, Grays Harbor County, Washington](#) (December 2000)
- North Jetty Performance and Entrance Navigation Channel Maintenance, Grays Harbor, Washington September 2003 ERDC/CHL TR-03-12

Figure 1. Location and Vicinity Maps



2. ALTERNATIVES

The Corps has considered three alternatives for interim action breach fill maintenance: No Action, Placement of additional transitional cobble/gravel mix material, and Contingent Sand Placement.

2.1 *No Action*

Refer to the February 2004 final environmental assessment for a discussion of impacts that would accrue if this alternative was selected: [South Jetty Breach Fill Maintenance Final Environmental Assessment February 2004](#). Additional information gathered since February 2004 did not change the effects determination for this alternative.

2.2 *Placement of Additional Transitional Cobble/Gravel Material*

Refer to the February 2004 final environmental assessment for a description of this alternative. This alternative was excluded from further consideration because its implementation would involve the placement of materials in locations and quantities where they do not presently exist. Implementation would thus deviate from the project purpose of maintaining the status quo pending completion of the Long Term Management Strategy (LTMS). As placement of transitional cobble and gravel may subsequently be found not justified in preserving Federal navigation facilities, doing so prior to the full evaluation of the need for – and effects of – that placement may exceed the Corps' authority to operate and maintain existing navigation facilities.

2.3 *Contingent Interim Action Sand Placement*

The Contingent Interim Action of sand placement is selected as the preferred alternative. Interim action sand placement would be undertaken only when, and only to the extent that, it is necessary. Two trigger thresholds have been developed to guide the decision of whether or not to implement an appropriate Responsive Action. These thresholds are independent of each other and hence one or both could occur this fall/winter. If neither of the triggering thresholds are met, the no action alternative would be selected and the Corps would not take an interim action to prevent further loss of breach fill material at this time. If they are required at all, actions to protect against a breach may prove necessary more than once pending completion of the LTMS.

Any removal of material from the Point Chehalis revetment extension mitigation stockpile would not be expected to affect Corps compliance with the inter-agency mitigation agreement for the Point Chehalis revetment extension project. Based on a comparison of the 2001 - 2004 survey data, the erosion rate in the vicinity of the mitigation stockpile is approximately 5,000 to 10,000 cubic yards per year (cy/yr). At this time the stockpile contains approximately 140,000 cy of sand, of which about 125,000 cy is actually located in an area that would be subject to erosion. If either Responsive Action 1 or 2 were determined to be necessary, 20,000 cy would be borrowed from the mitigation site this fall or winter, and approximately 10,000 - 30,000 cy may be borrowed for each subsequent episode. Assuming that the erosion rate is 10,000 cy/yr, the combined loss of material from the mitigation site due to combined erosion and borrow activities would be 30,000 cy this year and possibly 15,000 cy/yr in subsequent years. Under these assumptions, the presently available stockpile volume of 140,000 cy could provide material for

both the mitigation requirements and the proposed breach fill maintenance for several years before re-nourishing the stockpile with maintenance dredged material would be required. Action-triggering thresholds and corresponding Responsive Actions are discussed below.

Threshold No.1: The Corps determines through evaluation of pertinent survey data that 15,000 cubic yards of sand has eroded from the southwest corner of the Half Moon Bay beach since the most recent sand placement event. The 15,000 cy of sand represents the approximate average annual loss of material in this corner of the bay.

Responsive Action No.1: The Corps would place approximately 20,000 cubic yards of clean sand along approximately 1,000 linear feet of beach in the southwest corner of Half Moon Bay, as illustrated in Figure 2. This quantity of sand was determined after analysis of erosion from annual survey data. Sand would be excavated from the existing buried revetment mitigation stockpile and truck hauled on the existing state park access road. Minor grading would occur for pioneering an access route on the sand and for truck safety dozing sand over the bank top. No road building materials (i.e., rock) would be used in transporting the sand. Since no crushed rock would be placed to facilitate access, conventional trucks would, using special road-building methods (e.g. steel plates), be able to traverse the sandy breach fill. Trucks with off-road capabilities or tracked front-end loaders would likely be used to place the sand on the breach fill. Excavated material would be placed shoreward of the +9 feet above MLLW contour line (the mean higher high water contour) at its natural angle of repose to minimize impacts on intertidal ecology. Sand grain size would be consistent with existing beach sand grain size. Sand would be placed completely within the footprint of the 1994 breach fill placement, and fully within the narrower footprint of placement used in February 2004. Approximately 2.3 acres of upland would be impacted by the proposed contingent placement of sand. Care would be taken to minimize impacts on dune grass. The mechanism of action would then be as follows: as intertidal erosion occurred, the sand banks would be undercut and the sand stockpile would incrementally slough onto the upper intertidal areas. Most of the erosion would occur between December and March and the majority of the material would be lost during high tides and storm events during this period. On a daily basis, currents and wave action would gradually regrade and disperse this sand eastward along the beach and offshore.

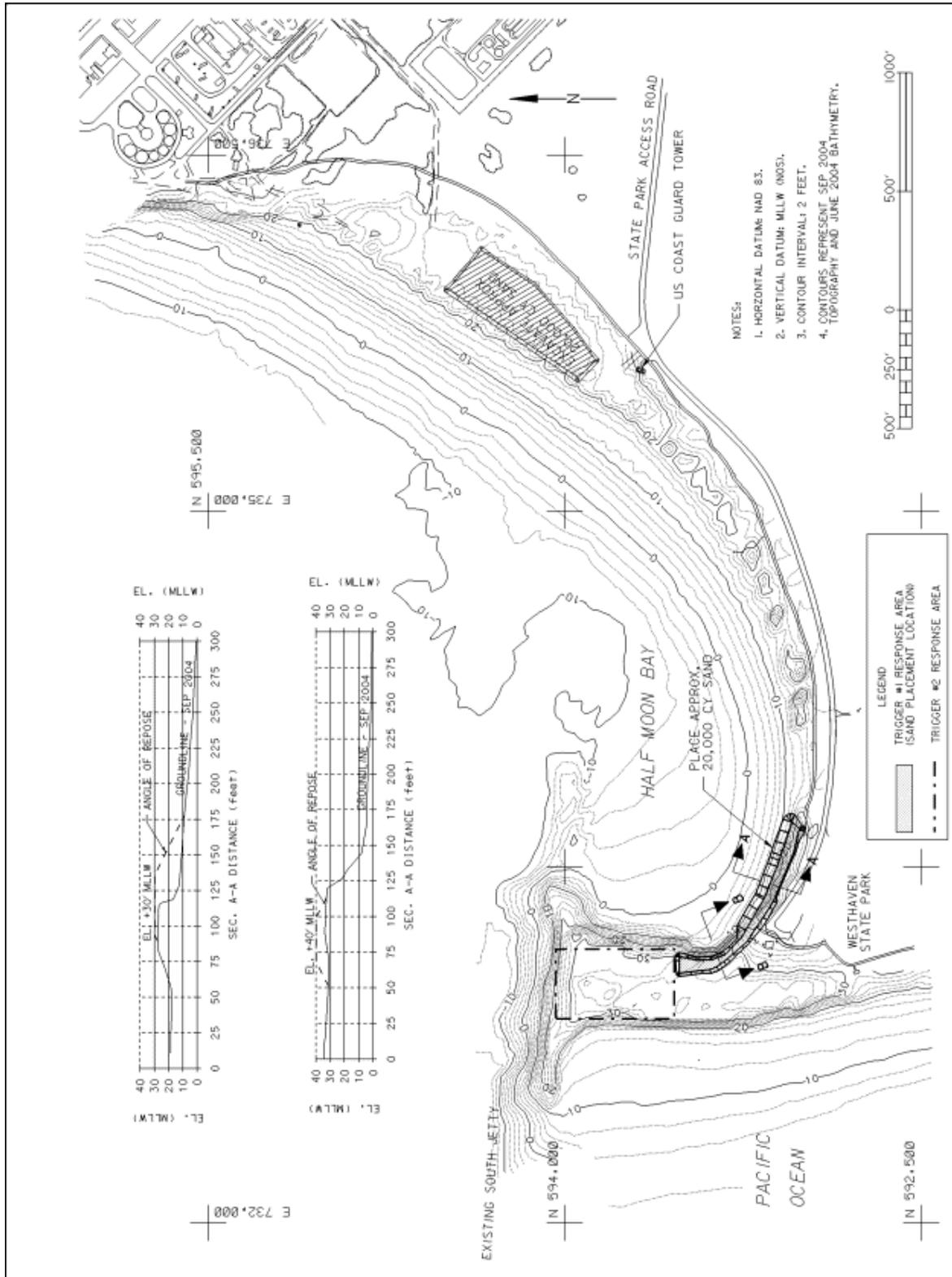
Threshold No. 2: The breach fill footprint south of the South Jetty is overtopped by water from the west, resulting from a storm event(s).

Responsive Action No. 2: The Corps would place up to approximately 20,000 cubic yards of clean sand on top of the breach fill area, above elevation +9 feet above MLLW (mean higher high water) at a location within the fill footprint as illustrated in Figure 2. The precise location and quantity of placed sand would be selected based on an analysis of the most effective means of responding to the observed overtopping conditions and the most efficacious means of addressing the risk of further overtopping and head-cutting. Sand would be placed completely within the footprint of the 1994 breach fill placement. The sand would be excavated and mechanically transferred from the existing buried revetment mitigation stockpile to the placement area, utilizing either track vehicles that require no improved road or with trucks, by constructing a temporary access route using removable steel plates.

These Responsive Actions are proposed as the most effective actions to address breach risk conditions actually presented in the winter of 2004-05. Any subsequent contingent interim actions triggered during the LTMS study period may vary from the 2004-05 action. If there is

appreciable variation from the 2004-05 action plan in subsequent contingent interim action episodes, this environmental assessment will be further supplemented with additional NEPA documentation as appropriate, providing more specifically tailored analysis of Responsive Action plans and their expected environmental effects.

Figure 2. Sand Placement Response Areas for Trigger Thresholds 1, 2



3. EXISTING ENVIRONMENT

Extensive information on the existing environment of Grays Harbor has been provided in previous technical studies, as well as environmental and biological evaluations (see Section 1.5 for a list of available documents). Only new information generated through sampling efforts since the February 2004 *South Jetty Breach Fill Maintenance Final EA* is provided here.

3.1 *Geology/Sediment Dynamics*

Reference section 4.1 of the February 2004 *South Jetty Breach Fill Maintenance Final EA* for a general discussion of the existing geological environment and sediment dynamics. Since publication of the Final EA, recent aerial mapping has indicated that the sandy shoreline at the terminus of the gravel in the southwestern corner of Half Moon Bay (HMB), which had receded in 2003, continues to erode, but at a slower rate in 2004. The dynamic nature of HMB sediments is indicated in Figure 3 (in color) by substantive beach height changes in the period Summer 2003 - Summer 2004. Most of the bay shoreline in that period eroded more than 2.5 feet (vertical). Also, because of sloughing of placed sand, there is accretion in some areas of over 2.5 feet thick (vertical).

A Point Chehalis Revetment Extension Project, Interagency Mitigation Agreement, effective December, 1998, contains a placement schedule that commits the Corps to periodically place sand from the Grays Harbor Entrance Channel into the Half Moon Bay stockpile for renourishment.

3.2 *Vegetation*

Two of the three placement sites from February, 2004 and the excavation site are largely unvegetated. The Corps planted the remaining placement site (directly south of the jetty), as well as much of the breach fill, with the native dune grass (*Elymus mollis*) in 2002. Adjacent dune areas are dominated by the invasive non-native European beach grass (*Ammophila arenaria*). Other non-native invasive plants such as Scot's broom (*Cytisus scoparius*) and Himalayan blackberry (*Rubus discolor*) are present to the east along the back side of what remains of the Half Moon Bay foredune and a haul road used during previous construction projects.

3.3 *Benthic Invertebrates*

Because of the need to analyze benthic invertebrate communities in Half Moon Bay and South Beach in 2004, the Corps contracted with Science Applications International Corporation (SAIC) to collect and evaluate samples from intertidal and subtidal areas in January and June, 2004. One objective of the January sampling was to obtain a good picture of winter population density and community composition that had established in spite of high dynamic conditions of erosion/deposition in the bay and previous sand placement activities that occurred in late winter, 2002. A second objective was to obtain baseline information that could be used to evaluate changes in population density and community composition following sand placement in February 2004 (Army Corps of Engineers, 2004b).

Sampling was conducted January 20-21 at Half Moon Bay and South Beach, Westport, Washington. Intertidal core samples were collected at thirteen sample sites in western Half

Moon Bay, and eight sites on South Beach (Figure 3, color). Intertidal benthic samples were collected at four elevations (+12 feet, +8 feet, +4 feet, and 0 feet, MLLW)¹, while subtidal core samples were collected at eight sample sites in western Half Moon Bay at elevations -4 feet, -8 feet, and -12 feet, MLLW at high tides using the Corps' M/V Shoalhunter and deploying a modified Young van Veen sampler. At each intertidal and subtidal station, a total of ten replicate core samples were collected. A minimum of three replicates from each station was analyzed for benthic infauna. At each station, a separate sediment sample was collected for grain size analysis.

Data collected in January for Half Moon Bay may be summarized as follows:

- a. Highest abundances and numbers of types of invertebrates were found at subtidal stations.
- b. Samples in the west end of the bay, protected by the jetty, had higher abundances than those further to the east.
- c. The ribbon worm (*Nemertea* sp.) was the dominant organism at most sample stations, except three, where segmented marine worms (annelids) were dominant.
- d. Juvenile organisms less than 0.25 mm dominated abundance measurements.
- e. All stations consisted almost entirely of sands and gravels. Percent fines ranged from 1.9% to 0%. Intertidal stations were predominantly sand, although five of thirteen stations contained appreciable gravel, as much as 31%.

As the interim action sand placement will occur on the west side of Half Moon Bay, this supplemental EA focuses on the data obtained there and not South Beach. The South Beach data can be viewed at the Seattle District website, [Half Moon Bay and South Beach Benthic Invertebrate Baseline Study](#). Suffice it to say that in January at South Beach, abundances and organism types were similar to those of Half Moon Bay, there were more organisms at higher intertidal areas, the ribbon worm was dominant, and grain size consisted of over 99% sand.

As stated above, the dominant benthic invertebrates in Half Moon Bay were ribbon worms (*Nemertea* indet.), followed by other marine worms (polychaetes and other annelids). These generally live within the sediment and are generally more suited as a food sources for shorebirds and bottom fish, rather than for salmonids. Juvenile salmonids are known to feed on crustaceans such as harpacticoids, or *Corophium* sp., that are generally found living at the sediment-water interface. Crustaceans were the next most abundant organisms in Half Moon Bay, but at much lower numbers in comparison to the ribbon worms and polychaetes.

The SAIC report concluded that generally the January benthic invertebrate production was relatively low, which would be expected during the winter months in an area subject to constant storm activity.

¹ Samples were not collected at +12 feet for transects HMB2 and HMB3 due to the large cobble material present in these locations.

Summer sampling was conducted in late June, 2004. Sampling methodology for collection, preservation, identification, and enumeration of invertebrates was identical to that followed in January. Additionally, concurrently with benthic sampling, several fish species, including juvenile Chinook salmon, were collected by beach seine for stomach analyses. The objective of this work was to compare numbers and types of food organisms found in the fish stomachs with organism abundance and composition of benthic communities surveyed in Half Moon Bay in June. In theory, this could help determine the bay's relative importance as a feeding area during a time when juvenile Chinook salmon were migrating through the area. Other fish species collected for the stomach content analyses were: surf smelt, shiner perch, speckled sanddab, sand lance, English sole, American shad, and sand sole.

At this time of preparing this supplemental EA, the draft report for the June 2004 benthos and fish stomach sampling was not available, however preliminary data sent to the Corps indicate the following:

- a. June samples showed more adult polychaetes than the winter sample, an expected seasonality feature.
- b. Polychaetes were similar in the 1.0 mm fraction as were the presences of *Eohaustorius* spp. and nemerteans.
- c. Overall impressions of the June benthic samples indicate that the sediment from which benthic samples were obtained provides a similar habitat and infaunal composition compared to that of the sediment sampled in January.
- d. Stomach content analyses showed that juvenile Chinook salmon were feeding mainly on *Jassa* spp, an amphipod similar to *Corophium* sp, a well-documented prey item for juvenile Chinook. However, *Jassa* were not found in the benthic samples.
- e. Surf smelt, sand lance and American shad were feeding largely on adult calanoid copepods, which are water column and not benthic species.
- f. English sole were feeding largely on benthic juvenile polychaetes.

Juvenile Chinook salmon stomach data indicated that generally they were feeding on organisms in the water column (pelagic) and not benthic organisms. This is consistent with previous sampling efforts in Grays Harbor and elsewhere which indicate that while residing in upper estuaries as fry, juvenile Chinook have an affinity for benthic and epibenthic prey items such as amphipods, mysids, and cumaceans. As the juveniles grow and move to deeper waters with higher salinities, this preference changes to pelagic items such as decapod larvae, larval and juvenile fish, drift insects, and euphausiids (Buechner et al. 1981, Simenstad et al. 1982).

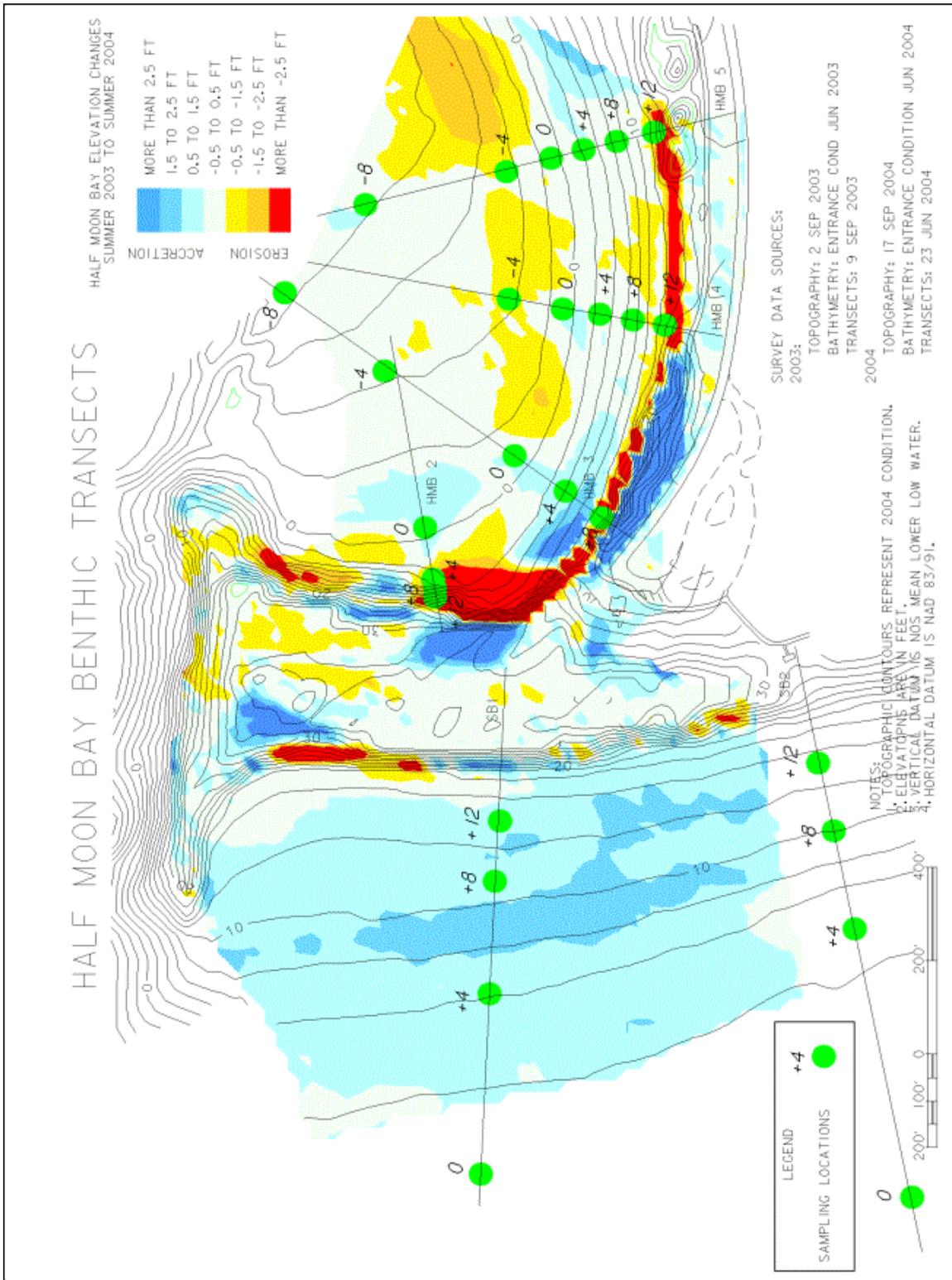
Based on benthic survey data, limited numbers of benthic and epibenthic prey resources (including harpacticoid copepods and *Eohaustorius* spp.) for juvenile salmon were present and available to salmon, but were not fed upon given the size class of salmon present. By far the

dominant organism in juvenile Chinook stomach samples was the adult *Jassa* spp., although adult dipterans, crab zoea, and Cirripedia (barnacle) parts were also found. *Jassa* is a tube-building amphipod, and known fouling organism, that inhabits flotsam (e.g. kelp and driftwood), pilings, and boat hulls. As they were not found in any of the Half Moon Bay benthic samples, it is probable that they were consumed by juvenile salmon during their outmigration along the docks, pilings, hulls, and riprap at Westport, and possibly in the riprap habitat at the far west end of Half Moon Bay. The second most abundant organisms in the salmon stomachs were adult dipterans, which are extremely rare in benthic data so were considered a water column food source. The third most abundant organisms were brachyuran (crab) zoea. These are vertical migrators and were likely consumed in the water column. The vegetative seeds found in abundance in one salmon stomach were likely floaters and consumed at the water surface.

English sole stomach sample data indicated these flatfish were feeding predominately on juvenile polychaetes (Family Spionidae and Opheliidae). Polychaetes from these families were found in the June benthic surveys in limited numbers, primarily at mid to lower intertidal elevations. This suggests that English sole were feeding on polychaetes derived from these elevations in Half Moon Bay

Stomach content analyses of surf smelt, sand lance and American shad indicated that these fishes were feeding in the water column, predominately on adult calanoid copepods, but also on crab zoea, barnacle nauplii, and pelagic fish eggs.

Figure 3. Benthic Invertebrate Transect Locations and Elevation Changes (2003-04)



3.4 Fish

Half Moon Bay provides habitat for a variety of fish species. The Corps contracted with R2 Resources, Inc. to conduct beach seine surveys in the spring of 1999 and the summer of 2004. During both years of sampling, seining occurred in two sites in Half Moon Bay. Site 1 is located 300 feet south of the easternmost edge of the South Jetty, while Site 2 is located approximately 1,200 feet east of Site 1. These sites corresponded to the locations of benthic transects 3 and 5 (Figure 3). Seining catches included large numbers of surf smelt, northern anchovy, juvenile American shad, and various surfperch species. Salmonid catches included chinook, coho, chum, cutthroat trout, and steelhead salmon. Both Dungeness and Pacific Red Rock crabs were also present during seine surveys. A preliminary list of all species caught during the 2004 sampling events can be found in Table 1.

A documented surf smelt spawning area is located along the Pacific Ocean southwest of the project and herring spawning occurs in the Elk River estuary and South Bay to the southeast, but no forage fish spawning is known to occur in Half Moon Bay (Burkle, 2004). Given the high wave energies and steep bathymetry of Half Moon Bay, only sparse marine vegetation is present, including patches of *Fucus* and *Ulva* sp. and bull kelp (*Nereocystis* sp.) in the protected northwest corner of the bay, that could serve as suitable herring spawning substrate.

Preferred substrate for surf smelt spawning is coarse sand and pea gravel. Substrate on the Half Moon Bay shoreline is either of a small grain size, or much larger grain size in the case of previously placed transition gravel/cobble, so it is considered unsuitable for surf smelt spawning (Burkle, 2004).

Washington Department of Fish and Wildlife (WDFW) has surveyed the Half Moon Bay shoreline for evidence of sand lance spawning, but no eggs have been found, probably due to the fact that wave energy is too high to support successful egg incubation and development (Burkle, 2004). Telephone conversations with Dan Penttila, WDFW, also suggested that although sand lance could attempt spawning in the upper beach areas, that fall and winter wave energies and dynamics are likely too high to support successful sand lance reproduction (Penttila, 2004). In addition, according to the WDFW biologists (<http://www.wdfw.wa.gov/fish/forage/lance.htm>) sand lance spawning occurs at tidal elevations ranging from +5 feet (MLLW) to about the mean higher high water line (+9.0 feet, MLLW). Then, after deposition, the eggs may be scattered over a wider range of the intertidal zone by wave action.

The Corps is partnering with the WDFW this winter (November 2004 to March 2005) to document the presence or absence of sand lance eggs in Half Moon Bay, following standard sampling and laboratory protocol established by WDFW. The goal is to determine if sand lance deposit eggs along the Half Moon Bay shoreline (at preferred tidal elevations for this species) and, if so, at what densities, tidal elevations, and season. The WDFW sand lance egg survey report will be available in April, 2005, but WDFW will report bi-weekly results soon after each sampling period and sampling processing has taken place. The initial survey was completed in late November, with the result that no sand lance eggs were found. WDFW will sample again in mid-December and bring samples to the laboratory for incubation and possible identification of

eggs. The process takes several days so that presence or absence of eggs may not be known until after the December interim action (Responsive Action No. 1) is completed.

Since sand lance are an important prey resource for several species protected under the Endangered Species Act, then if sand lance eggs are found in the project area US Fish and Wildlife Service (USFWS) would take the lead on determining the appropriate response. Based on review of the Corps' recent biological evaluation, USFWS concurred with the Corps' view that it is highly unlikely that the project area provides suitable habitat for forage fish spawning. USFWS did not require monitoring for forage fish eggs. Nevertheless, the Corps determined it prudent to partner with WDFW and sample for sand lance eggs. If eggs are found during the study, and the Corps considers this highly unlikely, the Corps will re-initiate Section 7 consultation with the Fish and Wildlife Service regarding impacts to listed species. USFWS could require temporary cessation of work or modification of the project for any impacts identified. Survey results can be used in the future to develop, if appropriate, mitigation (e.g. avoidance windows) for any future interim actions.

Table 1. Preliminary Data: Total number of fish captured in 2004 beach seine surveys in Half Moon Bay.

	21-Jun-04		29-Jun-04		8-Jul-04		15-Jul-04		22-Jul-04		29-Jul-04		4-Aug-04		11-Aug-04		17-Aug-04		24-Aug-04		Total
	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	
American shad	0	0	0	4	64	1	17,083	0	0	191	0	0	0	8	0	0	0	0	0	0	17,351
Bay pipefish	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	4
Cabezon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
Chinook salmon	73	49	83	470	23	102	419	107	154	128	31	49	14	1	11	15	14	4	5	0	1,752
Cutthroat trout	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dungeness crab	10	211	3	208	0	518	1	20	11	59	5	82	4	22	0	0	4	89	0	0	1,247
Greenling spp.	1	10	0	1	0	0	0	0	0	2	0	0	0	19	0	1	0	13	0	3	50
Gunnel / Prickleback spp.	0	2	0	2	1	9	0	1	0	95	0	1	0	2	0	0	0	1	0	1	115
Lingcod	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Northern anchovy	0	0	0	4	480	16	24,201	1	0	190	1	4	0	5	0	1	5	0	0	0	24,908
Pacific herring	0	1	1	4	0	1	0	0	0	3	0	0	1	0	0	0	1	0	0	0	12
Pacific sandfish	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Pacific tomcod	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Perch spp.	422	77	808	640	305	525	364	869	815	488	214	567	454	401	304	144	82	142	83	173	7,877
Rainbow trout	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Red rock crab	2	1	0	1	0	2	0	0	0	9	0	0	0	0	0	0	0	6	0	0	21
Rockfish spp.	0	24	3	12	0	0	0	0	0	70	0	0	0	34	0	18	1	426	0	11	599
Pacific sand lance	0	0	0	17	0	0	69	12	5	0	0	0	0	0	0	0	65	0	0	316	484
Sculpin spp.	12	56	1	50	4	131	4	15	8	36	6	30	6	30	10	13	25	41	3	36	517
Surf smelt	52	463	374	1,154	1,000	176	4,815	1,712	506	604	20	43	202	94	340	1,165	410	133	6	29	13,298
Sole spp.	13	101	0	13	0	34	0	1	8	40	1	2	5	10	1	1	6	7	0	1	244
Starry flounder	1	6	2	4	0	2	0	0	0	0	0	1	2	4	0	0	1	0	0	0	23
Threespine stickleback	2	2	1	6	1	0	0	0	7	0	2	1	3	2	3	0	9	3	0	1	43
<i>Total</i>	588	1,003	1,276	2,592	1,878	1,518	46,956	2,739	1,514	1,915	280	781	691	632	670	1,358	623	870	98	573	68,555

3.5 *Shorebirds*

Reference section 4.3 of the February 2004 *South Jetty Breach Fill Maintenance Final EA* for a general discussion of wildlife fish resources at Half Moon Bay. In general, Grays Harbor is a major shorebird staging area, and a critical part of the Pacific Coast shorebird migration in the spring. Herman and Bulger (1981) identified the types of habitats in Grays Harbor that are of primary importance to shorebirds and the extent to which different substrates are used by various species. Small sandpipers, dowitchers, and knots forage on mudflats with a high silt content, while plovers generally prefer sandier substrates. Turnstones usually forage among cobble and rock, a substrate type that occurs only locally in Grays Harbor.

As little has been documented about shorebird usage at Half Moon Bay, in September, 2004 the Corps contracted with an independent consultant (SAIC) to: (1) conduct a literature search/review for shorebird usage of Grays Harbor (2) review relevant studies that identify impacts to shorebirds based on habitat modifications, and (3) prepare a detailed study design that will provide a framework for the Corps to conduct detailed shorebird surveys of Half Moon Bay from November, 2004 to Spring, 2005.

3.6 *Threatened and Endangered Species.*

The sixteen species listed as either threatened or endangered and potentially found in Grays Harbor, and information on these species' life histories is found in section 4.4 of the February 2004 *South Jetty Breach Fill Maintenance Final EA*. In November, 2004, a biological evaluation (BE) per Section 7 of the Endangered Species Act was prepared for these interim actions. The BE was sent to the USFWS in November 2004 for review. The USFWS responded to the Corps on December 2, 2004 concluding that effects to the federally listed bull trout, western snowy plover, bald eagle, brown pelican, and marbled murrelet associated with the proposed project would be discountable and insignificant. Therefore, they concurred with our "may affect, not likely to adversely affect" determination for these species (Appendix D).

3.7 *Recreation*

Reference section 4.6 of the February 2004 *South Jetty Breach Fill Maintenance Final EA* for a general discussion of existing recreation resources in the Half Moon Bay area.

4. ENVIRONMENTAL EFFECTS

4.1 *Geology/Sediment Dynamics*

Implementation of Responsive Actions No. 1 or 2 would replace some of the breach fill material lost through erosion. Maintaining the height and width of the breach fill would reduce the risk of overtopping, therefore reducing the risk of a breach, and will not slow erosion rates. Future maintenance material would be required if the objective were to maintain the height and width of the breach fill and/or shoreline position.

Approximately 2.3 acres of upland would be directly impacted by the proposed contingent placement of sand. No intertidal habitat would be directly affected. The existing beach substrate is predominately sandy, so the nourishment material would be of a very similar grain size. A

substantial portion of the sand placed in Responsive Action No. 1, and subsequently distributed along the shoreline largely through storm events, would be redistributed along the beach and down to lower elevations by waves and currents, further extending the footprint indirectly affected, through natural processes, by the placement action. Sand from Half Moon Bay is transported by cross and longshore currents to deeper waters in the outer bay and the Grays Harbor inlet, where tidal flushing returns the material to the natural littoral process, some of which moves offshore.

Any removal of material from the Point Chehalis revetment extension mitigation stockpile would not be expected to affect Corps compliance with the interagency mitigation agreement for the Point Chehalis revetment extension project. Based on a comparison of the 2001 - 2004 survey data, the erosion rate in the vicinity of the mitigation stockpile is approximately 5,000 to 10,000 cubic yards per year (cy/yr). At this time the stockpile contains approximately 140,000 cy of sand, of which about 125,000 cy is actually located in an area that would be subject to erosion. If either Responsive Action 1 or 2 were determined to be necessary, 20,000 cy would be borrowed from the mitigation site this fall or winter, and approximately 10,000 - 30,000 cy may be borrowed for each subsequent episode. Assuming that the erosion rate is 10,000 cy/yr, the combined loss of material from the mitigation site due to combined erosion and borrow activities would be 30,000 cy this year and possibly 15,000 cy/yr in subsequent years. Under these assumptions, the presently available stockpile volume of 140,000 cy would provide material for both the mitigation requirements and the proposed breach fill maintenance for several years before re-nourishing the stockpile with maintenance dredged material would be required.

4.2 *Vegetation*

For Responsive Action No. 1, large trucks would enter the project site via the park access road. The mitigation stockpile and access ramp from the park road are primarily unvegetated, so there would be no vegetation impacts associated with the excavation and transport of sand. Little, if any, vegetation would be disturbed (other than perhaps the invasive European dune grass) as part of the placement along the shoreline because the dune waterward of the road has eroded away. Conventional trucks would, using special road building methods (e.g. steel plates) be able to traverse the sandy breach fill. Trucks with off-road capabilities or tracked front-end loaders would likely be used to place the approximately 20,000 cubic yards of sand on top of the breach fill. The Corps will make every effort to avoid Native dune grass (*Elymus mollis*), although some could be impacted by construction activities.

For Responsive Action No. 2, up to approximately 20,000 cy of sand would be excavated and mechanically transferred from the existing buried revetment mitigation stockpile to the placement area, utilizing either truck vehicles with large tires that require no improved road, or a temporary access route with removable steel plates. Nevertheless, some native dune grass (*Elymus mollis*) could be adversely impacted by construction activities.

4.3 *Benthic Invertebrates*

Evaluation of the Half Moon Bay data and its interpretations indicates that the project area beaches do produce benthic fish food organisms, particularly at lower intertidal elevations, in spite of a dynamic (highly erosive/accretive) beach subject to intense oceanic wave and wind exposure throughout the year, particularly in the winter months. This intertidal project area is

particularly challenging as habitat for recruitment and survival of benthic invertebrates, and would be so even in the absence of sand placed under this proposed action.

Data suggest that the intertidal and shallow subtidal areas produce limited numbers of food organisms for several fish species, including flatfishes, and various forage fish. However, many organisms found in the fish stomachs sampled were pelagic, and not benthic. Sand placement activities would not be expected to affect these pelagic prey resources.

In regards to impacts, periodic sloughing of maintenance sand, placed above +9 feet, MLLW onto the beach following storm periods would impact benthic populations initially at higher tidal elevations, then later at mid- to lower elevations, as wave action moves the sand seaward. Higher elevation benthos, primarily polychaetes and oligochaetes, would suffer mortalities in areas of extensive sloughing that results in coverings of several inches to a few feet. Benthic infauna at lower elevations, from +4 to -4 feet, MLLW, where sand accretion may vary from none to over one foot would exhibit a range of impacts, from no noticeable effect to burial and loss. However, these occurrences are similar to what would occur naturally during and following storm conditions even if no sand were placed landward of +9.0 feet, MLLW (i.e. under the No Action alternative).

Because material of similar grain size composition is being used, it is expected that new benthic assemblages similar in species composition to pre-impacted assemblages would become established in the heavily impacted areas in a relatively short time frame, perhaps within six months. Recovery of these impact areas would occur as larval and adult forms of infauna and epifauna are recruited from adjacent sandy beaches. Time for establishment of an equivalent assemblage would be dependent on degree of sand sloughing, weather conditions, and tidal actions.

Even in spite of sand placement as beach feed maintenance material, above +9.0 feet, MLLW, overall the Half Moon Bay beach area is expected to continue to produce fish food benthic organisms, although this production will always be curtailed by exposure to adverse weather and wave conditions throughout most of the year and continued erosion and deposition of beach sands, all of which will occur whether or not sand is placed as maintenance material above the mean higher high water line destined to slough into the intertidal zone and counteract natural erosive forces in the bay.

4.4 *Fish*

Most fish and crab populations would not likely be directly impacted by either Responsive Action because sand placement would occur above the mean higher high water line (9.0 feet, MLLW) with occasional erosive sloughing onto the higher intertidal beach areas largely during and following storm events. In addition, the placement would occur, if at all, during a time of the year when particularly sensitive life history stages (e.g., out-migrating juvenile salmon, settling larval crabs) are not present in any numbers in the project vicinity. Turbidity would not be expected to increase substantially above ambient conditions due to the predominantly sandy nature of the dredged material and the large quantity of suspended sand currently transported via longshore drift in the project area.

4.5 Shorebirds

Corps wildlife biologists conducted cursory shorebird surveys during October, 2004, documenting species composition, habitat usage, and behaviors. During these surveys, no shorebirds were observed using the project area. Birds that were observed using the area were a variety of gulls, brown pelicans, cormorants, common loons, and crows. Numerous beachcombers, surfers, and people with dogs roamed often and freely around the project site. This intense human usage of the project area is likely limiting shorebird use of the site. After the Spring migration of 2005 observations, a final contractor report will be prepared for the Corps and should be available to the public in early Summer, 2005. The report is expected to provide additional information on which to predict impacts on project area bird populations resulting from any future interim breach fill actions.

4.6 Threatened and Endangered Species.

Effect determinations in the Corps Biological Evaluation indicate that either Responsive Action, if implemented, would not be likely to adversely affect bull trout, brown pelican, snowy plover, marbled murrelet, and the bald eagle. Further, either Responsive Action, if implemented, would have no effect on other listed species (Table 2).

Table 2. ESA Listed Species Effect Determinations.

Species	Listing Status	Effect Determination
Bull Trout <i>Salvelinus confluentus</i>	Threatened	Not likely to adversely affect
Brown Pelican <i>Pelecanus occidentalis</i>	Endangered	Not likely to adversely affect
Western Snowy Plover <i>Charadrius alexandrius nivosus</i>	Threatened	Not likely to adversely affect
Marbled Murrelet <i>Brachyramphus marmoratus</i>	Threatened	Not likely to adversely affect
Bald Eagle <i>Haliaeetus leucocephalus</i>	Threatened	Not likely to adversely affect
Oregon Silverspot Butterfly <i>Speyeria zerene hippolyta</i>	Threatened	No Effect
Steller Sea Lion <i>Eumetopias jubatus</i>	Threatened	No Effect
Humpback Whale <i>Megaptera novaeangliae</i>	Endangered	No Effect
Blue Whale <i>Balaenoptera musculus</i>	Endangered	No Effect
Fin Whale <i>Balaenoptera physalus</i>	Endangered	No Effect
Sei Whale <i>Balaenoptera borealis</i>	Endangered	No Effect

Sperm Whale <i>Physeter macrocephalus</i>	Endangered	No Effect
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	Endangered	No Effect
Loggerhead Sea Turtle <i>Caretta caretta</i>	Threatened	No Effect

4.7 Recreation

For Responsive Action No. 1, recreational impacts would be very similar to those discussed in Section 5.6 of the February 2004 *South Jetty Breach Fill Maintenance Final EA*. For Responsive Action No. 2, placing sand on top of the breach fill area south of the jetty (Figure 2) would similarly temporarily (2-3 weeks) restrict pedestrian access to the Pacific Ocean beach in the sand placement and truck access route areas. After construction, public access to the Pacific Ocean beach would be similar to the present case. Views of the ocean from parking areas and vicinity would be unaffected. Views of the ocean and Half Moon Bay (from automobile) from the western end of the bay would continue to be restricted due to the high elevation of existing and placed sands.

5. MITIGATION

Before and during construction, the Corps would instruct and caution the contractor to avoid native dune grass (*Elymus mollis*) planted in November, 2002 to the maximum extent possible. Construction techniques that are being considered in this effort include the use of unvegetated access ways, use of vehicles with large tires that require no improved road, or construction of a temporary access route using removable steel plates.

If any native dune grass plants are severely damaged by construction, the Corps would replant affected breach fill areas with appropriate numbers of sprigs to compensate for plants lost. Up to 20,000 sprigs would be planted during the spring of 2005. Dune grasses that would be unavoidably present in the construction footprint would be harvested and used potentially as donor plants.

This effort will concentrate on areas that were disturbed as part of construction activities, and areas not densely planted as part of the 2002 revegetation effort. The dune grass will reduce wind erosion of the breach fill.

6. CUMULATIVE EFFECTS

The cumulative effects of Half Moon Bay and vicinity maintenance activities up to February 2004 are discussed in Section 7 and Appendix B of the February 2004 *South Jetty Breach Fill Maintenance Final EA*. Interim actions that would be implemented in response to trigger thresholds being met would merely maintain the status quo through the placement of sand in the vicinity of Half Moon Bay and South Beach, in order to protect against an undue risk of development of conditions that could eventually lead to a breach of the South Jetty area.

Especially with Responsive Action No. 1 (placement of sand along the west/southwest shoreline of the bay) this material would eventually be replacing sand lost to erosive forces. Contingent interim action, if implemented, preserving the status quo, would not produce any incremental or cumulative environmental effects on biological resources or recreational uses of the South Jetty, Half Moon Bay, and environs.

7. ENVIRONMENTAL COMPLIANCE

7.1 National Environmental Policy Act

This supplemental environmental assessment (EA) satisfies the documentation requirements of NEPA. A Finding of No Significant Impact (FONSI) can be found in Appendix A.

7.2 Endangered Species Act

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.

Refer to Sections 3.6 and 4.6 of this supplemental EA for information on the Corps biological evaluation and summary of listed species effects determinations. The BE was sent to the USFWS in November 2004 for review. The USFWS responded to the Corps on December 2, 2004 concluding that effects to the federally listed bull trout, western snowy plover, bald eagle, brown pelican, and marbled murrelet associated with the proposed project would be discountable and insignificant. Therefore, they concurred with our "may affect, not likely to adversely affect" determination for these species (Appendix D).

7.3 Clean Water Act

The Corps must demonstrate compliance with the substantive requirements of the Clean Water Act (CWA) prior to discharging dredged materials into waters of the United States, unless an exception applies. A 404(b)(1) evaluation, which demonstrates compliance with the substantive requirements of the CWA, and a 401 Water Quality Certification from the Washington Department of Ecology is generally required for work involving discharge of fill material into the waters of the United States.

As indicated in the description of the Conditional Interim Action, sand placement under Responsive Action No. 1 would be encompassed completely within the footprint and physical dimensions of the sand placement action that was authorized through February 2004 Section 404(b)(1) evaluation, Section 401 Water Quality Certification, and EA. Furthermore, sand placement under Responsive Action No. 1 or No. 2 would fall completely within the footprint of the previously authorized breach fill, and would utilize the same sand material derived from the same source as in February 2004. As the Conditional Interim Action sand placement would not alter the character, scope, or design of the initial breach fill placement, the proposed action constitutes maintenance of a dike or similar structure. Such placements of material are exempt from the requirements of Section 404 under Section 404(f)(1)(B) of the Clean Water Act.

7.4 *Coastal Zone Management Act*

The Coastal Zone Management Act of 1972, as amended, 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 state Coastal Zone Management Program.

The Corps prepared a Coastal Zone Management Act Consistency Determination for the proposed action to ensure that the proposed work complies with the policies, general conditions, and general activities specified in the City of Westport Shoreline Management Master Plan and the State of Washington Shoreline Management Program. The consistency determination was submitted to the Department of Ecology (Ecology) for review on October 18, 2004, with a copy provided to the City of Westport. By letter of November 19, 2004 to the Corps, Ecology stated that the proposed placement of material on the beach at Half Moon Bay and the breach area south of the South Jetty had previously (October 31, 2003) been determined to be consistent with Ecology's Coastal Zone Management Program (Appendix D). Therefore, they concluded that they had already provided the Corps with a consistency determination for the proposed project area.

7.5 *National Historic Preservation Act*

Section 106 of the National Historic Preservation Act of 1966 requires that the effects of proposed actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. The project area is composed of fill material and recently deposited sand deposits which precludes the possibility of prehistoric or early historic-period archeological deposits being present. A professional pedestrian archeological survey of the project area in late 2003 conducted by the Corps did not produce evidence of possible shipwreck remains. Background research indicates that there are no reported shipwrecks within the project area. The Corps sent a letter report to the Washington State Historic Preservation Officer (SHPO) stating the negative results of the archeological survey and background research and recommending a determination of no historic properties affected for the project. A letter concurring with this determination was received from the SHPO on September 30, 2003.

7.6 *Magnuson-Stevens Fishery Conservation and Management Act*

The Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with the NOAA-Fisheries regarding actions that may affect Essential Fish Habitat (EFH) for Pacific coast ground fish, coastal pelagic species, and Pacific salmon. The Act defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Descriptions of EFH are provided in Fishery Management Plans produced by the Pacific Fisheries Management Council. Since the interim Responsive Actions would both involve maintenance sand placement above +9.0 feet, MLLW, in an approximately 2.3 acre area, in order to maintain the status quo of the upper beach area, the Corps has determined if either interim action were implemented, that there would be no effect of either action on Essential Fish Habitat in Half Moon Bay.

8. CONCLUSION

Based on the information contained in this environmental assessment supplement, Seattle District has determined that the proposed contingent interim action is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of a Federal environmental impact statement.

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Appendix A
Finding of No Significant Impact



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

CENWS-PM-PL-ER

December 7, 2004

**SOUTH JETTY BREACH FILL MAINTENANCE
INTERIM ACTION
WESTPORT, GRAYS HARBOR COUNTY, WASHINGTON**

FINDING OF NO SIGNIFICANT IMPACT

1. Background. The accompanying environmental assessment (EA) is a supplement to, and incorporates by reference, the *South Jetty Breach Fill Maintenance Final Environmental Assessment*, prepared in February 2004 by the Corps of Engineers: [South Jetty Breach Fill Maintenance Final Environmental Impact Statement](#) (U.S. Army Corps of Engineers, 2004a). That document evaluated the impacts of placement of approximately 25,000 cubic yards of sand on the south jetty breach fill in February 2004, as well as expected additional placements of sand over the subsequent three to five years. This supplement evaluates impacts on Half Moon Bay resources that would be expected if the Corps of Engineers were to take one or two interim breach fill maintenance actions to preserve the status quo by protecting against the risk of breach recurrence in the vicinity of the South Jetty, pending the development of a long term management strategy. The document also evaluates new biological information on benthic invertebrate, fish, and bird resources in Half Moon Bay gathered after the February 2004 EA was finalized. Also described are the responsive sand placement actions that would be implemented if conditions indicate that an undue risk of a breach is developing, utilizing two pre-designated triggering criteria.

2. Purpose and Need. The purpose of the proposed work is to preserve the status quo, by protecting against an undue risk of the recurrence of a breach in the vicinity of the South Jetty, Westport, Washington. If conditions indicate that an undue risk of a breach is developing, one or both of two sand placement actions would be implemented to nourish the area(s) adjacent to the south jetty. This is needed to protect the south jetty and navigation channel from damage which could be caused in the event of another breach. Preventative maintenance of the breach fill is a much more cost-effective strategy to maintain the status quo than after-the-fact emergency repairs, and requires a relatively small quantity of material to restore the height of the fill area. Proactive action could prevent more costly and voluminous replacement if a breach were allowed to develop.

3. Proposed Actions. There are two potential actions proposed on a contingent basis if triggering conditions arise that, taken together, would consist of placement of up to approximately 40,000 cubic yards of sand on the south jetty breach fill prior to February 14, 2005. The sand would be excavated from the existing Half Moon Bay direct beach nourishment dredged material disposal site, which is an upland stockpile situated above the Point Chehalis revetment extension constructed in 1999.

Two trigger thresholds have been developed to guide the decision of whether or not to implement an appropriate Responsive Action. If neither of the triggering thresholds are met, the no action alternative would be selected and the Corps would not take an interim action to prevent further loss of breach fill material at this time. The action-triggering thresholds and corresponding responses are as follows:

Threshold No.1: It is determined through evaluation of pertinent survey data that 15,000 cubic yards of sand has eroded from the southwest corner of the Half Moon Bay beach since the most recent sand placement event.

Responsive Action No.1: Placement of approximately 20,000 cubic yards of clean sand along approximately 1,000 linear feet of beach in the southwest corner of Half Moon Bay shoreward of the +9 foot MLLW (mean lower low water) line at its natural angle of repose to minimize impacts on intertidal ecology. Currents and wave action are expected to regrade and disperse this sand eastward along the beach and offshore. Sand grain size would be consistent with existing breach fill sand grain size. Care would be taken to minimize impacts on dune grass.

Threshold No. 2: The breach fill footprint south of the South Jetty is overtopped by water from the west, resulting from a storm event(s).

Responsive Action No. 2: Placement of up to approximately 20,000 cubic yards of clean sand on top of the breach fill area above elevation +9 feet MLLW. The precise location and quantity of placed sand would be selected based on an analysis of the most effective means of responding to the observed overtopping conditions and the most efficacious means of addressing the risk of further overtopping and head-cutting. Sand would be excavated and mechanically transferred from the existing mitigation stockpile to the placement area, utilizing either track vehicles that require no improved road or with trucks, possibly by installing a temporary access route using removable steel plates.

3. Summary of Impacts. Periodic sloughing of maintenance sand, placed above +9 feet, MLLW onto the beach following storm periods would impact benthic populations initially at higher tidal elevations above +4 feet, MLLW, then later at lower intertidal and shallow subtidal elevations, as wave action moves the sand seaward. Higher elevation benthos, primarily polychaetes and oligochaetes, would suffer mortalities in areas of extensive sloughing that covers from several inches to a few feet. However, these are not important fish food resources. Benthos inhabiting lower elevations, e.g. from +4 feet, MLLW and waterward, where sand accretion may vary from none to over one foot, will exhibit a range of impacts, from no noticeable effect to burial and loss. However, these occurrences are similar to what would occur naturally during and following storm conditions even if no sand were placed landward of +9.0 feet, MLLW (i.e. under the No Action alternative).

Because sand of similar grain size composition to the existing breach fill is being used, new benthic assemblages similar in species composition to pre-impacted assemblages would become established even in the heavily eroded/accreted areas in a relatively short time frame, within 6 to 12 months. Recovery of these impact areas would occur as larval and adult benthos are recruited from adjacent areas. Time for the establishment of an equivalent assemblage would be dependent on degree of sand sloughing, weather conditions, and tidal actions.

Even in spite of placement of beach feed maintenance material, overall the Half Moon Bay beach area would be expected to continue to produce fish food benthic organisms, although this production will always be curtailed by exposure to adverse weather and wave conditions throughout most of the year and continued erosion and deposition of beach sands, all of which will occur whether or not sand is placed as maintenance material above the mean higher high water line and destined to slough into the intertidal zone and protect against natural erosive forces in the bay.

Juvenile Chinook salmon and forage fish should not be significantly impacted by any sand placement. These salmon juveniles use the Half Moon Bay shoreline as a final shallow water migration corridor prior to entering the ocean, feeding on pelagic organisms rather than benthic organisms. Similarly, based on stomach content analyses, forage fish tend to feed in Half Moon Bay on pelagic organisms while flatfish diets consist of benthic organisms. Therefore, implementation of Responsive Action No. 1 would not be expected to directly impact fish feeding or migrating through the project area. Native dune grass (*Elymus mollis*) may be impacted by either Responsive Action, but mitigation would involve Spring 2005 plantings of equivalent numbers of plants lost during construction. Shorebirds would not be expected to be significantly impacted by either Responsive Action. Relative to threatened and endangered species, either Responsive Action would have no effect on the marine mammal and sea turtle species under the jurisdiction of NOAA Fisheries, and may affect, but would not likely adversely affect species under the jurisdiction of USFWS. Either Responsive Action would have no substantive impact on recreation. Either Responsive Action would be in compliance with all applicable and pertinent laws and acts.

Relative to cumulative impacts, implementation of either Responsive Action to maintain the status quo would not contribute in any significant manner to overall cumulative effects of Grays Harbor maintenance activities.

4. Finding. Based on the evaluation provided in the attached EA supplement, and summarized here, Seattle District has determined that this contingent interim action would not be a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement.

8 Dec 04
Date

Debra M. Lewis
Debra M. Lewis
Colonel, Corps of Engineers
District Engineer

Appendix C
Comment Summaries and Responses

**South Jetty Breach Fill Maintenance at Westport in Grays Harbor, Washington
Final Supplemental Environmental Assessment - Comments and Responses**

December, 2004

The Corps received five comment letters on the draft supplemental EA and two letters regarding consistency with the Coastal Zone Management Act. The five comment letters are from: Environmental Protection Agency, Washington State Parks and Recreation Commission, Grays Harbor County, Dr. Franz Schneider and Smith & Lowney, PLLC, Attorneys at Law, on behalf of Wildlife Forever of Grays Harbor, Friends of Grays Harbor, and Arthur Grunbaum. One letter was a copy of correspondence to the Washington State Department of Ecology (Ecology) from the City of Westport. A second letter was from Ecology to the Corps essentially stating that the proposed project is consistent with the Coastal Zone Management Program. Two other letters did not require responses (Grays Harbor County and Washington State Parks and Recreation Commission). Summaries of comments from the three remaining letters and Corps' responses are provided below.

Environmental Protection Agency

Comment 1: *The Corps has made it clear to EPA and other agencies that the ecology block wall (including any filter fabric, etc.) placed by the City of Grays Harbor in the Fall of 2003 at Half Moon Bay would be removed prior to or during the placement of sand. We understand that this temporary structure has been removed; however, this is not verified in the draft EA. The status of the removal should be verified in the EA/FONSI. Removal of the wall remains a condition of our approval of this work.*

Response 1: EPA is correct in the understanding that the City of Westport quickly removed the ecology blocks and filter fabric several days in advance of the Corps' sand placement activities that started on February 7, 2004. City action to remove the ecology blocks was consistent with the provisions of a Hydraulic Project Approval document issued by the Washington State Department of Fisheries and Wildlife for the temporary placement of ecology blocks and filter fabric which had to be removed by the City no later than February 14, 2004. As Appendix C is a part of the EA, this verification response is tantamount to being incorporating into the EA proper.

Comment 2: *EPA would not support the construction of this project to protect the walkway, road, or portable restroom facilities maintained by the City of Westport. Discussions related to the predicted long-term equilibrium position of the HMB shoreline along with potential management actions if any to protect existing facilities should be conducted within the LTMS.*

Response 2: We agree with your comment. As stated in this EA (Paragraph 1.2 Purpose and Need) the purpose of the proposed work is solely to protect against an undue risk of the recurrence of a breach in the South Jetty vicinity. The purpose is not to protect shore-side facilities. The predicted long-term equilibrium position of the HMB shoreline and potential management actions that would protect existing facilities will be explored as part of the LTMS process.

Comment 3: *The EA should compare how the two alternatives perform in response to the need for the action, and should contrast the alternatives and provide a clearer basis for choices between them.*

Response 3: Actually, the "alternatives" referred to are not alternatives, but two discrete and independent actions that could respond to two separate threshold-exceeding events. As such, neither Responsive Action can be favored over the other, and in fact, both could occur in one season if both action thresholds were exceeded. As indicated in the introductory paragraph of Section 2.3, Threshold 1 and Threshold 2 are independent of each other, and thus neither, both, or one or the other could arise and trigger the respective Responsive Action.

Comment 4: *The EA/FONSI should more clearly compare impacts from alternatives 1 and 2 on benthic invertebrates and fish. Also the EA should discuss whether one alternative might be potentially longer lasting than the other.*

Response 4: See the Response above. Only Responsive Action No. 1 (sand placement along the HMB shoreline) would impact benthic resources. Responsive Action No. 2 involves sand placement on top of the upland breach fill area south of the South Jetty. In all likelihood, sand placed along the Half Moon Bay shoreline as Responsive Action No. 1 would erode faster than sand placed on top of the breach fill footprint as Responsive Action No. 2. Again, the purpose of the project is using one or two interim breach fill actions to preserve the status quo by protecting against the risk of breach recurrence pending development of a long-term management strategy.

Comment 5: *The EA/FONSI should provide information about the last sand placement event that precisely sets the baseline condition that will be necessary to determine how the threshold for alternative 1 has been reached in winter 2004/05.*

Response 5: The most recent sand placement event is described in the referenced February 2004 EA. The "baseline condition" was essentially the condition existing immediately after the most recent sand placement event in February 2004. Then, based on pertinent survey data, it was estimated that 15,000 cubic yards of sand was the approximate average annual loss of material in the bay corner. This was indicated in Section 2.3 of the Supplemental EA.

Comment 6: *The EA/FONSI should commit to a condition requiring monitoring of surf smelt or sand lance spawning during construction, if observed in the area, and if appropriate, temporary cessation of work and an agreement to perform agency consultation prior to resuming work.*

Response 6: The Washington Department of Fish and Wildlife (WDFW) has surveyed the Half Moon Bay shoreline for evidence of sand lance spawning, but no eggs have been found, probably due to the fact that wave energy is too high to support successful egg incubation and development (Burkle, 2004). Telephone conversations with Dan Penttila, WDFW, also suggested that although sand lance could attempt spawning in the upper beach areas, that fall and winter wave energies and dynamics are likely too high to support successful sand lance

reproduction (Penttila, 2004). In addition, according to the WDFW biologists (<http://www.wdfw.wa.gov/fish/forage/lance.htm>) sand lance spawning occurs at tidal elevations ranging from +5 feet (MLLW) to about the mean higher high water line (+9.0 feet, MLLW). Then, after deposition, the eggs may be scattered over a wider range of the intertidal zone by wave action.

The Corps is partnering with the WDFW this winter (November 2004 to March 2005) to document the presence or absence of sand lance eggs in Half Moon Bay, following standard sampling and laboratory protocol established by WDFW. The goal is to determine if sand lance deposit eggs along the Half Moon Bay shoreline (at preferred tidal elevations for this species) and, if so, at what densities, tidal elevations, and season. The WDFW sand lance egg survey report will be available in April 2005, but WDFW will report bi-weekly results soon after each sampling period and sampling processing has taken place. The initial survey was completed in late November, with the result that no sand lance eggs were found. WDFW will sample again in mid-December and bring samples to the laboratory for incubation and possible identification of eggs. The process takes several days so that presence or absence of eggs may not be known until after the December interim action (Responsive Action No. 1) is completed.

Since sand lance are an important prey resource for several species protected under the Endangered Species Act, then if sand lance eggs are found in the project area US Fish and Wildlife Service (USFWS) would take the lead on determining the appropriate response. Based on review of the Corps' recent biological evaluation, USFWS concurred with the Corps' view that it is highly unlikely that the project area provides suitable habitat for forage fish spawning. USFWS did not require monitoring for forage fish eggs. Nevertheless, the Corps determined it prudent to partner with WDFW and sample for sand lance eggs. If eggs are found during the study, and the Corps considers this highly unlikely, the Corps will re-initiate Section 7 consultation with the Fish and Wildlife Service regarding impacts to listed species. USFWS could require temporary cessation of work or modification of the project for any impacts identified. Survey results can be used in the future to develop, if appropriate, mitigation (e.g. avoidance windows) for any future interim actions.

Comment 7: The EA/FONSI should commit to providing an opportunity for agency and public review of the contractor report in the summer of 2005.

Response 7: Seattle District plans to make all HMB contractor biological reports available for agency and interested party review as they become available, between now and late Spring 2005. Notification will follow receipt of each draft document and they will be available for review on our website or from hard copy on request.

Smith & Lowney, P.L.L.C.

Comment 1: *The “2003 FONSI” (presumably a reference to the most recent, February 2004, EA and FONSI) indicated that the Corps may place up to 15,000 additional cubic yards of sand, and the project proposed in the November 2004 Draft Supplemental EA proposes to place 40,000 cubic yards of sand.*

Response 1: The February 2004 EA and FONSI each indicated that following the sand placement work that was accomplished in February 2004, “based on the results of post-placement monitoring, and dependent on funding availability, the Corps may make additional placements of sand (estimated at approximately 15,000 cubic yards annually) until the time when a long-term management strategy has been implemented.” Since February 2004, the Corps has developed new information regarding biological and other impacts of sand placement in the breach fill area, as well as updated information regarding the causes and effects of erosive forces in the breach fill area. The Corps has also initiated and progressed the Long Term Management Strategy study to formulate and assess various management alternatives to maintain and protect Federal navigation project features in Grays Harbor. These updated information elements have led the Corps to conclude that establishing triggering thresholds and developing contingent interim actions as described in the Supplemental EA is necessary to meet the purpose of protecting against the undue risk of a breach in the vicinity of the South Jetty. To reflect the updated information and analysis, and to reflect that the nature of the sand placement proposal has been modified from that articulated in the February 2004 EA – most particularly to confine placement to the upland region above the mean higher high water level (+9 feet, MLLW datum) – the Corps has prepared and promulgated a Draft Supplemental EA.

Comment 2A: *The Corps has no authority to undertake the proposed contingent interim action project, because the project is designed to protect the current location of the shoreline, not prevent a breach.*

Response 2A: The purpose of the project is to protect against the undue risk of a breach in the vicinity of the South Jetty, as indicated in Section 1.2 of the Supplemental EA. The purpose of the project is not to protect the current location of the shoreline, or to halt erosion. In fact, as indicated in Section 6 and Appendix E of the February 2004 EA and in Section 4.1 of the Supplemental EA, even with contingent interim action to place sand as proposed, shoreline retreat in the western and southwestern areas of Half Moon Bay will likely continue. The Corps has authority to take action to maintain the status quo and protect against the recurrence of a breach by placing sand, as a component of operating and maintaining the navigation project facilities, because the consequences to those facilities of a breach are uncertain, pending the completion of the ongoing Long Term Management Strategy study.

Comment 2B: *The protection of a small portion of the Jetty Access Road and the waterward portion of the Westhaven State Park parking lot is outside of the Corps’ authority, is unnecessary, and is unrelated to preventing a breach. Fill was placed in the area of the Park parking lot after that breach was repaired, but all of that fill has eroded away and placing fill there has no relationship to preventing a breach.*

Response 2B: The location of sand placement under Responsive Action No. 1, in the southwest corner of Half Moon Bay as further described in Section 2.3 of the Draft Supplemental EA, was selected due to the identified localized scour erosion in that area. The general nature and apparent cause of this erosion is further discussed in Section 2.3 of the February 2004 EA. Further analysis since the February 2004 sand placement action indicates erosion in this area continues, as indicated in Figure 3 of the Draft Supplemental EA. A rapid rate of erosion along the Half Moon Bay side of the breach fill increases the likelihood of a recurrence of a breach; the nature and rate of erosion makes the southwest corner of Half Moon Bay the most vulnerable point of the east side of the spit adjoining the South Jetty. Section 2.3 of the Draft Supplemental EA establishes a threshold, the occurrence of which would indicate the development of undue risk of a breach. This threshold, a loss of 15,000 cubic yards of sand from the southwest corner of the Half Moon Bay beach since the most recent sand placement event, is thus directly related to risk of a breach, and the accompanying Responsive Action – if triggered – was developed to protect against the undue risk of a recurrence of a breach.

The purpose of Responsive Action No. 1 is not to protect or preserve the Westhaven Park Access Road. The Corps owns neither the breach fill nor the road, although the Corps holds a right of entry in order to access the South Jetty for operations and maintenance. As indicated in Sections 2.3 and 5 of the Supplemental EA, transportation of sand to conduct either of the two Responsive Actions would use the Westhaven Park Access Road as feasible, and thereafter would use track vehicles that require no improved roads, or would transport via a temporary access route over sand using removable steel plates.

Comment 3: *The Corps should consider all available information on the erosion situation in Half Moon Bay as well as on the Corps' previous actions within the past decade. Such documents should include environmental assessments, FONSI's, public and agency comments, monitoring data, and other pertinent documents.*

Response 3: The Corps has considered all appropriate and pertinent documents as stated in the draft supplemental EA (Page 2, paragraph 1.5; References, pp. 22,23). We have also reviewed all pertinent public and agency comments received on the December 2003 draft EA, published as Appendix E to the February 2004 final EA. We have used all appropriate data received thus far from our biological studies and our ERDC reports. Included in our references cited is the ERDC South Jetty sediment processes study (South Jetty Breach Fill Maintenance EA, February 2004, page 28).

Comment 4: *The Corps should also consider all scientific data it has developed and/or possesses on the erosion situation in Half Moon Bay, including research and analysis prepared by Dr. Kraus at the Corps' Engineer Research and Development Center.*

Response 4: The Corps has been actively gathering and using scientific data as we further develop physical and numerical models to help in our decision process. The Long Term Management Strategy plans to use these models as a tool to evaluate alternatives. Dr. Kraus

is expected to remain involved in the development and analysis of these models and other tools.

Comment 5: *The NEPA documents incorrectly state that the sand will be excavated from an upland stockpile situated above the Point Chehalis revetment extension constructed in 1999. The Corps has no existing authority to excavate sand from the beach beneath the revetment extension. The “public notice” is thus also inaccurate.*

Response 5: Section 3 of the February 2004 EA accurately describes the excavation area as the “existing Half Moon Bay direct beach nourishment dredged material disposal site, which is an upland stockpile situated above and fronting the Point Chehalis revetment extension constructed in 1999.” Neither of the Responsive Actions would involve excavation of the beach at Half Moon Bay. The excavation would take place within the diked disposal site and stockpile area, and thus shoreward of the sand berm that presently separates the beach area and active littoral zone from the diked disposal area. Excavation activities would be offset from the perimeter berm to accommodate public access along that berm. The February 2004 EA and Draft Supplemental EA thus accurately reflect the excavation component of the contingent interim action project.

Comment 6: *The Corps should take no more action on erosion in Half Moon Bay (HMB) without first preparing an environmental impact statement on its ongoing program of erosion control in HMB. Also, the Corps admits that it doesn't understand the benthic communities in Half Moon Bay and their relationship to other populations, including threatened and candidate fish species. The sand placement will prevent the establishment of stable benthic communities. It will harm sea life populations.*

Response 6: Due to uncertainty over the nature and degree of any impacts on navigation facilities if a breach were to recur, we must ensure the preservation of the status quo as we continue with the LTMS. As such, we have prepared appropriate NEPA documentation for the proposed action(s). Proposed actions over the past several years have been evaluated in respective environmental assessments, each leading to a conclusion of no significant impact. Similarly, in the instant case, it is our opinion that pursuant to this EA supplement, implementation of either (or both) Responsive Action(s) would preserve the status quo and would not be a major federal action with significant environmental impacts requiring preparation of an EIS. We do acknowledge however that over the past several years that the District has responded to erosion concerns in the vicinity of South Jetty in a reactive mode. In view of this, we initiated a long-term management strategy study process (LTMS) beginning last spring that has one goal of involving the agencies, communities and interest groups in the decision process. The LTMS study will help formulate and assess various management alternatives and conclude with a recommendation for how to best ensure the continued operability of navigation project features. A critical part of the process will be the determination by the Corps on whether or not to pursue preparation of an environmental impact statement (EIS).

Because we are committed to a good collaborative process involving the agencies and other stakeholders, we have contracted with a communications firm to assist us with the following:

a. Assist the Corps with community collaboration and effective communication and establish a learning environment for agencies and interested parties.

b. Inform interested parties about study purpose and process, agency plans and milestones, and involve them in study progress, including offering opportunities to provide meaningful comments.

c. Allow for discovery of new alternatives for situation improvement

d. Help interested parties understand situation improvement options.

One specific task is for interviews of interested parties, a report of such, a collaborative community workshop, and a final workshop with key interested parties.

Relative to our understanding of Half Moon Bay benthic communities, the February 2004 EA was based on the best available - albeit limited - information at that time, regarding benthic community composition in the project area and vicinity, and presented the impact analysis based on our knowledge anecdotal observations, benthic communities in other areas of Grays Harbor, pertinent literature, and on best professional judgment. For the instant supplemental EA, we now have the benefit of benthic data from two seasons (preliminary data from the summer survey; report not yet submitted), fisheries data, and bird field observations, with further investigations continuing into next spring. This Supplemental EA is once again based on the best available technical information and analyses, that provide a significantly better foundation than was available in February 2004.

Comment 7A: The Corps has failed to conduct an adequate evaluation of the cumulative impacts of its projects in the Half Moon Bay area. These cumulative impacts are significant and require a comprehensive EIS. Other activities left unaddressed in the cumulative impacts analysis include the prior Corps projects conducted in the Half Moon Bay area over the past decade, erosion control activities of the City of Westport, and the related impacts of the excavation project. The cumulative impacts analysis fails to acknowledge that it will enable additional occupancy in the erosion zone.

Response 7A: The Corps' obligation under NEPA is to assess the incremental impact of the proposed action, when added to other past, present, and reasonably foreseeable future actions. The individual and cumulative impacts of the prior Corps projects in the Half Moon Bay area were each previously evaluated in advance of the initiation of each respective action. The cumulative analysis in Section 7 and Appendix B of the February 2004 EA, and Section 6 of the Draft Supplemental EA, has considered and evaluated past, present, and foreseeable future actions of the Corps, as well as other federal, non-federal, and private entities. The impacts of the corresponding excavation component of the contingent interim action are evaluated in Section 5 of the February 2004 EA and Section 4 of the Draft Supplemental EA.

Particularly because these contingent interim action activities, if implemented, would place sand so as to preserve the status quo, as indicated in Section 6 of the Draft Supplemental EA

the proposed project would produce no individually significant environmental impacts, and would produce no incremental environmental effects sufficient to push the cumulative impacts beyond the level of significance. Thus, in full consideration of both the individual and cumulative impacts of the proposal, the Corps has determined that the contingent action will have no significant effects on the human environment, and preparation of an EIS is therefore not required. Any actions implemented pursuant to the LTMS Study will be supported by the applicable analysis and documentation under NEPA, which will evaluate the individual and cumulative effects on the quality of the human environment at that time.

As further discussed in Response 15, this interim sand placement action will not prevent further shoreline retreat or provide shoreline erosion control over the long term, nor will it facilitate long-term development. Thus, as indicated in Section 7 and Appendix B to the February 2004 EA, the proposal would not result in long-term changes to the human occupancy of the area.

Comment 7B: *Shoreline stabilization methods directly impact biological resources most sensitive to these changes. The cumulative impact analysis in the Nov. 2004 EA is flawed, as it doesn't address the cumulative ecological effects of incremental losses of beach substrata resulting from incremental additions of shoreline structures or material deposits in a bay. The overall effect might be the loss of all potential forage fish spawning habitat in the bay because the soft substrata on the upper shore has been converted.*

Response 7B: The supplemental EA attends to the potential placement of sand at two locations as interim breach fill maintenance actions to preserve the status quo. Hence, it does not substantively differ from the actions taken last winter that were considered in the cumulative impact analysis in the January 2004 EA (Part 7). That analysis was considered adequate for explaining that the February 2004 sand placement would not contribute significantly to cumulative impacts on harbor-wide resources or recreational uses resulting from other past, present, or planned erosion control activities. Responsive Action No. 1 is intended to preserve the status quo and prevent excessive erosion that would lead to losses of intertidal beach substrate. We are not replacing eroded sand with structures or hard substrata, but with sand having similar grain size and are placing it above +9.0 ft, MLLW, to minimize intertidal benthic impacts. We are preserving the existing status quo on an interim and impermanent basis, and are not contributing to an incremental loss of existing potential forage fish spawning habitat. Thus, we do not believe we are contributing to a long-term, incremental increase in cumulative impacts on such spawning habitat or to benthic invertebrate habitat.

Comment 8: *In the last decade, nearly 1 million cubic yards of material has been added to the HMB ecosystem. The studies used as baselines are merely academic and don't reflect anything other than the immediate snapshot in time. The conclusions and suppositions that there will be little environmental harm by the proposed project is based on inadequate and invalid methodology rather than the best science.*

Response 8: In the February 2004 EA there was a detailed cumulative effects analysis (Appendix B) that concluded that there would not be a significant cumulative effect on area

resources as a result of the sand placement action. We disagree that the biological baseline studies being conducted at Half Moon Bay during the February 2004-March 2005 time frame are merely academic, reflecting only "an immediate snapshot in time." The current baseline condition represents the existing condition at which time we decided to pursue biological studies and initiate the long-term management strategy study (LTMS) in January 2004. The two benthic invertebrate surveys were designed to compare benthic conditions just prior to sand placement in February to those in the summer, 2004. These studies have provided us with important information on determining the relative production of the beach and they will be used along with corresponding fish and bird studies to evaluate existing conditions and to predict impacts that could result from any South Jetty breach fill maintenance actions. It is not practicable to conduct perennial studies of this nature due to their expense and time requirements, nevertheless, we feel a great deal of valuable information has already been obtained, and more will be greatly augmented by information available by late Spring 2005. Regarding the methodologies that are being used, these are methodologies well accepted within the scientific community for sampling benthos, fish, and birds.

Comment 9: *The Corps should not excavate sand from a beach in HMB that is currently used for recreational activities. The proposed excavation on the beach will create significant impacts, including possibly contributing to draining an adjacent wetland, and should not be allowed.*

Response 9: True, the public would be restricted for safety reasons from using the immediate area of excavation for recreation, but only during the period of construction. Depending on weather and other extrinsic factors, the construction period is expected to last between 10 and 30 days. The excavation would not be on the beach and will involve no in-water work. The water quality impacts would be confined to the construction site, since all work is in the uplands area of the mitigation stockpile site. The site has a sand berm separating the excavation from the beach. On the landward side of the excavation site, there is a rock revetment buried below the sand. The revetment was designed with an impervious layer between the wetland and the beach therefore there should be no impact to the adjacent wetland.

Comment 10: *The Corps is legally obligated to preserve this portion of the beach at a 60:1 slope for public recreation.*

Response 10: The Corps is maintaining the beach in front of the revetment per the Interagency Agreement, under which the Corps agreed to establish and maintain an approximate beach slope of 60:1, in order to maintain a stable beach profile. The beach, formed naturally using Corps-supplied sand, is currently at an approximately 75:1 slope. The sand berm separating the excavation from the beach is used as a containment dike for pipeline dredge operations when sand is periodically placed in the mitigation stockpile area. The berm effectively provides as much sand as nature's energy will take from this area. In addition, the dredge disposal site just offshore feeds sand and helps maintain the beach profile suitable for recreation. There is another stockpile of sand on the landward side of the revetment containing approximately 30,000 cubic yards. This material is intended for emergency use if the revetment rock is exposed. The excavation area is carefully monitored by survey before

and after excavation, in addition to the annual aerial surveys. The proposed work would be conducted in full compliance with the Interagency Agreement signed in October 1998.

Comment 11: *Excavation in this area will create significant impacts to recreation and aesthetics, particularly excavation from in front of the revetment extension. When the Corps previously removed sand from this area, the result was a huge pit on the beach which filled with water. The aesthetics of the beach were destroyed and the public was effectively excluded from this part of the beach.*

Response 11: The excavation area is located on the upland portion of the mitigation stockpile, with appropriate offset distances from the beach elevation and buried revetment structure. Public access is facilitated around the perimeter of the mitigation stockpile area and to the beach by the offset distance. Temporary public access restrictions are required for public safety during the short periods of truck haul and equipment operations for contingent sand placement. Sand excavation of the mitigation stockpile facilitates periodic hydraulic pipeline dredge rehandling of channel maintenance dredged materials to recharge to mitigation site as outlined in the mitigation agreement. The Corps closely monitors frequent bathymetric surveys at Grays Harbor to maximize the nearshore placement of maintenance dredged materials for beneficial use placement consistent with our mitigation agreement to keep the buried revetment covered with sandy material. Perimeter dikes at the mitigation site are preserved as required infrastructure for the effective retention of dredged material slurry of sand and water. Seasonal areas of standing water within the excavation site and off site are common depending on precipitation and generally do not preclude public access and enjoyment of the area.

Comment 12: *The project is contrary to the Coastal Zone Management Act. The Westport Shoreline Master Program only allows removal of sand and gravel from marine beaches to create an access on existing rights-of-way or to keep existing road accesses open; mandates that grading and filling operations consistent with permitted uses shall be permitted shoreward of the primary dune (WMC 17.32.055); and provides that in-water landfills (sand placement) waterward of ordinary high water shall not be permitted unless it is necessary for a water dependent use.*

Response 12: In a letter from the City of Westport to the Washington State Department of Ecology dated October 29, 2004, the City determined that this project is consistent with the requirements and provisions of the local master program. Further the letter states that "the proposed sand placement project meets the provisions for an exemption for normal maintenance or repair of an existing structure, 17.32.020 (Definitions), Westport Municipal Code, and WAC 173-27-040(2)(b). The project as proposed, were it not exempt, would still meet the requirements of the applicable provisions of the Shoreline Master Program". Correspondence to the Corps from the Department of Ecology, dated November 19, 2004, stated that "the proposed placement of material on the beach at Half Moon Bay and the breach area south of the South Jetty has previously been determined to be consistent with Ecology's Coastal Zone Management Program. Therefore, Ecology has already provided the Corps with a consistency determination for the proposed project area."

The following supporting statements are from our CZM Consistency Evaluation (CD), dated October 14, 2004. Sand to be used for placement in the project area would not be removed from marine beaches but from an existing upland dredged material disposal area. Much of the primary dune has eroded since 2002 and the proposed sand placement would mimic the cross-section of the adjacent dunes. The area has been subject to severe natural and human disturbance over the past decade, however the Corps has planted native dune grass vegetation on some areas to maintain the breach fill against wind and wave overtopping erosion. The proposed project is intended to maintain the status quo of the HMB shoreline and protect against an undue risk of breach formation through the south Beach spit. All sand placement work would occur above (landward of) the mean higher high water datum, and would not be within the area designated Conservancy Environment under the Westport SMP. The project would not create new land from state waters.

Comment 13: *The Excavation Sand Balance is Faulty. There appears to be fuzzy math on the ability to borrow sand from the Point Chehalis revetment extension mitigation site.*

Response 13: Updated volume figures are shown in Section 4.1 of the draft supplemental EA. The quantity of sand is carefully measured by survey before and after excavation, used for payment calculations. In addition, annual aerial and bathymetric surveys are conducted to monitor the quantities. There is an agreed-to schedule of replenishment of the sand we excavate, which the Corps is following.

Comment 14: *The area that the Corps will place sand was previously an important recreational area, especially since it's close to the parking lot. Placing large amounts of sand in that area will prevent public access to this area of the beach.*

Response 14: The placement of sand will more closely preserve the status quo than allowing the existing sand to erode away. Eventually this would include the road and parking lot. The previous sand placement did not prevent public access to this area of the beach, as an adjacent low scarp trail access immediately to the east of the placement area was used for public access. Recreation will be limited only during construction (estimated at 10 days; maximum 30 days). After construction, recreation opportunities will be the same as they are today.

Comment 15: *Protecting the Jetty Access Road will facilitate the development of the Links golf course, 200 condominiums, and related development, which will inevitably require armoring the shoreline and will have significant environmental impacts; further, the development will require an EIS. Protecting this development site in the interim period will foreclose options for dealing with erosion in the long term, precluding the opportunity to then "step back" development.*

Response 15: As indicated in Response 2A, the purpose of the contingent interim action project is not to protect or preserve the Westhaven State Park Access Road. The action to protect against recurrence of a breach serves as an interim measure only, to ensure that no adverse consequences impact the navigation facilities during the period in which a Long Term Management Strategy study is conducted. This LTMS Study will lay the foundation for a determination whether there is continued risk over the long term of a breach and, if a breach

does occur, whether the navigation facilities would be adversely affected. Thus, no long-term determination has yet been made as to whether measures to protect the breach fill will be instituted, or whether any such measures would include “armoring.”

As indicated in Section 6 of the February 2004 EA, addressing the indirect effects of an interim sand placement action, the project will not prevent further shoreline retreat or provide shoreline erosion control over the long term, nor will it protect the Park Access Road. This action will not facilitate long-term development; as growth-inducing effects are unlikely, the indirect effects of the project are insignificant.

The development project is currently the subject of a permit application pending before the regulatory arm of the Corps, which operates independently of the navigation staff responsible for the operation and maintenance of the Grays Harbor navigation facilities. Evaluation of that permit application will be subject to a distinct NEPA analysis of the impacts of the grant of a permit on the quality of the human environment.

Maintaining the status quo, through placement of sand, in order to protect against the recurrence of a breach will not foreclose future options for dealing with erosion over the long term. On the contrary, maintaining the status quo will best preserve all the presently available alternatives for providing any protection to the navigation facilities that the Long Term Management Strategy study determines to be necessary.

Comment 16: *The Corps' Coastal Engineering Manual recognizes the inadequacy of mitigation in this type of environment. "Restoration of lost ecological functions is difficult to achieve in created wetlands...Even when vastly more habitat area is created than lost, it may be insufficient to provide functional equivalency to tidal wetlands lost... The results suggest that even in the most well-designed projects, restoration of certain ecological functions may not occur for decades."*

Response 16: The proposed sand placement activities would not impact tidal wetlands and would not significantly impact coastal habitat. Tidal wetlands are not in the project area. As stated herein, (Paragraph 5, Mitigation), we plan to monitor the sand placement activities, and if any native dune grass plants are severely damaged by construction, we are committed to replant affected breach fill areas with appropriate numbers of sprigs to compensate for plants lost. Up to 20,000 sprigs would be planted during the spring of 2005. Dune grasses that would be unavoidably present in the construction footprint would be harvested and used potentially as donor plants. Our recent work with dunegrass planting at South Jetty (2002) and resultant survival rates in 2003-2004 is described in the following paragraph.

During Autumn 2002 approximately 50,000 American Dunegrass (*Leymus mollis*) sprigs were planted at the South Jetty breach fill. Preceding plant placement, the landscape was sculpted to mimic the foredune of the surrounding dunal topography. The installation was performed primarily by volunteers and overseen by biologists experienced in volunteer revegetation projects. 2003 experimental plot monitoring results indicate an average of 91 percent plant survival. This survival rate appears consistent with the photo station documentation throughout the entire planting zone. The summer 2004 monitoring results indicate continued

robust growth throughout the site, with abundant volunteer re-growth of desirable species such as beach pea (*Lathyrus japonicus*) and seashore lupine (*Lupinus littoralis*). In spring of 2004 a second phase planting occurred in areas previously left unvegetated. Anecdotal observations in late summer 2004 indicate high survival results similar to that of the 2002 planting.

The Supplemental EA does not rely, for its finding of insignificant environmental impacts, on any mitigation that involves restoration or creation of coastal habitat.

Franz Schneider, Ph.D.

Comment 1: *The paper said that the Corps wants to place sand at a slightly higher elevation. This is pretty vague. Where exactly is the sand placed and at what elevation? And how will this slow down the rate – 15,000 cubic yards since February—at which the sand is washing away? If this keeps going, there won't be anything left of the additional 20,000 cubic yards by February 2006.*

Response 1: Figure 2 in the draft supplemental EA indicates the design for the sand placement with a plan view and cross-section. All material would be placed above +9 ft MLLW (i.e. above MHHW). The top elevation would vary between +30 ft and +40 ft, MLLW. There would be no-in water work. The sand would likely continue to wash away at approximately the same average annual rate of 15,000 cubic yards. However, the shoreline would be better preserved in its current location while the long-term management strategy study (LTMS) is being developed. In other words, we would be replacing the eroding sand with this upland stockpile of sand. The mechanics of this process is as follows: when intertidal erosion occurs, the sand banks would be undercut and the stockpile of sand would incrementally slough onto the beach, and provide protection of the shoreline. By protecting the shoreline in a status quo condition we would reduce the potential for a breach. Your assessment is correct: it is possible the 20,000 cubic yards of sand would be lost by February 2006. Most of the erosion occurs between November and March of any given year. The majority of the material lost on an annual basis is lost during high tide storm events which occur during this period.

Comment 2: *What will happen then? Where is the washed away sand going? Into the channel? If so doesn't that mean more dredging? Why does the Corps need to drop sand in the first place? To put it another way: What happened to the sand that used to replenish the beaches in former years?*

Response 2: There are some indications the rate of erosion of the Half Moon Bay (HMB) shore is slowing, indicating we are closer to an equilibrium condition, but it's possible the Corps will need to place sand in this area periodically until the LTMS plan is implemented. In general, the sand is transported from the upper beach (above + 9.0 feet, MLLW in this case) onto the beach, into HMB in a counter-clockwise direction, and eventually moves offshore. Some of the sand may end up in our navigation channel. This will require it to be re-dredged, but it also provides an economical source of material to maintain the HMB

shoreline. It also is a source of material to replenish sand in the mitigation stockpile in front of the revetment per the Interagency Agreement. Sand that replenished the outer Grays Harbor beaches in former years has, in general, been reduced by more macro changes outside of our control. The South Beach area accreted by approximately 2,500 feet as the South Jetty was constructed. But for the last several decades it has been receding. In HMB, the dynamics were changed when the eastern end of the jetty was shortened during the last rehabilitation of the jetty. HBM sand dynamics were also significantly modified by a breach in this area in 1993. The breach was closed by placing considerable quantities of sand in 1994. The Corps intends to maintain this status quo by protecting against the recurrence of a breach until the LTMS is implemented.

Comment 3: What legislation authorizes the Corps to take this latest stop-gap measure and how much is it costing the taxpayer?

Response 3: The Corps is undertaking the proposed contingent interim action to protect against an undue risk of recurrence of a breach, pending completion of the LTMS Study, as a component of the operation and maintenance of the navigation facilities in Grays Harbor, including the South Jetty and the navigation channel. These facilities were constructed pursuant to the specific authorizations contained in a succession of legislative enactments, which are further discussed at Section 2.1 of the February 2004 EA and Section 1.4 of the Draft Supplemental EA. The Congressional authorizations to construct the navigation facilities contained express authority to thereafter maintain the project elements. Regarding project costs, our working estimate for the Trigger 1 volume of 20,000 cubic yards of sand re-handling is approximately \$100,000.